

Sedimentary and Geochemical Processes Panel
Spring Meeting, March 2-4, 1995
CIRES, University of Colorado, Boulder, CO, USA
Executive Summary

1. REVIEWS OF NEW PROPOSALS, REVISIONS AND ADDENDA.

The Panel reviewed four addenda and one revision to proposals that have been approved for drilling in FY 1996. No ratings were given, but the Panel commented on several aspects of the plans for forthcoming legs. The new addenda were SR-Add (Sedimented Ridges II Cork Deployments), 348-Add3 (Information copy of a proposal to JOI/USSAC for site surveys on the New Jersey margin), 412-Add4 (Alternate sites for the Bahama Transect), 415-Rev (Information copy of a proposal to JOI/USSAC for support of site surveys in the Caribbean), 440-Add2 (Juan de Fuca Cork Deployments). The comments are presented in Appendix A.

The Panel reviewed 11 revisions, 6 addenda, and 9 new proposals. The comments on these proposals are given in appendix A.

1.1 Summary of Ratings of New Proposals, Revisions and Addenda

The following table presents a summary of the ratings of proposals sorted by level of thematic interest level to SGPP. The order within each category is by proposal number and is not a ranking.

367-Rev2	Carbonates - Australian Bight	A1	B1.2	B2.1	C1	D1, D5	OK	F2
435-Add2	Crustal Fluxes - Mariana-Izu	A1	B1.2	B2.1	C1	D1	OK	F1
445-Rev	Deform/Fluid Flow, Nankai Trough	A1	B1.1	B2.1	C1	D1	E8	F2
452-Rev	SL Antarctic Penin - Pacific Margin	A1	B1.2	B2.1?	C2	D1?	OK?	F2
467	SL - Golfe de Lion, Ligurian Sea	A1	B1.2	B2.1	C2	D3	E6	F2
470	Atlantis II Deep - Red Sea	A1	B1.3	B2.1	C3	D1	E8	F3
354-Add4	Benguela Current	A2	B1.2	B2.1	C1	D1	OK	F2
355-Rev5	Peru Margin	A2	B1.2	B2.1	C2	D3	E8	F2
450-Rev	Arc-Continent Collision - Taiwan	A3	B1.2	B2.1	C3	D1	E8	F4
451-Rev2	Subduction Geodynamics Tonga	A3	B1.2	B2.1	C2	D1	OK	F4
300-Rev-Add	Return to 735	A4	B1.3	B2.1	C2	D1	E8	F4
404-Rev	Neogene W N Atlantic Drifts	A5				F4		
431-Add2	Western Pacific Seismic Network	A5				F4		
441-Add1	SW Pacific Gateway	A5				F4		
442-Rev	Evol. N Mariana Trough	A5				F4		
447-Rev	Extension - Woodlark Basin	A5				F4		
448-Add	Age and History - Ontong Java	A5				F4		
457-Rev	LIP - Kerguelen/Broken Ridge	A5				F4		
461-Add	Rift to Drift - Iberia	A5				F4		
462	Blake Plateau/Nose	A5				F4		
463	Plume Hypothesis Shatsky Rise	A5				F4		
464	Southern Ocean, Atlantic Paleo	A5				F4		
465	SE Pacific Paleocean	A5				F4		
466	Lower Plate Great Australian Bight	A5				F4		
468	Vertical Tectonics - Romanche FZ	A5				F4		
469	Reflectors - Argo Abyssal Plain	A5				F4		
348-Add3	MAT Site Surveys	n/a						
412-Add4	Bahamas Transect	n/a						
415-Rev	Caribbean Ocean History	n/a						
440-Add2	Juan de Fuca CORKS	n/a						
SR-Add	Sedimented Ridges II: CORKS	n/a						
471	see 450-Rev							

2. SUMMARY OF RATINGS OF LOIS

The following table presents a summary of the ratings of the LOIs, sorted by category of thematic interest level to SGPP. The order within each category is by proposal number and is not a ranking.

<u>LOI #</u>	<u>AREA/TOPIC</u>	<u>RATING</u>
45	LWD-APC Transects, E N America Margin	A1
46	Antarctic history: Weddell Sea Sector	A1
47	Scientific Drilling in the Red Sea	A1
48	Physical Property Variations Central America	A1
49	Prograding Sequences, Wilkes Land, Antarctica	A1
50	Antarctic Glacial History: Ross Sea Sector	A1
52	Antarctica Prydz Bay, Continental Shelf/Slope	A1
41	Stress/Strain Observatory System: Costa Rica	A3
40	ODP Drilling in the Banda Sea, Indonesia	A5
42	High Resolution Paleocean, Scott Plateau	A5
43	Rodriguez Triple Junction	A5
44	Japan Trench Downhole Observatory	A5
51	Drill Deep near DSDP/ODP 504	A5
XXX	85xE Ridge, Northeast Indian Ocean	n/a

3. GLOBAL RANKING OF ACTIVE PROPOSALS

After considering all of the active proposals in the system, the Panel decided to eliminate proposals with a ranking of thematic interest of A3 and below from consideration, and to include some of the Letters of Intent. The following table is the ranked order of proposals considered, with the highest score being the Panels first choice and the lowest score the last choice.

<u>Proposal/LOI</u>	<u>Topic/Area</u>	<u>Score</u>
LOI 35	Saanich Inlet	19.82
Generic	Antarctic	16.45
348	Mid-Atlantic Transect	15.91
445	Deformation/Fluid Flow, Nankai Trough	15.22
435-N	Crustal Fluxes to Mantle - Nicaragua	15.18
354	Benguela Current	15.00
367	Carbonates - Great Australian Bight	14.36
424	Cork for Hole 395A	13.82
467	SL Golfe de Lion, Ligurian Sea	13.77
355	Peru Margin	13.09
420	Evolution of Ocean Crust - Clipperton	12.90
455	Laurentide Ice Sheet	12.18
Generic	Red Sea	11.45
453	Bransfield Strait	11.18
LOI 48	LWD Middle America	10.68
LOI 45	LWD US East Coast	9.45
435-MI	Crustal Fluxes to Mantle - Mariana-Izu	9.32
332	Fluid Flow - Florida Escarpment	8.75
471	Arc-Continent Collision - Taiwan	8.59
444	SL Neogene - Joban Margin	8.40
449	Cretaceous Anoxic Seds - Weddell Sea	7.27
436	SL Neogene - Campeche	4.55
427	SL Neogene - S Florida	3.23

4. ACTION ITEMS

4.1 Plans for Leg 164 - Gas Hydrates

After presentation of the new program for Leg 164 by Charles Paull and discussion by the Panel, SGPP expressed its endorsement the new program for Leg 164 -Gas Hydrates, including the request for casing to be used if necessary.

