SEDIMENTARY AND GEOCHEMICAL PROCESSES PANEL

FALL MEETING, 26-28 SEPTEMBER 1992
GEOMAR, KIEL, GERMANY

EXECUTIVE SUMMARY

Review of Proposals

SGPP reviewed 10 new proposals, 2 old proposals that had not been seen previously by the panel and 13 revisions or addendums to previously reviewed proposals. Prior to the ranking of the FY'94 Prospectus, all of the proposals in the Prospectus with or without recent revisions were discussed by the panel members. Under all circumstances, proponents were requested to leave the room during the discussion of their proposals and could not vote for their proposals during the ranking.

Ranking of FY 1994 Atlantic/E. Pacific Prospectus

SGPP Prospectus Ranking 1992

ODP Ref. No.	Proposal	Score	Ranking
405-Rev	Amazon Fan	9.09	1
414-Rev	N. Barbados Ridge	8.00	2
391-Rev	Mediterranean Sapropels	7.67	3
380-Rev3/059-Rev3	VICAP/MAP	6.50	4
361-Rev2	TAG Hydrothermal System	6.16	5
388/388-Add	Ceara Rise	5.66	6
369-Rev2	MARK Lithosphere	3.58	7
323Rev2	Alboran Basin	3.33	8
346-Rev3	E. Eq. Atl. Transform	2.21	9
NARM-DPG	N. Atlantic Rifted Margins	1.42	10

Scores were assigned by normalizing the rank totalls according to the number of votes cast. As it contains no themes within SGPP's mandate, the NARM-DPG was considered as a single proposal. SGPP's ranking of VICAP/MAP is based on a selection of sites that would be ready for FY'94. SGPP's ranking of the FY'94 Prospectus is consistent with SGPP's previous Global Ranking in Spring,1992, which placed the first 4 proposals listed above among the top 5 proposals in its Global Ranking. The 5th proposal was Generic Gas Hydrates which was not in the Prospectus. SGPP considered the names of potential co-chief scientists for the first 3 ranked proposals. These will be forwarded to PCOM.

Reviews of Off-set Drilling and Sea-level WG Reports

SGPP liaisons to the Off-set Drilling and Sea-level Working Groups, J. Boulégue and R. Flood,respectively, summarized the final documents prepared by the WGs. SGPP congratulated the WGs for their excellent contributions, which outlined the drilling strategy that should be taken to tackle these themes. SGPP recommended the acceptance of both WG reports and the disbanding of the WGs.

SGPP acknowledges that the sea-level theme figures high within its mandate and proposes to follow closely the multi-leg sea-level program proposed by the Sea-level WG. SGPP will name watch-dogs as appropriate to follow and evaluate particular sea-level proposals. SGPP will submit an annual written report to PCOM on the progress of the sea-level program and take a pro-active position in judging the performance and the possible needs for program changes at the scale from drilling leg priority to detailed siting, as requested by PCOM.

Perceived Technical Needs and Future Course of Technical Developments

SGPP continues to support the development of the Vibra-Percussive Corer and requests that the device be tested and ready for deployment during Leg 150 (New Jersey Transect) where extensive unconsolidated sands are anticipated.

Although SGPP is encouraged by the possibility for the development of high-temperature downhole fluid sampling devises, SGPP continues to support the development of *in situ* fluid sampler with the additional capabilities to measure *in situ* pressures, as outlined in the RFP (14 May 1992) submitted by the Steering Group for *In Situ* Pore Fluid Sampling. SGPP wishes to emphasis that passive borehole sampling is not a substitute for the *in situ* sampling of formation fluids in lithified strata.

The development of high-temperature borehole instrumentation (HTBI) is welcomed, but SGPP advises that strict care must be taken not to endanger the hole during deployment. HTBI development should remain under the guidance of DMP.

SGPP expresses extreme concern about the current progress and anticipated development costs of the Diamond Coring System (DCS). SGPP requests that an ODP/TAMU engineer, if possible Mr. T. Pettigrew, be present at its Spring Meeting 1993 to enlighten the panel on DCS progress, anticipated operational date, full development costs (including slim-hole tools) and drilling capabilities (coring rate etc.), as well as report on the engineering accomplishments with the deployment of other development tools during Leg 146 (Cascadia Margin).

New Core Repositories

SGPP supports the internationalization of the core repositories but, at the same time, recommends that the number of repositories be kept at a minimum. SGPP recommends that refrigeration of the current core collections be continued and that refrigeration should be maintained during transport. In order to protect core quality, the cores should remain in the repositories where they are currently housed.

Ties with Global Geoscience Initiatives

SGPP feels that ties with global geoscience initiatives should be strengthened. SGPP recommends that the panels receive reports on the activities of the various programs with particular emphasis on themes related to the mandate of individual panels. SGPP requested that J. Boulégue report at its next meeting on the Inter-RIDGE program and its relevance to the TAG and Juan de Fuca hydrothermal drilling programs.

New Panel Membership

SGPP considers it essential that the current speciality balance on the panel be maintained with rotation in order to adequately cover its broad thematic mandate. However, in line with the emphasis on large thematic multi-leg programs, in particular a multi-leg sea-level program, SGPP considers that its sea-level expertise should be strengthen. This goal could be accomplished with the possible addition of a sea-level expert from within the ESF Consortium. If accepted by PCOM, the current SGPP Chair and ESF representative, J. McKenzie, would then become an at-large SGPP member. Three U.S. SGPP members will rotate off the panel at the end of 1992. N. Christie-Blick, R. Flood and W. Hay are acknowledged for their service and contributions to the panel.

