SCICOM Meeting: 17 - 19 August 1998
Durham, U.K.

PARTICIPANT LIST

Members

Gerard Bond	Lamont-Doherty Earth Observatory
Susan E. Humphris (Chair)	Woods Hole Oceanographic Institution
Emily M. Klein	Duke University, Durham
Hermann R. Kudrass	BGR, Germany
Roger Larson	University of Rhode Island
John Ludden	CRPG, Nancy, France
Nils Holm	Stockholm University, Sweden
Kenneth G. Miller	Rutgers, The State University, New Brunswick
Gregory Moore	University of Hawaii
Casey Moore	University of California, Santa Cruz
Jonathan Overpeck	NGDC / NOAA
Julian A. Pearce (Host)	University of Durham, U.K.
Maureen E. Raymo	Massachusetts Institute of Technology
Steve D. Scott	Canadian Secretariat for Ocean Drilling, Toronto
Kensaku Tamaki	Ocean Research Institute, University of Tokyo, Japan
Lisa Tauxe*	Scripps Institution of Oceanography, San Diego

Liaisons

Jack Baldauf	Science Operator (ODP-TAMU)
Dave Goldberg	Wireline Logging Services (ODP-LDEO)
Bruce Malfait	National Science Foundation
Kate Moran	Joint Oceanographic Institutions, Inc.

Guests & Observers

Peter Barker	NERC, U.K. — Leg 178
Warner Brückmann	University of Kiel, Germany
Joe Cann	University of Leeds, U.K.
Christina Chondrogianni	JOIDES Office, Woods Hole Oceanographic Institution
Tom Davies	ODP-TAMU
Kathy K. Ellins	JOIDES Office, Woods Hole Oceanographic Institution
John Farrell	Joint Oceanographic Institutions, Inc.
Jeff Fox	ODP-TAMU
Bill Hay	University of Kiel, Germany
Dave Hodell	University of Florida, Gainesville
Thomas Janecek	Florida State University (future SCIMP Chair)
Kazu Kitazawa	Japan Marine Science and Technology Center (JAMSTEC)
Ted Moore	University of Michigan (ESSEP Chair)
Daniel Prieur	CNRS, Roscoff, France
Mary Reagan	Wireline Logging Services (ODP-LDEO)
Barbara Romanowicz	University of California (ION Chair)
Shiri Srivastava	Geological Survey of Canada Atlantic (SSP Chair)
Takeo Tanaka	Japan Marine Science and Technology Center (JAMSTEC)
John Tarduno	University of Rochester (ISSEP Chair)
Shirley Waskilewicz	JOIDES Office, Woods Hole Oceanographic Institution

* alternate for Kevin Brown

Summary of SCICOM Motions & Consensus Items

SCICOM Motion 98-2-1
SCICOM approves the Agenda for the August 1998 meeting in Durham, U.K.
Proposed: S. Scott; Seconded: C. Moore *16 in favor*

SCICOM Motion 98-2-2
SCICOM approves the minutes of the March 1998 meeting held in Boulder, Colorado.
Proposed: S. Scott; Seconded: R. Larson *12 in favor; 4 abstentions*

SCICOM Consensus 98-2-3
SCICOM enthusiastically encourages JOI to continue efforts for establishing a collaborative partnerships between ODP and industry.

SCICOM Motion 98-2-4
SCICOM approves the policy for ODP student participation with the following modifications:
1. The title will be changed to "Student Trainee Program".
2. Each student participant will receive a certificate documenting his/her participation upon completion of the ODP leg.
3. Student staffing will be done in consultation with the Co-Chief Scientists.
4. The trainee program will be implemented so as to ensure that each student receives exposure and/or training in a variety of scientific/technical activities.
5. A limited number of core samples may be made available to Student Trainees for scientific projects. A letter will be required from the trainee's supervisor ensuring that a data report will be completed.

Proposed: G. Bond; Seconded: K. Tamaki *15 in favor; 1 absent*

SCICOM Motion 98-2-5
By a combination of vote and consensus, SCICOM/OPCOM prioritize the following budgetary items should additional funds become available for FY'99:

1. Ship modifications for microbiology lab	$ 30,000
2. Lease of microbiology lab for Leg 185	$ 50,000
3. Microbiological equipment	$ 150 - 180,000
4. Operational hammer	$ 157,000
5. GLT - Leg 185	$ 82,000
6. WST - Leg 183	$ 19,000
7. VSP - Leg 186	$ 45,000
8. ARI - Leg 183, 185, 186	$ 30 - 40,000 per Leg

Other big tickets items (as in SCICOM/OPCOM Consensus 98-1-3)

Downhole Measurements Lab	$ 450 K
Operational Hammer	$ 157 K

Other Items (in no particular order):

Borehole Stability Project	$ 16 K
CORESEIS	$ 27 K
Gas Chromatograph	$ 55 K
XRD	$ 150 K ($ 60 K - used)
Data Migration	$???

The following items were deferred pending further information:

Mirror Web Sites	$ 50 K per site
SSDB Computer Tech	$ 72 K

Proposed: E. Klein; Seconded: C. Moore *15 in favor; 1 absent*

SCICOM Motion 98-2-6

Based on the scientific accomplishments of Leg 178 and recognizing that Antarctic drilling entails high priority science as outlined by the LRP, SCICOM reaffirms the scheduling of Prydz Bay as Leg 188. However, SCICOM is concerned that our ability to complete Leg 188 may be jeopardized by the costs of an ice support vessel. Hence, we strongly encourage ODP, and the proponents, to make every effort to identify an ice support vessel that is affordable to the program

Proposed: K. Miller; Seconded: H. Kudrass 11 in favor; 1 opposed; 3 abstentions; 1 absent

SCICOM Motion 98-2-7

SCICOM recognizes that the scientific objectives of drilling at Nankai are of very high priority and require a 2-leg program. Hence, SCICOM supports a first leg of drilling and coring to be scheduled in FY'00, and a second leg for LWD and CORK emplacement to be scheduled in the following year. The conduct of the second leg will be contingent upon:

1. successful drilling and station-keeping in the current conditions encountered;
2. the timely development o the second generation of CORKS. This requires that time necessary for development by ODP-TAMU engineers be given high priority;
3. evaluation by the JOIDES Advisory Structure (SSEPs, SCIMP and SCICOM) of the detailed scientific plans of the second leg;
4. identification of funds to reduce the cost of the whole Nankai program to be equivalent to the cost of two moderate legs (i.e. $200,000-$300,000 per leg).

Proposed: E. Klein; Seconded: C. Moore *13 in favor; 3 abstentions*

SCICOM Motion 98-2-8

SCICOM supports, encourages, and recognizes the scientific importance of innovative programs which incur more than typical leg-related costs (<$300,000). Such expenses could include ice boats, alternate platforms, LWD, and CORKs. However, given the financial constraints under which the ODP operates, proponents or partner programs of such legs are strongly encouraged to seek additional resources to help cover costs in excess of a typical leg.

We hope that the opportunity to leverage against ODP's financial and technological resources will provide the international scientific community with exciting new opportunities.

Proposed: M. Raymo; Seconded: K. Miller *13 in favor; 3 abstentions*

SCICOM Motion 98-2-9

SCICOM approves the following ranking for programs to be considered for scheduling by OPCOM in FY'00 and beyond:

1. 445 - Nankai
2. 485 - Southern Gateways
3. 431 - W. Pacific Seismic Network (WP-1 and WP-2)
4. 448 - Ontong-Java Plateau
5. 465 - SE Pacific Paleoceanography
6. 479 - PacManus
7. 486 - Paleogene Equatorial Pacific
8. 499 - ION Equatorial Pacific
9. 455 - Laurentide Ice Sheets
10. 500 - H_2O Observatory

SCICOM recommends that Nankai be allocated 2 legs (see Motion 98-2-6) and SE Pacific Paleoceanography and Paleogene Equatorial Pacific be allocated 1.5 legs each. Ontong-Java is approved for 1 leg at this time.

The following proposals ranked below the above proposals and will not go forward to OPCOM:
11. 451 - Tonga
12. 482 - Wilkes Land
13. 450 - Taiwan
14. 463 - Shatsky Rise
15. 489 - Ross Sea

Detailed correspondence will be sent to the proponents by the SCICOM Chair appraising them of their proposal status.

Proposed: J. Overpeck; Seconded: K. Miller *13 in favor; 3 abstentions*

SCICOM Consensus 98-2-10
SCICOM recommends that the JOIDES Office seek permission from proponents to publish abstracts of full proposals on the web.

SCICOM Consensus 98-2-11
In response to a recommendation from the SSEPs, SCICOM expects to replace the Long Term Observatory PPG with a Hydrogeology PPG once it has completed its task. This is expected to occur at the March 1999 meeting.

SCICOM Consensus 98-2-12
Based on the recommendations from SCIMP and the need to ensure effective use of ODP's limited resources, SCICOM recommends the following program areas to be reviewed:
1) public affairs with respect to a consolidation of effort (SCIMP recommendation 98-2-9)
2) overall costs of the current wireline operations (SCIMP recommendation 98-2-10)
3) the staffing levels throughout the ODP organization (SCIMP recommendation 98-2-12).

SCICOM also requests that OPCOM and TEDCOM evaluate the cost benefit and feasibility of engineering projects to determine if they can be accomplished in a realistic time frame to benefit the goals of the LRP (SCIMP recommendation 98-2-11).

SCICOM Motion 98-2-13
SCICOM accepts the revised Integrated Curation and Publication Policy in principle. Several points require clarification, including: (1) the deadline for supplying material for inclusion in the SR for manuscripts rejected in the outside literature; (2) the requirement that authors are obliged to submit data (including that for papers published in the outside literature) for inclusion on the SR CD-ROM; (3) the party responsible for informing non-performers of their status.

Proposed: L. Tauxe; Seconded: G. Moore *15 in favor; 1 absent*

SCICOM Consensus 98-2-14
The field party would like to thank Julian Pearce for his hospitality in Durham, and for arranging a two-day travel through historical periods, starting with Hadrian's Wall at the fringes of the mainly land based Roman Empire, we ended with a visit of James Cook's ship and scientific equipment used for the first ODP-type of global marine scientific investigations.

Proposed: H. Kudrass

SCICOM Consensus 98-2-15
SCICOM bids farewell to four long-term members. We will sincerely miss the good cheer of Julian Pearce, the sage advice of Greg Moore, the stoic pragmatism of Hermann Kudrass, and the ascerbic wit and startling insights of Roger Larson. Our corporate memory will suffer from the loss of these veterans of PCOM. We wish them well.

Proposed: K. Miller

SCICOM Consensus 98-2-16
SCICOM takes this opportunity to applaud and thank Susan Humphris for her leadership of SCICOM and JOIDES over the past two years. Working with foresight, insight and industry, she has kept a steady hand on the science helm while leading us through the peripheral rocks and shoals that often threaten our overall goals. We wish her well in her return to a more normal life as "just" a world-class scientist and look forward to her wisdom during her last year as a regular member of SCICOM. At the same time, we welcome Bill Hay as he takes the SCICOM helm and leads us on in our never-ending voyage of discovery.

Proposed: R. Larson

SCICOM Consensus 98-2-17
SCICOM takes this opportunity to thank the JOIDES Office staff for their excellent and tireless service to JOIDES during their tenure at Woods Hole. In these days of ever-increasing bureaucracy and sometimes decreasing funding, it has been absolutely essential to rely on the professional support of Shirley Waskilewicz, Kathy Ellins, Maria Mutti, and most recently, Christina Chondrogianni. We especially thank Kathy Ellins for her trans-Atlantic service in two JOIDES Offices over the past 4 years. We wish her well in her new position at the University of Texas at Austin where she will have the opportunity to bring civilization from the Atlantic Seaboards to what many still regard as the "wild west".

Proposed: R. Larson

SCICOM Consensus 98-2-18
SCICOM thanks Nick Pisias for his role as Interim Director of JOI. We appreciate the significant investment in time, and the dynamism of Nick during this important transition in the direction of JOI and the renewal of the ODP.

Proposed: J. Ludden

SCICOM Consensus 98-2-19
Occasionally, the stars are in confluence and events transpire as they should. One such time was when Kate Moran accepted the directorship of the Ocean Drilling Program. The entire ODP community rejoices at this decision and no less so the Canadians from whose bosom Kate has sprung. Kate, a dual Canadian-U.S. Citizen, made her career and superb scientific reputation at the Geological Survey of Canada-Atlantic in Dartmouth. There, she was a member of an exceptional group of marine scientists who were the first in the country to grasp the significance of DSDP/ODP. Kate herself established a specialized physical properties lab as part of this pioneering effort. Kate has participated on 7 ODP legs and chaired the former Shipboard Measurements Panel. More recently, Kate has deftly steered JANUS through the shoals to a successful conclusion. Having these credentials, Kate is superbly well equipped to direct the Ocean Drilling Program through to a successful conclusion in 2003 and to lay the groundwork for IODP.