4.2 ODP Database

After discussion of the plans for developing the ODP database, the Panel reached the following conclusions:

SGPP endorses the concept of obtaining advice from groups based on data types. Chairs of the groups should be ad hoc members of the steering committee. The groups should have a core membership no more than 2-4 in addition to the Chair authorized to travel to meetings if necessary, and as many corresponding members as may wish to be involved. The corresponding members would be kept abreast of activities by electronic and other communication and invited to test the developing products.

4.3 Publications

After discussion of the proposed options for publications, the Panel makes the following specific recommendations to the Planning Committee:

A) SGPP believes that the core photographs at present size are often of little value, and further reduction in size will make almost all of them useless. We suggest elimination of the core photographs, to be compensated by the availability of slides or BW prints on request. We urge that the project ultimately move toward electronic capture of core images.

B) The scientific value of the SR volumes should not be compromised.

C) Full site chapters should be published in the IR. These should include some detailed photographs of the cores, as is current practice.

4.4 Liaisons

It was suggested that Barbara Bekins become the new liaison to the Downhole Measurement Panel, but this cannot be finalized until it is certain that this does not conflict with other commitments. If she is unable to serve, Miriam Kastner will become the liaison to DMP.

SGPP currently has two liaisons to TECP, Mike Underwood for meetings in the U.S., and Wonn Soh for meetings outside the U.S. This split has not worked well, and it is essential that we have close cooperation with TECP. SGPP prefers to have a single liaison to TECP, and this should be Mike Underwood until the expiration of his term of service on SGPP, with Soh as alternate to attend TECP meetings in the event that Underwood is unable to attend.

SGPP liaison to OHP is Paul Baker, with Christian France-Lanord as alternate.

SGPP liaison to LITHP is to be Pat Shanks, with Wonn Soh as alternate.

SGPP liaison to IHP is to be Hay, with Steve Macko as alternate.

TEDCOM liaison is currently Hay; depending on other commitments, he may be replaced in the future by Steve Macko or Rick Sarg.

5. DATE AND PLACE OF THE NEXT MEETING

The next meeting is to be held 26-28 September in Copenhagen, hosted by Finn Surlyk.

Sedimentary and Geochemical Processes Panel Spring Meeting, 1995

Draft Minutes

Date: Wednesday-Friday, 2-4 March, 1995
Place: CIRES Conference Room, University of Colorado, Boulder, CO, USA
Host: William W. Hay, Panel Chairperson

Attendees:

SGPP Members:

Barbara Bekins (USA)	Paul Baker (USA)
Christian France-Lanord (F)	William Hay (Chair, at large)
Richard Hiscott (Can-Aus)	Miriam Kastner (USA)
Steve Macko (USA)	Pat Shanks (USA)
Wonn Soh (J)	Finn Surlyk (ESF)
Mike Underwood (USA)	

SGPP Members unable to attend:

Kay-Christian Emeis (FRG)	Robert Garrison (USA)
John Parkes (UK)	Rick Sarg (USA)

SGPP Liaisons:

Peter Blum (ODP/TAMU)	Peter Harvey (BHR)
Colin Jacobs (JOIDES Office)	Greg Moore (TECP)
Robert Zierenberg (LITHP)	

Invited guests:

Bobb Carlson (Lehigh University, Pennsylvania, USA)
Charles Paull (University of North Carolina, USA)

1. WELCOME, INTRODUCTIONS, AND LOGISTICS:

Hay welcomed the participants in the meeting.

2. LIAISON REPORTS

2.1 PCOM

Wolf Berger reported on the meeting of the JOIDES Planning Committee held in College Station, Texas, December.

He reported that plans for increasing the membership of JOIDES will include approaches to organizations in a number of countries, including Russia.

The budget for the Ocean Drilling Program is under severe pressure. However, the development of the database management system will proceed as scheduled. Development of the Diamond Coring System, which has so far cost \$5 million, is to be continued. Funding for the new fiscal year is expected to be flat, and in real terms will decrease in the future as a result of inflationary pressures. Activities that may be affected include

Publications - to be reduced in cost by 1/3

Technical support - to be reduced by 1 technician per leg

Engineering development

Special operating expenses (suggested by PCOM but taken off the list by XCOM)

The PCOM approved the following drilling program for the remainder of FY 1995 and FY 1996:

- Leg 163 - SE Greenland
- Leg 164 - Gas Hydrates
- Leg 165 - Caribbean
- Leg 166- Bahama Transect
- Leg 167-California Ocean History
- Leg 168 - Juan de Fuca Hydrothermal
- Leg 169 - Sedimented Ridges II
- Leg 170 - Costa Rica Accretionary Prism

The TECP has requested that PCOM approve plans for records of structural information, and that IHP has recommended inclusion of structural data in the database.

He also observed that the Long Range Plan (to be discussed later in our meeting) included a controversial proposal of disbanding the current Panels at end of 1996 - replacing the four Thematic Panels by two Panels, one concerned with the Dynamics of Climate Change, the other with Dynamics of the Solid Earth.

2.2 ODP

Peter Blum reported on activities at ODP/TAMU.

2.2.1 Engineering

ODP/TAMU has received "best and final offer" from Stress Engineering (including portion from Parvus) for the DCS feasibility study. The bid includes controller software development, cyclic load bit testing, retractable bit testing, and primary heave compensator seal friction testing (Phase II). Land (or sea) tests are not included in this bid. In all likelihood DCS will not sail before end of CY 1997.

