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CARDIFF

March 20, 1996

Sherman Bloomer
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Dear Sherm,

This morning you wrote an Email which contained the following comments to be included in the LITHP minutes.

The Panel noted that there were several proposals missing figures or pages; complete copies of the proposal were only available at the meeting from the JOIDES office or the TECP liaison.. In some cases this was because the proponents had not gotten all their materials in. In some cases it was because the panel chair screwed up in preparing the review volume. In some cases, it appears that the complete proposal did not get out of the JOIDES office. The Panel didn't see this as an issue of blame, but a symptom that there is too short a time between the January 1 deadline and the Spring Panel meetings for the proposals to be logged, collated, and distributed in time for an adequate review. We realize the issue of the proposal deadline came up once before, but we suggest that the issue should be revisited in the discussion about the new planning structure.

I would like to address several of the points that you raise and suggest that my response is circulated to the LITHP members. Rather than put your comments in the LITHP minutes, I believe that it would be better to leave them as a communication to me to be attached, along with my response, to your minutes.

1. **"The Panel noted that there were several proposals missing figures or pages... ..... In some cases, it appears that the complete proposal did not get out of the JOIDES office. "**

I believe that a little background on how the JOIDES Office processes proposals received is in order here. Proponents are instructed to submit ten copies of their proposals to the JOIDES office. One copy goes to each of the following: JOI, ODP/TAMU, SSDB and each Thematic Panel Chair. That leaves 3 over, one of which goes to the SSP Watchdog, if the proposal becomes highly ranked. Two are archived in the JOIDES Office. Regrettably, the JOIDES Office has neither the time, nor the personnel to check every proposal received to check whether pages are missing. Indeed, this January 1 the JOIDES office received 34 proposals and 6 LOI's. I barely had sufficient time to read the abstracts, objectives, and site summary sheets so that Julie could log the proposals and input this information to the database. **When pages are found missing in the copy received by the Thematic Panel Chair, it is the fault of the proponents.** Under such circumstances, it would be helpful to the JOIDES Office if Panel Chairs could indicate exactly which proposals were incomplete so that the JOIDES Office could contact the proponents and request new copies. This year, proposals were sent from the JOIDES Office to the Thematic Panel Chairs on the January 23. This should have provided the panel chairs sufficient time to check proposals and communicate with the JOIDES Office.

2. **"The Panel noted that there were several proposals missing figures or pages; complete copies of the proposal were only available at the meeting from the JOIDES office or the TECP liaison.. In some cases this was because the proponents had not gotten all their materials in."**

Proposal 495 (Rifting and Isolation of Microcontinents - W.E. Stephens) was received by electronic mail meeting the January 1, 1966 deadline. I communicated with the proponent, Ed Stephens, both by Email and telephone on the matter of this proposal and he promised to send the complete hard copies with figures as soon as possible. Unfortunately, the proposal did not arrive before I left to participate in Leg 165 on the 24th of January and thus I decided to include the Email version in the packet of proposals sent to Thematic Panel Chairs. Apparently it arrived while I was at sea and remained in its box under the table covered by 40 proposals and LOI's. I was unaware that hard copies of the proposal had actually been sent by the proponent until I was contacted by Mike Coffin (a co-proponent) during the week of the Spring Thematic Panel meetings. I searched the JOIDES Office, found the proposal, worked until midnight ensuring that it was properly logged and then faxed it to TECP. This proposal was also sent to you (LITHP Chair) and the SGPP by courier at the meeting location.

Proposal 493 (Rifting and Crustal Fluid/Okinawa Trough - Naisheng Li). On the 29th of December, the JOIDES Office received a FAX from Professor Naisheng Li saying that he had just finished a proposal for ODP drilling, which would be sent by express mail to the JOIDES Office, and containing an abstract of the proposal. I assigned the proposal a number and included in the list of proposals received for the January 1 deadline. The proposal was not received by the JOIDES Office until January 30, 1996. In one of her Email messages to me on board the JR Julie advised me that this proposal had eventually arrived and asked whether she should send it on to the Panel Chairs. I replied that she should. Unfortunately, Julie became very busy with the myriad tasks of the office and forgot to send the proposal out. I was unaware of this until Alastair Roberts, the TECP Chair advised me that his panel had not received the proposal. In this case, the JOIDES Office was attempting to be as flexible as possible with a proponent from a potential new ODP partner country, China.

3. **"The Northern Marina Trough proposal (442-Add) was missing the last 12 pages or so, which don't think got to me, ..."**

I have checked our files and we still have three remaining copies of Proposal 442-Add. All three have all pages numbered 1 to 18, a cover page, and two figures on two unnumbered pages between 12 and 13, and another figure on an unnumbered page between pages 13 and 14. I wish you had let us know that your copy was incomplete so that we could have sent another to you before the panel meeting.

In light of the problems associated with the proposals described above, I feel that the flexibility exhibited by the JOIDES Office is clearly not helpful to the Thematic Panels as it creates confusion while adding to the burden of the JOIDES Office. As a consequence, I will adhere firmly to the published proposal deadlines and only accept those proposals received by the deadline. Late proposals will not be sent to Thematic Panel Chairs. At the same time, I will remind Panel Chairs that they are obligated by ODP Policy to refuse to review proposals that are sent directly to them circumventing the JOIDES Office. This is a serious matter with potential legal implications.

The matter of changing the January 1 deadline has been raised several times at PCOM and never enjoyed sufficient support to pass. I believe that what you refer to as the "Spring rush" can largely be avoided if the JOIDES Office adopts a more stringent policy towards proposal submission. Of course, January 1 is a very difficult deadline and I certainly support a change, even one as small as chnaging to a January 5 deadline.

Sincerely,

Katherine Ellins
Executive Assistant and U.S. Liaison to the Joides Planning Office

Date: Wed, 20 Mar 96 08:38:31 PST
To: JOIDES@cardiff.ac.uk
From: bloomers@ava.BCC.ORST.EDU
Subject: Question

Morning. I was going to put a comment in the LITHP minutes which follows. The Panel noted that there were a few proposals missings bits. THe Northenr Marina Torugh proposal was missing the last 12 pages or so, which I don't think got to me, one of the other proposals got chopped up p at my end when I collated things for xeroxing, there were a couple that the proponents din't get complte figures for till our meeting had already started. I sensed some frustration form them .

Frankly, I should have caught the missing pages in most of them, but there doesn't seem to be time to look carefully (bet that's no news to you!). The Panel thought we should flag the spring rush as a potential problem in the process. Would this statement cause you any headaches if it was minuted? Or would your prefer I just send it to you all as a comment? Not a formal reocmmendaiton:

The Panel noted that there were several proposals missing figures or pages; complete copies of the proposal were only available at the meeting from the JOIDES office or the TECP liaison.. In some cases this was because the proponents had not gotten all their materials in. In some cases it was because the panel chair screwed up in preparing the review volume. In some cases, it appears that the complete proposal did not get out of the JOIDES office. The Panel didn't see this as an issue of blame, but a symptom that there is too short a time between the January 1 deadline and the Spring Panel meetings for the proposals to be logged, collated, and distributed in time for an adequate review. We realize the issue of the proposal deadline came up once before, but we suggest that the issue should be revisited in the discussion about the new planning structure.

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Minutes
Lithosphere Panel
March 7 to 9, 1996
Portland Oregon

1. Participants:

Host: Sherm Bloomer

Chair: Sherm Bloomer

Attending:	S. Bloomer	P. Castillo	J. Gee
	K. Gillis	J. Girardeau	R. Rihm
	G. Fitton	S. Carbotte	A. Fisher
	J. Moore	D. Weis	A. Sheehan
	J. Mahoney	S. Arai	D. Caress

Liaisons: P. Wallace(ODP-TAMU) G. Iturrino (BRG)
H. Dick (PCOM)

Guests: J. Ludden (Chair designate)
R. Duncan (March 7)
D. Falvey (JOI)
B. Malfait (NSF-ODP)

Absent: R. Koski

2. Meeting Summary:

Wednesday, March 7: The panel convened at 0900 and heard reports about PCOM, DRILLOPTS, PANCH, OHP, ODP-TAMU, various national and international science groups with interests that overlap LITHP's and a report from BRG about planning for upcoming legs and new downhole measurement opportunities. There was some discussion about the status of upcoming legs of interest to LITHP (Sed. Ridges II, E. Juan de Fuca, CORK 395A, Engineering, 735B) and Bob Duncan gave a report on the results of Leg 163 and the East Greenland NARM project overall. After lunch, the panel reviewed a request form the proponents of 480 Caribbean Basalt province asking LITHP to ask PCOM to reconsider the scheduling for FY 97. The Panel agreed to take no action on this request. We then heard reports from Dave Falvey on JOI and the recent EXCOM meeting concerning long-range planning, a synopsis of the Long Range Plan and LITHP's role in it, the recent OD 21 meeting in Japan, and plans for the USSAC/JOI//IAVCEI conference on The Oceanic Lithosphere And Scientific Drilling Into The 21st Century in May at Woods Hole. The Panel reviewed proposals until adjournment.

Thursday, March 8: The panel met at 0830 and heard the TECP report, then continued with proposal reviews until early afternoon. We then heard brief summaries of active proposals in the system in which we had an interest, and had a discussion about our goals and strategies for drilling Large Igneous Provinces. The panel then discussed which active proposals they wished to rank and adjourned about 1830.

Friday, March 9: The panel convened at 0830, added one more proposal to the list, reviewed the Long Range Objectives once more, and completed the global rankings. We then assigned watchdogs for proposals, and developed a notional science plan for Phase II and Phase III of the new Long Range Plan. The panel identified links to other programs, links to other panels, and technological requirements for the science plan. We reviewed the schedule for the next meeting, took care of membership issues, assigned panel liaisons. The meeting finished after lunch with a discussion of the planning structure, what was wrong with it and what might be changed, and some ideas about budget implications and changes. The meeting adjourned at 1630.