It is moved that a most warm welcome be extended to Kate from SCICOM with our best wishes for a continuation of her string of successes.

Proposed: S. Scott

SCICOM Approval 98-2-20

SCICOM approves by e-mail the schedule for FY'00 (and beyond) as follows:

Leg 188	Dec - Feb	Prydz Bay*
Leg 189	Feb - April	Southern Gateways
	Transit (14 days)	
Leg 190	April - June	Nankai
Leg 191	July	WP-2 Site
Leg 192	July - Sept.	Manus Basin
Leg 193	Sept. Nov.	Ontong-Java

* - contingent on availability of affordable ice support

12 in favor; 2 against; 3 abstentions

DRAFT

SCICOM Meeting Minutes

17 - 19 August 1998

Durham, U.K.

A. Welcome and Introduction

Humphris opened the SCICOM meeting by welcoming all members, liaisons and guests, and thanking Julian Pearce for hosting the meeting in Durham. Pearce expressed his welcome to the attendees and explained the logistics of the meeting, including a tour through the Cathedral and the Castle. Humphris then welcomed Kate Moran as the new ODP Director at JOI and Nils Holm as the new Chair of the ESF consortium replacing Judy McKenzie.

Humphris presented an overview of the Agenda announcing that the report on Leg 179, planned to be presented by J. Casey (section C 1.) would be canceled because he was unable to attend the meeting due to several exams for Ph.D. theses. She further announced that an additional item to be discussed would be the replacement of B. Carson on the Long Term Observatories PPG (section I 5.). The required recommendations from SCICOM for liaisons to Panels, as well as a letter from J. Mutter regarding industrial collaboration, would be discussed under New Business (section O). There were no questions or other changes to the Agenda.

SCICOM Motion 98-2-1
SCICOM approves the Agenda for the August 1998 meeting in Durham, U.K.

Proposed: S. Scott; Seconded: C. Moore *16 in favor*

Humphris asked if there were any changes to the Minutes of the March meeting in Boulder, CO. No additional suggestions were made.

SCICOM Motion 98-2-2
SCICOM approves the minutes of the March 1998 meeting held in Boulder, Colorado.

Proposed: S. Scott; Seconded: R. Larson *12 in favor; 4 abstentions*

Humphris gave then an update on action items from the last SCICOM meeting in Boulder, and the response from the last EXCOM meeting in Bonn:

- SCICOM Motion 98-1-11 regarding the long-term ship track of the *JOIDES Resolution* has been endorsed by EXCOM.
- K. Miller is attempting to convene an international workshop on Sea Level Change.
- S. Srivastava will be replaced by J. Diebold as the Chair of the SSP at the end of the year.
- A major issue for ODP has been to define membership levels, both in terms of bringing new Members into the Program, and in terms of the future level of participation of current full members. In response to this, EXCOM endorsed a new membership policy (EXCOM Motion 98-2-7) that defines a series of associate membership levels.

ASSOCIATE MEMBERSHIP

Although a policy of full and equal participation remains a goal of ODP, this document identifies degrees of participation in the JOIDES Advisory Structure at reduced membership levels. Membership levels will consist of Full Members and three levels of Associate Membership. Each level has defined degrees of participation in the JOIDES Advisory Structure. Countries and consortia at all levels have the right to observer status on all JOIDES panels and committees, and can participate in their discussions at the discretion of the Chair.

Only Full Members of ODP (whether individual countries or consortia) have voting rights in policy- and scientific-decision making for ODP (i.e. on EXCOM and SCICOM). All other levels of membership do not include representation on EXCOM and SCICOM.

For the purposes of defining the Associate Member levels, the standing Panels and Committees within the JOIDES Advisory Structure are divided into three groups:

Group I (Highest level of advice on ODP science and policy)
- EXCOM
- SCICOM

Group II (Scientific advice)
- ESSEP
- ISSEP

Group III (Technical and operational advice)
- SCIMP
- SSP
- TEDCOM
- PPSP

Privileges of Different Membership Levels

1. SHIPBOARD PARTICIPATION

Shipboard participation will be directly proportional to the contribution.

2. PARTICIPATION IN THE JOIDES ADVISORY STRUCTURE

Membership Level	Contribution	Privileges
Associate 3	2/3	One member on all Panels of Groups II & III;
Associate 2	1/2	One member on one Panel from Group II; One member on two Panels from Group III;
Associate 1	1/6	One member on one Panel from Group II; One member on one Panel from Group III

EXCOM Motion 98-2-8 clarifies the status of full members that changed to another level:

EXCOM Motion 98-2-8

EXCOM urges the ODP Council to maintain the principle of full, equal international membership to the maximum extent. Recognizing that this has not always proved possible, the JOIDES Executive Committee agrees on the following rules for members that have been full contributors in the past, but who have reduced their contribution below the full subscription:

(1) Shipboard participation will be in proportion to their contribution
(2) Provided that they satisfy the following criteria, they will be permitted to retain their full privileges on committee and panel membership:
  (a) Contribution must be equal to or greater than 5/6 of a full membership
  (b) They must make a firm commitment to work towards full membership
  (c) They must make significant progress towards achieving full membership each year.
  The Executive Committee will review the situation annually.
(3) If these conditions are not met, then the member will be designated as an Associate Member of the appropriate category.

Concluding, Humphris stated that according to the French member of EXCOM, it is likely that France will drop to an Associate 3 membership. Ludden confirmed the information.

Discussion: Scott expressed a concern within the PacRim Consortium that China as an Associate Member at the 1/6 level has a representative on one of the SSEPs, whereas Chinese Taipei, who contributes at the 1/6 level within the Consortium, does not have that privilege. Malfait clarified that Chinese Taipei has the privilege of having representatives on both EXCOM and SCICOM through their participation in the Consortium.

- Finally, Humphris announced that EXCOM passed Motion 98-2-4 congratulating Nick Shackleton on his knighthood.

B. Liaison Reports

B 1. NSF (B. Malfait)

Malfait reported that the membership status for 1999 includes Germany, UK and Japan at Full membership level, and China as an Associate Member at 1/6 level. ESF's status is still uncertain, but is purportedly expected to fall within a few percent of Full membership. The PacRim Consortium is within 1/12 of a Full membership, and is working towards coming up to full membership in 1999. France is expected to come in at the 2/3 level, and NSF is now discussing a MOU (Memorandum of Understanding) at this level. There have been no developments regarding new Associate Members.

The target budget worked out by JOI for FY'99 is at the $48.5M level, including costs of $3.0M for the refit of the *JOIDES Resolution*. NSF will hopefully be able to take care of the unknowns resulting from the uncertainties in membership levels at least for FY'99. This target implies a US contribution of 65 - 70%, which is a $1-2M increase over the 1998 contribution.

The overall 1999 NSF budget request was slightly increased by the President and then slightly reduced by the House of Representatives. Congress has kept all environmental sciences, as well as ocean sciences, at the requested budget level and has disproportionately reduced others. Having passed the House, they are now waiting for the Senate to complete its action. The Senate Committee reduced the President's request slightly to just over $3.6 billion, but has retained $24M for Arctic research logistics. The problem at the moment is that there is no overall agreement on all funding bills for the 1999 total Federal budget. The President has threatened a veto of the bill that contains NSF funds because he is concerned about some other parts of the bill. Therefore, NSF is prepared to be either shut down or proceed in 1999 with a continuing resolution, essentially at the same resources or slightly less than 1998. This will affect ODP, but should not affect the contracted action with JOI.

The ODP Council has concurred with EXCOM's Motion on participation at reduced funding levels during their last meeting at Bonn, Germany in June '98. The Council praised the excellent reports from S. Humphris and R. Detrick on the scientific and financial status for Phase III. Most of the members were not supportive of increasing the contribution levels — instead, they believe the Program should prioritize its scientific objectives within the available resources.

The IWG for IODP planning also met in Bonn and heard reports on the status of planning. There has also been discussion on the formation of a committee to examine IODP costs and organization, and provide a better budget analysis for the International Working Group (IWG).

Discussion: Klein asked about the reduction in France's full membership and what it represents in terms of financial support for the ODP. Ludden explained that there are still other sources of money available that may be used for specific drilling projects, even if they are under the auspices of ODP.

Larson stated that the original idea had been that the US would pay for 50% of this Program and in return would get 50% participation in the Program. However, this is no longer the case, and the US contribution is already at ~60%, rapidly approaching a 70% contribution. Based on this statement, he asked (1) whether there is any upper limit to the percentage paid by the US that would become intolerable to the NSF, and (2) whether there will be a significant increase in US participation on the *JR*, since at the 60% level, US participation has remained at 50%. Malfait replied that what is happening is unhealthy for the Program, but he could not give any specific bounds on what percentage would be intolerable to NSF. He believed there are people within the structure of NSF who will question the program if the percentage were to further increase — what is then the real international commitment to the Program? With the US percentage going up, we are seeing NSF trying to keep the Program as healthy as possible. US participation is not likely to jump as an effect of reduced international participation because the money to support the US scientists participating in the Program comes out of the same NSF budget that is funding the international contract activity.

Kudrass asked if the increase in US percentage was due to the refit, and Malfait replied that this was only part of it and that keeping the Program alive requires money for replacements as well as for new developments.

Scott commented on a discussion within the PacRim Consortium on their efforts to come up to 1/12 of participation to full membership.

B 2. JOI Report (K. Moran)

Moran thanked the participants for the warm welcome and expressed her pleasure in attending the meeting. Coming directly from the port call in Sydney, she reported that the science party came off the Leg very pleased although they had some failures, and that both crew and ship operations were in good shape.

Moran then referred to the JOI BoG letter to (included in the Agenda Book), in which Rutgers is invited to become part of JOI. In addition to opening up the membership to Rutgers, JOI BoG has the intention of opening it up even further, and JOI is working with the BoG in writing letters to potential members. This is expected to be an on-going process for the next several months.

JOI is actively participating in the planning for the post-2003 program, giving assistance with the organization of the Vancouver meeting for 26-29 May 1999, during which essentially a science plan will be developed for the part of the drilling program to use a non-riser vessel. A draft document outlining the specifications of drilling platforms that could be available at variable costs to the Program post-2003 is in preparation, and will be available at the Vancouver meeting.

Moran then gave an update on JOI's efforts in terms of gas hydrates. The bill for gas hydrates has passed the Senate and the next step will be a hearing on the House in September. An important aspect of this bill is that the Dept. of Energy has developed a Program Plan (included in the Agenda Book). Comments on this Program Plan, with additional recommendations from the JOIDES community, will be forwarded to DoE.

The MOA with JAMSTEC has been approved by Admiral Watkins and now needs to be signed by Japan. Technical discussions on the nature of the projects are progressing.

Concerning new memberships, JOI is negotiating with John Compton and trying to develop a 1/12 membership for South Africa. J. Austin and S. Humphris will pursue negotiations with Brazil at the international AAPG Meeting in November. India, through oil companies, has expressed interest for membership, and a discussion has been opened up.

Moran reported on JOI's efforts to develop industrial partners in order to advance technology and to potentially reduce the cost of developments to the Program. At the last EXCOM meeting, JOI was asked to develop an industrial partnership plan for presentation at the next EXCOM meeting. A draft plan has now been developed. JOI BoG has offered to offset some of the costs that will be incurred to develop these partnerships. The two areas of interest to industry in ODP are technology and science. The technological side is straightforward, as there is an overlap existing in technological development. For example, TAMU is now working closely with industry on the development of the hammer drill system. Another overlap of interest exists in measurements of pore pressure, as well as measurements ahead of the bit. There is also interest in industry regarding pressure core sampling in association with gas hydrates. Other overlaps are likely regarding deep water drilling technologies. Although industry has developed their own consortia for deep ocean drilling technology, there is the potential for partnership collaboration, and discussion is underway.

Science, on the other hand, is the more difficult topic for industrial partnerships. Areas of joint interest include: basin analysis at passive margins, reservoir characterization, gas hydrates characterization, and offshore geothermal reservoirs. Discussion has been initiated with the Energy and GeoScience Institute at the University of Utah. This is a $10M Institute which receives about 90% of its funding through the oil industry. Oil companies around the world fund the Institute and participate on a project-by-project basis. This kind of institute can help ODP to establish industrial partnerships because ODP as a Program cannot work on a one-on-one basis with one individual company. This Institute has an infrastructure and consortia already set up, and has developed its own applied science priorities as an analog to ODP's LRP. They are now moving to deep water, and this is the perfect time to start a collaboration with this Institute. They already have a type of proposal system from which ODP could potentially benefit. A way to proceed would be to propose short term (2-3 week) drilling targets addressing themes of interest to industry (these fall within the science topics listed above). ODP could then request industrial support for these proposals through existing consortia, such as EGI. There are many regions in the world oceans that could be targeted and would fit into the existing ship schedule. According to preliminary discussion, the possible target areas would be the deep water off West Africa, Western Greenland, deep water off Brazil and Argentina, and the Lord Howe Rise (west of New Zealand). Moran suggested that an applied research category be developed and included in the LRP. She also asked for support in leaving a 2-week place-holder in the ship schedule for an industrial partnership program.