The PCS ball valve has been modified to allow it to be opened without disassembling the tool after pressure testing. The modification is also the first step necessary to retrieve the pressurized core from the pressure casing. New cutting shoes were not build according to design by the contractor but were tested anyhow due to logistical constraints. The result was that the existing shoe performed better than all the "new" cutting shoes. Christensen (mining company) will take on design and construction of a new set of cutting shoes now. Taking the tool out on a Mediterranean leg, as recommended earlier by SGPP, would be a disadvantage to further developments according to Pettigrew.

ODP/TAMU is planning to replace WSTP data loggers with robust, user-friendly products that can be precisely calibrated in appropriate facilities.

2.2.2 Personnel Changes

Searches for a new director and a new manager of Operations and Engineering continue. Tim Francis, Deputy Director and acting manager of Operations and Engineering, became Acting Director. Jack Baldauf, manager of Science Operations, has then been nominated Acting Deputy Director.

Three potential new staff scientists have been interviewed and further interviews are likely in the near future.

2.2.3 IANUS Status

A Statement of work approved by Steering Committee (SC) in January and signed in February 1995. IHP/SMP agreed on priority list of 7 groups of data types in Oct. 1994. Wire line logging data were added in Jan. 95. Structure and membership of SC have been adjusted to accommodate the production phase. Tracor started working on the project under monthly purchase orders, including several visits to College Station and sailing on the Falmouth-Dakar transit. TAMU/ODP provided Tracor with existing data attributes, technical notes, manuals, etc. Tracor is applying "Structured Analysis" to analyze the entire ship-shore

system and has produced a first set of "process flow diagrams". Based on this professional and necessary analysis work, Tracor will be able to provide input to the upcoming IHP/SMP meeting to aid re-evaluation of the data type priorities.

A prototype application for capturing basic coring and sampling data should be ready in early summer for testing by appropriate users. A Tracor representative will sail on Leg 160 to further refine analysis and develop some software.

Funding level: \$600k in FY'94; \$750k in FY'95, hopefully supplemented by reinstatement of \$150k decremented from this budget; FY'96 allocation subject to availability of funds and standard program planning.

The priority list of data types, subject to change as the project evolves, has been presented and is available at the ftp site noted below.

The four principal technical participants in the project are:

- Tracor, the developer and subcontractor;
- ODP/TAMU, the only authorized technical representative of TAMRF;
- Steering Committee (SC), appointed by JOI, Inc., to represent user community and provide definitive direction to ODP/TAMU on the conduct of the project;
- User Groups, established by the SC for preliminary definition, testing and evaluation of the products

The SC has been given the mandate by JOI Inc. to "guide the development of the ODP Data Management System", while TAMU/ODP has been assigned to "monitor the technical progress on this project". This limits TAMU/ODP's management authority and thus responsibility over the direction and sequential development of project. Statement of Work and other project information are available at: URL: <http://www-odp.tamu.edu/janus/>

2.3 JOIDES Office

Colin Jacobs reported on activities of the JOIDES Office in Cardiff.

2.3.1 Working Groups

Three new working groups have been or are about to be set up, they are

A) Sub-committee on Publications: This has just reported. The subcommittee have arrived at their target of a 1/3 saving in the publications budget without losing a publication. The recommendations of the PCOM Sub-committee on Publications are directed toward achieving the goal of reducing the net publications budget by approximately one third by FY 1998 (about \$600K). The suggestions include electronic distribution of the Preliminary Results, TAMU/ODP composition of the IR and SR volumes using new technology, streamlining the management structure of the Publication Section, reducing the TAMU/ODP effort in editing of the IRs by requiring a greater percentage of author-produced copy from the ship, more efficient formatting of barrel sheets and reduction in size of core photos, reducing the IRs to 300 to 400 pages plus a CD-ROM, shortening the length of the SR volumes to an average length of 500 pages, requiring author-produced copy for the SR in electronic format except for authors without access to proper facilities for electronic preparation and submission, and reducing the print run of the IRs and SRs while making them available on CD-ROM.

B) Core-Log Integration Working Group: This is really a data integration Working Group, that will be set up shortly after the Spring 1995 SMP to examine log-log and log-core integration.

C) Structural Data Working Group: TECP has been given approval to set up a small working group to define how the structural data will be collected as part of the primary data package on all legs where "structure" is found.

2.3.2 Membership

A consortium of Taiwanese Universities are the most promising candidates to join the CAN-AUS consortium as a 1/6 partner. They may formally sign as early as the end of February,

becoming members as from 1 October 1995. This will not allow any increase in the \$44.9M budget, but reduce the NSF contribution.

2.3.3 Proposal News

There are 141 active proposals in the JOIDES system, 23 new and revised proposals and addenda were received at the JOIDES Office for the January 1 1995 deadline.

2.3.4 JOIDES Office Developments

The JOIDES Office now has a remote ftp site where panel minutes, JOIDES Resolution and meetings schedules, and working group reports can be obtained over INTERNET.

The method to get these data is

```
Access via:  ftp ftp.cardiff.ac.uk
Log in:      anonymous
Password:    your userid *
Logout:      bye
```

* Note : this is an "intelligent" system and will check the syntax of entered userids

The current usable directory tree is as follows:

```
/pub/JOIDES/Calendar           Panel Meetings
/pub/JOIDES/Directory          JOIDES Journal Directory
/pub/JOIDES/Minutes/DMP,PCOM,OHP, etc.
/pub/JOIDES/Proposals          Site Summary Forms etc.
/pub/JOIDES/Reports            Working Group Reports
```

There is also a Guide to the ODP (essentially the same as appeared in JOIDES Journal Vol.20, No.2, June 1994) that will soon be up and running on the World Wide Web.

2.3.5 Long Range Plan

This is being revised at a critical time. The ODP is undergoing an international Performance Evaluation Review and at the same time both France and the UK are having their own internal reviews of their ODP participation.