3. Recommendations and Comments for PCOM:

The Panel had no formal recommendaitons for PCOM

A. Comments:

i. Southeast Greenland Drilling:

At its Spring meeting, the Lithosphere Panel received a report on the scientific results of drilling on the Greenland margin from Bob Duncan, Co-Chief Scientist on Leg 163. Bob paid tribute to the skill and professionalism of the ship's crew and ODP staff in dealing with a potentially catastrophic situation. It is clear that their combined efforts saved the Resolution and the Program from disaster.

Drilling off Southeast Greenland during Legs 152 and 163 has made an enormous contribution to our understanding of the role of mantle plumes in the evolution of volcanic rifted margins. The Lithosphere Panel wishes to record its appreciation for the efforts of the SEDCO and ODP staff involved in those two Legs.

B. Advisory Issues (see more extended discussion under Other Business):

The Panel was asked for advice about a number of issues:

i. Long Range Planning: The Panel was asked to produce a five-year science plan and to comment on the advisory strucutre for the next phase of the program. We produced a notional science plan, starting from the work scheduled for FY 96, and extending through 2003. In that plan we tried to flag links to other programs, interdisciplinary interests with other panels, and steps towards accomplishing each of the initiatives. We then discussed problems with the current advisory structure, and talked about a few ideas for changes. The Panel agreed that any new structure should have fewer, not more, thematic panels; include mail review; foster better communication between the service and thematic panels; provide more complete and earlier technical review of proposals; and provide more early filtering of proposals which are inappropriate or immature.

ii. Cuts in services offered by ODP: The Panel discussed ideas about the budget as the last item of business on Friday. We had a presentation from Paul Wallace about the immediate cuts being planned at ODP-TAMU and had no strong advice about those cuts. It is clear that what is being proposed are short-term and one time savings to offset the immediate shortfall in the next fiscal year.

It has been difficult for the panel to provide useful long-term advice about budget cuts and planning because we have so little detailed information about the dollar amounts involved in particular operations. The situation is not much different now, but a couple of ideas were agreed on. The Panel believes that not all of the shipboard labs are critical to operations at sea, and recommends that a hard look be taken at which labs are necessary for making operational and safety decisions at sea, and which are essential for shipboard descriptions (i.e. paleo-prep labs, paleomag for stratigraphy etc.). The Panel also recommends that publications be looked at again, as an area where resources might be reallocated to other parts of the program.

iii. DCS and other engineering development to 1999. The Panel has stated its belief that "diamond coring represents the most innovative engineering that the program has undertaken" and "that it holds potentially tremendous rewards for the entire scientific drilling community" (see statements in Fall, 1994 and Fall, 1995 LITHP minutes regarding DCS.

After our discussion of a long-range science plan, as outlined above, we discussed, in a more general way, what engineering or other developments would be needed to accomplish our Phase III goals.

iv. Suggestions to ODP-TAMU for inclusion in the end 1998 JR Refit. The Panel suggested that the downhole measurements lab be expanded as part of the refit.

v. SSP liaisons. Suzanne Carbotte (Lamont-Doherty, expertise in geophysics, marine geodynamics) and Pat Castillo (Scripps Institution, expertise in igneous petrology and geochemistry) have agreed to serve as liaisons/alternates to SSP when needed.

4. Global Rankings:

The Panel reviewed the list of active proposals in the system and elected to rank 20 proposals. 4 of these proposals address problems concerning large igneous provinces, 3 of them are focused on processes at convergent margins, 1 proposes work on intraplate volcanism, 6 of them concern the structure, alteration, or evolution of oceanic crust, 2 focus on mantle dynamics, 2 have important hydrothermal objectives, and 2 are focused on understanding the mechanics of rifting in different environments.

Panel members voted for their top 20 proposalsby assigning 20 points to their highest proposal, 1 to their lowest. Proponents of proposals, or members with stated conflicts-of-interest, could not vote for the proposals on which they were involved--those panel members assigned votes from 15 to 1 plus the number of proposals they could not vote for. Scores were then normalized to the number of members who could vote for that proposal.

Total number of voting members: 15 (1 member absent)

LITHP Spring 1995 Global Rankings:

Rank	Number	Short title	# of Panel Voting	Average Score	Std. Dev.	Watchdog
1	448	Ontong-Java Plateau--LIP drilling[1]	14	17.4	4.3	Castillo
2*	411	Caribbean basement drilling[1]	15	16.3	2.9	Fisher
3*	481	Red Sea drilling	14	16.0	3.1	Koski
4*	451	Tonga forearc drilling	14	15.1	3.8	Fitton
5*	Generic	Borehole seismic observatories[2]	15	14.6	4.3	Caress
6*	457	Kerguelan Plateau--LIP drilling[1]	14	14.4	4.3	Arai
7*	435	Izu/Mariana mass balance experiment[3]	15	14.1	3.5	Castillo
8*	426	Antarctic-Australian Discordance	15	13.4	4.5	Gee
9	420	Evolution of the oceanic crust[4]	14	11.1	4.8	Caress
10*	442	Northern Mariana Trough rifting	14	10.7	3.4	Carbotte
11	463	Drilling on Shatsky Rise[1]	14	9.9	4.0	Fitton
12	LOI-64	Dike-gabbro boundary, Cocos plate	15	9.5	4.7	Gillis
13	300	Return to Site 735B--Leg 2	15	8.7	3.9	Moore
14	435	Nicaragua mass balance experiment	15	7.8	4.6	Mahoney
15	447	Woodlark Basin rifting	15	7.6	4.2	Carbotte
16	376	Vema offset-section drilling[5]	15	6.9	4.1	Weis
17	425	15°20'N offset section drilling	15	6.7	4.6	Weis
18	479	Felsic volcanics-Manus Basin	15	6.3	4.9	Gillis
19	439	Mass budget at Marquesas	15	5.4	5.1	Mahoney
20	491	Ocean crustal categories	15	3.7	3.5	Rihm

*Of the top 10 proposals, all or part of the program could be ready to drill in FY 98

[1] This global ranking accurately reflects the panel's preferences with respect to proposed LIP drilling (Caribbean, Kerguelen, OJP, Shatsky). The ranked OJP and Kerguelen programs are two leg programs, but the panel consensus is that single leg, transect approaches should precede deep drilling in these settings.

[2] A generic leg to drill and instrument boreholes as part of completing the global seismic network, as outlined in Proposal 431 and LOI-63 and LOI-67. The panel will request advice from ION about prioritization of the sites for the global seismic network.

[3] Includes a return to 801C as part of a convergent margin mass balance experiment.

[4] An experiment as outlined in the original 420 proposal for two sets of paired sites along a flow line--the siting of those experiments needs to be carefully considered and requires substantial site survey work.

[5]The Vema ranking is for the leg of offset-section drilling of lower crust as outlined in proposal 376R2

The Panel notes that the OJP program requires additional site survey data and that it is not likely to be ready for FY 98. The Red Sea proposal has substantial site survey data, but problems exist about clearances. The Caribbean program is not in the area of operations for FY 98, and it is not clear that after a prioritization by ION that the borehole observatory site would be in the area of operations. Given the relative maturity of the proposals, the area of operations, and the rankings, the panel recommends to Site Survey Panel that the Lithosphere proposals to be reviewed at the April meeting include Red Sea, Kerguelen, Tonga, Mariana-Izu mass balance (which should require minimal review since one site is a reoccupation and one was previously approved), the Antarctic-Discordance, and borehole observatories (which would be reviewed anyway as this was TECP's #3 ranking). This is 6 proposals, not 5, but the panel feels it is important to assess the readiness of the AAD proposal as it has a high ranking and is in the area of operations.

5. Proposal Reviews (in numberical order--LOIs listed first).:

PROPOSAL NUMBER	LOI 63
PROPOSAL TITLE	H2O Seafloor Observatory
PROPONENTS	Stephen
CONTACT	Caress
DATE REVIEWED	3/8/96

COMMENTS

LITHP recognizes that the establishment of seafloor seismic stations as proposed by ION and OSN will address high priorities of the LRP and of this panel and that the role of ODP in facilitating such stations should be championed by this panel. LITHP also recognizes that considerable progress has been made in developing the seismometer technology necessary for the realization of borehole broadband seismic installations. We accordingly are supportive of this LOI and the other proposed sites for OSN/ION stations (LOI 67 and proposal 431). We encourage all of the proponents to submit complete (or revised) proposals and to obtain the necessary site survey data. We suggest that the proponents consider what other ODP objectives can be addressed with the core obtained during drilling and that they explore possibilities of combining their proposed drillsites with other proposals. Because none of the individual sites require a full leg of drilling, we expect that ION holes may be drilled during opportunities provided by transits or as add-ons to other drilling legs.

LITHP would like to learn whether ancillary science such as CORKS can be performed in the vicinity of a borehole seismic site or if such science would interfere with the borehole seismic data quality. If so, an estimate of a "safe radius" to such ancillary sites may be warranted. More information on what constitutes a good borehole site would be helpful, as well as information on how flexible the siting criteria are for allowing for other science to be done in the hole. We would also like to see some discussion of how much basement penetration is required for the borehole seismometers; at present the different proponents are proposing basement penetrations varying from 100 m to 400 m.