Moran's final topic was a concern regarding the scattered appearance of ODP on the different web sites. A plan is under development to replace this disconnected structure with one that clearly links all web pages in a more consistent way. This effort would also include international web sites. The server at JOI could then provide support for other countries who cannot maintain their own server.

Discussion: C. Moore commented that pursuing a partnership with industry was a terrific chance for the Program to get additional funds. Ludden added that industrial collaboration should also include the mining industry. C. Moore asked if the mini legs of industrial collaboration would be staffed by the broad science community, or would industry buy the ship time and do proprietary work. Moran replied that in terms of discussions with EGI, they need stratigraphic holes, so for this example, it would involve extending a leg and having the science party do the work, implying relatively little impact in this first stage of collaboration. With a different structure for the Program post-2003, a much more flexible use of the ship can be achieved.

Pearce voiced support for industrial collaboration and asked about the structure of the Institute and the involvement of the different partners. Moran replied that the Institute is international in the sense that there are international oil companies in the consortia, and further stated that the Institute is flexible enough that, even if a company is not a member, it still can participate on a given project. Miller also voiced support and said he sees a great benefit for participants to bring in new science, but was concerned about the costs. Moran said that the costs would be charged to the Institute, so the Program would not lose money. However, discussions are still at a preliminary stage.

Kudrass asked if the contact with this Institute is the only possibility for industrial collaboration, and inquired about other competing institutes. Moran replied they are now trying to contact as many oil company consortia as possible. She mentioned some of the companies that are planned for contacts and asked for further suggestions.

Overpeck voiced clear support for industry programs, even if they do not cover complete costs of the ship, since it would allow ODP to have flexibility. Scott said it has been difficult getting oil companies to participate, and suggested inviting an oil company person to participate in the planning process at EXCOM or SCICOM. Moran replied that with regard to post-2003 planning, she had written a letter to the Geoforum Consortium and to the Shallow Water Flow Group that consists of most of the major oil companies drilling in the Gulf of Mexico, inviting them to participate in planning. Tamaki commented that Japan has very little experience with oil companies and that this would be the right time to find out how they feel about ODP. Humphris stated that for the Technical and Operations Workshop, she would present a list with further recommendations for industrial participation in order to achieve a wide representation of industry representatives to involve in the Program.

Summarizing the above discussion, Humphris concluded that there was general support for industrial collaboration, but that it is important the objectives fit into the high priority objectives of ODP's LRP, and that the general policy and guidelines of ODP are maintained with regard to the proprietary nature of the data. Moran, however, expressed concern that industrial objectives of applied research requirements would not match well with ODP's LRP. Overpeck commented this should not be a priority if it would help to free up funds to do research. Humphris said that any drilling involving ODP has to be enunciated in the LRP.

Malfait clarified that JOIDES will identify the scientific agenda for the program and this will define how to proceed in future. There are a lot of reasons to have industrial partnerships, but there would be no guarantee that this will also increase the budget. There may be partners who will then suggest reducing their contribution because ODP has another source of funds. There are also legal and technical problems that will arise depending on how the program is structured, one being insurance on the vessel.

Miller commented that any proposal for drilling still first goes to the SSEPs for science approval and then it goes to SCICOM. If they consider that the proposed science potentially meets the goals of ODP, there should be no problems.

SCICOM Consensus 98-2-3
SCICOM enthusiastically encourages JOI to continue efforts to establish collaborative partnerships between ODP and industry.

Larson applauded Rutgers being invited to join JOI and asked how it affects EXCOM membership — does it change the number? Moran replied that the number of US representatives on EXCOM will remain the same and a rotation will be developed. Larson further commented that now that Phase III participation is shaking out, it is not too soon to start thinking about Phase IV (post 2003). Humphris advised postponing this discussion to Wednesday when the post-2003 planning issue will be on the Agenda (section L).

B. 3. Science Services (J. Baldauf)

Baldauf summarized the status of action items from the last meeting that have been completed:

98-1-1A Operational procedures/currents guidelines
98-1-2A Paleontology application in Janus
98-1-3A Revision of Leg Participant Letters
98-1-7A Nankai meeting

Others underway include:

98-1-4A Equipment donation efforts
98-1-14A Plans for DML to be included in bid package

- **Operational Updates**:

Leg 179 was planned to include as primary objectives (i) a test of the hammer drill-in casing system, and (ii) drilling and casing of a reentry hole (NERO) for later seismometer installation. In addition, several seismic experiments were planned as ancillary objectives (2-ship experiment with the German research vessel *Sonne*, standard logs, SWD, VSP, test borehole strainmeter). However, as a result of a delay in port due to ship repairs (guidehorn), loss of equipment in shipment, and long transit times (Cape Town - Atlantis Bank - Ninetyeast Ridge - Darwin, Australia), 17 of the 26 operational days scheduled for primary and ancillary objectives in the Prospectus were lost. Consequently, the operational time lost impacted the scientific objectives. The hammer drill tests were limited although, while waiting for the shipment, 143 m of gabbro at Site 1105 were drilled with a 82.8% recovery, and a SWD experiment was conducted. Casing at the NERO hole 1107 was completed (total depth of 494 mbsf with 424 m cased: 120 m into basement, 80 m open hole), and SWD was again performed at Site 1107. All other ancillary objectives of the leg had to be canceled. TAMU is now in the process of interacting with shippers to recoup costs.

Leg 180 was planned to drill 3 sites (ACE-9E, -8A, -3C) to characterize the composition and *in situ* properties of a low-angle fault zone (8A), to determine vertical motion of the hanging/footwall for modeling the timing and amount of extension prior to spreading (8A, 9A), and to reconstruct the pre-lift history and the nature of the basement (8A, 9A 3A).

Site 1108 (ACE-8A) was cored to 494 mbsf (30% recovery). The primary hole was stopped because of pollution prevention and safety concerns. The C1/C2 ratio considerably decreased with depth (from ~2000 at 335 mbsf to 138-195 at 467 mbsf) whereas higher chain hydrocarbons increased with depth starting at 391 mbsf. Sites 1110 - 1113 were attempted as alternate sites, but reached <175 mbsf due to talus. Site 1114 was drilled to 352 mbsf (12% recovery), and at Site 1115, three holes were drilled that reached 802 mbsf (56% recovery). An important finding was the presence of bacteria to the bottom of the cored section. Site 1116 was drilled to 159 mbsf (21%) and Site 1118 to 205-926 mbsf (65%).

Leg 182: there will be a USSAC-funded experiment to examine magnetic overprinting of cores: testing of core barrels and cutting shoes is planned.

Leg 184: the PPSP review has been completed and the final site locations identified. Southern Site SCS-9 has been identified to replace the initially proposed two sites; however, there is some question as to whether clearance can be obtained for drilling in this area.

Leg 185: a test to compare the RCB and DCB is proposed. At Hole 801C, drilling to 960 mbsf is proposed and at BON-8A, the depth of penetration proposed is 900 mbsf. The plan is to complete the final coring run with the DCB at each site. This requires an additional pipe trip at each site (24 hrs each + 6 hrs handling time). Hence, OPCOM will discuss adding some time to the cruise. There are also berth(s) identified for microbiologists to participate in this Leg.

Leg 186: a mid-cruise port call will be necessary to load the casing and tubing required if 1200 m penetration is required at both sites (JP-1 and JP-2). The *JR* can accommodate ~800 m of penetration at both sites without a portcall. The required time is estimated to ~4 days (2 days transit + < 2 days portcall) and the portcall expenses will be ~$33,000.

• **Student Technician Policy**: The revision presented at SCICOM integrates suggestions from JOI and JOIDES. Baldauf explained in detail the conditions of student participants who will not be members of the Scientific Party. TAMU will advertise the positions in the JOIDES Journal, and it is expected that there will be 3-10 spaces annually depending on the requirements of the Legs. Applications will be considered 6 months prior to sailing, and selection will be based on the needed skills. The Member Countries will submit applications and provide letters of endorsement, travel support, as well as student compensation if they desire. Applications will be submitted to the national ODP office.

Discussion: Tauxe said she felt strongly that student interns should be compensated — even if they just get a minimum wage, but they should not be sent out only as volunteers. She was concerned that this might create resentments. Humphris reminded SCICOM as to the origin of the student effort. At the SCICOM Meeting in March, there was a SOE in the budget for additional technical support for high recovery legs, and McKenzie had guaranteed the technical support from the ESF for these legs. Hence, the idea of having students on the *JR* grew out of this. However, this has now evolved, and the student issue is now completely separate from the additional technical support issue. It is to provide a mechanism whereby students get experience by going out on the ship. Miller said that Mckenzie's intent has been to supply students for the technical support.

Humphris stated that it is important to separate students going out on the ship to gain experience, compared with the technical support required on high recovery legs. Tamaki welcomed this as it will provide experience to the students. Janecek asked whether ODP would provide travel money for students, and Humphris replied that this would be a decision for each member; in the US, it would be a USSAC decision. Scott saw a dilemma in providing travel money, but nothing for shipboard work. He felt it would also be problematic if wealthy countries paid a lot more than other countries — this could create animosity. He felt there should be some agreement on a small per diem to students. Kudrass suggested that including the phrase "training on board" would provide a better justification for raising funds for these students. Humphris suggested something like, "they will be exposed to a variety of shipboard activities for training purposes". Moran clarified that this will be available only when there is space available. She suggested changing the wording to "technical staff" and "student fellow" to ensure that the connotations are clear. Humphris considered it appropriate for a student to use samples from the cruise for an undergraduate thesis.

Baldauf remarked that if this is now a fellowship program, then they may be able to have access to samples, but there must be a clear definition of the responsibility of the individual. The program should be geared towards undergraduates. Miller suggested a limit on the number of samples should be set. C. Moore said this should be the Co-Chiefs' job. Miller responded that students cannot have the same access or privileges as other members of the shipboard science party; hence, it is not solely a Co-Chiefs' responsibility. Scott recommended that a letter of

endorsement be requested from the student's supervisor. If a student requests samples, then a letter from the supervisor should be submitted giving approval, confirming that funds and lab time are available for the student to do the job, and that the supervisor will take responsibility for the data report required and submitted.

Hodell suggested a statement should be added in the Policy encouraging compensation, but Baldauf stated that this would not be effective. Humphris suggested leaving the issue up to the member country. Tamaki and Scott voiced concern that the investigator may send the student to collect their data. Ludden inquired about the insurance issue and whether a student's status changed whether they were paid or not. Humphris agreed that TAMU needs to evaluate the liability issue and the maritime laws that may affect student participation. It is possible that if the student is not paid, he/she may not be insured. Raymo inquired on the staffing mode, and Baldauf replied that TAMU, in collaboration with the Co-Chiefs, will select the interns. Hay suggested that the student receives a certificate of participation. JOIDES will advertise the positions. Tauxe asked for clarification on their status and Humphris replied that they will not be part of the scientific party. Pearce remarked that the term "student internship" does not mean much in the UK or Europe, and asked it be changed to "student trainee".

SCICOM Motion 98-2-4
SCICOM approves the policy for ODP student participation with the following modifications:
1. The title will be changed to "Student Trainee Program".
2. Each student participant will receive a certificate documenting his/her participation upon completion of the ODP leg.
3. Student staffing will be done in consultation with the Co-Chief Scientists.
4. The trainee program will be implemented so as to ensure that each student receives exposure and/or training in a variety of scientific/technical activities.
5. A limited number of core samples may be made available to Student Trainees for scientific projects. A letter will be required from the trainee's supervisor ensuring that a data report will be completed.

Proposed: G. Bond; Seconded: K. Tamaki *15 in favor; 1 absent*

• **Core Wrap Project**: This has been achieved back to Leg 174A, and Legs 168-170 are underway. TAMU is currently investigating different methods for preservation of older DSDP cores.

• **Staffing**: Carlota Escutia was introduced as a new Staff Scientist, and is tentatively scheduled to sail on Leg 185. Baldauf then reported on a notable decrease in applications for upcoming legs and stated that there is a clear need for more applications for Legs 185-188 — this needs to be advertised to the community.