Next Meetings

Spring Meeting - 4-6 March 1993, Santa Cruz, CA, Joint with OHP,
hosted by Dr. Margaret Delaney
Fall Meeting - mid-late September 1993, Corner Brook, Newfoundland,
hosted by Dr. Richard Hiscott

SEDIMENTARY AND GEOCHEMICAL PROCESSES PANEL
DRAFT MINUTES OF FALL MEETING, 1992
KIEL, GERMANY

DATES: 26-28 October, 1992
PLACE: GEOMAR, Kiel, Germany
HOST: Jurgen Mienert

LIST OF ATTENDEES
SGPP Members:

Jean Bahr	Jacques Boulegue
Nick Christie-Blick	Paul Farrimond
Roger Flood	William Hay
Richard Hiscott (Recorder)	Judith McKenzie (Chair)
Jurgen Mienert	Charles Paull
Wonn Soh	Peter Swart
Emelyan Emelyanov (representing Alexander Lisitsyn)	

Absent SGPP Members:

Jeffrey Alt	Henry Elderfield
Alexander Lisitsyn	Fred Sayles

Liaisons:

Craig Fulthorpe (JOIDES)	Frank Rack (TAMU/ODP)
Ulrich von Rad (PCOM)	Jim Zachos (OHP)

Guests:

Paul Dauphin (NSF)	Brian Lewis (PCOM chair)
Lyn Kay (NERC-UK)	Kay Emeis (Univ. Kiel)
Allan Chivas (Can/Aust alt.)	Erwin Suess (GEOMAR)

1. WELCOMING REMARKS

Judith McKenzie, SGPP Chair, welcomed the participants, reviewed the agenda, and added new items to the agenda from JOIDES office. Jurgen Mienert discussed logistics for the meeting.

2. REPORTS

A. PCOM Report - U. von Rad

Von Rad summarized deliberations of the April and August PCOM meetings. The short-term plan of PCOM includes: adding 24 hours to obtain 200 m APC penetration in the Santa Barbara Basin (California) on Leg 146; reinstatement of a three-site program (IAP- 4, -2, -3) for Leg 149 on the Iberia Abyssal Plain (NARM-DPG); attempt to keep ice-boat costs to a minimum for Leg 151.

J. McKenzie and N. Christie-Blick questioned U. von Rad about the unequal time now allocated to Legs 149 (more time given for a deep hole, which has now been cancelled) and 150 (time was subtracted to permit deep drilling on Leg 149). Now that the deep site will not be drilled on Leg 149, SGPP members feel that the disputed time should be given back to Leg 150, a prime SGPP program.

SGPP RECOMMENDATION: THE SGPP CHAIR WILL COMMUNICATE, TO PCOM, SGPP's STRONG DESIRE THAT DRILLING TIME BE MORE EQUALLY DIVIDED BETWEEN LEGS 149 AND 150, NOW THAT DEEP DRILLING WILL NOT TAKE PLACE ON LEG 149.

PCOM's mid-term plan is to schedule highly ranked programs from the North Atlantic Prospectus for drilling in FY94. Von Rad wondered what SGPP supports in

the way of second legs at Cascadia and for the Sedimented Ridges program. Concensus was that the results of the first legs must be fully evaluated before new problems can be tackled.

PCOM's long-term agenda includes the scientific issues of: sea-level, accretionary prisms and their fluids, sedimented ridges, offset drilling (including all other deep drilling), high-resolution Neogene paleoceanography, and passive-margin deep holes (NARM- DPG). For multi-leg programs, PCOM directs thematic panels to assign watchdogs, recommend new legs or priorities, and report annually to PCOM on status of each program within the mandate of the panel. PCOM also requests SGPP input on the quality of working group reports on sea-level and offset drilling.

PCOM also discussed the following issues, some or all of which SGPP may wish to comment on:

(1). formalization of links to other global geoscience programs;

(2). location of new repository space, including the question of whether repositories should be set up in countries of international partners;

(3). future plans for development of the diamond coring system (DCS), which will probably never allow deep penetration in basement, which will not be tested on land in the near future, and which will not be tested on a leg until FY95;

(4). decision to delay issuing a request for a proposal (RFP) to study the feasibility of in situ pore-fluid sampling;

(5). receipt of a proposal for data handling in ODP from the Ocean Data Information Network of ODP, Hawaii;

(6). need for an additional European Science Foundation (ESF) representative on SGPP, to allow J. McKenzie to be an unbiased Chair, and general need for additional appointments to SGPP to cover areas of continuing or new emphasis (e.g., sea level).

B. JOIDES Report - Craig Fulthorpe

C. Fulthorpe reviewed JOIDES directions for evaluation of the North Atlantic Prospectus, pointing out that drillability has already been evaluated for proposals in the prospectus. In order to allow drillability to be properly assessed in future, JOIDES office has changed the final date for submission of proposals to be considered at fall panel meetings to 1 July.

The move of the JOIDES office to Seattle, Washington, was reviewed. Current plans are for the office to move to an international partner country for the following term.

C. EXCOM Report - Craig Fulthorpe

ODP/TAMU will remain the Science Operator through 1998. Proposals have been requested for routine shipboard logging, and a new contract will be in effect from October, 1993. An Advisory Panel Review Committee has been struck to advise EXCOM on changes or improvements to the structure of the program. Alternate repositories were discussed. Alternate platforms were discussed, but there is no funding for this item.

D. ODP/TAMU Report - Frank Rack

F. Rack reviewed the drilling schedule through Leg 152. Of particular interest to SGPP is the planned split of drilling days between Leg 149 (50 days) and Leg 150 (40 days). The APC cores taken on the last day of Leg 146, in Santa Barbara Basin, will be run through GRAPE, etc., during Leg 147, but will not be opened until several months later in the repository at TAMU.