One difficulty faced by LITHP is our inability to properly determine the relative priorities of the sites proposed by the various proponents (the H2O site at 28°N 140°W, the 0°N 120°W and 23°S 90°W sites of LOI 67, and sites WP-1 and WP-2 of proposal 431). We therefore request that the seismic community (through ION) prioritize the proposed sites.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	LOI 64
PROPOSAL TITLE	Dike gabbro transition--Central Cocos Plate
PROPONENTS	Wilson and Alt
CONTACT	Gillis
DATE REVIEWED	3/7/96

COMMENTS

This LOI addresses important thematic goals outlined in LITHP's white paper and ODP's long range plan. The strategy outlined to identify an area in 10-20 Ma crust generated at a superfast spreading ridge is an innovative approach to reach the sheeted dike - plutonic transition in potentially drillable crust. In order to test this strategy, the panel feels that seismic data is essential to test their assumptions (i.e., the link between drillability and

alteration; depth of dike-plutonic transition). In order to better address goals that can be linked with geochemical fluxes, the geochemical consequences of off-axis fluid rock interaction should be developed in a proposal. It is not clear that 504B/896A are ideal back-up sites.

The proponents are encouraged to contact the proponents of two proposals with complementary goals: LOI 67 - ION borehole seismic network proposal (J. Orcutt) and proposal 420 - crustal evolution (M. Purdy et al.). The site locations for those proposals may be appropriate for the work planned here.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	LOI 66
PROPOSAL TITLE	Basement of the Marsili (South Tyrrenhian Sea)
PROPONENTS	Savelli et al.
CONTACT	Moore
DATE REVIEWED	3/8/96

COMMENTS

This letter proposes work in a back-arc environment with both basement petrologic and hydrothermal objectives. There are apparently two major cruises now planned in the area. The objectives of the letter do relate to LITHP's goals in oceanic crustal structure and hydrothermal processes. The panel is now considering an effort to examine sulfide mineralization that might represent analogs for very large economic deposits (sedimentary exhalitive deposits or deposits associated with felsic volcanism)--areas like the Red Sea and Manus Basin. If the Marsili site might represent such a deposit, it would be of interest to LITHP. Drilling of hydrothermal sulfide deposits of the type that occur on Palilnuro Seamount do not now have a high priority with the Lithosphere panel. Back-arc seamounts are not represented specifically in the goals of the ODP Long Range Plan, but there are objectives in oceanic crustal structure that relate to the proposed work. We recommend that the proponents consult a copy of the new Long Range Plan when they prepare their new, complete proposal, after the upcoming site survey work.

After completion and study of the two oceanogrlaphic surveys planned for 1996, a proposal should be submitted for a drilling program in the Marsili back arc basin with the objective of providing constraints on the origin of mafic crust in such a setting. The proposal should consider the results of previous hole numbers 373, 650, 651, 655.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	LOI 67
PROPOSAL TITLE	Western Pacific ION/OSN Seafloor Observatory
PROPONENTS	Orcutt et al.
CONTACT	Sheehan
DATE REVIEWED	3/8/96

COMMENTS

LITHP recognizes that the establishment of seafloor seismic stations as proposed by ION and OSN will address high priorities of the LRP and of this panel and that the role of ODP in facilitating such stations should be championed by this panel. LITHP also recognizes that considerable progress has been made in developing the seismometer technology necessary for the realization of borehole broadband seismic installations. We accordingly are supportive of this LOI and the other proposed sites for OSN/ION stations (LOI 63 and proposal 431). We encourage all of the proponents to submit complete (or revised) proposals and to obtain the necessary site survey data. We suggest that the proponents consider what other ODP objectives can be addressed with the core obtained during drilling and that they explore possibilities of combining their proposed drillsites with other proposals. In particular, we suggest that LOI 67 proponents contact proponents of LOI 64 and proposal 420. Because none of the individual sites require a full leg of drilling, we expect that ION holes may be drilled during opportunities provided by transits or as add-ons to other drilling legs.

LITHP would like to learn whether ancillary science such as CORKS can be performed in the vicinity of a borehole seismic site or if such science would interfere with the borehole seismic data quality. If so, an estimate of a "safe radius" to such ancillary sites may be warranted. More information on what constitutes a good borehole site would be helpful, as well as information on how flexible the siting criteria are for allowing for other science to be done in the hole. We would also like to see some discussion of how much basement penetration is required for the borehole seismometers; at present the different proponents are proposing basement

penetrations varying from 100 m to 400 m. Questions were also raised regarding how accurate clock timing would be achieved, presumably this will be addressed in the full proposal.

One difficulty faced by LITHP is our inability to properly determine the relative priorities of the sites proposed by the various proponents (the H2O site at 28°N 140°W, the 0°N 120°W and 23°S 90°W sites of LOI 67, and sites WP-1 and WP-2 of proposal 431). We therefore request that the seismic community (through ION) prioritize the proposed sites.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	334 Add 2 and Add 3
PROPOSAL TITLE	Galicia Margin S' Reflector
PROPONENTS	Boillot et al., Boillot and Girardeau
CONTACT	Caress
DATE REVIEWED	3/8/96

COMMENTS

A3, B1.2, B2.1, C2, D1, E0, F4

This addendum to the proposal for drilling the S' reflector on the Galicia Margin presents new data from a recent Nautile dive program at the proposed drill site. The samples obtained by Nautile support the interpretation of the S' reflector as a detachment surface. Although the connection between the S' reflector and the S reflector (interpreted as the primary detachment fault underlying the Galicia margin) remains speculative, it is likely that the proposed drilling of site GAL-1 would penetrate a major detachment surface. However, it is unlikely that this proposal will become a high priority for LITHP.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	421-Rev2
PROPOSAL TITLE	Acid-alkali rocks in the Volcano Trench
PROPONENTS	Vasiliev
CONTACT	Bloomer
DATE REVIEWED	3/7/96

COMMENTS

A5, B1.3, B2.1, C4, D2, E3,E4,E7,F4

The Panel appreciates the proponent's response to our previous comments, but we still are not convinced of the central premise of the proposal. All of the existing data we are aware of is consistent with an interpretation of the acid rocks (fractionated and otherwise) on the seaward slope as parts of intraplate volcanoes, and the fragments of the same rocks on the landward slopes as fault slivers of those seamounts thrust onto the seaward edge of an Eocene arc province. We do not see how the cross-sections shown in the proposal are derived from the data.

The presentation of the data made here has not convinced us of the authors' interpretation. Any revised proposal should address the substantial literature which exists about the Mariana and Izu trench slopes, including the work published in volume 60 of the DSDP project, and volumes 125 and 126 of the Ocean Drilling Program. There is also a useful review article by Bloomer et al. which contains many of the references in regard to work in the forearc in the Izu-Mariana-Bonin system. A copy will be forwarded to the proponents under separate cover. We are certainly willing to entertain ideas at odds with the current views of plate tectonics, but any revision much make a much stronger and clearer case, and must rebut other, contrary work, more specifically.

The proposal is technically very ambitious. Sites which require more than 8 km of drillstring to be deployed may require some special planning.

PROPOSAL NUMBER	431-Rev
PROPOSAL TITLE	Western Pacific Seismic Network
PROPONENTS	Suyehiro et al.
CONTACT	Sheehan
DATE REVIEWED	3/8/96

COMMENTS

** Not a review of new/revised proposal **
- This is just to send some comment back to proponents

LITHP recognizes that the establishment of seafloor seismic stations as proposed by ION and OSN will address high priorities of the LRP and of this panel and that the role of ODP in facilitating such stations should be championed by this panel. LITHP also recognizes that considerable progress has been made in developing the seismometer technology necessary for the realization of borehole broadband seismic installations. We accordingly are supportive of this proposal and the other proposed sites for OSN/ION stations (LOI 63 and LOI 67). We encourage all of the proponents to submit complete (or revised) proposals and to obtain the necessary site survey data. We suggest that the proponents consider what other ODP objectives can be addressed with the core obtained during drilling and that they explore possibilities of combining their proposed drillsites with other proposals. Because none of the individual sites require a full leg of drilling, we expect that ION holes may be drilled during opportunities provided by transits or as add-ons to other drilling legs.

LITHP would like to learn whether ancillary science such as CORKS can be performed in the vicinity of a borehole seismic site or if such science would interfere with the borehole seismic data quality. If so, an estimate of a "safe radius" to such ancillary sites may be warranted. More information on what constitutes a good borehole site would be helpful, as well as information on how flexible the siting criteria are for allowing for other science to be done in the hole. We would also like to see some discussion of how much basement penetration is required for the borehole seismometers; at present the different proponents are proposing basement penetrations varying from 100 m to 400 m. Questions were also raised regarding how accurate clock timing would be achieved for site WP-2.

One difficulty faced by LITHP is our inability to properly determine the relative priorities of the sites proposed by the various proponents (the H2O site at 28°N 140°W, the 0°N 120°W and 23°S 90°W sites of LOI 67, and sites WP-1 and WP-2 of proposal 431). We therefore request that the seismic community (through ION) prioritize the proposed sites.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	442-Rev
PROPOSAL TITLE	The magmatic and tectonic evolution of rift initiation in back-arc basins : drilling the northern Mariana Trough
PROPONENTS	R. STERN and others
CONTACT	Jacques GIRARDEAU
DATE REVIEWED	March, 1996

COMMENTS

A1, B1.1, B2.1, C1, D1, E0 (likely some site survey work still needed), F1

The panel considers that the northern Mariana Trough is appropriate to study the propagation of a rift through a mafic oceanic-arc crust and therefore the first stages of rifting in this specific geodynamic context. The proposal has important petrological targets (formation of shoshonites, changes in magmatism from shoshonitic to back-arc basin volcanism, interactions between arc and back-arc basin volcanism as rifting progresses, origin of felsic magmas which are important in the early stages of rifting and which contain economic ore deposits) and tectonic ones (evaluation of the role of low-angle normal fauting with respect to that of magma input in the first stages of rifting processes, determination of the timing of rifting (subsidence and uplift phases) using stratigraphic records, test the northward rift propagation looking at the shoshonite distribution in the oldest sediments).