• **Drilling Services**: The bidding process for the active heave compensator (AHC) is still under way: RETSCO has been disqualified because they did not respond to clarification requests. Two additional bidders have inspected the *JR* during the June portcall in Darwin. An RFQ was issued in June, and the bid deadline is 31 August '98. The installation of the AHC is planned for the dry-dock in August '99.

The passive heave compensator has been inspected during the portcall in Sydney and the low-friction seals have been replaced to solve leakage problems.

Concerning the Drilling Engineering Association Project, development reports on ODP Hard Rock Reentry Systems have been delivered to subscribers (UNOCAL, EXXON, Mobil and ARCO) for $25,000.

A JAMSTEC Collaborative Effort is being established through a MOA developed by JAMSTEC and JOI. ODP development project proposals include (i) improving the Diamond Core Barrel System to obtain better core quantity and quality, (ii) the Measurement While Coring System

to provide formation and coring parameters, and (iii) the Polycrystalline Diamond Cutter Bits (hard rock coring with XCB, RCB and under-reamer options).

• **Publication Services**: Efforts continue on the design of the electronic format (on screen) and the booklet of the Proceeding of ODP in order to optimize them and make them user friendly. The laser print-on-demand or pdf files will be provided in-house during the first year in order to evaluate the requirements and potential improvement for this product.

The other main effort concerns the integration of the Publications Policy with the Sampling Policy. There is continuing progress on the definition of obligations of those who sail on a Leg or receive samples or data, as well as what constitutes fulfillment of that obligation. A contributor's guide will be available on the www.

• **Information Services**: The JANUS Paleontology Program in use has had mixed reviews as being too slow and requiring inefficient, numerous screen-steps. Thus, efforts have been concentrating on optimizing the application speed, and the shipboard Paleontologist will be trained pre-leg. A spreadsheet/range chart interface has been completed for data entry. Both programs will be available for Leg 181, and will be assessed by SCIMP based on the post-leg report.

The sediment smear slide application will also be evaluated during Leg 181. The hard rock VCD development is under way and completion is expected by late September. The data sets of Legs 171-174 are now available via the WWW.

• **Dry Dock Schedule**: The schedule has not changed significantly from the last meeting, including reconnaissance (Aug.'98), followed by completion of the TAMU package to ODL, and circulation of the ODL RFP (Sept.). The contract is expected to be awarded in March '99 and dry dock is planned for Aug. '99 with an estimated duration of 6 weeks (14 days dry) plus 1 week for sea trials (power management, station keeping, AHC) and an estimated budget of $268,000.

Discussion: Tamaki asked about the cause of the decreasing number of applications for shipboard participation. Baldauf replied that most of this is advertisement, but in part, it is also that the science target audience is not high profile; for example, the Japan Trench Leg. Humphris added that it is also a question of being so far in the future. She suggested an advertisement to be included with the EOS article that is typically written after this SCICOM meeting on the upcoming program plan.

Scott inquired on details of the Publications Policy, and Humphris deferred this until the SCIMP report for further discussion (section K 3). Scott also asked if there would be a Leg 180 post-mortem to discuss the hydrocarbon problem and its lack of prediction prior to the leg. Humphris said that the SSP did discuss this and felt they had been prepared as they could. The abundance of talus was unexpected, and there had been absolutely no indication that there would be any hydrocarbon problem. She indicated that PPSP would be reviewing this leg at their November meeting.

G. Moore inquired on the potential location for the dry dock and Baldauf replied that, based on reconnaissance, it will likely be narrowed down to 2 regions — Singapore and Australia.

Kudrass addressed the cancellation of the 2-ship experiment with the German research vessel *Sonne* during Leg 179. He said that he had great problems explaining to funding agencies why this happened since the ship sailed 2 days ahead of schedule for the next Leg. He suggested there should be a policy on how to deal with such situations. Humphris stated that this cancellation is something that nobody wanted to see happen, but that the seismic experiment was not a primary objective of this leg. She suggested such ancillary investigations in future be incorporated into the initial proposals so that they become primary objectives of the cruise. Then they clearly would have the same priority as the other objectives. In the particular case of Leg 179, she had been in close contact with TAMU during the cruise, and had taken the decision based on the primary objectives of the Leg. Fox added that, even if the experiment had been built into the initial

scientific fabric of the leg, the Program still faces horrific Solomon-like decisions in these situations. It is not possible to keep extending the Leg because that decision ripples through the Program and affects logistics and costs implications for people all around the world. This can get extremely complicated, and a point is reached when the decision has to be made that it cannot be done. It was obviously a terrible frustration to the German community and a terrible sadness for ODP to have to make this decision.

Kudrass, however, said that he was foreseeing more of such situations coming up, and there is a need for a clear policy on how to deal with them in order to avoid discouraging such future experiments. There were two sides involved, and the other side had also invested funds and logistics. Baldauf stated that a few days of time had been added to the schedule prior to the leg to perform the 2-ship experiment. However, the decision was made when complications continued to build over the course of the cruise. Klein inquired on the discussion with the Germans during this problem. Humphris replied that her understanding was that there had been daily communication between the two ships (*JR* and *Sonne*) on the status of the situation. Klein remarked that it obviously had political ramification and there should have been discussion at higher levels. Baldauf said there had been daily interaction at higher levels. Humphris concluded the discussion saying that there is a shared concern about this, and this is certainly not the way ODP likes to operate. She suggested that this issue be brought up at the OPCOM meeting since it was an operational issue.

B 4. Logging Services (D. Goldberg)

Goldberg summarized the recent logging results from the last three legs as quite successful. During Leg 178, three holes were logged (standard, GHMT, WST) whereas, during Leg 179, only one hole was logged by standard tools and SWD experiments were carried out at two sites — the NERO Site was not logged. During Leg 180, five holes were logged using standard tools to a depth of 700 m, representing the 3rd largest recovery of logs in ODP. Three holes were logged by WST which was originally not planned and resulted in additional expenses for this Leg. The only disappointment during Leg 180 was the planned operation with UBI that did not work.

OBS operations during the SWD experiment (Leg 179) were then explained. The processed data acquired at the top of the rig look good. As an example, Goldberg presented a comparison of vibrations spectra of the drill string — one at the basalt sequence at the NERO Site, and one at the gabbro site showing systematic differences in the drilling signature. This was considered promising for future applications

Another update concerned recent news from Leg 180 which has been very successful in defining lithological units in the deeper sites and have collected ~2.5 km of FMS.

Goldberg then presented the upcoming operations for Legs 181-186. Standard logging and the GHMT tool are planned for Leg 181; Standard, (include. DSI), WST and GHMT during Leg 182, and Standard, DLL and if available WST for Leg 183. Planning for Legs 184-186 is also progressing well: standard and GHMT tools for Leg 184, standard and GLT (if available in terms of funding) for Leg 185, and standard and BHTV tools for Leg 186. A three-component VSP tool is under construction by Schlumberger, and should be available for Leg 186. The tool design will be similar to the existing WST, and the tool will remain on board the JR on an as-needed basis. The data acquisition will be performed on MAXIS.

FY'98 Projects:

- ODP Log Database — All conventional log data have been migrated to the database, and includes measurements at 277 holes. Migration and documentation of FMS data has begun and completion is expected by the end of the year. Data migration of specialty tools (e.g., GHMT, BHTV, GLT, VSP) is planned to begin this fall.

• Core Log Integration Platform — Splicer has been completed, tested and installed on the ship. The Sagan development for core-log depth integration is underway, and version 1.0 is planned to be deployed on Leg 182 for sea testing.
• Active Heave Compensation — A drill string mounted memory (DSM) tool is under development that will include (i) a single-axis high sensitivity accelerometer for heave measurements, (ii) a three-axis high frequency accelerometer for drill bit vibrations recording, and (iii) an internal temperature sensor. Completion of the electronics for data acquisition for this tool is expected for August/September.
• Core-Log Image Correlation — This tool has been successfully tested on Legs 173 and 176. Images of over 800 m core have been collected during Leg 176, converted to JPEG files and distributed to the Scientific Party. The lithostratigraphic correlation between core and log data is underway.
• Atlas of Borehole Images — The Geological Atlas of Borehole Images will compile 18 images from igneous and sedimentary environments organized by water depth. The AAPG publication is planned for early 1999.
• Satellite Transfer of Log Data — The installation of a new Inmarsat-B system with an ISDN connection to Lamont was completed in December 1997, providing a high speed option for log data transfer (40 KB/sec). With an average requirement of 15-20 MB per leg, the average cost of $32.54 per MB is considered an economical way for ship-to-shore data transfer.

Drydock Plans: The updated dry dock plans include (i) the replacement of the Maxis unit (Schlumberger) with a new state-of-the-art MCM unit, (ii) the installation of cabling to DHML for data acquisition, and (iii) the upgrade of existing space in DHML to improve storage and workspace utilization.

Personnel Changes: These include (i) a search for replacement of C. Pirmez who left BRG to join industry, (ii) introduction of T. Baker as the new Database Administrator, (iii) and three new Chief Scientists: V. Louvel at LMF, R. Pechnig at Aachen, and S. Saito at ORI. A search is underway to fill the position of Engineering Assistant at BRG.

Discussion: Farrell inquired on Schlumberger's involvement in the 3-party VSP and whether the availability of the tool is expected to increase the requests for its use. Goldberg explained that Schlumberger has one, but they don't have an open-hole 3-component VSP. So, what they basically do is take the guts out of their 3-component tool and put it inside the standard check shot tool. The tool was used on the Barbados Leg, and it was planned to be used on Leg 180 as well. Problems with the use of the tool during Leg 176 gave the motivation to design a better one.

Larson inquired on the availability of funds for the geochemical tool for Leg 185. Goldberg replied that the main problem with this tool is that a chemical source is needed. This a long lead time — end of September would be about the deadline to make the order.

Humphris asked about the replacement costs of the Maxis unit. Goldberg explained that it is owned by Schlumberger and has been leased on a daily leg-by-leg basis and the upgrading would not cause extra costs — the costs to ODP will remain on the same level.

C. Status Report

ION Objectives and Progress (Barbara Romanowicz)

The International Ocean Network (ION) was officially founded in 1993 in recognition by the geoscience community that there is a critical need for permanent observatories in the deep ocean to fulfill two major scientific goals: (1) a uniform coverage of global terrestrial processes; and (2) long-term monitoring of active processes. The goals of ION are to facilitate:
- communication and cooperation in the development of critical elements of observatories;
- standardization of the elements of the specifications of the system;

- standardization of costly elements that would allow shared maintenance of the observatories;
- development of common plans for the use of resources such as provided by ODP;
- timely exchange of data, and coordination of siting plans on the international scale.

The ION program is closely linked with FDSN, and is currently under the umbrella of IASPEI, IAGA, and IAG.

An example that illustrates the scientific rationale for having a uniform distribution of observatories is the sampling of the deep core-mantle boundary region of the Earth by seismic waves. There is a very large gap in the oceans, as well as a difference in sampling between the northern and southern hemispheres. The model that was derived from these data by Morelli and Dziewonski (1987) shows a correlation between the topography of the core-mantle boundary and the sampling distribution. This is one of the major issues that is faced in global seismology because bias in the sampling causes bias in the models.

One of the first activities of ION was to develop a map of the coverage provided by existing seismic stations and identify the squares (2000 km x 2000 km) with no permanent stations (Appendix 1). They represent oceanic areas with no island sites that can be used for installation of observatories. Among the 20 squares, ION identified a priority list of 6 sites that (i) most meet the goals of the scientific program by improving the global coverage, and/or (ii) allow better monitoring of subduction zones in the W. Pacific.

The ION program activities in a chronological overview have been as follows:

1989: The first broadband seismometer was installed downhole during Leg 128 in the Sea of Japan. Only a small amount of data was recovered due to problems with instrumentation.

1990: The LRP of ODP called for “deployment and testing of downhole seismic instrumentation”, and “deployment of 12 downhole seismic stations in holes 100-200 m deep between 1993-2002”.

1991: Hole 843B was drilled (OSN-1) during Leg 136 about 225 km SSW of Oahu.

1992: Installation of broadband systems both downhole and at the sea floor at Hole 396B by OFM/SISMOBS (France). This was accomplished using the Nadir and Nautile, and ~10 days of data were collected.

1993: Establishment of ION and identification of the 6 priority sites for additional seismometer deployments.

1995: A conference was held in Marseilles on ‘Ocean Floor Observatories’, at which it was decided to enlarge ION beyond seismology.

1997: The MOISE experiment (MBARI, UC Berkeley, France) demonstrated the capability to use an ROV (Ventana) to install a sea floor system and underwater live connection in Monterey Bay at a water depth of 1015 m.