There had been criticism of the last LRP draft at both the December PCOM and by USSAC. The latest draft was presented to EXCOM at their January meeting and they passed a number of motions relating to and constraining the science input to the LRP:

- i) The vision/mission statements need to prominently and clearly articulate the importance of the frontier science arising from deep earth sampling; its relevance to addressing the needs and concerns of society; and ODP's role in providing the critical facilities and organizational structure that delivers such a program of scientific research.
- ii) The scientific themes, "The Dynamics of the Fluid Earth" and "The Dynamics of the Solid Earth" were endorsed. Additional emphasis on "fluxes and geochemical budgets" was recommended. The document should proactively express the important contribution ODP can make to meeting societal needs and concerns, but not just promise solutions.
- iii) The LRP should not address details of the issue of any revised advisory panel structure that may evolve to meet the new scientific themes. There should be a clear separation between the scientific plan and the management/organizational matters related to its implementation.
- iv) The discussion relating to drilling platforms and technology should focus on requirements and capabilities arising from the long range scientific plan. This discussion should be clearly separated from, but related to that which addresses current and future facilities and other program enhancements.

v) Increasing use of non-commingled funds should be directed towards enhancing and supplementing the scientific objectives of the program. Such additional resources should not fund core program or facilities.

vi) Detailed discussion of specific budget breakdowns should not be addressed in the LRP. However broad budgetary implications should be addressed.

The LRP sub-committee is re-writing the science during a meeting in Cardiff, 5-7 March 1995. Comments should be passed to the JOIDES Office before then. The climate change section will be modified to address things that can only be done with drilling (at the moment some things in the LRP can be done with coring). The emphasis of the very successful HPC work will be kept and sedimentary and biosphere objectives will find their way into the "old" climate change section. Judy MacKenzie, former SGPP chairperson, is now a member of the LRP sub-committee and will be at Cardiff.

2.4 Lithosphere Panel Report

The LITHP met in College Station, TX, Feb. 22-25, 1995, hosted by Jay Miller, ODP. The meeting began with a "field trip" to the ODP core locker to view cores from LITHP's past successful legs including 504B, Hess Deep, SR I, MARK, and zero-age basalt from the Sumisu Rift recovered with the DCS on Leg 132.

There was extensive discussion about the Caribbean Basalt Leg, which was ranked number one by LITHP but not scheduled for drilling. PCOM questioned the scientific viability and significance of the leg and determined that it should not be scheduled for drilling. LITHP had discussed all of the concerns raised at the PCOM meeting and had determined that the Leg deserved to be drilled. While recognizing that PCOM has the ultimate responsibility for determining the drilling schedule, LITHP expressed concern that the consensus of the panel about the scientific merit of the Leg could seemingly be so easily dismissed. At a minimum, the panel felt that when a highly ranked proposal was not scheduled for drilling, the community, and particularly the proponents, should be provided with an explanation of the reasons for not scheduling the leg.

The panel met with the engineers to discuss technical developments that bear on drilling in difficult environments, particularly as they pertain to LITHP's Offset Drilling Program and their desire to drill zero-age crust. The Diamond Coring System is currently undergoing a feasibility study to determine if the present approach is technically feasible and should be pursued. No land testing will be completed until after the feasibility study. The earliest possible at sea test of the system would be in FY 98. A study has revealed that the major inefficiency in the primary heave compensation system results from friction in the seals on the main hydraulic cylinders. New seal designs have been evaluated that could significantly improve the efficiency of the primary heave compensation system. The new seals will be tested for reliability and operational life prior to approaching the SEDCO about modifying the rig. Most of the engineering discussion centered on problems and potential solutions to difficulties encountered during offset drilling legs and a strategy was outlined for an engineering leg to test new approaches and equipment for drilling in difficult hard rock environments. New cutting shoes for the PCS were fabricated, but the delivered product did not meet the design specifications provided by the ODP engineers. The new cutting shoes were tested and found to be more subject to core jamming than the existing shoe. The tool has been modified to allow external activation of the primary ball valve seal so that the tool does not need to be disassembled after pressure testing. This is also a necessary first step for transferring core under pressure. Until new cutting shoes have been fabricated and tested on land, there is little justification for at-sea testing, and it does not appear that the PCS will be used on either of the Mediterranean legs.

The panel discussed the draft version of the long range plan and is greatly concerned that the approach is inappropriate. The panel felt that if this plan was put forward, the chances for renewal of the program would be highly jeopardized. The panel felt that the plan, as written, will narrow the support for the drilling program within the scientific community, will move the program away from its interdisciplinary approach to science, and will not be effective at convincing the various funding agencies that ODP merits continued support.

The results of the global ranking of active proposals with high priority LITHP objectives are as follows:

<u>Proposal</u>	<u>Topic</u>	<u>Rating</u>
300	Deepening of 735B gabbros	13.5
411	Caribbean Basalt	11.2
448	Ontong Java	10.9
457	Kerguelen	10.2
426	Australian Antarctic Discordance	9.4
435	Izu/Mariana	7.4
451	Tonga Forearc	7.4
420	Evolution of Oceanic Crust	7.2
435	Nicaragua Mass Balance	6.7
442	Mariana Rift	6.2
376	Vema Offset drilling	5.8
438/469	Deep Crustal Reflectors	4.5
Generic	Red Sea Drilling	4.3
431	West Pacific Seismic Net	3.6
407	15x 20' ??? Offset Drilling	3.6
LOI 44	Japan Trench Observatory	2.3
468	Carbonate Caps/Transverse Ridges	2.3
447	Woodlark Rift	2.1
LOI 51	Deep Drilling near 504B	1.6
461	Iberia Margin	1.3
463	Shatsky Rise	0.9
453	Bransfield Strait	0.5
466	Australian Lower Plate	0.1

2.5 Tectonics Panel

Greg Moore reported on the meeting of the Tectonics Panel, held in Pasadena, CA.

The panel discussed the status of tool and technology development. TECP strongly endorsed the WSTP, PCS, and deployment of CORKS. TECP is impressed by the potential of LWD for learning about in-situ conditions, and has recommended that funds for further LWD development be found.

TECP has recommended that structural information needs to be gathered as a part of the core description in holes where appropriate. The proposal for adding structural information is intended to formalize what is already being done and to cast the descriptions into a uniform format.

Members of the panel expressed concern about the database system being developed at ODP/TAMU through an outside subcontractor. The concerns centered around lack of consultation with those who provide and use the data.

TECP discussed the Long Range Plan and many members expressed their concern that it was not well rounded. TECP wants to understand active tectonic systems through observatories and direct investigation of the processes that lead to tectonic deformation.

The results of the global ranking of active proposals with high priority LITHP objectives are as follows.