LITHP notes that the proponents give, in the letter proposed for review, appropriate and convincing arguments for each comment in our last review. We appreciate the clear, concise answers. We encourage encourage the proponents to prepare a revised version which will take into account all these new arguments. The Panel refers the proponents to the new Long Range Plan for the Ocean Drilling Program; back-arc basins are not identified specifically in the plan but there are hydrothermal, tectonic, and mass balance questions which might be appropriately addressed in such a setting.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	447-Rev2
PROPOSAL TITLE	Active continental extension, western Woodlark Basin
PROPONENTS	Taylor et al.
CONTACT	Carbotte
DATE REVIEWED	3/8/96

COMMENTS

A3,B1.2, B2.1, C2, D2, F4

This is an interesting proposal that addresses important scientific questions with a well-defined drilling plan, although the program is not of primary interest to LITHP. The panel notes that a cased re-entry hole is required for some types of fluid studies and will be needed for the work proposed at Site ACE-1C. (The panel did receive the e-mail note with answers to our previous questions--it does still appear that the question of the downhole experiments, particularly relating to fluid flow, need to be better defined).

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	448-Rev
PROPOSAL TITLE	Assessing the origins, age, and post-emplacement history of the Ontong Java Plateau through basement drilling
PROPONENTS	Kroenke et al.
CONTACT	P. Castillo, D. Caress
DATE REVIEWED	3/8/96

COMMENTS

A1, B1.1, B2.1, C2 (pending site survey), D1, E8 (pending site survey), F2 (pending site survey)

This proposal revision was received late into the system and was not distributed prior to the LITHP meeting; only two LITHP members had the opportunity to read the proposal prior to discussion. A more complete review will be done at the Fall 1996 LITHP meeting.

LITHP is pleased with the revised proposal and thanks the proponents for addressing our concerns. Although it is likely that some questions will arise when the panel can fully review the proposal, we are now comfortable with the general drilling plan. We encourage the proponents to continue seeking funding for site surveys, and expect a revised proposal once the needed site survey data are obtained.

We were mildly confused over the age date sources in Table 1. Several dates listed as biostratigraphic appear to be derived from Ar dating. This should be clarified/corrected in the next revision.

The Panel spent some time reviewing our strategy at LIPs. The discussion from the minutes is reproduced here for the information of the proponents.

LIPs discussion:

After reviewing the proposals before the Panel for drilling Large Igneous Provinces, we spent some time trying to review and define what our objectives for such drilling are.

- Why are LIPs important? They represent very large volumes of mass and heat that have had an impact on the mantle, the lithosphere, the hydrosphere, and potentially the biosphere. They may represent a fundamentally different mass transfer process than we have previously recognized in the earth.

- What are some of the characteristics of the Large Igneous Provinces we have drilled or are thinking about drilling? Summarized in the attached table:

	E. Greenland	Kerguelen-Broken Ridge	Ontong Java	Caribbean	Shatsky
Type	large--rift related	giant plateau-rift related in part, near ridge in part	giant plateau, intra-oceanic	intermediate-size plateau, oceanic	intermediate-size plateau, oceanic
Size	large	2.3 10^6 km^2	1.9 10^6 km^2	medium	medium-small
Age Ma	62-0	115/85 (<45)	122/90-60/30	88	149 ? - 138 ?
# legs proposed	2	2	2	1	1
sites	transect, reference hole in adjacent oc. crust	4 + 2 transects, deep hole, reference hole in adjacent oc. crust	4 (+1) + 4 transects, deep hole reference hole in adjacent oc. crust	5, transects, tectonic window reference hole in adjacent oc. crust maybe at VB1	5, transects, reference hole in adjacent oc. crust
Goals	composition array transects	age and composition array transect and deep hole	age and composition array - deepen 807C (149m) transect and deep hole	age and compositional progression deep hole	age and compositional progression
Tail identified?	yes	yes	no	maybe	maybe--a couple possibilities
Adjacent Crust age known?	yes	yes	?	no	yes
Features		- initial setting among Ant., Ind. and Aust. - Kerg. plume - cont. influence at the break-up - complex age/ chemistry evol. but distinct signatures	- original setting unclear? - Louisville hotspot link? - Malaita and St. Isabel are uplifted sections - uniform composition	- initial setting unclear? - Galapagos ? - tectonized exposed edges - picritic, high Mg rocks	- good magnetics - very little knowledge of geochemistry - end of tail ? where is active hotspot ?
Eruption setting	- subaerial - continental rift-related	- subaerial - continental contamination in the southern part	- submarine, intra-oceanic	- submarine, oceanic - on-land exposures	- triple juction to Mid-Pacific, submarine, oceanic

- What do we need to know to find out if these represent a fundamentally different style of mass transfer (or alternately, for example, are these an artifact of eruption at plume/ridge interactions)?:

  --the mass flux rate for the largest mass of the province--presumably the plume head or heads. If we can constrain the volume, this means being able to identify the time interval over which that eruption occurred, or at least being able to bound the time interval.

  --the internal stratigraphy of the province, to examine the importance of intrusion vs. extrusion their construction.

  The panel has previously recommended a two-part strategy--a transect of shallow holes to constrain the time span of eruption and a deep hole or holes (or holes in tectonic windows) to try to examine the internal stratigraphy of the province.

- Can this strategy succeed?

  --the panel believes that arrays of shallow holes can constrain the time span of eruption. The provinces are not erupted synchronously across their area (i.e. they are not layer-cake constructs). If arrays of holes show eruption ages closely spaced in one or two time brackets across the plateau, it strongly supports models for high eruption rates. The limited drilling to date at Kerguelen and Caribbean show

that this strategy makes an important contribution to understanding LIPs.

--the complete internal stratigraphy cannot be examined, of course, solely by drilling. However, drilling can provide important observations about the deeper levels of the plateaus through deep drilling and drilling in tectonic windows, combined with examination of on-land sections. Combined with regional geophysics this can paint a much more complete picture of the structure of the LIP.

--the approach has, in effect, worked at East Greenland. We drilled a transect across a time-transgressive structure, and through a combination of the dipping volcanic stratigraphy and relatively deep drilling provided a detailed picture of the province. The work, even though the second leg was shortened, answered most of the general questions posed here and the specific questions posed in the proposal.

The panel concludes that this strategy is an appropriate one for studying LIPs, and that drilling can make an important contribution to the study of LIPs. It is clear that the Panel would not endorse deep drilling at a LIP until we saw the results of the transect drilling. The Panel agrees that proposals to drill at LIPs need to to be ranked on a global basis (on the basis of their potential scientific return, not in terms of readiness or other logistic issues). The global rankings accurately reflect the Panel's opinions after this dicussion about drilling LIPs.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	451-Rev3
PROPOSAL TITLE	Ocean Drilling in the Tonga forearc
PROPONENTS	MacLeod et al.
CONTACT	Fitton
DATE REVIEWED	3/8/96

COMMENTS

A1, B1.1, B2.1, C1,D1,E0 (pending site survey), F2

This is now a mature proposal with well-defined objectives. The proposed sites have been carefully chosen to address these objectives and it should be possible to complete the drilling in a single Leg. The proposal itself is unnecessarily long and repetitive and this has tended to obscure the scientific rationale. We recommend that an addendum be produced which will (a) summarise the results of the forthcoming additional site surveys, and (b) contain a **concise** and clearly written statement of the objectives, testable hypotheses, and methodology.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	457-Rev3
PROPOSAL TITLE	Future ODP Drilling on the Kerguelen Plateau
PROPONENTS	Frey et al.
CONTACT	Arai
DATE REVIEWED	3/7/96

COMMENTS

A-1, B1.1, B2.1, C2 (some site survey at southern sites?), D1, E6 (especially for KIP2B), F2

Comments: This third version of proposal is sufficiently mature. The panel agrees that there is great scientific merit for the drilling of Kerguelen Plateau. We also understand the 2-leg plan for the drilling. We recommend, however, that the proponents consider the following points.

1. Broken Ridge is very remote from the Kerguelen plateau proper. We understand the importance of the Site 9A, but given the existence of nearby dredge hauls, we recommend that it be replaced by Site(s) on the Kerguelen Plateau fto save time. If KIP 9A could be eliminated KIP 6A (Elan Bank) and/or KIP 10A (Enderby Basin) can be added for Leg A.This provides greater geographical cover for the Kerguelen Plateau.

2. The paleooceanographic transect of Leg B (Sites 15A, 16A and 17A) should be eliminated, and sediments will be sampled during ordinary geographical
transects instead. The time should be put into another transect site and the deep hole.

3. The site for Leg B, which will be for deeper penetration into basement, should be selected after examining the results of Leg A. We rank Leg A (geographical transects) higher than Leg B (deep penetration) considering our present knowledge of giant LIPs.

After substantial discussion the panel suggests the folowing strategy:

Leg A: 2B, 3A, 7A, start 18C, 12A
Leg B: deepen 18C and Elan Bank....drop Broken Ridge and paleooceanographic sites

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Features		- initial setting among Ant., Ind. and Aust. - Kerg. plume - cont. influence at the break-up - complex age/ chemistry evol. but distinct signatures	- original setting unclear? - Louisville hotspot link? - Malaita and St. Isabel are uplifted sections - uniform composition	- initial setting unclear? - Galapagos ? - tectonized exposed edges - picritic, high Mg rocks	- good magnetics - very little knowledge of geochemistry - end of tail ? where is active hotspot ?
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ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	461-Add2
PROPOSAL TITLE	Rift to drift processes at Iberia
PROPONENTS	Reston et al.
CONTACT	Weis
DATE REVIEWED	3/8/96

COMMENTS

As this proposal has been scheduled, we did not provide a detailed review. The fall 1995 review was: A4, B1.2, B2.2, C4, F4.