1998: The NERO site was drilled during Leg 179. The OSN-1 experiment was performed in February - June allowing a four-month comparison of downhole, seafloor buried and seafloor not-buried BBOBS.

The major issue to be resolved is the optimum technique and instrument emplacement for obtaining the best data with the lowest noise on the seafloor. In broadband seismology, efforts have been focusing on how to develop instruments and deployment modes that create less noise but include the whole frequency range of body waves (>0.1Hz), surface waves (0.01-0.1Hz) and free oscillations (0.001-0.01Hz). The French experiment in 1992 demonstrated large noise levels in the borehole and lower levels in the seafloor site, and hence the question arose as to whether it is worth putting broadband systems in boreholes. However, with only 10 days of data, only limited sediment cover, and concerns about whether the installation was done properly, the answer was not clear.

The first results are now coming out of the long-awaited OSN-1 experiment which was delayed due to issues of funding and also to problems with the construction of the instrument. The instrument deployment and recovery were successful and four months of data were collected. During that time, there were quite a few events that are currently being analyzed. The preliminary results allow the spectrum of noise to be compared between sea floor and borehole deployments, as well as between ocean floor and the island site on Hawaii. The instrument on the seafloor had the highest noise, suggesting that the least that should be done in the oceans is to bury the instrument completely. For a large fraction of the spectrum, the signals from the buried and downhole instruments are equivalent down to about 100 secs and up to microseismic levels. The main difference is in the low and high frequency range. At the lowest frequency beyond 100 secs (<0.01 Hz), the borehole sensor is noisier than the buried system. However, the reason for this noise is well understood from experience in boreholes on land, in which the instrument has to be cemented, either permanently or with sand or glass beads, to reduce this low frequency noise. On the other hand, in the body wave frequency band (>0.1 Hz) the borehole instrument spectrum is significantly quieter than the spectrum from the buried instrument. The reason for this can be determined from looking at recordings from earthquakes. Data recorded during a large earthquake in the Fiji Islands show that each time a phase comes in, there is some "ringing" apparent in the seafloor unit whereas the borehole spectrum is quite clean. The likely reason for this is resonance in the sediment pile that affects the ocean floor system, but not the borehole which is instrumented in the basement. This is currently the most important argument for installations in boreholes. Additional siesmograms from events in the Balleny Islands and in California confirm the equivalency of borehole and ocean floor recordings in the middle range frequency (0.1-0.01 Hz). However, a better detection of body waves in the high frequency range is achieved using a borehole seismometer; at the lowest frequencies, the excess noise is likely a technical problem that can be overcome.

Romanowicz concluded her report emphasizing the importance of permanent ocean floor observatories and a preference for borehole instrumentation. The community is anxious to see this project move ahead as it has been stalled from many years. What is important is establishing a network, with a number of observatories implemented within a relatively short period of time. The OSN-1 results obtained so far indicate that drilling additional holes is worthwhile and feasible. Instruments for the scheduled holes in the Japan Trench, as well as for additional priority sites in the NW Pacific, the Philippine Sea, the H2O site, and the equatorial site are ready for deployment.

Discussion: Tamaki asked about the depth of burial in sediment of the seismometer and how it was deployed. Romanowicz replied that the seismometer was just pushed into the sediment, so the burial depth was ~20-50 cm. Kudrass inquired whether the "ringing" noise in the buried seismometer could have been prevented by burying it deeper, or whether a basement penetration is necessary. Romanowicz replied that basement penetration is needed, and the 'ringing' frequency range will be related to the sediment thickness. However, it would not help pushing the instrument another 1-2 m further into the sediment. It is only by getting into solid rock or consolidated sediments the noise can be avoided.

Larson inquired about the engineering complications for packing the seismometer into the hole with sands or glass beads to overcome the low frequency noise problem — why wasn't this included in this experiment? Romanowicz commented that she thought there may have been a fear of not being able to recover it. However, it has been done in Monterey Bay where the conditions in terms of water depth (only 1000 m) were easier. Larson commented that the problem is not to get the instrument into the hole but what sort of technology is required to recover it. Baldauf asked about the minimum basement penetration required to have a successful experiment and how much of the hole needs to be opened vs. cased. Romanowicz replied that the instrument needs to be put in the open part, with casing preferably down to the basement — in fact, it needs to protrude into the basement. Baldauf asked about the significance of 50 m of basement vs. 200 m of basement. Romanowicz replied that there is not much of a difference — 50m should be adequate. Baldauf

inquired further about the difference between having 10 m of open hole below casing vs. 40-50 m of open hole below the casing. Romanowicz replied that she would think the more you have the better.

Ludden remarked that NERO was not logged, which he considered as very unfortunate, and asked how important it is that NERO gets logged so that the conditions of the basement are understood. Romanowicz replied that the French do not think it important and they are willing to put the seismometer in the hole without this information. However, if the logs were available, then you would know precisely where the basement is, thus optimizing the installation. Now it is a question of priorities as to when it is possible to go back and log the hole vs. when scheduling is possible for installation of the seismometer. Humphris asked if there was any schedule for the instrument installation at NERO. Romanowicz said that the instrumentation of the hole would be a cooperative effort between France and Japan, but it is not yet scheduled. There is hope that with the Japanese collaboration, the installation can be moved forward. Scott inquired whether the buried sediment records are adequate for doing the desired science, or if it would be a matter of incremental improvement by going into the basement? Romanowicz said that it is not a matter of incremental improvement because, although the buried instrument provides access to the surface wave band, which is very useful for upper mantle studies, deeper studies (>400 km) require the body wave data.

Raymo asked about the achievements of the ION sites drilled during ODP Leg 128, 136 and 179, and about the three new sites ION is bringing to ODP next, which appear to be in areas where there are land-based sites. Romanowicz replied that the new sites in the NW Pacific are meant to improve the coverage of subduction zones, specifically providing high resolution imaging of the zone down to the lower mantle. The other sites are global coverage sites. Leg 128 involved implementation of a broadband system downhole in the Japan Sea — it worked well, except that the recording instruments failed. Leg 136 was the OSN-1 hole.

Pearce pointed out that some of the areas with no sites are areas where future drilling is already planned. He asked if ION could use holes drilled for other purposes. Romanowicz replied that there was no reason why not. However, the sites in future drilling areas are not first priority sites because of the logistical and weather problems involved. It would need discussion between the communities to come to agreements because of the additional required time. Asked about the added time requirements if an ION site were to be added to an existing leg, Romanowicz said that the installation takes less than one week, but putting in the casing and the reentry cones is not only costly, but would lengthen the legs significantly.

Fox asked that now it has been demonstrated that a seismometer in a hole advances the power of the observation, and recognizing that casing and a whole reentry process require additional resources, is there an opportunity to bring new resources from the ION community into the ODP community to help offset the costs? Romanowicz replied that they like to think more broadly, and that they believe that they can bring the physical oceanographic community in, but on the level that they participate by supplying the recording systems, and in maintenance and recovery of observatories. Thus, by joining hands with other communities, she believes that other funding can be brought to bear . However, that does not help bring in direct additional funding to ODP.

Scott stated that ODP has a policy of legacy holes with reentry cones and casing that would be available for ION experiments — he recommended the examination of already existing holes for the purpose of ION. Romanowicz said that was done when the French experiment was performed. At that time, there were only a few holes with reentry cones that could be reentered. They did not get permission to use Hole 504B because of other planned experiments. The only other was Hole 396B. She didn't know of any other recently drilled holes that would meet the criteria for seismometer deployment in the prioritized areas.

Bond asked for clarification on the improvement in signal of the borehole instruments in comparison to the ones buried in the sediment. Romanowicz explained that the comparison showed that with the data recorded by the buried seismometer, you loose part of the science — the body waves that provide information on the deeper part of the mantle and core. It would not be possible to do tomographic reconstructions below the top 400 km with adequate resolution.

Humphris asked whether the realistic time frame for getting installations in the holes at the high priority sites, assuming that ODP drilled them, is in the range of 30 or 5 years? Romanowicz replied that we need to distinguish between wish and reality. If ocean coverage could be obtained in 5 years, that would be best. ION is interested in the network aspect, and having the whole network operational within a reasonable time frame. We have now gained better experience and the instrumentation has been improved, so we are much further ahead, even though progress on installation stalled for a while. Humphris asked if the seismological community, in terms of the outlook for funding of these instruments, is prepared to instrument additional holes right now? Romanowicz replied that it is not ready at present, but the ocean network is high priority at NSF. There is some planning for some major research equipment, and the ocean network is high up on the list. Holm asked about the requirements of the SSP for drilling at the Equatorial ION site and Romanowicz replied that all the required data have been provided.

Ludden commented that once a borehole is drilled, the seismic community will go out and get the funding even if it takes two years — it is a chicken-and-egg problem. He commented that it is of fundamental scientific importance to get 5-6 of these holes drilled before 2003. Humphris added that it has been a SCICOM consensus that the 6 high priority ION sites would be also high priority for ODP, and then the issue of buried vs. downhole instruments would be reevaluated in terms of the rest of the sites that ION has identified. Hence, SCICOM has committed at least to these 6 high priority sites, but ODP needs to see progress being made towards installation of instruments.

Moran asked if there has been any discussion with the physical oceanographic community regarding potentially opening up new kinds of monitoring. Romanowicz replied that such discussions are currently ongoing. One of the issues is the development of buoys to bring data up to the surface. This is a technological issue that is being addressed, and a lot of progress has been achieved in defining this technology. Humphris asked whether it is possible to deploy other instruments in addition to the broadband seismometer or would it cause interference? Romanowicz replied that would be possible and is already done on land, although it might be a worry in terms of multiple cables. In terms of compatibility, strain meters, pressure sensors, etc. would be possible. Fluid samplers, however, would be a problem because the installation of the seismometer requires the blocking of circulation.

D. Review of FY'99 Schedule (J. Baldauf)

Selection of Co-Chief Scientists — Co-Chief Scientists have now been confirmed for all Legs up through Leg 186. One Co-Chief has been identified for Leg 187, but the other one remains to be determined.

Status of Leg 184 — The East Asia Monsoon program is in place, and by including 2 additional sites in the north and only 1 southern site, most of the Leg 184 objectives will be achieved with the exception of the Paleogene record at the southern site. Humphris referred to the letter from the Leg 184 Co-Chiefs included in the Agenda Book which addressed the issue of how the changes in sites, or the cancellation of the southern site, would impact the objectives of the cruise. Ellins then reported from the SSP meeting that there are still a lot of changes concerning site locations. PPSP already moved sites 5 and 8 downslope. Sites 1 and 2 remained, but the depth of penetration was reduced. Baldauf remarked that PPSP had also modified site 3. SSP disallowed site 10 and recommended site 9 to move slightly to the west. Hence, PPSP will need to look again at this Leg. SSP would like a survey done as the *JR* approaches the southern site; the use of survey equipment therefore needs to be included in the clearance request for that site. This survey is critical because there are a number of sites that do not have crossing seismic lines. Baldauf further explained that all sites need clearance, but the southern site is the most problematic. TAMU has already requested the State Department for permission and are waiting for a response.

Ludden asked if there is any risk that the leg will not go ahead. Baldauf replied that the Leg will go ahead — the only question is whether the southern site will be approved for drilling. Humphris stated that science of the leg is still justified on the basis of what can be gained by drilling only the northern sites.

Update on the Hammer Drill-In Casing Project — The components tested during Leg 179 were the SDS hammer and several different types of bits (standard, eccentric and concentric retractable). Not completed was testing the hammer's ability to install casing. In terms of hammer performance, eleven spud-in tests were completed at 2 sites. A rate of penetration (ROP) of 4.8 m/hr was achieved, which was extremely impressive given that only 2/3 of the pressure capability on the hammer was utilized. Typically, the hammer is operated at 2300 PSI, but during the test it was operating at 1600 PSI. The main limitation was the harmonic vibration that came back from the hammer, and the vibration it caused on the rig floor within the pressure piping in the pump system — so there was a limited amount of PSI for operation. In addition, the large heave (4-5 m) induced motion of the bottom hole assembly (BHA) and will require some redesign of the hammer casing to be more resistant. This motion resulted in the cycling and turning 'on' and 'off' the system, and respudding which caused damage (cracked valve body or piston). Finally, after the last operation, the hammer system got lost in the hole due to a connect failure in the SDS sub. This is currently pending an insurance claim. However overall, the hammer performance was considered positive and it looks as if it will drill subsea hard rock formations.

Bit performance, on the other hand, was a bit more challenging. The pilot portion (center bit) showed minimal damage. The casing operation, however, requires under-reamers with wings. These are a problem with the heave because the motion causes them to break up, so the bit design needs to be reevaluated.