<u>Proposal</u>	<u>Topic</u>
447	Woodlark Continental Extension
461	Iberia 2 Passive Margin
471	Taiwan Convergence
468	Romanche Vertical Tectonics
355	Peru tectonic erosion

442	N-Mariana Backarc
445	Nankai Trough Convergence
451	Tonga Convergence
LOI 48	Physical Properties LWD
466	S-Australia Margin Lower Plate

2.6 Borehole Research Group

Peter Harvey stated that there is little new to report, but that the Downhole Measurements Panel will meet next week.

3. OTHER REPORTS

3.1 Recent Legs

Peter Blum reported on the results of recent drilling legs.

3.1.1 Leg 158 - TAG

Leg 158 drilled 17 holes at Site 957 on the TAG mound near the mid-Atlantic ridge to investigate fluid flow, geochemical fluxes, and associated alteration and mineralization of an active hydrothermal system on a slow-spreading, sediment-free mid-ocean ridge. A northwest-southeast transect of holes in three distinct areas of the mound was drilled: the upper terrace east of the Black Smoker Complex, the white smoker Kremlin area, and the upper terrace west of the Black Smoker Complex. Additional holes were drilled to delineate lateral heterogeneity of the sulfide deposits and the extent of the underlying stockwork zone. Length of total core recovered was 52 m, or 12% of 436 m cored. Breccias of various types dominate the stratigraphy of the mound. Within the sulfide mound, these different types are distinguished primarily on the basis of the relative abundance of pyrite, anhydrite and silica and reflect different degrees of brecciation, cementation, hydrothermal reworking, and replacement of preexisting sulfides. Four major lithologic types can be distinguished: massive pyrites and pyrite breccias in the upper 10-20 m; anhydrite-rich zone to about 40-45 m; quartz-sulfide stockwork zone; and a quartz-chlorite stockwork zone sampled at Hole 957E at a depth of more than 100 m. This complex assemblage of rock types is a product of the multi-stage development of the mound.

3.1.2 Leg 59 - Eastern Equatorial Transform

Leg 159 drilled four holes at Sites 959 to 962 on top of the east equatorial transform escarpment, off the Cote D'Ivoire and Ghana. The holes targeted continental crust adjacent to the ocean-continent transition to study the transform margin development. Tectonized Albian sediments document an early phase of intra-continental transform motion. Conversion of the inferred pull-apart basin into the marginal ridge occurred during the Cenomanian-Turonian. Maximum phase of uplift during Turonian-Santonian as shown by shallow water reefs and high-energy clastics. Transfer of heat from an active spreading center may have caused this uplift, while an observed major unconformity in the upper Paleocene at all sites may mark the end of the subsequent rapid thermal subsidence. Eocene to Oligocene sedimentation is dominated pelagic siliceous sediments and mass wasting. Neogene sedimentation is dominated by hemipelagic clayey nannofossil sediments and is expected to yield a high-resolution record of the intermediate-water history in the eastern equatorial Atlantic at Sites 959 and 960.

3.2 Special Report on CORKs

Bobb Carson, from Lehigh University, reported on the development use of CORKs. The Cork is intended to isolate the water in the hole and allow later measurements of temperature, pressure and sampling of the fluids. Corking involves installation of a borehole seal, a data logger with thermistors or other sensors, and a fluid sampling manifold extending through the seal. The strategy for using a Cork should depend on the fluid flow condition. If there is positive pressure downhole, isolation of the hole with a cork may trap drilling fluid in the hole, so that it may be a long time before conditions come to equilibrium and the fluids are replaced. In such a case it might be wise to allow the hole to flow for some time to flush out the drilling fluids, and then to seal the cork.

Cables for the instrumentation in the hole are made up beforehand, based on the plan for conditions and depths of penetration expected for the site. Because the hole is never quite what was expected the cables must be modified, usually by shortening, before emplacement. The modification of the cables may cause difficulties in getting them to pass through the 3.5" orifice in the cork into the hole. Temperature and pressure are routinely measured, but the data logger has 12 channels and the capability exists to add a number of other instruments. Miriam Kastner has used an osmotic water sampler in the hole. At present, the cost of a cork is about \$60,000.

The French have made a cable that has couplings, and allows many more channels. However, the cost is about ten times that of the American version. The French have used multiple pressure sensors and thermistors.

A submersible or ROV must be used to return to the Cork and retrieve the information that has been gathered. It takes about 30 minutes to dump a year's data.

CORKs have been installed at Middle Valley (Sedimented Ridges I), off Vancouver Island (Leg 146) and off Barbados.

At Middle Valley the intent was to use the tidal signal to evaluate the permeability and porosity of the sediments from the sea surface down to the level of the measurement.

On Leg 146, CORKs were deployed at Sites 889, 892. Site 889 was located on a plateau on the continental slope off Vancouver Island. The objective of the cork deployment at this site was to understand fluid flow in a diffuse regime where the flow is known not to be along faults. The effort was a total failure because of weather. As a result of the rough sea conditions there was damage to the instrumentation, and it was impossible to get a complete seal because as a result of heaving of the ship during emplacement the latch did not work. It is very important to plan cork operations for times when the weather is cooperative. At Site 892, on the continental slope off Oregon, the purpose was to measure fluid flow along a fault. At the time of emplacement the weather was unexpectedly good. The seal was very good. Upon recovery of the data, it was found that there was a tidal signal with reduced amplitude and slight phase shift. Only one of the thermistors registered a temperature change. It recorded a constant temperature for 5 months, then began to rise, and after another six months the temperature had increased 4x C. The adjacent thermistors registered no change. It is assumed that the thermistor that recorded the temperature change was positioned at the fault zone.

Two attempts were made to install CORKs on the Barbados accretionary wedge, at Sites 948 and 949. Both holes were highly overpressured. Site 948 was near toe of prism. The hole had been cased but without a basal plug. Strong fluid pressures at the bottom of the hole caused the sediment to move up, greatly lessening the depth of hole available for the experiment. The cork at site 948 probably did not latch in. It may "burp out" from time to time, and this should be apparent from the pressure record. At the second site, 949, the hole was plugged at bottom, and emplacement is thought to have been successful, with the cork latched in well, although this will not be certain until the data are recovered.