This proposal is primarily of tectonic interest, but there are important basement objectives. We would like to recommend very strongly that a petrologist or petrologists be involved early in the planning for the leg, especially someone having knowledge in high temperature metamorphic rocks (peridotites, gabbros). Possible contacts might inlcude E. Bonnatti, J. Kornprobst, and R. Frost. The basement rocks, like the metagabbros drilled before, may be difficult to interpret but will no doubt be an important piece of evidence for interpreting the margin.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	463-Add
PROPOSAL TITLE	Testing the plume impact hypothesis at Shatsky Rise
PROPONENTS	Sager et al
CONTACT	Gee
DATE REVIEWED	3/7/96

COMMENTS

A1, B1.1, B2.1, C2, D1/D2 (may need to worry about the MDCB), E0 (some work on rocks would be useful), F2

Large igneous provinces remain a high priority for LITHP. The panel agrees with the proponents that some aspects of the Shatsky Rise make it well-suited to examine plume-lithosphere interactions. In particular, the presence of identified magnetic anomalies surrounding the Shatsky Rise provides a good opportunity to evaluate the setting (proximity to a ridge crest) when the plume impinged on the lithosphere and Shatsky Rise does provide a pure oceanic end member of LIPs. In addition, if the continuation of the Shatsky Rise is indeed along the northern ridge as the proponents advocate, then the lateral spacing of portions of the Shatsky Rise would facilitate sampling of the plume head, tail, and possibly a transition zone between the two. Obviously, additional age data supporting the proposed age progression of the Shatsky Rise would be very useful, although we recognize that such information may require drilling.

Some panel members remain unconvinced that Shatsky Rise is the best large igneous province to study, as a result of its relatively smaller size, though the panel recognizes it is as large as Deccan. More importantly, there are still some questions about which way the tail trends away form the "head" because of the lack of any age data (we know that this is a circular problem because you made need to drill to get the data). The panel appreciates that the dredged rocks are a mess, but will be interested in any results that can be derived from them. If some evidence for the age progression can be established, the panel would be intrigued by the proposal as a test of plume-head-tail-double head models. This hasn't been the principal focus of our LIP interest (see attached) but it is an important problem that could be well addressed by this well designed drilling experiment.

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ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	472-Rev
PROPOSAL TITLE	Mass balances at the Mariana-Izu Convergent Margin
PROPONENTS	Plank et al.
CONTACT	Castillo
DATE REVIEWED	3/8/96

COMMENTS

A1, B1.1, B2.1 (although it would be easier in a place without the K overprint), C2, D1, E0, F1

This is an excellent, mature proposal. The panel, once again, appreciates the proponents' efforts to answer our questions clearly and concisely. The proposal is complete, and we see no significant changes that need to be made. The only remaining problem is an unavoidable one. The panel talked at length about whether or not the problem of balancing the contribution of the Cretaceous volcanic overprint could be solved. It is clear that the two holes planned won't tell much about that K volcanism, but it is also clear that there additional holes in the K province wouldn't add a great deal. The panel understands the argument about the K volcanics not mattering in the global mantle budget; however, for the local problem being tested, they may be very important. Being in the upper part of the section, they are likely to dewater/melt/whatever as much as the oceanic crust, and may provide a very important part of the overall flux in the Mariana system.

The panel saw no easy way around this. One suggestion was to try to map out the distribution of the K province based on existing seismic data and characteristics like rough-smooth basement transitions. There are enough holes in the K volcanics that some correlation to seismic properties may be possible. This would give at least a first order cut at the volume. The other answer, of course, is simply to bound the problem by making calculations assuming maximum and minimum sizes for the K volcanics. Neither answer is ideal, but probably are the best that can be obtained. The panel has no recommendations for further revisions.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	478-Add
PROPOSAL TITLE	Eastern Nankai multiple shortening
PROPONENTS	Tokuyama et al.
CONTACT	Pat Castillo
DATE REVIEWED	6-8 March 1996

COMMENTS

A3, B1.2, B2.2, C4, D4, E3, E8, F4

This proposal is basically the same proposal, with few minor changes, that LITHP reviewed in Fall 1995. It is primarily relevant to TECP'S objectives, although the recovery of oceanic layers 2 and 3, and fluid migration and chemistry could be of interest to LITHP. The panel re-iterates its concern that the proposal is over-ambitious and this may prevent the proponents from attaining their goals. The proposal does not explain clearly how to solve some of the technical/operational problems of the project (quantifying the fluxes, technology for cross-hole tomography in a highly tectonized area, weather and current problems, etc.). Most of the scientific ideas are also not fully developed in the proposal. For example, why will the fluids associated with basement thrusts reflect oceanic crust to mantle origin? The Philippine Sea crust was produced at the Shikoku (backarc) rift where hydrothermal alteration could have been active - what are the reasons to believe that the fluids in the Zenisu basaltic crust and uppermost mantle will be pristine? "A plan to deploy downhole seismometers in the drill hole will be added in the revised proposal" was stated in the original and in this revised proposal - what will these seismometers help to accomplish? How will the geochemistry of fluids be used to attain the objectives. What types of "long-term" fluid flow instrument will be used in the holes? Finally, some of the scientific obectives of this proposal are similar to those of the proposal to study deformation of fluid flow processes in the Nankai Trough accretionary prism submitted by G. Moore (U. of Hawaii) and others. Perhaps, a close coordination betwen the two proposal can be established to avoid repetition of objectives.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	480-
PROPOSAL TITLE	Caribbean Basalt Province
PROPONENTS	Donnelly et al.
CONTACT	Andy Fisher
DATE REVIEWED	11-13 October 1996

A1, B1.1, B2.1, C2, D1, E4. Regional geological setting (controversial), F1

This proposal replaces 411-Rev, 415-Rev, an 384-Rev II, following extensive revisions of proposed drilling plans, reformulation of proponent groups, high-ranking for basement drilling by LITHP, and a decision by PCOM not to schedule. This proposal follows collection of new multi-channel seismic data during EW9501, and precedes a Nautile dive program scheduled for early 1996.

Three sites are proposed for drilling, one new site in the southeastern Venezuela Basin (VB-1A), two sites on the Beata Ridge (BR-1A and 2A), and one site in the Columbian Basin (S-6) that is scheduled for drilling and should be left as a reentry hole on ODP Leg 165.

Primary goals of this proposal:
- establish the age range for igneous activity in this major LIP;
- establish the range of magma types, temporal and spatial distribution;
- relate submarine and exposed parts of the LIP; and
- investigate the internal structure and lithostratigraphy of the LIP.

Secondary objectives include:
- resolve questions related to place of origin for the Caribbean and B" crust; and
- evaluate importance of drift deposits to paleocirculation patterns and paleoclimate.

Response to PCOM questions:

- Yes, the CCBP **IS** a LIP.
- The transect will help to resolve the big-picture questions, because so little good data is available from the submarine part of the system.

• Yes, 150 m of basement penetration is not enough for all the basement characterization, but it will resolve many of the questions, and was enough to draw preliminary conclusions at the OJP an other LIP sites.
• New data includes ages, compositional studies, seismic imaging, and (upcoming) submersible work.

New Drilling Plan

Western Site: S6
Central Sites: BR-1A and BR-2A
Eastern Site: VB-1A
Questions/problems

• Is coverage sufficient to provide a high probability of success if operational objectives are successful, or will heterogeneity lead to equivocal results? There seems to be a difference in scientific opinion between proponents and members of PCOM (perhaps LITHP?) on this point.

• More limited objectives were sufficient to justify western Pacific drilling on Leg 129, so is CCBP drilling being held to a different standard? The problems are larger scale, but shouldn't we start somewhere sometime soon?

• What if reentry hole is NOT left at S6? Deepening of basement would essentially require casing through the full 1300 m sediment section. Is this really going to happen on Leg 165? Well, it did happen on Leg 165, so this question has fallen away.

• Are reentry cones and round trips included in BR-1A and BR-2A estimates (assume about 100 m per bit in basalt)?

• BR site locations are somewhat frightening, considering the experience during earlier tectonic window programs. However, site surveys have now verified that these sites are OK for setting reentry cones and spudding in for single bit holes. (by March 1996, it was clear that the BR sites were not bare rock)

• Are operational objectives for all three sites technically possible? success of program seems to hinge on getting to everything....

• If the Caribbean LIP is more complicated, bigger, more heterogeneous, is this the "best" place for LITHP to emphasize LIP drilling?

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- What are some of the characteristics of the Large Igneous Provinces we have drilled or are thinking about drilling? Summarized in the attached table:

	E. Greenland	Kerguelen-Broken Ridge	Ontong Java	Caribbean	Shatsky
Type	large--rift related	giant plateau-rift related in part, near ridge in part	giant plateau, intra-oceanic	intermediate-size plateau, oceanic	intermediate-size plateau, oceanic
Size	large	2.3 10^6 km^2	1.9 10^6 km^2	medium	medium-small
Age Ma	62-0	115/85 (<45)	122/90-60/30	88	149 ? - 138 ?
# legs proposed	2	2	2	1	1

sites	transect, reference hole in adjacent oc. crust	4 + 2 transects, deep hole, reference hole in adjacent oc. crust	4 (+1) + 4 transects, deep hole reference hole in adjacent oc. crust	5, transects, tectonic window reference hole in adjacent oc. crust maybe at VB1	5, transects, reference hole in adjacent oc. crust
Goals	composition array transects	age and composition array transect and deep hole	age and composition array - deepen 807C (149m) transect and deep hole	age and compositional progression deep hole	age and compositional progression
Tail identified?	yes	yes	no	maybe	maybe--a couple possibilities
Adjacent Crust age known?	yes	yes	?	no	yes
Features		- initial setting among Ant., Ind. and Aust. - Kerg. plume - cont. influence at the break-up - complex age/ chemistry evol. but distinct signatures	- original setting unclear? - Louisville hotspot link? - Malaita and St. Isabel are uplifted sections - uniform composition	- initial setting unclear? - Galapagos ? - tectonized exposed edges - picritic, high Mg rocks	- good magnetics - very little knowledge of geochemistry - end of tail ? where is active hotspot ?
Eruption setting	- subaerial - continental rift-related	- subaerial - continental contamination in the southern part	- submarine, intra-oceanic	- submarine, oceanic - on-land exposures	- triple juction to Mid-Pacific, submarine, oceanic

- What do we need to know to find out if these represent a fundamentally different style of mass transfer (or alternately, for example, are these an artifact of eruption at plume/ridge interactions)?:

  --the mass flux rate for the largest mass of the province--presumably the plume head or heads. If we can constrain the volume, this means being able to identify the time interval over which that eruption occurred, or at least being able to bound the time interval.