Overall, the tests demonstrated that the hammer can drill in subsea hard rock formation. However, design modifications are required for the hammer (valve, body strength) and for the bits (for casing drill-in). After these modifications, a new sea test of the hammer system is envisaged for June '99 around the dry dock window.

The overall cost estimates for the post-Leg 179 developments include the bit procurement ($100,000), support equipment ($25,000) and the land test costs ($100,000), amounting to a subtotal of $225,000. At present, within the FY'99 budget, there are funds ($195,000) budgeted for the Top Hammer that could be redirected for the above developments and would help to achieve the planned sea trial. The costs for the rental of a hammer, together with bit costs and support equipment for a seatrial are estimated to be $268,000. Assuming an insurance adjustment of $100,000 from the loss of the hammer, the difference of $168,000 may become available from recovering funds from the shipping company.

• Concluding the above report, Humphris identified two action items for SCICOM, one being to allocate ship time during FY'99 for the test, and a second being to include the required costs on the prioritization list for the budget discussion.

Discussion: Malfait inquired on the status of recovering money from the shipping company, and Baldauf replied that is still under negotiation. Fox added that the shipping company has been reticent to respond — the next step now is taking direct pre-legal action. TAMU has recreated the paper trail of registered letters and documentation. Humphris asked what level of funding ODP is trying to recover, and Baldauf replied it amounts to $160,000.

Humphris asked on how the sea test for the hammer system around the dry dock would affect the FY'99 schedule. Baldauf replied that this would depend on the dry dock place and the time required for dry dock — the key is identifying a place to do the hammer drill test, and then fit it into the schedule. Fox remarked that, according to discussions in Sydney at the port call, the dry dock work could possibly be completed in 24-25 days. However, real estimates need to wait formal bid selection.

Tauxe stated that since a lot of problems are caused by heave it would make sense to do the test after drydock when the ship will be equipped with an active heave compensator. Fox replied

that it would certainly minimize that risk. Baldauf remarked that OPCOM will need to discuss it in the context of geographic considerations of the scheduled legs.

E. Review of FY'99 Prioritization

E 1. Update on Status of FY'99 Budget (K. Moran)

Humphris first presented a list of items that had been prioritized during the last meeting for funding, should there be additional sources of funds available for FY'99, and explained that after the reports to follow they would need to review this prioritization.

Moran then presented a summary of the FY'99 budget pointing out that the projects important to meet the objectives of the legs are already considered in the calculation. The Program Plan has been approved by EXCOM. Science Services for 5 legs are included, as well as Drilling Services costs for the diamond core barrel, hard rock reentry system, MWC, and active heave compensation. The rest of the budget for Information and Publication Services, and Ship Operations are typical or normal budgets, except that the Ship Operations budget includes the additional $3M for dry dock.

There are two types of projects: those that are associated with meeting the long-term goals of ODP, and those that are specific for achieving the FY'99 scientific objectives. Hence, the issue is the balance between taking funds away from science objectives for FY'99 in order to put them towards meeting the overall objectives for Phase III. There are activities like developments for the next generation of CORKs, pressure core samplers, etc. that likely will be used in FY'00, but probably will already be needed next year. There are also other additions to this list recommended from the PPGs.

Discussion: Humphris asked if there was any feeling on how FY'99 was taking shape regarding the budget, and Moran said there have been no changes since EXCOM. Fox explained that JOI and JAMSTEC have created a technology collaboration agreement to work on technology development for Phase III. This agreement requires nurturing of technological developments during the present phase, so they will be in place for OD-21. Some of those projects (diamond core, MWD) are already in the budget for FY'99. TAMU is still working with JAMSTEC on establishing the collaboration agreement to define the projects and could then prioritize some monies for other high priority objectives. Hence, there is the potential that some resources can be moved to other initiatives, although the amount of those resources is not yet known.

E.2. Microbiological Needs and Costs (D. Prieur)

Prieur presented a list of equipment necessary to establish microbiological work onboard the *JR*, pointing out that this is the basic minimum package of requirements. The list includes the following items (* recommendations by SCIMP):

1.* High power epifluorescent and phase contrast microscope with digital imaging ($60K)
2.* Laminar flow hood ($12K)
3.* Freezer (-80ºC) and liquid nitrogen storage and transport ($10K)
3. Anaerobic gas manifold system ($3K)
5. Autoclave (4.2K)
6.* Anaerobic cabinet with core handling capacity ($15K)
7. Two gas chromatographs ($65K)
8. Three cooled and heated incubators ($24K)
9.* Refrigerator ($2K)
10. Initial set-up costs ($20K)

He stated, however, that the list is preliminary and the PPG will be reevaluating the list on basis of the available finances.

Then, he explained that once a sample is collected, it needs to be handled very carefully. The Laminar Flow Hood must be used to provide sterile conditions, thus making sure the sample does not get contaminated. This also ensures that bacteria on the external part of the sample stay in the flow and are not pushed out into the lab. Most of the organisms living in the deep layers of sediment are strictly anaerobic and are very sensitive to oxygen. Therefore, they are placed in an anaerobic cabinet in different mixtures of gases (nitrogen, hydrogen, methane, CO_2) regulated by the manifold system. The deep freezer is necessary for storage of samples to be analyzed for molecular genetics and lipid compounds. Cultivation of cells, on the other hand, requires incubation of the sample — three incubators are needed to provide different temperature conditions. Most of the data on the activity of the cells are obtained by fluorescence microscopy. The video system and computer are necessary for biomass calculations. The autoclave is important for sterilizing glassware and samples. Analyzing the gases in the sample by GC provides important information on the metabolic reactions and the energy sources of the organisms. Item 1 on the list is already available and with some additions (lenses, filter system plus imaging facility) the costs could be reduced to half the amount.

Discussion: Klein asked whether, in case of limited finances, biomass calculations could also be performed by photographing through the microscope and subsequent counting on land, basically from scanned photographs instead of buying the imaging facility. Prieur replied that should be possible. Klein stated that the costs for the laminar flow and for the refrigerator are off by factor of two, and Prieur replied that he would know the prices in France but would not be responsible for the prices in US$.

Humphris addressed the issue of requirements in terms of space on the ship for the lab, and Prieur replied that he has not been on the ship but he would guess that a container would be appropriate. He emphasized again that this is only the very minimum basic package to start the work, but establishing microbiological analyses on the ship would require additional facilities and additional space (1 or 2 containers) over time. Microscopy provides cell counts, biomass estimations and detection of specific bacteria groups, and cultures reveal information on cell biology and physiology. However, there is also the need to be able to use radioisotope-labeled compounds to determine the activity of cells *in situ* immediately after sampling. He commented that there are groups at Scripps and WHOI who carry out such kind of shipboard analysis and would have substantial experience to provide advice.

Humphris commented that in terms of space, the microbiologists would need one container for the radioisotope work and a second one for the other facilities. Prieur said that experiments with radio-labeled compounds could also be performed in small isolated chambers of 1 m^3 installed in the same lab. Overpeck said he was leery of ^{14}C on the ship — there have been situations of ^{14}C getting into samples on oceanographic vessels that have seriously impacted the science by altering radiocarbon dating in the samples. Humphris said there is the possibility that a container could be installed in an isolated part of the ship, such as the heli pad, so that it is physically isolated from the rest of the labs. She added that ODP needs to proceed very carefully in dealing with this problem. Baldauf inquired about the experiment planned for Leg 185, asking whether a container exists in the community that could be brought out for that specific cruise. Prieur said it should be possible to find a van to rent.

Moran asked whether, if space was identified on the ship, there are other organizations that could provide funds for the equipment needed. Ludden replied that there is discussion of putting a proposal in to the EUC to fund a containerized lab, and they would probably be quite keen to fund it. Humphris stated that this has been heard now for over a year and nothing has happened. Raymo suggested that the lab should be rented, thus making it a leg-related cost. Humphris replied that this would be an option to start with, but if microbiological work becomes routine on ODP legs, then it would not be feasible. If ODP is serious about the biosphere being a high priority, then acquiring the basic capabilities is a commitment that needs to be made.

Referring to the presentation J. Parkes gave at the last SSEPs meeting, T. Moore stated that the numbers were in the same range of $100K-200K. It is clear that this is a new community not familiar with ODP operations, and the Panels felt it important to push the drilling community to make a sign of commitment to that science in terms of at least a van on a rental basis to get started. The SSEPs had passed the following recommendation:

"In response to the report from the Deep Biosphere PPG, the SSEPs recommend to SCICOM that support be found for establishing a microbiological laboratory onboard the *JOIDES Resolution* as soon as possible. We feel that this move is critical to progress toward meeting our LRP objectives in this area, to encouraging a new community of scientists to participate in the Ocean Drilling Program, and to positioning ourselves for a significant enhancement of this area of research in post-2003 scientific ocean drilling."

T. Moore emphasized that the SSEPs do not have that many recommendations, and this would be a clear message from both SSEPs.

Janecek remarked that, according to his experience from SCIMP, he would consider costs very inflated. As an alternate exercise of pricing, he recommended looking at used equipment from other labs. Raymo commented that these were not big numbers. She recommended that the PPG should get the chance to visit the ship before dry dock, and then review their list of needs and cost. Humphris agreed that they should go to the ship, and the community should make the effort to get the van. Cann said that there is still no strong microbiology ODP community, and an effort needs to be made to develop one. Humphris stated that if we make a commitment to microbiology and are really serious about this being a pilot project, the only chance to do any major structural change on the ship is during dry dock. In this case we need to identify the available options.

E 3. Ship Modifications (J. Baldauf)

Baldauf explained that one possible location for a van would be on top of the lab stack, but that would require structural support to the lab stack. So, for inclusion on Leg 185, a van will be probably positioned behind the derrick. Modifications of the lab stack need to take into consideration the impact on the ship stability in keeping station, and the weight that needs to be supported, in order to evaluate re-enforcement of the lab stack foundations. He presented three basic models for a microbiological facility. The first is the van concept; this will probably require strengthening of the lab stack foundations, but no modifications to the DHM lab. The second model eliminates the van concept, but requires modifications on the DHM lab. The third model is expanding the entire lab stack, which would require enhancement of the laboratory foundations.

In terms of costs, the van concept on top of the lab stack is estimated at $50K, the second model at $400K and the third one at $1M. Humphris suggested that a van could be put on the heli pad, but Fox stated that for safety reasons, nothing permanent can be installed on the heli pad.

E 4. Logging Issues (D. Goldberg)

Goldberg presented a list of the first six operational items prioritized during the last SCICOM meeting in Boulder, and reported the following changes.

1.*	GLT -Leg 185	$ ~~87K~~	≤82K
2.	1 Hammer	$157K	
~~3.~~	~~WST - Leg 184~~	~~$ 19K~~	
4.*	WST - Leg 183	$ 19K	
5.	VSP - Leg 186	$ 45K	
6.	ARI (Legs 183, 185, 186)	$ 30-40K ea	

Referring to a letter from T. Plank, he said that the 1st ranked logging tool was the GLT. This is available and the maximum cost is now $82K. The next ranked tool was the WST tool for Leg 184 and, after the pre-cruise meeting, it was not in the scientific high priority list any more; hence, it can be eliminated from the list. The case for a WST tool for Leg 183 was presented in a letter from M. Coffin.

E 5. FY'99 Reprioritization (S. Humphris)

Humphris presented the list of equipment as prioritized during the last SCICOM/OPCOM meeting:

Consensus 98-1-3
By consensus, SCICOM and OPCOM prioritize the following budgetary items should additional funds become available in FY'99:

1. GLT - Leg 185	$ 87K
2. 1 Operational Hammer	$157K
3. WST - Leg 184	$ 19K
4. WST - Leg 183	$ 19K
5. VSP - Leg 186	$ 45K
6. ARI - Legs 183, 185, 186	$ 30-40K each
7. Microbiology Lab	$30-150K

Other Big Ticket Items:

• Downhole Measurements Lab	$450K
• 1 Operational Hammer	$157K

Other Items (in no particular order):

• Borehole Stability Project	$ 16K
• CORESEIS	$ 27K
• Gas Chromatograph	$ 55K
• XRD	$150K ($60K - used)
• Data Migration	$???

The following items were deferred pending further information:

• Mirror Web Sites	$ 50K per site
• SSDB Computer Tech	$ 72K

The Leg 184 WST was removed from further consideration. She identified the DHM lab and the microbiology facility as the two major items and commented that, although it would be great to have an expanded DHM Lab, the Program would still have downhole measurements — so this is not adding a new function to the Program, as in the case of the microbiological lab. Summarizing the previous discussion on the microbiology equipment, she said that the costs to phase in a facility (rather than go for a brand new $1M lab) was in the range of $150 - 250K that can be broken down into three parts:

1. Ship modifications for microbiology lab	$ 30,000
2. Lease of microbiology lab for Leg 185	$ 50,000
3. Microbiological equipment	$ 150 - 180,000

SCICOM then needed to prioritize this facility relative to the other items on the list and Humphris asked the committee members where it should be placed. A discussion followed comparing the priority of the logging tools relative to the microbiology facility. Humphris pointed

out that SCICOM was trying to prioritize two different things; namely, leg-related science versus long-term planning for the Program, and cautioned that this has to be weighed very carefully.