As reported last meeting, the DCS did not work on Leg 142, apparently because a component in the secondary heave compensator was bent in shipment. Legs 143 and 144 (Atolls and Guyots) were characterized by very low recovery, and no sea-level story has yet been developed. C. Paull added that chemistry of fluids from Leg 143 is much like sea water chemistry, that the temperature probe in the WSTP tool did not work, and that the lower section at Site 866 is dolomitized. During logging of Hole

801C (old Pacific crust), the packer test on a hydrothermal zone indicated very high permeability; the packer later failed.

N. Christie-Blick indicated that presence of karsted surfaces on atolls may indicate periodic, long-wavelength, tectonic uplift of the Pacific plate. If true, then the "dip-stick" hypothesis for studying sea- level variation at atolls and guyots may have to be discarded. Unfortunately, poor recovery may preclude development of an unambiguous sea-level story, making it difficult or impossible to sort out the role of tectonics.

E. In Situ Fluid Sampling Meeting - Peter Swart

The wire-line packer was a failure on Leg 133 because it could not successfully expand from 4" to 12". Modified packers and alternative techniques were discussed. A new Pore-Water Working Group met in March, 1992, and wrote a "request for proposal" aimed at getting a set of recommendations for the best techniques for acquiring in situ samples in a variety of drilling environments. PCOM has deferred issuing the RFP until the spring of 1993, with plans to fund a proposal in October, 1993.

F. Panel Liaison Reports

Downhole Measurements Panel Report - Jean Bahr

At a June, 1992, meeting in Windischeschenbach, Germany, guidelines were developed for use of third- party tools, which involve both successful land and sea testing prior to use in the scientific program.

The pressure core barrel is considered operational by TAMU. The Geoprops tool will be modified for use on Leg 146. A borehole magnetometer will be used at Hole 504B. A French sedimentary magnetometer will be used on Leg 145. A USGS packer/flowmeter was used successfully on Leg 139, and will be used on Legs 146-148.

Tools being developed include: a high-T sampler (Peter Lysne, SANDIA), an in situ sampler, a high-T resistivity tool (Mike Manning, U.K.), a high-T spectral gamma-ray tool (to be tested by SANDIA).

DMP discussed the best timing for sealing and instrumenting Hole 504B.

J. Bahr did not attend the September, 1992, DMP meeting in Vancouver, and therefore could offer no report of issues discussed there.

LITHP Report - filed by Jeff Alt (See Appendix 1).

TEDCOM Report - filed by Jeff Alt (See Appendix 2).

Ocean History Panel Report - Jim Zachos

No meeting since last SGPP meeting.

TECP Report - Brian Lewis (reported on second day)

The TECP top-ranked proposals in the Prospectus are as follows: 1. Alboran Basin (323Rev2) 2. Mediterranean Ridge 3. MARK (369Rev2) 4. Equatorial Atlantic transform (346Rev3) 5. Non-volcanic NARM (Newfoundland Basin)-DPG 6. Volcanic NARM (Greenland)-DPG

3. PROPOSAL REVIEWS

SGPP reviewed 10 new proposals, 2 old proposals that had never been seen by this panel, and 13 revisions or addendums to previously reviewed proposals. Proponents left the room during the discussion of their proposal.

NEW PROPOSALS

Proposal 419 - Convergence of Oceanic Lithosphere at the Eastern End of the Azores - Gibraltar Plate Boundary, R. Sartori, L. Torelli, N. Zitellini. E. Lodolo and D. Peis.

The proposal is mainly outside the SGPP mandate, although movement of fluids along thrust faults and alteration of oceanic crust, if better developed in the proposal, would increase our level of support.
Category 2/3

Proposal 420 - The Evolution of Oceanic Crust, G.M. Purdy, D. Abbott, K. Becker, N. Christensen, A. Fisher, et al.

This proposal needs modelling and incorporation of heat flow and chemical flux data to help us understand what the postulated pattern of fluid flow is now. Otherwise, it is not clear what is to be tested. Not enough emphasis is given to methods that should be employed to obtain fluids and measure their properties. There are existing Schlumberger tools that could be used to sample fluids during drilling, but these could only be used at some cost.
Category 4

Proposal 421 - Alkali-acidic Rocks of the Volcano Trench, B.I. Vasiliev.

Outside the mandate of SGPP.
Category 1

Proposal 425 - Mid-Atlantic Ridge at 15°37'N: Crust Generation at a Magma-poor Mid-ocean Ridge, M. Cannat, J. Casey, H. Bougault, Y. Fouquet and L. Dmitriev.

Outside the mandate of SGPP.
Category 1

Proposal 424 - JOIDES Proposal to "Cork" Hole 395A, Preceded by Limited Hydrogeological Experiments, K.Becker and E. Davis.

Only 96 hours are needed for this logging and corking experiment on Hole 395A. The proposal needs better justification and explanation of the scientific objectives. What problems would be addressed? Can fluids be sampled from a seal borehole under negative pressure? Can existing data or models explain how the hole can remain underpressured for so long, or can this issue be tested in the proposed program?
Category 4

Proposal 416 - Glacial History of the High European Arctic: Drill-sites on the Svalbard Margin, A. Solheim and A. Elverhøi.

It would be useful if seismic data could be transposed into maps, and used for a more detailed interpretation of depositional environment. There is a mid-ocean ridge nearby, but its influence is not discussed. Gas hydrates may also occur nearby, but are not discussed. As currently written, the proposal seems to be mainly of local interest.
Category 3

Proposal 418 - A Biomagnetostratigraphic Reference Section Representing a Marine Miocene Mid-latitude Environment: Re-occupation of DSDP Site 372 (Menorca Rise, Western Mediterranean), M.B. Cita, A. Negri, C.G. Langereis and T.A.T. Mullender.