  --the internal stratigraphy of the province, to examine the importance of intrusion vs. extrusion their construction.

  The panel has previously recommended a two-part strategy--a transect of shallow holes to constrain the time span of eruption and a deep hole or holes (or holes in tectonic windows) to try to examine the internal stratigraphy of the province.

- Can this strategy succeed?

  --the panel believes that arrays of shallow holes can constrain the time span of eruption. The provinces are not erupted synchronously across their area (i.e. they are not layer-cake constructs). If arrays of holes show eruption ages closely spaced in one or two time brackets across the plateau, it strongly supports models for high eruption rates. The limited drilling to date at Kerguelen and Caribbean show that this strategy makes an important contribution to understanding LIPs.

  --the complete internal stratigraphy cannot be examined, of course, solely by drilling. However, drilling can provide important observations about the deeper levels of the plateaus through deep drilling and drilling in tectonic windows, combined with examination of on-land sections. Combined with regional geophysics this can paint a much more complete picture of the structure of the LIP.

  --the approach has, in effect, worked at East Greenland. We drilled a transect across a time-transgressive structure, and through a combination of the dipping volcanic stratigraphy and relatively deep drilling

provided a detailed picture of the province. The work, even though the second leg was shortened, answered most of the general questions posed here and the specific questions posed in the proposal.

The panel concludes that this strategy is an appropriate one for studying LIPs, and that drilling can make an important contribution to the study of LIPs. It is clear that the Panel would not endorse deep drilling at a LIP until we saw the results of the transect drilling. The Panel agrees that proposals to drill at LIPs need to to be ranked on a global basis (on the basis of their potential scientific return, not in terms of readiness or other logistic issues). The global rankings accurately reflect the Panel's opinions after this dicussion about drilling LIPs.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	487
PROPOSAL TITLE	Drilling in the Palau-Kyushu Ridge and Shikoku Basin
PROPONENTS	Tokuyama et al.
CONTACT	Pat Castillo
DATE REVIEWED	6-8 March 1996

COMMENTS

A5, B1.2, B2.2?, C3, D1, F3

LITHP finds it hard to evaluate the chance of success of the proponents in achieving their goals because of the proposal lacks clear explanations of the objectives, hypotheses or ideas to be tested, and how drilling will give definitive solutions to the problems. It also lacks a clear discussion on how the sites were selected and what kind of data are expected from the holes. For example, how will drill core data from a single hole at the bend of the Palau-Kyushu Ridge differentiate the petrology and structure of the northern from the southern part of the Ridge? A more logical approach, perhaps, is to drill a series of three holes: 1) one north of the bend, to clearly sample the structure and petrology of the northern part, 2) one at the bend, to investigate the transition, and 3) one south of the bend, to clearly sample the structure and petrology of the southern part.

The panel strongly recommends revision of the proposal, incorporating the above recommendations. In addition, objectives have to be more focussed, and that they should reflect the Long-Range Plan of ODP. The proponents should consult examples of successful drilling proposals to help them re-write the proposal.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	488
PROPOSAL TITLE	Southern Ocean Circulation--the Weddell Sea
PROPONENTS	Kristoffersen et al.
CONTACT	Fisher
DATE REVIEWED	3/8/96

COMMENTS

A4,B1.3 , B2.2 (less than ideal), C4 (low probability/unclear) - The LITHP goals probably could not be achieved with the proposed drilling at the proposed sites, D1 ,E1. Abstract (incomplete - does not mention LITHP objectives), E3. Survey Coverage Map (??), E6. Site Summary Forms (incomplete), F4.

Drilling at Sites WS01A and WS02A, north and south of Polarstern Bank, is intended to address numerous questions, including:

nature of oceanic crust in relation to onshore volcanism
variation in South American MORB-source mantle over time
nature of mantle upwelling (diapirs or sheet flow)
alteration history of old oceanic crust
paleomagnetic latitude

Comments: This is obviously an ODP/SGPP-oriented proposal. LITHP-associated objectives are poorly integrated with the rest of the proposal, and in fact, it is clear that they were added in haste at the last minute. There is little justification for the selection of specific sites in terms of these objectives, and it is not clear that the basement objectives could be achieved at the proposed sites. Why drill on the seamount if the goal is to

understand the rifting processes? How will it be possible to understand alteration of crust older than the seamount? How can these objectives be achieved with only 50-m of basement penetration? LITHP appreciates that there may be some return for lithosphere objectives in this drilling, but it seems that this proposal will not ever be a high prioirty for the panel.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	491
PROPOSAL TITLE	Drilling of defined oceanic crustal categories
PROPONENTS	Hinz et al.
CONTACT	Rihm
DATE REVIEWED	3/7/96

COMMENTS

A2 B1.2 B2.1 C4 D1 E8* (see written comments) F3

The questions regarding variations in the accretion of oceanic crust, which are raised in this proposal, are thematically relevant to LithP. There are, however, concerns whether the postulated cyclicity in crustal accretion can be inferred from only two periods of increased heat/magma supply in Brazil - Angola latitudes and one much longer period in Argentina - Cape latitudes, respectively, and whether these variations are actually caused by variations of normal mid-ocean ridge type crustal accretion, or are due to the proximity to the Tristan da Cunha hot spot. Furthermore, it is not explained in the proposal how such variations can be studied from drilling the uppermost crust, when the difference in structure is defined by the occurrance or lack of reflective elements in the lower crust, which are interpreted to result from magmatic underplating, and what differences in generation are thought to exist between crustal types C and D, which are both thought to represent HOT-periods. An evaluation of geochemical aspects of the different proposed crustal types is strongly recommended.

It appears that site survey data are sufficiently available, but nothing is said about the significance for the crustal variations in the mentioned gravity, magnetic and refraction seismic data.

How realistic are the velocity determinations for the sedimentary sequences; they appear to be extremely low and any higher velocities would significantly increase the depths and hence the drilling time estimates. Even if the values were correct, only crustal types C and D could be reached with the given prioritization of drill sites, while Site AB-1, the only LOT-type crust (B), would be unlikely to be drilled.

The panel recommends that the proponents discuss their scientific objectives and how they shall be accomplished in some more detail and suggests the inclusions of some geochemical evaluations. Furthermore, it is recommended to contact the proponents of the proposals # 438 (Test of reflecting interfaces in oceanic crust) and # 469 (Argo Abyssal Plain) for coordination of their objectives.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	492
PROPOSAL TITLE	Taiwan Arc-Continent Collision 2
PROPONENTS	Lallemand et al.
CONTACT	Arai
DATE REVIEWED	3/8/96

COMMENTS

A6. Not within the mandate of the Lithosphere Panel

This proposal deals with arc-continental collision near Taiwan. Proposal #450 is concerned with the beginning of collision at the southern part, and this proposal with its cessation in the northern part of Taiwan. We feel there is scientific merit in this proposal, but this topic is mainly focused on tectonic and sedimentary processes around convergent plate boundaries. This is distinctly out of the mandate of Lithosphere Panel and should go to Tectonics Panel or partly to Sedimentary and Geochemical Processes Panel.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	494
PROPOSAL TITLE	Continental margin and evolution of South China Sea
PROPONENTS	Bochu and Kanyuan
CONTACT	Mahoney
DATE REVIEWED	3/8/96

COMMENTS

The proposal was not yet at the stage that the Panel felt it was appropriate to provide numerical ratings.

The South China Sea is an area of potential interest to LITHP, but the panel was uncertain about what the specific hypotheses and goals of this proposal are. The current version is really a letter of intent. We encourage the proponents to subimit a well-formulated, complete proposal that clearly explainslems to be investigated, why they are iimportant, and how the proposed drill holes will help answer the key questions. Citations of relevant work and a reference list must be included, as should appropriate figures and maps. Also, the proponents should explain how their objectives fir into ODP's long-range plan, a coill be sent to them. To help the proponents formulate and construct their proposal, we are sending them, as an example, a copy of a well-presented proposal by Christie et al.

In additioin, we suggest that the propnents contact Dr. Pinxian Wang (Tongji University, Shanghai) regarding proposal number 484 (East Asian Monsoon Hisotry as recorded in the SOuth China Sea) to determine if the two groups of proponents share common or complementary interests.

ODP PROPOSAL EVALUATION THEMATIC PANEL: LITHP

PROPOSAL NUMBER	495
PROPOSAL TITLE	Rifting and isolation of microcontinents: the Seychelles
PROPONENTS	Stephens et al.
CONTACT	Gee
DATE REVIEWED	3/8/96

COMMENTS

A5, B1.2, B2.1, C3. D1,E8 (drilling estimates and site survey data for SWF-1a), F4

The Panel appreciates the summary of the extensive geophysical data provided in support of drilling in the Seychelles region. However, the consensus was that using the drillstring to delineate the extent of continental crust was not a good strategy. Additional seismic refraction and gravity data might constitute a better approach for this goal. The panel remains unconvinced of the global significance of the drilling objectives (primarily to delineate continental crust) but might support drilling designed to meet goals that are presently underdeveloped in the proposal (e.g.. relationships of plumes and continental breakup). To this end, the proponents should expand on how existing data (e.g. the geochemistry of lavas from Well SM-1) and the specific drilling program would further this goal or other objectives outlined in the new ODP Long Range Plan.