The length of time to set a cork varies with conditions. At a minimum, the emplacement requires drilling a pilot hole and adds a minimum of three pipe trips to the site. The most rapid cork deployment to date was at Site 892 where emplacement was accomplished in 5 days. The other extreme has been at Site 949 where emplacement required three weeks.

It would be useful to explore the possibility of instrumentation emplacement and corking using other ships, but the present cork is very heavy and can probably only be deployed by the JOIDES Resolution. However, little is known of the possibilities, and the DMP does not concern itself with this sort of thing.

A discussion of the possible measurements that might be made using CORKs is included in the report of the Workshop on Holes and Instrumentation, held in Miami in December, 1994.

3.3 Plans for Leg 164 - Gas Hydrates

The status of the plans for Leg 164 (gas hydrates) was presented by Charles Paull, the US co-chief. Because of teaching obligations, Professor Paull made his presentation on Saturday morning, but the report is inserted into the minutes at this point as it is a special report. In the report particular attention was devoted to the changes in the schedule since the leg proposal was last reviewed by the SGPP.

Three changes in site locations were reviewed and approved by the panel. They are:

1. The previous transect of sites on the Cape Fear Diapir (CFD-1, CFD-2, CFD-3, and CFD-4) were replaced with another transect, located about one mile further south, which consists of CFD-5, CFD-6, CFD-7, and CFD-8a. The reason for this change is that new site survey data indicate that this transect crosses the area where the diapir's core is exposed on the sea floor and thus is more likely to achieve the site objectives.
2. A new site, BRD-1, was discussed where up to four 50 meter holes will be drilled across the plane of a fault, near where fluid and/or gas are discharging onto the sea floor. The objective is to understand the processes of fluid and gas transport across a sea floor fault.
3. Three alternate holes were discussed for the Blake Ridge Transect. The new holes consist of a 3.5 km long transect of sites (BRH-4, BRH-5, and BRH-6) each 750 m deep. The transect extends from an area with no BSR to an area with a strong BSR. The new transect has the advantage of being simpler than the previously 14 km long transect.

All the proposed sites, except BRH-6 have been approved by PPSP. BRH-6 is scheduled for PPSP consideration in March.

The possibility of casing a hole on Leg 164 was discussed. Much of this discussion centered around the importance of collecting VSP and well log data to relate between seismic reflection data and bore hole conditions.

The concept of casing a hole on leg 164 was originally suggested by Dr. Ralph Stevens (WHOI), who argued in a letter to PCOM that many valuable downhole acoustic experiments could be conducted in a hydrate hole because of their odd velocity structure. Furthermore, it was noted that many of these experiments could be done in the future by wire line re-entry techniques. Thus, leaving a cased hole for subsequent wire line re-entry would be of value. Tim Francis requested that the co-chiefs for Leg 164 respond to PCOM about this request.

Subsequently, Ryo Matsumoto and Charlie Paull have requested that a casing be available for one 750 m deep hole on Leg 164. However, their intention is to set the casing only if the efforts to collect VSP and well log data fail because of hole stability problems. Having the option of casing a hole would provide insurance that one of the most critical objectives of the Leg could be met.

A proposal to collect the VSP data was submitted to JOI last fall which involves using the WHOI VSP system. Another proposal (by Holbrook and Stevens) has been funded by NSF to cover the costs of walk-away shooting to the down hole seismometers. With this are funds for 8 days of R/V Cape Hatteras time.

More R/V Cape Hatteras time is pending through NRL (Gettrust, Rowe, Wood) and the USGS (Dillon) which might correspond with the drilling, and assist in the scheduling of the walk-away shooting.

Preliminary time estimates provided by Gene Pollard indicate that the schedule that was in the original proposal was 177 hours too long. The plan that has developed is to drill CFD-4, CFD-5, and CFD-6 firsts, BRD-1 next, and then three sites on the Blake Ridge next. At this point the options will be reconsidered. They include drilling: the Carolina Trough transect (~14 days), BRH-1a (~7 days), CFD-8a (~2 days), or casing a hole at either site BRH-3 (7 days) or BRH-1a (~10 days).

Following discussion of the report, SGPP expressed its endorsement the new program, including the request for casing to be used if necessary.

4. THE LONG RANGE PLAN

SGPP discussed the draft Long Range Plan, taking into account the comments of the JOIDES EXCOM reported by Colin Jacobs. Members of the panel expressed their concern that the plan as drafted was too narrowly focussed, and could alienate many members of the marine geological community. The Panel discussed whether it might be useful to add a third component to the LRP, along the lines of "fluxes and geochemical budgets" as suggested by the EXCOM. I was recognized that the LRP should relate the work of ODP to the societally relevant topics of hazards, natural resources and climate, but it was felt that we must primarily concerned with the basic science aspects of marine geological research. The Panel discussed the potential for a number of topics to be added to or expanded in the LRP, including onshore-offshore transects, documentation of the sites of occurrence of coarse clastics ("sand and gravel") in relation to changing sea-level, the response of groundwater flows to changing sea-level, the response of Corg burial and CaCO₃ deposition to sea-level change (with the implications for changes in the atmospheric content of CO₂ and O₂), changes in the distribution of gas hydrates over time (with implications both for stability of submarine slopes, generation of tsunamis, and the atmospheric content of CH₄ and possibly other gasses), the general problem of forcing of ocean-atmosphere-cryosphere interactions, etc. The Panel initial discussions were summarized by PCOM liaison Wolf Berger and transmitted to the LRP Subcommittee for consideration at its meeting in Cardiff.

Informal discussion of the LRP continued until Saturday morning, when the Panel forwarded the following comments to LRP Subcommittee member Judy McKenzie:

In a short introductory paragraph we strongly suggest the highlighting of some of the accomplishments or opportunities of ODP. (1) The surfaces of Mars and Venus are better known and better mapped than our own sea floor. There is still a lot of potential for exploration and discovery on and under the ocean floor. (2) There is a need that the ODP serve to better educate the general public (grade school through taxpayer/voter) about the goals and accomplishments of ODP's "Mission to Planet Oceanus." (3) ODP is a shining example of international cooperation.

We suggest that the two categories of the LRP be changed to the following three (of course the names may be changed and probably the number of categories as well).