Outside the mandate of SGPP. There may be an opportunity to integrate the proposed coring with the Mediterranean sapropel proposal 391Rev.
Category 1

Proposal 422 - A Site Proposal for Ocean Drilling in Santa Monica Basin, California Borderland Province, L.D. Stott.

The text contains several apparent errors in the units used for sedimentation rates. It is not clear why piston cores cannot adequately address the issue of intermittent anoxia. Will coring in the Santa Barbara Basin answer many of the questions raised by this proposal?
Category 4

Proposal 417 - Gas Hydrate Formation and Distribution in the Vicinity of Gas Plume, the Okhotsk Sea, G. Ginsburg and V. Soloviev.

Site survey data is needed to pinpoint the depth of the gas hydrate layer (BSR). Safety and sampling methods need to be much more fully addressed. This proposal seems immature.
Category 4

Proposal 423 - Gas Hydrate Sampling on the Blake Ridge and Carolina Rise: A Proposal to the Ocean Drilling Program, C.K. Paull.

Sites need to be selected, based on the extant seismic data. This proposal could have been added to the list of candidates for FY94 drilling, but is technically deficient because it lacks site summary forms.
Category 4

OLD PROPOSALS NOT PREVIOUSLY REVIEWED

Proposal 079 - Tethys and the Birth of the Indian Ocean, M.F. Coffin, A. Bosellini, J.E.T. Channell, W.W. Hay, et al.

The proposal deals mainly with paleocean history and is weak on sediment mass balance, and sea level (because Mesozoic eustatic history is not well known). Dating in the Mesozoic is not precise enough to evaluate orbital forcing or exact sea-level history. If mass balance is to be a strong area, then the proponents need to argue that this is the best place in the world to study sedimentary mass balance at a passive margin.
Category 3

Proposal 086 - A Proposal for ODP Drilling in the Red Sea, E. Bonatti.

Potential hydrothermal effects and methods that could be used to evaluate hydrothermal activity need to be developed in order to interest SGPP. The proposal needs to be updated with more recent references on metallogeny, geochemistry of fluids, etc., in this area.
Category 3

REVISED PROPOSALS

Proposal 300Rev - Return to Site 735: The Temporal and Spatial Variability of the Lower Ocean Crust at a Very-slow Spreading Ocean Ridge, H.J.B. Dick, S. Hart, J.H. Natland, P. Robinson, R. Stephen, et al.

In order to interest SGPP, this proposal would need to address possible fluid flow mechanisms to explain the alteration history. How could hypotheses on fluid flow be tested?
Category 2/3

Proposal 330Rev - Time Progressive Continental Collision: The Mediterranean Ridge Accretionary Complex in the Eastern Mediterranean (Phase 1 Shallow Drilling), A. Camerlenghi, N. Chamot-Rooke, M. Cita, B. Della Vedova, et al.

This proposal is well focussed on SGPP objectives, but needs a better hydrogeological approach to be sure that fluid flow can be evaluated. A single open hole will not allow measurement of flow. Also needed is more analysis of models for diagenesis in these sediments, and how model evaluation will be tied to fluid chemistry. How can hole placement answer questions about fluid migration pathways? What measurements need to be taken, and how will experiments or measurements be designed?
Category 4

Proposal 334Rev2 - Galicia Margin S Reflector, G. Boillot, M.O. Beslier, D. Rappin, E. Banda, M.C. Comas.

Outside the mandate of SGPP.

Category 1

Proposal 338Add - Sea Level Fluctuations - Marion Plateau Carbonates, NE Australia, C. J. Pigram.

This is more a letter of intent than a proposal, and SGPP awaits a comprehensive proposal.

Category 4

Proposal 347Add - Late Cenozoic Paleoceanography, South Equatorial Atlantic, U. Bleil, D. Lutter, V. Spiess, and G. Wefer.

Outside the mandate of SGPP, although there may be an opportunity to develop the issue of history of the carbon cycle.

Category 2/3

Proposal 354Add - Neogene History of the Benguela Current and Angola/Namibia Upwelling System, G. Wefer, W.H. Berger, L. Diester-Haass, W.W. Hay, et al.

This document is a response to earlier queries, and puts priorities on sites for a single leg of drilling. SGPP does not understand the scientific justification for reducing some transects to single sites. If several offshore sites are abandoned, then the carbon story cannot be properly addressed.

Category 3

Proposal 365Add2 - Geothermal Measurements along the Newfoundland and Iberia Conjugate Passive Margin Transects, K.E. Louden, J.C. Mareschal and J.P. Foucher.

The proponents apparently believe that the proposed drilling cannot address fluid flow issues. Therefore, this proposal is now outside the mandate of SGPP.

Category 1

Proposal 376Rev2 - Drilling at the VEMA F.Z. in the Atlantic: (1) Upper Mantle; (2) Gabbro/Dyke Complex Boundary; (3) Limestone Cap on Transverse Ridge, E. Bonatti, J.M. Auzende and C. Mevel.

Proponents have not expanded on the possible evaluation of the process of serpentinization. How will drilling here tell us more about alteration of oceanic crust? This revision does not remedy deficiencies noted by SGPP on the last version.

Category 3

Proposal 384Rev2 - The Connection Between the Pacific and Atlantic Oceans: The Venezuela Basin and Aruba Gap, A. Mauffret, A. Mascle, J. Diebold.

Outside the mandate of SGPP.

Category 1

Proposal 386Rev2 - California Margin drilling: Neogene paleoceanography of the California Current, Coastal Upwelling, and Deformation of the Gorda Plate, M. Lyle, J. Barron, R. Jarrad, S. Halgedahl, J. Gardner et al.

Upwelling history and carbon burial are certainly of interest to SGPP, but it is not clear why carbon cycle cannot be analysed with piston coring.