The following proposals and LOIs were judged not to be wihtin the mandate of the Lithosphere Panel and were not reviewed:

LOI 65	Eastern Australian Margin	Boyd et al.
LOI 68	Antarctic Pen. Continental Shelf	Domack
348-Add4	ODP Drilling: Realism off New Jersey	Miller et al.*
367-Add	Site survey ofr the Australian Bight	Feary
367-Rev2	Cenozoinc cool-water carbonates-Great Australian Bight	Feary et al.
441-Rev1	Southwest Pacific Gateway--Deep Pacific Source	Carter et al.
445-Rev2	Deformation and fluid flow in the Nankai Prism	Moore and Morgan
452-Rev2	Antarctic Galcial History and Sea level change	Barker et al.
455-Rev	High resolution transects of Laurentide ice sheet outlets	Piper et al.
465-Add1	SE Pacific Paleooceanography depth Transects	Mix et al.
476-Add	Hudson Apron Slope Stability Transect	Pratson et al.
482	Wilkes Land Margin, Antarctica	Escutia et al.
483	Origin of the Antarctic Circumpolar Current	Barker et al.
484	East Asian Monsoon History; South China Sea	Wang et al.

485	The Southern Gateway between Australia and Antarctica	Exon et al.
486	A Paleogene Equatroial Pacific APC Transect	Lyle et al.
489	Ross Sea Continental Shelf: Antarctic Glacial	Davey et al.
490	Glacial History and Paleooceanography: Prydz Bay	O'Brien et al.

6. Future Meeting Dates:

The Fall, 1996 meeting will be in Kanazawa, Japan and will be hosted by Shoji Arai, on October 7-9, 1996. A field trip will be planned for after the meeting. The Panel will explore the possibilities of a joint meeting with TECP in Spring, 1997, somewhere in the United States, possibly the southwest or Hawaii.

7. Current Liaisons:

Because of the burden of asking panel members to attend two additional meetings, we have identified two liaisons for each relevant panel, one for the U.S. meetings and one for meetings outside the U.S.

OHP	Jeff Gee	Roland Rihm
SGPP	Randy Koski	Dominque Weis
TECP	Kathy Gillis	TBA
SSP	Suzanne Carbotte	Pat Castillo

In addition, rather than designating liaisons to the service panels, we have identified watchdogs. These people will be the principal contacts between LITHP and the service panel, and will (only as really necessary) attend the service panel meetings as a formal liaison. We view their principal role as insuring clear communication between LITHP and the service panels:

SMP	Godfrey Fitton	IHP	Paul Wallace (ODP-TAMU liaison, or his succesor as LITHP liaison, since the staff scientists are often best aware of these issues)
TEDCOM	Andy Fisher	DMP	Jeff Gee

We also reviewed liaisons to various national and international programs. The current liaisons from LITHP to various panels and programs are:

InterRidge:	Pat Castillo, Roland Rihm
IAVCEI	John Mahoney
ION/OSN	Dave Caress

8. Panel membership Issues

Sherm Bloomer and Anne Sheehan are rotating off the panel.

Anne's expertise in seismology has been very important to the panel in discussing proposals for seafloor observatories. To retain that expertise, we recommend first Doug Wiens, of Washington University, St. Louis, and second, Cecily Wolfe of the Carnegie Institution, Washington, as her replacement.

Sherm's expertise in petrology and geochemistry will be in part covered by John Ludden's addition to the panel as new chair. The panel would like to add someone with interests in convergent margin processes and recommends first, Sue DeBari at San Jose State, and second Peter Clift of Woods Hole.

The current chair will contact these candidates and see if they are willing to serve. If so, copies of their vitae will be forwarded to the JOIDES office.

9. Reports at the meeting:

PCOM:	Henry Dick	SGPP:	no report
TECP:	J. Lin	OHP:	J. Gee
DRILLOPTS:	S. Bloomer	PANCH:	S. Bloomer

ODP-TAMU: P. Wallace
LRP synopsis: S. Bloomer
JOI: D. Falvey
Leg 163: R. Duncan
OD 21: H. Dick
RIDGE: P. Castillo
FUMAGES: B. Malfait
BRG: G. Iturrino
GERM D. Weis
ODP Eurocolloquim: R. Rihm
IAVCEI/Steamboat Springs Meeting: J. Mahoney
Juan De Fuca/Sed. Riges. II: A. Fisher
Drilling oceanic crust meeting: H. Dick

10. Other Business:

A. Large Igneous Provinces

After reviewing the proposals before the Panel for drilling Large Igneous Provinces, we spent some time trying to review and define what our objectives for such drilling are.

- Why are LIPs important? They represent very large volumes of mass and heat that have had an impact on the mantle, the lithosphere, the hydrosphere, and potentially the biosphere. They may represent a fundamentally different mass transfer process than we have previously recognized in the earth.

- What are some of the characteristics of the Large Igneous Provinces we have drilled or are thinking about drilling? Summarized in the attached table:

	E. Greenland	Kerguelen-Broken Ridge	Ontong Java	Caribbean	Shatsky
Type	large--rift related	giant plateau-rift related in part, near ridge in part	giant plateau, intra-oceanic	intermediate-size plateau, oceanic	intermediate-size plateau, oceanic
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Goals	composition array transects	age and composition array transect and deep hole	age and composition array - deepen 807C (149m) transect and deep hole	age and compositional progression deep hole	age and compositional progression
Tail identified?	yes	yes	no	maybe	maybe--a couple possibilities
Adjacent Crust age known?	yes	yes	?	no	yes
Features		- initial setting among Ant., Ind. and Aust. - Kerg. plume - cont. influence at the break-up - complex age/ chemistry evol. but distinct signatures	- original setting unclear? - Louisville hotspot link? - Malaita and St. Isabel are uplifted sections - uniform composition	- initial setting unclear? - Galapagos ? - tectonized exposed edges - picritic, high Mg rocks	- good magnetics - very little knowledge of geochemistry - end of tail ? where is active hotspot ?

Eruption setting	- subaerial - continental rift-related	- subaerial - continental contamination in the southern part	- submarine, intra-oceanic	- submarine, oceanic - on-land exposures	- triple juction to Mid-Pacific, submarine, oceanic

- What do we need to know to find out if these represent a fundamentally different style of mass transfer (or alternately, for example, are these an artifact of eruption at plume/ridge interactions)?:

  --the mass flux rate for the largest mass of the province--presumably the plume head or heads. If we can constrain the volume, this means being able to identify the time interval over which that eruption occurred, or at least being able to bound the time interval.

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- Can this strategy succeed?

  --the panel believes that arrays of shallow holes can constrain the time span of eruption. The provinces are not erupted synchronously across their area (i.e. they are not layer-cake constructs). If arrays of holes show eruption ages closely spaced in one or two time brackets across the plateau, it strongly supports models for high eruption rates. The limited drilling to date at Kerguelen and Caribbean show that this strategy makes an important contribution to understanding LIPs.

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  --the approach has, in effect, worked at East Greenland. We drilled a transect across a time-transgressive structure, and through a combination of the dipping volcanic stratigraphy and relatively deep drilling provided a detailed picture of the province. The work, even though the second leg was shortened, answered most of the general questions posed here and the specific questions posed in the proposal.

The panel concludes that this strategy is an appropriate one for studying LIPs, and that drilling can make an important contribution to the study of LIPs. It is clear that the Panel would not endorse deep drilling at a LIP until we saw the results of the transect drilling. The Panel agrees that proposals to drill at LIPs need to to be ranked on a global basis (on the basis of their potential scientific return, not in terms of readiness or other logistic issues). The global rankings accurately reflect the Panel's opinions after this dicussion about drilling LIPs.

B. Long Range Planning

The Panel was asked to produce a five-year science plan and to comment on the advisory strucutre for the next phase of the program. We produced a notional science plan, starting from the work scheduled for FY 96. We then discussed problems with the current advisory structure, and talked about a few ideas for changes.

i. Long Range Science Planning

The Lithosphere Panel's present mandate most clearly corresponds to the theme of Transfer of Heat and Materials from the Earth's Interior, which includes four objectives: 1) mantle dynamics (including LIPs, intraplate processes, and observatories), 2) studies of oceanic crust, 3) hydrothermal processes and sulfide mineralization, and 4)mass balance and temporal variation at subduction zones. The Panel is also directly interested in two of the three initiatives: in-situ monitoring of geologic processes and exploration of the deep structure of continental margins and oceanic crust.

The panel developed a science plan outlined below. The plan includes about 11 legs of work, but several of those legs include objectives of interest to what are now TECP and SGPP, as well as to LITHP. Legs which relate to the two initiatives, and links to national or international programs are noted.