Raymo asked about the VSP tool and Humphris explained its function. Goldberg emphasized the importance of the VSP versus standard logging because it gives characterization of where you are in the hole and where you are in the basement, which is critical for some projects. Ellins added that the SSP would be very much in favor of VSP experiments regarding characterization of ION sites. Discussion followed on whether the leg-related tools were of higher priority than long-term planning. Given that there is no money available, some questioned the value of the prioritization. Fox explained again that funds could be made available depending on the technology collaboration agreement with JAMSTEC. Kudrass stated that although the leg-related tools are adding quality to the science, the microbiology lab is a commitment to the future of the Program — therefore it should have highest priority. Overpeck said we should invest in the Deep Biosphere studies, and we should not do it in a trivial way.

A broad discussion on the importance of the hammer drill system developed with the conclusion the this is considered as high priority. Humphris commented on the importance of the microbiology lab and hammer versus the leg-related tools. Goldberg remarked that the decision on the GLT has to be taken soon, otherwise it might be too late. Humphris stated that this will be third on the prioritization list. Pearce expressed concern that, without these tools we lose part of the science. Goldberg explained the function of the tool, and commented on the quality of the obtained data. Overpeck recommended that the microbiology lab be ranked one and endorsed at the level of funding necessary to do the science. Since no general consensus could be achieved, Humphris asked the members to vote on the several top items to be prioritized.

SCICOM Motion 98-2-5
By a combination of vote and consensus, SCICOM/OPCOM prioritize the following budgetary items should additional funds become available for FY'99:

1. Ship modifications for microbiology lab	$ 30,000
2. Lease of microbiology lab for Leg 185	$ 50,000
3. Microbiological equipment	$ 150 - 180,000
4. Operational hammer	$ 157,000
5. GLT - Leg 185	$ 82,000
6. WST - Leg 183	$ 19,000
7. VSP - Leg 186	$ 45,000
8. ARI - Leg 183, 185, 186	$ 30 - 40,000 per Leg

Other big tickets items (as in SCICOM/OPCOM Consensus 98-1-3)

Downhole Measurements Lab	$ 450 K
Operational Hammer	$ 157 K

Other Items (in no particular order):

Borehole Stability Project	$ 16 K
CORESEIS	$ 27 K
Gas Chromatograph	$ 55 K
XRD	$ 150 K ($ 60 K - used)
Data Migration	$???

The following items were deferred pending further information:

Mirror Web Sites	$ 50 K per site
SSDB Computer Tech	$ 72 K

Proposed: E. Klein; Seconded: C. Moore *15 in favor; 1 absent*

F. Scheduling Prydz Bay for FY'00

Since this topic represented the beginning of the discussions that would lead to a schedule, the first step was to identify persons in conflict according to EXCOM Consensus 96-2-89 (those in conflict are allowed to be present during general presentations and discussion, but are excluded from discussions leading to a vote and voting itself). Those in conflict were:

G. Moore (445: Nankai)
R. Larson (448: Ontong-Java)
S. Scott (479: PacManus)
T. Moore (486: Paleogene Eq. Pac.)

Humphris reminded SCICOM members of Motion 97-2-13 that stated Prydz Bay has only been PENCILED in the schedule for FY'99 and was contingent on two factors:
1. The W. Antarctic Peninsula Leg 178 should demonstrate that the drilling strategy is suitable to address and achieve scientific objectives of ANTOSTRAT legs.
2. The proponents were expected to find a way to make a substantial contribution to the cost for an ice support vessel.

Humphris stated that ANTOSTRAT has been extremely active in trying to address this latter condition.

F 1. Results from Leg 178 (P. Barker)

Barker referred to the ANTOSTRAT group, which is collecting seismic data from the Antarctic margin (Weddell Sea, Prydz Bay, Wilkes Land, Eastern Ross Sea) aiming to reconstruct their glacial history by drilling at these margins. The opportunity offered by the seismic data is that it lead to a better understanding of glacially transported sediments and their accumulation on the Antarctic margins. Glacial and interglacial shelf deposits depend on ice advances and erosion due to progradation, and can thus be related to ice sheet volume, sea level change, and temperature. Prydz Bay is of main interest as it is believed to be the place where the earliest Antarctic ice reached the margin.

Leg 178 off the Antarctic Peninsula drilled 2 sites on the drift (1 distal, 1 proximal), 3 on the fan, and 1 in an intermediate area between two fans. High-resolution records were recovered from the drift sites (1095, 1096, and 1101) with excellent magneto- and biostratigraphic sections. They show a clear glacial-interglacial cyclicity which can be traced back to 9 Ma. Drilling at Site 1100 was aimed at reaching the seismic boundary S1/S2 but, regrettably, hole conditions were bad and only 200 m of penetration could be achieved. The recovery on the shelf was generally problematic due in part to ship heave, and also to the lithology of pebbles and boulders in an unsorted matrix. Barker gave a detailed description on the recovery for each drilling site and the possible causes for the problems encountered (ship heave, sediment matrix). The GHMT proved to be a useful tool at the shelf sites. Site 1102 was planned to learn about deposition on the foresets. Site 1099 contains more turbidites. As a first result, he stated that there was no evidence for a warm period during the Pliocene in Antarctica.

Discussion: Kudrass inquired about the correlation between the deep drift sites and the shelf deposits. Barker replied that they possibly will not be able to correlate them due to erosional unconformities, but pointed out that this will be possible at both Prydz Bay and Wilkes Land where seismic reflectors can be traced from the shelf to the drifts. Miller considered it possible to correlate the uppermost reflector from the shelf to the slope, and Barker said that may be the case. Kudrass asked whether the differences in sediment thickness on the shelf can be correlated to

unconformities in the drift sites. Barker replied that there is no evidence for unconformities in the drift area.

Moran asked how successful coring could be on the margin sites using XCB or APC. Barker explained that they did not try APC or XCB because it was considered by the engineers to be a waste of time due to large clasts contained in the tills — XCB is not designed for hard rock drilling and would wear out.

F 2. SSEP Recommendations re: Prydz Bay (T. Moore, J. Tarduno)

T. Moore referred to the report Barker gave at the last SSEPs meeting in Edinburgh, and the conclusion was that the results of Leg 178 have demonstrated the drilling strategy on the Antarctic margins is worthwhile. In comparison, Prydz Bay is expected to have higher core recovery. Leg 178 demonstrated that the shelf edge is not the site for drilling — so the Prydz Bay target is not on the shelf, but on the slope. The proponents of Prydz Bay have now fulfilled their obligation in providing the required site survey data. ESSEP enthusiastically supports another leg of Antarctic drilling at Prydz Bay.

F 3. Comments by SCICOM Watchdogs (K. Miller, H. Kudrass)

Miller stated that Prydz Bay was designed to continue the work of Leg 119. The site selection bears a high potential of meeting the objectives and the slope is considered very interesting. There is a high probability that the rise site will work out well. The objective of drilling on the shelf will answer the important question of when glaciation began on Antarctica. He is convinced that the low recovery of Leg 119 will not be repeated here. He recommended Prydz Bay to go ahead. Kudrass was more critical. He suggested that deeper sites should be selected in place of the slope sites in order to achieve a better age control. Overall, he considered it a risky endeavor.

Discussion: Overpeck commented that he was intrigued about Antarctic history, but expressed concern about the extra funds required for an ice support vessel, in that it will reduce the Program's flexibility for the next couple of years. Miller remarked that the history of ice sheet advances and progradation processes are not yet fully understood, and drilling in this area promises fundamental improvements in our knowledge. Overpeck questioned whether this will be giving a direct answer to the society. T. Moore answered that we are the society and can decide what is the most important science to do. Understanding when glaciation started to develop on Antarctica, how it varied through time, and how we can correlate it with the rest of the climate evolution of the opening of the great passages; e.g. the Arctic passage, the Tasman Sea, etc. — all of this is extremely important. ANTOSTRAT is one of the few programs that has developed a clear strategy to reconstruct the climatic history of a whole continent, and he would like to applaud them for their efforts. He agreed with Kudrass' criticism concerning the problem with the age control, but considered the investigation a promising campaign.

Larson addressed the issues of operations and money. Concerning ice support, he remarked that, according to previous information from TAMU, there is a 50% chance of not having ice cover at all. He considered ODP as not being in a position to spend large amounts of money on individual legs and commented that the ice support should come from outside ODP, thus not costing the Program anything. He was concerned that SCICOM might be pushed into the corner and finally, in the worst case scenario, ice support will come out of US funds. T. Moore did not want to debate the financial aspect, but explained that, compared to the original Prydz Bay project, the present program has a lot more sites off the shelf area away from the major ice zone. However, he had checked with TAMU on the 50% chance of not having ice cover at all and the conclusion was that they still need the ice support vessel, even for the rise and the drift sites.

Humphris reminded SCICOM that the original Antarctic DPG had ranked Prydz Bay as the highest priority Leg in the series out of four or five ANTOSTRAT proposals — Leg 178 was scheduled first only because of logistical reasons. She further emphasized that SCICOM needs to decide based on scientific objectives and, if this should become a leg, then SCICOM can make some stipulations regarding funding. Baldauf commented on the availability of vessels. The Australians were interested in providing a vessel in the $800-900K range. The Canadian Coast Guard has two vessels that are under consideration, and there are also Soviet icebreakers. Assuming the leg is placed on the schedule, then TAMU will go out for confirmation on costs. C. Moore asked if there was anyone willing to put up the cash to pay, given that the Australians are offering an ice vessel for $800K. Humphris corrected the information, and clarified that it didn't need to be cash — proponents were just asked to make a substantial contribution to the costs of an ice support vessel to make the leg affordable to ODP. This could mean finding a cheap ice support vessel option. Baldauf said that nobody offered funds, but if the costs could be kept down to $800K range that might be affordable. Scott asked if in case an Australian or Canadian vessel would materialize at a reasonable cost, whether that could be seen as the 1/12 contribution of the PacRim Consortium. Humphris pointed out again that SCICOM should decide based on scientific priorities and arguments, and then any proviso can be added. Klein, however, considered discussion of the money issue essential — even if science is great, it has to be evaluated in relation to the required costs.

Ludden inquired about potential overlaps with other projects drilling on the Antarctica. Barker explained that the Cape Roberts program is trying to drill down to late Cretaceous, but their main aim is preglacial, not glacial history. Cape Roberts is not considered by ANTOSTRAT as an appropriate site to address glacial history. In general, it will be addressing the kind of drilling environment that ODP cannot address — the two projects are thus complementary in science.

Bond asked what can be learned from this drilling that we may not learn from the Antarctic Peninsula (Leg 178), apart from maybe getting the earliest onset of glaciation, this assumption based only on Huybrechts model — can the answers to the relevant climatic questions come out of drilling the drift area? Bond questioned the reason for drilling Prydz Bay as opposed to Ross Sea or Wilkes Land. One advantage of the Ross Sea is that it will provide information on both the East and West Antarctic ice sheet. Barker responded that the Ross Sea essentially focuses on the West Antarctic ice sheet which is younger than the East Antarctic ice sheet. Hay commented that, having been working with NCAR, he knows a second model that endorses the hypothesis of the glaciation having started in Prydz Bay. Bond questioned whether that was enough reason to drill? Hay replied that it is, because it is related to the whole problem with deterioration of climate in the Cenozoic, and so far no hypothesis has given convincing explanation.

Tamaki asked if Leg 178 can be judged successful enough to justify drilling in Prydz Bay. Miller explained why Leg 178 can be considered as successful, and Humphris confirmed that the drift sites were extremely successful, but stated that the shelf sites were not successful. The results from Leg 178 have demonstrated that drilling the drifts is the way to go for the next leg. However, there is still the financial problem. One scenario to move forward would be to endorse the scheduling but contingent on acquisition of ice support for a designated amount of money. If we finally cannot meet it, this will be the first example of high priority science that we cannot accomplish due the financial limitations.