Category 5

Proposal 400Add - Proposal to NSF: Fluid Flow Paths in the Costa Rica Accretionary Wedge, E.A. Silver.

This is a proposal to NSF, not a drilling proposal. SGPP sees no need to respond.

Proposal 403Rev2 - KT Boundary Drilling in the Gulf of Mexico and Its Relationship to an Integrated Study of Proximal Deposits Associated with the Chicxulub Impact Structure on Yucatan, W. Alvarez, R.T. Buffler, S.V. Margolis, A. Montanari, et al.

SGPP is not convinced that the scientific issues cannot be fully addressed by drilling on land. Current knowledge seem sufficient to document that there was a large impact.
Category 3

Proposal 415Rev - Caribbean Ocean History and the Cretaceous-Tertiary Boundary Impact Event, H. Sigurdsson, S. Carey, S. D'Hondt and L.J. Abrams.

This proposal is not really within the SGPP mandate, but nevertheless interests us.
Category 3

4. REVIEW OF PROPOSALS IN THE FY94 PROSPECTUS

Proposal 323Rev2 - Tectonic Evolution of an Extensional Marine Basin in a Collisional Setting: The Alboran Sea, M.C. Comas, A.B. Watts, V. García-Dueñas, R. Kidd, et al.

This is essentially a tectonics proposal, although there is an opportunity here to recover sapropels.
Category 3

Proposal 346Rev3 - Transform (Translational) Margin: The Ivory Coast-Ghana Transform Margin (Eastern Equatorial Atlantic), J. Mascle, F. Sage, C. Basile, M. Moullade, G. Lamarche, et al.

This is NOT a full proposal, but contains no more for SGPP than 346Rev2. No items raised in the last review are addressed here.
Category 1

Proposal 361Rev2 - Drilling an Active Hydrothermal System on a Slow Spreading Ridge: The TAG Hydrothermal System, G. Thompson, SE. Humphris, P.A. Rona, M. Hannington, et al.

Proponents should be careful not to place sites too close together, because they may communicate with one another along fractures, and make fluid-flow experiments difficult. The amount of site data is greater than was the case for Leg 139, so there may be no real need now for additional site data. SGPP still strongly supports metallogenic studies at spreading centres. Will high-T tools be ready for FY94, or are conventional tools adequate? More details on HOW in situ measurements will be made would be helpful.
Category 5

Proposal 369Rev2 - (Generation of Oceanic Lithosphere at Slow Spreading Centers: Drilling in the Western Wall of the MARK Area, C. Mevel, M. Cannat, J.F. Casey, J. A. Karson.

There is only secondary SGPP interest regarding serpentinization and possible fluid flow along faults.
Category 3

Proposal 380Rev3 - Drilling into the Clastic Apron of Gran Canaria and the MadeiraAbyssal Plain: Volcanic Island Evolution, Continental Margin Instability, Global Sealevel History and Basin Analysis, H.U. Schmincke, P.P.E. Weaver, P.v.d. Bogaard, S. Cloetingh et al.

The current revision answers earlier comments of SGPP. There are important site surveys in 1993, but the MAP part and some of the distal VICAP sites are probably ready for drilling in FY94. Two legs would be necessary in any case, and SGPP favours ranking the drilling part only (a single leg for now) in the FY94 Prospectus.
Category 5

Proposal 388/388Add - No revisions since the last SGPP meeting.
Category 4

Proposal 391Rev - The Formation of Sapropels in the Mediterranean Sea - Testing Models of Black Shale Formation in a Lated Cenozoic Ocean by Scientific Ocean Drilling, M.B. Cita, A. Argnani, E.A. Boyle, S. Calvert, A. Camerlenghi, et al.

SGPP questions on the original proposal have been largely addressed. Site survey data should be ready for November 1992. The proposal is vague on how to distinguish between productivity and anoxia models -- this needs to be more clearly spelled out. Logistically, the eastern and western groups of sites could be drilled on separate legs with other programs, but both eastern and western sites MUST be drilled to answer the critical scientific questions.
Category 5

Proposal 405Rev - Amazon Deep-Sea Fan Growth Pattern: Relationship to Equatorial Climate Change, Continental Denudation and Sea-Level Fluctuations, F.D. Flood, C. Pirmez, W. Showers, J.E. Damuth, P.L. Manley et al.

The revised proposal is improved and SGPP compliments the proponents.
Category 5

Proposal 414Rev - Rates, Effects, and Episodicity of Structural and Fluid Processes, Northern Barbados Ridge Accretionary Prism, J.C. Moore, B. Carson, M. Kastner, X. Le Pichon, G. Moore et al.

This is a strengthened proposal and is seen by SGPP as an excellent experiment. We hope the corks do not blow due to overpressure.
Category 5

NARM-DPG - Outside the mandate of SGPP.
Category 1

5. RANKING OF THE FY94 ATLANTIC PROSPECTUS

Each panel member gave a rank, from 10 (highest rank) to 1 (lowest rank) to ALL proposals (averaging ranks for equally favoured proposals was allowed). Proponents ranked from 9 to 1, omitting their own proposal. Rank totals were normalized by the number of members ranking a particular proposal (i.e., members minus proponents).

PROPOSAL	SGPP CATEGORY	NORM. SCORE	RANK
405Rev Amazon Fan	5	9.09	1
414Rev N. Bardados Ridge	5	8.00	2
391Rev Med. Sapropels	5	7.67	3
380Rev3 VICAP/MAP I	5	6.50	4
361Rev3 TAG	5	6.16	5
388 Ceara Rise	4	5.66	6
369Rev2 MARK	3	3.58	7
323Rev2 Alboran Basin	3	3.33	8
346Rev3 Eq. Atl. Transform	1	2.21	9
NARM-DPG	1	1.42	10

6. REPORT ON OKHOTSK SEA CRUISE - Erwin Suess

Erwin Suess reported on impressive methane plumes studied on a recent cruise to the Sea of Okhotsk. The methane is thermogenic, and is leaking in an episodic manner from hydrates fed from a nearby river delta hydrocarbon source. Methane concentrations in the water exceed 10,000 nl/l. This would probably be a dangerous area to drill.