The Long Range Plan: Legs Addressing Theme of Transfer of Heat and Mass from the Earth's Interior

Time frame	Mantle Dynamics	Ocean Crust	Hydrothermal Processes	Mass balance/ temporal varation at subduction zones
Significant legs C P pre-93	Atolls and Guyots I, II 90east Ridge drilling Kerguelen/Reunion legs OSN-1	Leg 118-735B Site 801C 504B drilling DCS tests	Sed. Ridges I	Leg 125, 126 Izu-Marianas Leg 135-Lau/Tonga Leg 134-Vanuatu
Phase II 993-95	SE Greenland I and II VICAP/MAP	**Hess Deep** **MARK** **504B drilling**	TAG	
1996		*E. Juan de Fuca*	*Sed. Ridges II*	Costa Rica margin
1997		*CORK 395A* **Eng. mini-leg** **Return to 735B**		
Phase III 1998	LIP transect leg (IAVCEI) *Emplace broadband seismometers leg** (BOREHOLE/ION) Mantle Evolution Leg (InterRIDGE) LIP deep hole or transect leg (IAVCEI)	**Engineering Leg** **2 legs-structure/ evolution of oceanic crust*** (InterRIDGE) ***Zero-age ocean crust leg**** (InterRIDGE)	*Large economic deposit analog leg** (InterRIDGE)	Mass Balance Experiment Leg* (MARGINS, GERM) Arc Evolution* Leg (MARGINS)
2003 Phase IV	↓ LIP transects Borehole instrumentation ↓ Deep holes in LIPS	Deep holes/crustal penetration ↓ Aging and Alteration of the crust	↓ Reaction zones and observatories	↓ Mass balance at subduction zones

↓ Phase IV work appropriate for a riser-drillship

↓ Phase IV work appropriate for a JOIDES Resolution type platform

Italics--legs which have/will contribute to the development and emplacement of seafloor observatories

Bold --legs which have/will contribute to efforts to drill deep holes--either through understanding difficult environments or developing tools

* --legs which overlap the present mandates of LITHP and TECP or SGPP or both

(Names) in parentheses indicate national or international programs which are likely to be interested in particular legs in the 1998-2003 time-frame.

ii. The Advisory Structure, post-Phase II:

The Panel considered what was wrong with the present structure, what a new struuctre might look like, and then summarized their impressions of the discussion.

a. Current problems:

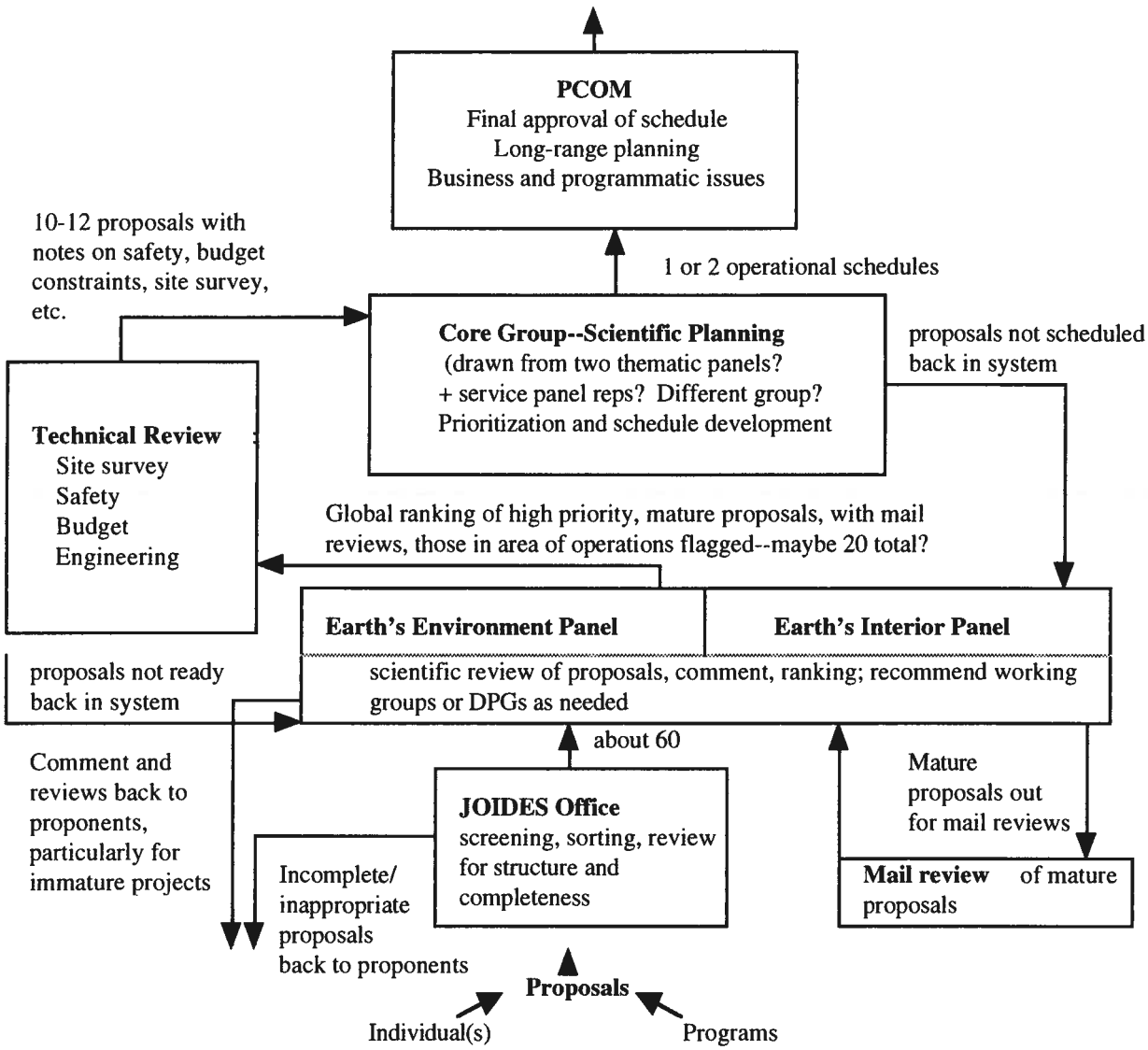
The panel felt that some of the problems with the present system included:

competition between panels (leading to each panel gets 1.5 legs/year--
increasing the number ofpanels would aggravate this)
too much material to consider science adequately
closed shop perception in the outside community
lack of communication between service and thematic panels
mutlidisciplinary cracks
faulty or incomplete communication with proponents
effectiveness of review process--sometimes very good, sometimes very flawed
inadequate proposals--relates to communication with proponents
inability to plan effectively

Bruce Malfait noted, and it was generally agreed, that these criticisms have been leveled at almost every kind of review process in the scientific community. It should be noted that the panel did feel there were many things about the present structure which had worked very well and had led to many successes for the program.

b. Ideas for a new structure:

The Panel spent considerable time tossing around ideas, not to great effect. Some of the salient features of the discussion are diagramed below:



c. Summary

What did emerge from the discussion was a consensus that any new structure should:

- Be proposal driven
- Include fewer, not more, thematic panels (possibly with the ability to convene working groups or DPGs as needed)
- Include mail reviews at an appropriate stage of the process
- Foster better communication between the sevice and thematic panels
- Provide more complete and earlier technical review of proposals
- Provide more early filtering of proposals which are inappropriate or immature

C. Other Issues for discussion: The Panel was asked to provide comment on the folowing four issues:

i. Cuts in services offered by ODP: The Panel discussed ideas about the budget as the last item of business on Friday. We had a presentation from Paul Wallace about the immediate cuts being planned at ODP-TAMU and had no strong advice about those cuts. It is clear that what is being proposed are short-term and one time savings to offset the immediate shortfall in the next fiscal year.

It has been difficult for the panel to provide useful long-term advice about budget cuts and planning because we have so little detailed information about the dollar amounts involved in particular operations. The situation is not much different now, but there a couple of ideas were agreed on. The Panel believes that not all of the shipboard labs are critical to operations and sea, and recommends that a hard look be taken at which labs are necessary for making operational and safety decisions at sea, or which are essential for shipboard descriptions (i.e. paleo-prep labs, paleomag for stratigraphy etc.). The Panel also recommends that publications be looked at

again, as an area where resources might be reallocated to other parts of the program.

ii. DCS and other engineering development to 1999. The Panel has stated its belief that "diamond coring represents the most innovative engineering that the program has undertaken" and "that it holds potentially tremendous rewards for the entire scientific drilling community" (see statements in Fall, 1994 and Fall, 1995 LITHP minutes regarding DCS).

After our discussion of a long-range science plan, as outlined above, we discussed, in a more general way, what engineering or other developments would be needed to accomplish our Phase III goals. These included:

Engineering/technical needs.	**Priority**
- Drill and recover fractured rocks (zero age) we will not be able to work at zero age crust without this capability, and we may be limited in what kind of borehole observatories we can install without it; our links to programs like InterRIDGE may require the ability to work in zero-age crust; DCS is one answer to this problem, there may be others	1
- Borehole instrumentation/long term this development of borehole instruments and the ability to emplace them and read them is a critical part of one of the LRP initiatives	1
- Data access and manipulation **including, digital images of core, old data, ship and shore data** the data is the principal legacy of the program and it is important that the Janus project and its successors provide ready access to as much of the data generated form the Program as possible	2
- Ability to log different environments We are looking at programs with deep holes, holes in hostile environments, and hole through active tectonic zones; all may require modifications in logging technology	2
- Fluid samplers - hot and cold. an important component of our work to create borehole observatories and to characterize hydrothermal processes and alteration of the crust	3
- Core orientation critical to extend our capabilities for interpreting structures in core	3

iii. Suggestions to ODP-TAMU for inclusion in the end 1998 JR Refit. The Panel suggested that the downhole measurements lab be expanded as part of the refit.

iv. SSP liaisons. Suzanne Carbotte (Lamont-Doherty, expertise in geophysics, marine geodynamics) and Pat Castillo (Scripps Institution, expertise in igneous petrology and geochemistry) have agreed to serve as liaisons/alternates to SSP when needed.

D. Adieus

The Panel would like to thank Anne Sheehan for her hard work the last three years. Anne's communication with the international seismological community about borehole seismometers and her subsequent education of the panel about that instrumentation, have helped us provide more informed advice about this important advance in marine science. Our support for, and understanding of, what has become one of the major initiatives of the Long Range Plan owes much to Anne's efforts.

The Chair would like to thank all of the members of the Lithosphere Panel, past and present, for their company and hard work duriing my time on the Panel. I have been impressed with the degree of commitment, altruism, and enthusiasm that every member has brought to our deliberations. I have found the same to be true of every part of the program with which I have had contact, including JOI, PCOM, the service panels, the other thematic panels, the JOIDES office, and ODP-TAMU. The Ocean Drilling Program is a remarkable endeavour and my involvement with it has been one of the best experiences of my professional life. Thanks everyone!