- (1) Ocean-atmosphere interactions (climate change)
- (2) Material fluxes, fluid flow, and the deep biosphere
- (3) Dynamics of the solid earth

We haven't tried to detail items (1) and (3). Obviously, the SGPP mandate lies mostly within item (2) which we subdivide below. We also present "bullets", highlighting certain items or accomplishments within each subdivision.

Material fluxes and geochemical cycles. Material fluxes result from erosion of the continents as a result of changes in climate, mountain building, and sea level. These fluxes can in themselves produce global changes in boundary conditions, influencing subsequent climate development, system stability, and even buildup of hydrocarbon resources. Carbon and nutrient cycling, as reflected in the marine record, control the biological productivity on land and in the ocean with feedbacks, through carbon dioxide (and other trace gases), on climatic change. Sea level variations impact importantly on nutrient cycling by altering the sites of storage and preservation of organic carbon and inorganic carbonate sediments.

- sea level, coastal erosion, and flooding
- productivity and carbon cycling
- hydrocarbon and fresh-water resources

The role of fluid flux. Fluid flow occurs commonly in the continental margins and within oceanic crust. This flow provides for exchange of dissolved matter between the sub-sea floor

and ocean water, fueling biological productivity, generating methane-bearing deposits, and forming metal-bearing ore deposits. This flow also plays a large role in controlling major crustal displacements associated with earthquakes, volcanos, and submarine landslides.

- ore deposit formation on the sea floor
- earthquakes
- volcanism

The deep biosphere. Paralleling the life on Earth's surface and in the ocean, vastly important yet largely unexplored, are subsurface microbiotic communities. Some of these bacteria depend on the detritus of photosynthesis from the oceanic surface; others depend on wholly chemosynthetic metabolic pathways, deriving their energy needs from inorganic sources. Some of these bacteria can survive at extreme conditions of high temperature (at least 120°C) and high pressure. These bacteria are responsible for production of potentially-important energy resources such as methane stored in gas hydrates and the deposition of metals in submarine hydrothermal and cold-water vent sites. As yet, little is known about the biology and ecology of these biota. Ocean drilling is an important window into this world.

- gas hydrates as a potential energy resource
- gas hydrates influencing greenhouse gases and climate
- gas hydrates causing mass slumping on continental margins
- "biological mining" of microbiota and genetic engineering
- K/T boundary and ET- where does this go?

5. ODP DATABASE

Peter Blum, in his ODP/TAMU report had noted that a Statement of Work has been approved and contract signed with TRACOR. There are four principals involved in the development of the database: ODP, Tracor, Steering Committee, User Groups.

The Steering Committee (Chair: Brian Lewis) has been given the authority to guide development of the database and to coordinate user input. ODP's role is to monitor progress. TRACOR is to receive input from Steering committee and user groups.

SGPP looked at the user group lists and members expressed concern about the size of the groups and the possible impact on finances. After discussion, SGPP passed the following resolution:

SGPP endorses the concept of obtaining advice from groups based on data types. Chairs of the groups should be ad hoc members of the steering committee. The groups should have a core membership no more than 2-4 in addition to the Chair authorized to travel to meetings if necessary, and as many corresponding members as may wish to be involved. The corresponding members would be kept abreast of activities by electronic and other communication and invited to test the developing products.

6. PUBLICATIONS

SGPP discussed the proposals for revision of ODP publications that had been presented as part of the report by Colin Jacobs from the JOIDES Office. After considerable deliberation, SGPP passed the following resolutions:

A) SGPP believes that the core photographs at present size are often of little value, and further reduction in size will make almost all of them useless. We suggest elimination of the core photographs, to be compensated by the availability of slides or BW prints on request. We urge that the project ultimately move toward electronic capture of core images.

B) The scientific value of the SR volumes should not be compromised.

C) Full site chapters should be published in the IR. These should include some detailed photographs of the cores, as is current practice.

7. SCIENCE PRESENTATION

In accordance with the decision taken at the last meeting to devote some time a each meeting to a discussion of new scientific results, Miriam Kastner presented a report on recent studies of fluids and sediments. New technology permits isotopic analysis of as little as 2 micrograms of Cl. The results of analysis of pore fluids and sediments using this new technology suggests that it will be useful in studies of the origin of terrigenous material and diagenesis.

The SGPP adjourned for the day at 6:00 PM.

The Panel reconvened at 8:30 AM on March 3, 1995.

8. REVIEWS OF NEW PROPOSALS, REVISIONS AND ADDENDA.

The Panel reviewed four addenda and one revision to proposals that have been approved for drilling in FY 1996. No ratings were given, but the Panel commented an several aspects of the plans for forthcoming legs. The new addenda were SR-Add (Sedimented Ridges II Cork Deployments), 348-Add3 (Information copy of a proposal to JOI/USSAC for site surveys on the New Jersey margin), 412-Add4 (Alternate sites for the Bahama Transect), 415-Rev (Information copy of a proposal to JOI/USSAC for support of site surveys in the Caribbean), 440-Add2 (Juan de Fuca Cork Deployments). The comments are presented in Appendix A.

The Panel reviewed 11 revisions, 6 addenda, and 9 new proposals. The comments on these proposals age given in appendix A.

8.1 Summary of Ratings of New Proposals, Revisions and Addenda

The following table presents a summary of the ratings of proposals sorted by level of thematic interest level to SGPP. The order within each category is by proposal number and is not a ranking.