7. CO-CHIEF NOMINATIONS FOR FY94

For the top-ranked SGPP proposals, a set of suitable co-chief nominees was suggested by panel members. These are given below in no order of preference, and will form the basis of recommendations by SGPP Chair to PCOM.
AMAZON FAN - Roger Flood (USA), David J.W. Piper (Canada), Bill Normark (USA), Bill Showers (USA).
N. BARBADOS RIDGE - Roger Morin (USA), Peter Vroljek (USA), Alain Mascle (France), A. Taira (Japan), Marcus Langseth (USA), Jürgen Mienert (Germany).
MEDITERRANEAN SAPROPELS - Maria Cita (ESF), R. Zahn (Germany), Kay Emeis (Germany), Steve Calvert (Canada), Robert Thunell (USA).

8. PCOM/JOIDES REQUESTS FOR ADVICE ON REPOSITORIES

There was a lengthy discussion of location and requirements of repositories. Bill Hay raised the issue of whether archive and working halves of cores should be stored in different buildings in case of fire. The following recommendations were agreed:

SGPP recommends that the cores should be kept refrigerated indefinitely, and that the refrigeration should be maintained during transport.

SGPP supports the internationalization of core repositories, but to facilitate science recommends that the number of repositories be kept to a minimum.

SGPP recommends that, in order to protect core quality, cores should remain in the repositories where they are currently housed.

9. TIES WITH GLOBAL GEOSCIENCE INITIATIVES

Members and guests felt that existing liaisons (informal or otherwise) are sufficient. Nevertheless, SGPP proposes to invite representatives from global programs to address the panel periodically. The first presentation, at the next meeting, will be given by Jacques Boulegue, on InterRIDGE.

10. GUIDELINES FOR HIGH-T BOREHOLE INSTRUMENTATION

Following a brief discussion led by Jean Bahr, primarily related to instrumentation of Hole 504B, SGPP formulated a recommendation that no plans should be made that would endanger the quality of the hole, and that DMP should oversee this issue.

11. HIGH-T SAMPLER FOR BOREHOLE FLUIDS

Based on information supplied to JOIDES office by John Edmond (MIT), SGPP wants to indicate that it supports the possibilities offered by the development of a high-T sampler of borehole fluids. SGPP emphasizes, however, that this is not a replacement for in situ fluid sampling. SGPP continues to support the development of an in situ fluid sampler with the additional capability to measure in situ pressure, as outlined in the RFP submitted by the In Situ Fluid Sampling working group and approved by PCOM at their Corner Brook meeting.

12. FURTHER DEVELOPMENT OF THE DIAMOND CORING SYSTEM

Panel members desire more information on the history and cost of development of the DCS. PCOM was recently given a report containing this information by TAMU/ODP. Even the current phase III plans will probably not allow rapid drilling. SGPP has questions about the expected performance levels of the system, even if it becomes fully operational. Several members expressed the view that the DCS has already placed too great a strain on finances of the program, and may continue to be a fruitless drain.

13. OFFSET DRILLING WORKING GROUP REPORT - J. Boulégue

Jacques Boulégue summarized the contents of the working group report. The working group believes that complete recovery (needing DCS) is not as important as having complete logging (best in a wide non-DCS hole) and oriented cores for rock magnetic studies. SGPP members were surprized that the WG report suggests that the

DCS may not now be the best way to address important lithosphere objectives. The WG recommends 1 to 1.5 drilling legs in ocean crust per year for 10 years.

SGPP recommends that LITHP monitor the implementation of the WG report, perhaps adding appropriate new members to give strength in this area. SGPP recommends that this working group be disbanded.

14. SEA LEVEL WORKING GROUP REPORT - R. Flood

Roger Flood outlined the strategies and chronological focus of the report. In three time periods selected for study (late Oligocene to middle Miocene "icehouse", Paleogene "doubthouse", Cretaceous "hothouse"), the report advocates a transect approach to study sea-level history. Shallow-water drilling (?alternate platform) and coastal-plain drilling will be required. The requirements of a good sea-level proposal are: a grid of MCS data, existing well information, the prospect of good age resolution. Prior modelling is useful or necessary to guarantee the best selection of sites. In areas appropriate for determination of sea- level history, it will be critical to be able to recover carbonates and unconsolidated sands. Core to log integration is essential. The WG report advocates 1 sea-level leg per year for 10 years, with 2 clastic and 1 carbonate margin to be drilled for each of the 3 time periods.

SGPP members congratulated the working group on its excellent report. The panel will add appropriate new members to monitor the implementation of the report, and SGPP recommends that the working group can now be disbanded. SGPP will assign a subset of watchdogs to monitor sea-level studies, and will report annually to PCOM on the progress of this multi-leg program.

15. NEW MEMBERS

SGPP may soon gain another ESF representative, in recognition of the fact that J. McKenzie, as SGPP Chair, cannot be an advocate for ESF interests. SGPP will submit names of appropriate replacements for N. Christie-Blick, R. Flood and W.W. Hay to PCOM. A list of possible nominees was discussed. Christie-Blick, Flood, Hay and J. Mienert (all attending their last meeting) were acknowledged for their service and contributions to the panel.

16. LIAISONS

P. Swart will be a 1 meeting per year liaison to Shipboard Measurements Panel. Kay Emeis, the incoming German SGPP member, will replace Swart as liaison to OHP and SMP when Swart rotates off SGPP.

J. Alt will continue as SGPP liaison to LITHP and TEDCOM and J. Bahr will permanently replace J. Mienert as SGPP liaison to DMP.

A SGPP liasison to TECTP once the new SGPP membership is determined.

17. 1993 SGPP MEETINGS

The spring meeting, including a joint day with OHP, will be 4-6 March in Santa Cruz (Host = Margaret Delaney). SGPP members agreed that the joint meeting should include discussion of the following:
sea-level studies, Leg 138 techniques for real-time correlation of high-resolution cores on the ship, paleocean chemistry, overlapping interests in the Ceara Rise/Amazon Fan program, the need for the DCS and other technical developments (including a TAMU/ODP engineering report), and identification of possible joint objectives in areas of mutual interest.

The fall meeting will be 17-20 September in Corner Brook, Newfoundland, in the "Studio Room" at the Sir Wilfred Grenfell College of Memorial University (Host = Richard Hiscott). One of the four days will be dedicated to a field trip to look at Ordovician ophiolites and related rocks.

18. APPENDICES

Appendix 1: Report from J. Alt on LITHP Meeting, 18-20 March, 1992.
Appendix 2: Report from J. Alt on TEDCOM Meeting, 7-8 May, 1992.

Report to SGPP about LITH Panel meeting 18-20 March, 1992 by J. Alt.

PCOM Report: J. Austin presented the FY 93 schedule; pointed out that some OPCOM money is to be used for RFP for deep drilling; and that the fluid sampling working group has been established

NSF Report: Beth Ambos summarized the Performance Evaluation Committee report: ODP should be more pro-active in designing science, and possibly change publications (delete Part B?)

PANCHM Report: S. Humphris (you already have the report)

SGPP Liason Report: R. Zierenbergsummarized our last meeting. There was some discussion of what "Drillability" means. J. Austin pointed out that it should only refer to site survey info, not technological development, which SGPP used as a criterion. SGPP should take note of this definition for future rankings.

DMP Liason Report: J. McClain. Development of high-temperature tools is a DMP priority. Summary of progress so far: Temperature tool available to 500°C, but cable only withstands 300°C; a high-T resistivity tool is being developed in the UK; the Fluid Sampler Working Group has been organized. DMP favors the concept of "lithospheric characterization", i.e., experiments between holes to determine crustal structure and properties.

Offset Drilling Working Group Liason Report: S. Bloomer. Highest priority of working group is to complete a composite section through crust, not necessarily in one area. Holes 504B and 735B are the only deep sections toward this goal so far. The second priority is comparison of sections in fast versus slow crust. The importance of structurally tying in sites to "normal" or local crust was pointed out. Implementation of the working group strategy was discussed, and LITHP decided that it can take a more pro-active role. There is a change in LITHP focus from zero-age to offset drilling over the next 5 years, reflecting Leg 142 DCS results.

Leg 142 Report: B. Harding. The leg didn't achieve it major goals, but a lot was learned. The 3-leg guidebase was successful and the modified platform worked well. The main problems were with the secondary heave compensator and pressure sensing. There is oil industry interest (Shell and Amoco) in slim-hole coring and they are working on secondary heave compensators. It may be possible for ODP and industry to cooperate. Discussion about long transit time and deep water depth detracting from actual drilling time, led to the suggestion that future testing should optimize time on site for engineering. DCS will probably not be ready for Leg 148. LITHP suggests an alternate site for DCS next engineering leg: possibly Vema carbonate cap, in shallow water and accessible to Atlantic ports.

Global Rankings of Proposals:
Ranking process began by reviewing long-range goals, followed by 5 minute reviews of old proposals. Proposals were crossed of the list by consensus until 15 remained.
There was some discussion about adding generic proposals to the list (e.g., Red Sea and lithospheric characterization), but this idea was rejected because no specific problems were defined.
Global Ranking
1. 504B return
2. Hess Deep
3. MARK
4. TAG
5. 735B return
5. Sed Ridges II
7. EPR II

8. VEMA
9. Volcanic rifted margins
10. Galapagos stockwork and propagating rift
11. 15°20'N fracture zone
11. Reykjanes ridge
13. Endeavor ridge
14. 801C return
15. Oceanographer fracture zone

There was discussion about how some proposals changed significantly from the last ranking (e.g., 735b is now ranked high and EPR II dropped): this reflects DCS results on Leg 142 and the general change in LITHP strategy from zero age crust to offset drilling strategy for the next few years.Zero-age crust and DCS development remain priorities, however. LITHP will rewrite their white paper to reflect the changes in strategy for the next 5 years. It was pointed out that if proposals or ideas are discussed in detail at a meeting that those proposals tend to get ranked higher than proposals that are not discussed in detail. I seem to recall a similar effect occurring at SGPP meetings.

There was discussion about proposals driving the ship track versus proposals following the ship. There was similar discussion about how current top-ranked themes are apparently driven by proposals, but other important themes exist (e.g., hot-spots, large igneous provinces(LIPs)), but there are no good proposals. It was suggested to have RFP's for other themes: LIPs, Red Sea, hot spots, lithospheric characterization.

Watchdogs were assigned for the top-ranked proposals. Their job is to contact proponents and be pro-active for LITHP goals in order to help proposals favored by LITHP, and to insure that if proposals of secondary interest to LITHP are drilled, that they maximize results toward LITHP goals. This is basically what the panel does anyway, but gives more responsibility to individuals, and may maximize accomplishment of the panels interests. Maybe SGPP should consider this?

<u>List of "non-engineering" needs:</u>
LITHP discussed non-engineering needs and prioritized their greatest interests:
1. Sidewall corer
2. core-log data integration, including new hardware and software necessary
3. in-sity fluid sampler for hard rock (normal size and slimline), high temperature packer
4. cat-scan/X-radiography for cores (commercially available)
LITHP also strongly endorses development of a high-temperature resistivity tool, which is already under contract.