367-Rev2	Carbonates - Australian Bight	A1	B1.2	B2.1	C1	D1, D5	OK	F2
435-Add2	Crustal Fluxes - Mariana-Izu	A1	B1.2	B2.1	C1	D1	OK	F1
445-Rev	Deform/Fluid Flow, Nankai Trough	A1	B1.1	B2.1	C1	D1	E8	F2
452-Rev	SL Antarctic Penin - Pacific Margin	A1	B1.2	B2.1?	C2	D1?	OK?	F2
467	SL - Golfe de Lion, Ligurian Sea	A1	B1.2	B2.1	C2	D3	E6	F2
470	Atlantis II Deep - Red Sea	A1	B1.3	B2.1	C3	D1	E8	F3
354-Add4	Benguela Current	A2	B1.2	B2.1	C1	D1	OK	F2
355-Rev5	Peru Margin	A2	B1.2	B2.1	C2	D3	E8	F2
450-Rev	Arc-Continent Collision - Taiwan	A3	B1.2	B2.1	C3	D1	E8	F4
451-Rev2	Subduction Geodynamics Tonga	A3	B1.2	B2.1	C2	D1	OK	F4
300-Rev-Add	Return to 735	A4	B1.3	B2.1	C2	D1	E8	F4
404-Rev	Neogene W N Atlantic Drifts	A5				F4		
431-Add2	Western Pacific Seismic Network	A5				F4		
441-Add1	SW Pacific Gateway	A5				F4		
442-Rev	Evol. N Mariana Trough	A5				F4		
447-Rev	Extension - Woodlark Basin	A5				F4		
448-Add	Age and History - Ontong Java	A5				F4		
457-Rev	LIP - Kerguelen/Broken Ridge	A5				F4		
461-Add	Rift to Drift - Iberia	A5				F4		
462	Blake Plateau/Nose	A5				F4		
463	Plume Hypothesis Shatsky Rise	A5				F4		
464	Southern Ocean, Atlantic Paleo	A5				F4		
465	SE Pacific Paleocan	A5				F4		
466	Lower Plate Great Australian Bight	A5				F4		
468	Vertical Tectonics - Romanche FZ	A5				F4		
469	Reflectors - Argo Abyssal Plain	A5				F4		
348-Add3	MAT Site Surveys	n/a						
412-Add4	Bahamas Transect	n/a						
415-Rev	Caribbean Ocean History	n/a						
440-Add2	Juan de Fuca CORKs	n/a						
SR-Add	Sedimented Ridges II: CORKS	n/a						
471	see 450-Rev							

9. RATING OF LETTERS OF INTENT

The Panel reviewed 14 Letters of Intent. The comments on these letters are given in appendix A.

9.1 Summary of Ratings of LOIs: The following table presents a summary of the ratings of the LOIs, sorted by category of thematic interest level to SGPP. The order within each category is by proposal number and is not a ranking.

LOI #	AREA/TOPIC	RATING
45	LWD-APC Transects, E N America Margin	A1
46	Antarctic history: Weddell Sea Sector	A1
47	Scientific Drilling in the Red Sea	A1
48	Physical Property Variations Central America	A1
49	Prograding Sequences, Wilkes Land, Antarctica	A1
50	Antarctic Glacial History: Ross Sea Sector	A1
52	Antarctica Prydz Bay, Continental Shelf/Slope	A1
41	Stress/Strain Observatory System: Costa Rica	A3
40	ODP Drilling in the Banda Sea, Indonesia	A5
42	High Resolution Paleocean, Scott Plateau	A5
43	Rodriguez Triple Junction	A5
44	Japan Trench Downhole Observatory	A5
51	Drill Deep near DSDP/ODP 504	A5
XXX	85xE Ridge, Northeast Indian Ocean	n/a

10. GLOBAL RANKING OF ACTIVE PROPOSALS

After considering all of the active proposals in the system, the Panel decided to eliminate proposals with a ranking of thematic interest of A3 and below from consideration, and to include some of the Letters of Intent. The following table is the ranked order of proposals considered, with the highest score being the Panels first choice and the lowest score the last choice.

<u>Proposal/LOI</u>	<u>Topic/Area</u>	<u>Score</u>
LOI 35	Saanich Inlet	19.82
Generic	Antarctic	16.45
348	Mid-Atlantic Transect	15.91
445	Deformation/Fluid Flow, Nankai Trough	15.22
435-N	Crustal Fluxes to Mantle - Nicaragua	15.18
354	Benguela Current	15.00
367	Carbonates - Great Australian Bight	14.36
424	Cork for Hole 395A	13.82
467	SL Golfe de Lion, Ligurian Sea	13.77
355	Peru Margin	13.09
420	Evolution of Ocean Crust - Clipperton	12.90
455	Laurentide Ice Sheet	12.18
Generic	Red Sea	11.45
453	Bransfield Strait	11.18
LOI 48	LWD Middle America	10.68
LOI 45	LWD US East Coast	9.45
435-MI	Crustal Fluxes to Mantle - Mariana-Izu	9.32
332	Fluid Flow - Florida Escarpment	8.75
471	Arc-Continent Collision - Taiwan	8.59
444	SL Neogene - Joban Margin	8.40
449	Cretaceous Anoxic Seds - Weddell Sea	7.27
436	SL Neogene - Campeche	4.55
427	SL Neogene - S Florida	3.23

The Panel adjourned for the day at 6:00 PM.

The Panel reconvened at 8:00 AM on March 4.

The first item was completion of the comments on the Long Range Plan, included in 4.0 above. This was followed by a presentation on plans for the Gas Hydrate Leg 146 by Charlie Paull. The presentation and comments are cited above as item 3.3.

11. LIAISONS

It was suggested that Barbara Bekins become the new liaison to the Downhole Measurement Panel, but this cannot be finalized until it is certain that this does not conflict with other commitments. If she is unable to serve, Miriam Kastner will become the liaison to DMP.

SGPP currently has two liaisons to TECP, Mike Underwood for meetings in the U.S., and Wonn Soh for meetings outside the U.S. This split has not worked well, and it is essential that we have close cooperation with TECP. SGPP prefers to have a single liaison to TECP, and this should be Underwood until the expiration of his term of service on SGPP, with Soh as alternate to attend TECP meetings in the event that Underwood is unable to attend.

SGPP liaison to OHP is Paul Baker, with Christian France-Lanord as alternate.

SGPP liaison to LITHP is to be Pat Shanks, with Wonn Soh as alternate.

SGPP liaison to IHP is to be Hay , with Steve Macko as alternate.

TEDCOM liaison is currently Hay; depending on other commitments, he may be replaced in the future by Steve Macko or Rick Sarg.

12. ISSUES FOR THE NEXT MEETING.

Special topics for the next meeting should include:

- Sampling onboard ship
- Sample distribution policy
- Technology development
- Logging-While-Drilling

13. DATE AND PLACE OF THE NEXT MEETING

The next meeting is to be held 26-28 September in Copenhagen, hosted by Finn Surlyk.

The SGPP Spring Meeting Adjourned at 3 PM.