Report to SGPP about May 7-8, 1992 TEDCOM Meeting by J. Alt.

Leg 142 Report: Despite many small improvements and successes of new developments, the overall performance of the DCS was poor. The main problems are that the secondary heave compensator hardware and software did not work. No DCS cores were obtained, and the only recovery was of rubble jammed in the core barrel.

Diamond Coring System: Discussion of problems with the DCS secondary heave compensator and what to do about them were the focus of most of the meeting.

How it works: The DCS requires very precise control of the weight on the bit. The ship's primary heave compensator removes 80-90% of the ship's heave, so there is residual ship's heave, plus periodic stretching and relaxing of the drillstring due to heave. For 1m of ship heave, the drillstring stretches 7 inches, but the DCS requires $\pm$ 500 pounds weight control, which is equivalent to $\pm$ 6 millimeters of ship heave.

The DCS secondary heave compensator operates basically through a 2-stage process: in "standby" mode (not drilling), the heave compensator receives input from an accellerometer; in "auto" mode (during drilling), load cells, which measure the weight of the top drive plus drill string, add input to the system. The system is driven by compressed air-driven pistons, and the whole thing is controlled by a computer, which also "anticipates" the ships motion (the heave cycle is on the order of 7 seconds).

Problems: Several problems that occurred on Leg 142 were identified. Upon return to port, it was discovered that one of the feed cylinders (pistons that drive the compensator) was bent. This problem could have been at the root of several other problems, and both cylinders have been returned to the manufacturer for testing. The software developed for Leg 142 to improve secondary compensation did not work. Using the old Leg 132 software the "standby" mode worked well, but the "auto" mode did not work properly: pounding of the drill bit on the bottom occurred, destroying the bits. Auto mode apparently degraded the good compensation achieved by the standby mode. Software changes for Leg 142 did not modify the auto mode, so this is puzzling. There also may have been feedback between the computer-controlled compensation force and the measured weight, which drives the compensation. The data acquisition system failed during the leg, so evaluation of problems during the leg and post cruise is difficult.

There was significant discussion about possible reasons for these problems. The ship's heave is not a smooth sinusoidal variation, but has "turnarounds" at top and bottom of the cycle causing step-changes in force. It was suggested that a time-domain study, incorporating non-linear effects, be carried out rather than the frequency-domain study. There was significant concern that the load cells measure top tension, rather than the weight on bit, which is the critical factor for diamond drilling. The ship's pitch and roll may also affect the accellerometer. It was suggested that Al pipe might be less stiff and function better for DCS. The discussion led to the conclusion that a complete review of the system is needed, both actual measurements of properties of the drillstring carried out at sea, and a simulation of the DSC system.

TEDCOM Recommendations:

1. DCS development should continue.

2. Initiate a study by an outside consultant for simulation of the DCS system including heave compensator. An RFP will be prepared by early July. "Some" results of study are expected by October TEDCOM meeting.

3. ODP should hire TEDCOM member Howard Shatto as a consultant to follow and report on the

simulation study. Howard Shatto has already made a list of problems to be addressed by the study, and TEDCOM felt that because of the time that will be involved he should be compensated. It was previously discussed at PCOM whether it was appropriate to hire TEDCOM members as consultants, but it was felt that these are the world's experts at drilling and drilling technology, and that they should be available to ODP.

4. Make measurements at sea aboard the Joides Resolution of the mechanical characteristics of the heave compensator, and stresses and accelleration at the top of the drillstring when tensioned to the hard-rock guide base. This will provide data needed for the simulation study. Results are required soon (Legs 146-147?). Tests will only require a few hours if drillstring is already hung from ship.

5. Make drilling with DCS in "manual" mode possible (presently only operable with computer).

6. Carry out extensive land testing of DCS system following results of simulation study and prior to further at-sea testing.

7. Request more information on retractable diamond drill bits from "former Soviet" scientists, with respect to possible use for DCS hardware.

8. TAMU should obtain already available retractable diamond drill bit technology for slimhole drilling from Bureau of Mines.

"Russian" technology available to ODP: A Russian visitor presented a video documenting Russian deep-drilling technology, with the point that they are eager to have it adopted by ODP. The russians have developed and routinely use retractable roller-cone drill bits. These allow bit changes without pipe trips, saving significant amounts of time. There was interest by TEDCOM, but this technology would require larger diameter drill pipe, which ODP does not seem interested in.

ODP also showed a video about retractable slimhole diamond drillbit technology that has already been tested by the Bureau of Mines. There was significant interest in application of this equipment to the DCS, and it was incorporated into TEDCOM's recommendations.

Deep Drilling: A preliminary RFP for deep drilling feasablity study was presented. TEDCOM felt that it needs more work. One suggested deep drilling site (Iberian abyssal plain) is already on the ODP schedule, so it was suggested that this and similar sites (SGPP and TECP sites) be removed from the RFP, leaving only LITHP's deep basement site. It was discovered that much of the information requested is contained in former MOHO and OMD documents, and that the RFP may actually not be required. It was recommended that a literature search be conducted to find appropriate information and that TEDCOM, PCOM and LITHP examine the results.

Leg 143 Report: The Diamond Core Barrel (formerly Navidrill) was tested in Hole 866B, which drilled 117.4m with 23.1m recovered. recovery was 80% in oozes and 5% in fossiliferous wackestone. RCB recovery in equivalent section was 1-2%. Conclusion is that it works, not much discussion about further development. Former problem was that the downhole motor moved downward as the core advanced, increasing pressure as torque increased, rather than backing off on pressure. The new design has motor stationary in BHA and core barrel advances independently.