Pearce considered it hard to decide at this stage that the cost of alternatives is still unknown. Humphris said we need to give OPCOM guidance on how to proceed with this leg. Larson agreed with Pearce's comment, and suggested that the only way to do it, is to first look at the cost of every other requirements of that FY, and determine what has to be given up to realize Prydz Bay. Ludden remarked that this way we are getting ourselves into prioritizing within the Program, and that discussion should come first. Humphris explained that originally she had planned to do the program prioritization first, but realized that if the FY'00 schedule has not been done, everyone

who had a proposal under consideration would be in direct conflict. Thus, in order to avoid losing a quarter of the panel to that discussion, she had postponed it to later. She recommended that a motion be formulated to include (1) SCICOM's consideration that Prydz Bay drilling is high priority science, and (2) the concern over the costs.

Raymo suggested that science should be considered relative to the costs and Prydz Bay should therefore be re-ranked. Humphris stated that if SCICOM wanted to rerank Prydz Bay along with all the other proposals, it could be done. However, the issue of the ice support would still remain unresolved. She pointed out that SCICOM had already passed Motion 97-2-13 that gave two conditions for scheduling. If there was sufficient concern that the first of these conditions had not been met, then SCICOM could go the route of r-ranking it for FY'00. Tauxe asked about the consequence of giving up Prydz Bay — that would imply telling ANTOSTRAT to pack up their proposals because they all require ice boats and are thus too expensive.

Overpeck suggested that it should be prioritized considering societal relevance. He considered Prydz Bay as low priority because no foraminifera would be available to provide an oxygen isotope stratigraphy — thus, you cannot study how the ocean-atmosphere system works. He recommended telling ANTOSTRAT that ODP cannot afford this leg, but perhaps the next drilling program will be able to afford it.

Bond remarked that actually EXCOM has already tasked SCICOM with the prioritization of the long term scientific objectives — in that context we need to think whether it is worth spending this amount of money on this individual leg.

Humphris then called for a vote on whether Prydz Bay should be reranked. This resulted in a tie, which Humphris broke by voting against re-ranking. She suggested that SCICOM consider a motion stating that the science of Prydz Bay is considered high priority, but that ODP's ability to do this science may be constrained by budgetary issues.

SCICOM Motion 98-2-6
Based on the scientific accomplishments of Leg 178 and recognizing that Antarctic drilling entails high priority science as outlined by the LRP, SCICOM reaffirms the scheduling of Prydz Bay as Leg 188. However, SCICOM is concerned that our ability to complete Leg 188 may be jeopardized by the costs of an ice support vessel. Hence, we strongly encourage ODP, and the proponents, to make every effort to identify an ice support vessel that is affordable to the Program.
Proposed: K. Miller; Seconded: H. Kudrass 11 in favor; 1 opposed; 3 abstentions; 1 absent

G. Ranking of Proposals Based on Science

Humphris reminded SCICOM of the ranking procedure of proposals, and explained that all the proposals under consideration that were ranked by SCICOM last year would be reconsidered along with the new ones. First, the watchdogs were asked to give an update on the status and further development of the six proposals that went forward to OPCOM.

431: W Pacific Seismic Network — the WP Sites (L. Tauxe) — Tauxe commented that this proposal had been ranked 11 last year and was not included in the schedule. SCICOM has now heard the results of the OSN experiment, which she considered as convincingly supporting installation of borehole seismometers.

Tamaki then provided an update: Contact proponent, K. Suyehiro has already obtained the seismometers for the two WP holes. Altogether, there are five seismometers for the JT and WP sites. The strainmeters were to have been tested at the NERO site during Leg 179, but since this

was not accomplished, preparations were carried out at Chiba on land. Borehole seismometers have been purchased for WP-1 because there may be a chance to drill it on the way to the dry dock. Baldauf commented that the science equipment requirements are inadequately defined. Goldberg presented the logging program that had not changed much from last year, with only the borehole televiewer and the laterolog imager added — there was no VSP in the schedule. G. Moore asked for clarification on whether this is a 2-leg proposal. Humphris explained that it was originally a single-leg proposal with 4 sites, but because of the widely spaced location of sites, it was divided into A (Japan Trench) and B (WP, Philippine Sea) proposals. These proposals were ranked 10 and 11, and went forward to OPCOM, and the JT sites (A) got scheduled as Leg 186; the WP sites (ION) did not get scheduled because of logistical reasons.

445: Nankai Trough (J. Pearce) — Nankai was ranked 3 last year but, because of operational and current (Kuroshio) concerns, it was not scheduled. Pearce remarked that hydrogeology and structure deformation of subduction zones are likely to be the focus of seismogenic zone drilling post-2003. He explained the quality and importance of the science of the project. In 1997, OPCOM recommended reconsideration due to two major concerns: (i) the Kuroshio Current and (ii) the costs of the leg (>900K). The Nankai proponents have dealt with these points. The Kuroshio Current is not considered to be a significant problem and additional funds have been identified from Japan to offset the logging program (CORKs). The proponents have now worked out with TAMU a two-leg program that would be more efficient, with the first leg drilling the basement and the second leg completing the logging and deploying the CORKs. This would not imply any change in the scientific importance of the program. Goldberg commented on the logging experiments that the LWD will be incorporated into the shorter second leg and hence the first leg will be cheaper. He pointed out that the plans for Wireline Logging are not quite clear and may be dropped from the first leg because of some time issues under consideration.

Humphris asked why the proponents have not included a hydrogeology component as recommended by SCICOM last year. Pearce replied that this would require putting a significant amount of time and effort into the CORKing and drilling and that would require one more leg. Humphris remarked that using the new generation of advanced CORKs during the second leg would remove some of the casing requirements from the first leg. This is considered more economical and would also save time.

Tarduno stated that this proposal has been reviewed as a two-leg proposal. ISSEP had recommended a staged plan, and that the second leg should be justified by the drilling on the first leg. The SSEPs had urged the proponents to come up with a plan for a first leg. Since then, the proposal has been discussed at TAMU, but there are some concerns because ISSEP did not have the opportunity to discuss the new plan. The second concern is associated with the hydrogeology aspects that have all been put on the second leg because of the new generation of CORKs. They sound very exciting and the ISSEP is in favor of their development, but so far they have not been developed and tested. Thus, the CORK proposal is a Pre-Proposal, implying a risk for the second leg. Humphris added that this falls in with a recommendation from the Long-Term Observatory PPG, who requested SCICOM to endorse the development of the second generation of CORKs as a high priority program. T. Moore added that the response by e-mail from the Panel members on the two-leg strategy has been positive, although there is recognition of the risk implied in the steps to proceed through until the second leg can be realized.

Baldauf addressed the current problem stating that there still is a risk that could result in a down time or equipment loss associated with the currents. Humphris replied that the appealing aspect of the two-leg strategy is that the first leg, which is a standard drilling/coring leg, will provide the opportunity to test how serious the current issue is. Thus, this strategy will help to lower the risk for the second leg. C. Moore noted that two legs are essential for drilling the seismogenic zone — they can be regarded as leading investigations toward the future. To do the program right, information on the lithology and the fluids coming out is required before the deployment of CORKs. The second generation CORKs will finally realize investigations at Nankai that have been wanted at Barbados. Humphris noted that the first CONCORD priority is to

drill a seismogenic zone around Japan, which is highly likely to be Nankai because of depth and other considerations. She asked whether this program of two legs will directly help the site survey requirements for a general understanding of the seismogenic zone as a lead-in to post-2003? Pearce replied that this is a prelude and very useful, but the seismogenic zone drilling will be shallower than here. Miller remarked that the targets here are not within the range of the OD-21 drill ship. Tarduno clarified that this leg is not drilling the seismogenic zone but only faults that may source from the seismogenic zone. These sites are in 4500 m but the seismogenic zone is more landward. Tamaki said that Nankai may indeed be the site of the first seismogenic zone for drilling with the riser ship.

448: Ontong Java (J. Ludden) — The proposal was ranked 7 last time and OPCOM had serious concerns about the time estimates. Since then, a major site survey has been carried out in this area and the strategy has been changed to a long term three-leg program. The one-leg program is essentially to determine how much magmatic material was produced in a certain time period, and to try to tie down the geochronology of the OJ Plateau. It is proposed to drill four holes (each ~200 m) into the basement on the plateau. This would be the minimum one-leg program to provide information on age relations and the geochemical background. The second leg is designed to drill the sedimentary apron, and then go back to another hole to drill 1 km of basement (intermediate hole) which seems rather unrealistic. In terms of the water depth, they are in the range of the OD-21 vessel, which could return for a third leg. This new strategy is based on new geophysical data conducted by a Japanese site survey cruise and they are now trying to tie in the plateau stratigraphy. Ludden explained that SCICOM and ISSEP have put a lot of weight on the apron site and that the proponents have gone as far as they can in addressing SCICOM's concerns. Goldberg added that the logging plan has been reviewed and includes three special logging runs.

Humphris asked about the time estimates and whether it is realistic to include the apron site. SSP was concerned about the use of free fall funnels vs. reentry cones. Larson has been assured by Pollard that the use of free fall funnels is feasible; Baldauf agreed. OJP 3B may be the only site where a proper reentry site can be set up. Tarduno remarked that the plan represents a consensus among many proponents now, and is also the strategy endorsed by the Woods Hole Report. The plan is consistent with previous discussions in ISSEP and other panels. A general discussion arose on the thickness of the weathering zone which is estimated to be a few tens of meters. A penetration depth of 200 m is considered sufficient to get beyond the surficial weathering zone.

Kudrass inquired about the pulses of volcanism. Ludden informed that there were two pulses. The question is how are they produced — was there a series of pulses or one continuous pulse? Do they confirm what we know about plate tectonics, or are we talking about plume tectonics? Ludden commented that if SCICOM only gives them one leg, this might be suggesting to replacing one plateau site with an apron site. Baldauf remarked that there is a potential risk of reaching the basement, and thus of not meeting the objective.

455: Laurentide Ice Sheets (M. Raymo) — Raymo reported on additional site survey and piston coring carried out in the Saguenay Fjord and considered the proposal as poised logistically to go ahead. Bond asked about difficulties with drilling in tills, especially in the St. Lawrence area, and Raymo replied this has been addressed with piston cores — this program has much more preliminary work stepping up to the ODP leg. This is where we may potentially learn a lot about these environments. Hodell remarked that SSP had concerns about Sag. Fjord being laminated only in the top 30 m, whereas the proponents were overly optimistic about what could be learned from drilling to 700 m. Raymo said that IMAGES had a 30 m piston core from a nearby site collected two years ago, but they had a problem and only a section of 25 m was in good condition. However, this core was from the distal site of the outlet, not from the Sag. Fjord. Moran said there have been many concerns about this, but stated that it is difficult to assess laminations based on seismics.

465: SE Pacific Paleo (J. Overpeck) — Site survey has been completed and a lot of cores have been taken. Overpeck considered it an outstanding proposal. It is a two-leg proposal, but he did not receive an update. Ellins explained that the proponents submitted their data to the data bank and felt they have nothing to add after the site survey cruise. There have been only minor changes in sites in that they have been prioritized into a one-leg scenario. Overpeck considered a two-leg scenario as well justified — with the one-leg scenario they will lose the deeper objectives of the late Neogene. T. Moore disagreed and explained that they will lose only the northernmost extension, but they have an ambitious one-leg plan with good latitude and depth coverage of sites. It appears that one of the Chile Basin sites has accumulation rates that will allow century-scale resolution.

Fox said that the Program has always suffered from trying to stuff a five hundred pound gorilla into a container that cannot fit, and then the science is compromised along the way. We are always afraid to allow the science to fill the real time that it needs to meet the objectives. This is a situation where it is clear that two legs are going to answer big questions across the board — why not bite the bullet and do it! T. Moore agreed and said that it was good for SCICOM to indicate their priorities, and to have a gap between the first and second leg to digest the information. Humphris asked for clarification on what will not be learned without the second leg. T. Moore replied that they lose the northernmost site on the Gateway. Overpeck explained how the circulation affects the nutrient distribution in this area and stated that by reducing the program to one leg instead of two, only the shallower sites will be drilled, thus going back only to upper Oligocene and not older. Ellins noted the ancillary program proposed by Dave Anderson for drilling in a Chilean Fjord — they were interested in incorporating this site, but could not proceed with obtaining site survey in this area.

486: Paleogene Equatorial Pacific (K. Miller) — This proposal ranked 9 last year. After a site survey cruise with excellent geophysical data, the sites have been reprioritized to fit to one leg covering an early Eocene latitudinal transect addressing the warm period of the Cenozoic and the late Paleogene Thermal Maximum. The proponents did a good job in boiling it down to a one leg transect and they addressed ISSEP's concern about the reconstruction of the paleo-latitude. One of the most intriguing aspects is the equatorial warmth in the Oligocene, and the speculation on the position of the ITCZ with a rather seasonal variation. The transect will allow measurement of the traditional paleoceanographic proxies of O and C isotopes, and will obtain a record from the early Eocene. Miller concluded that the updated proposal is excellent. Goldberg presented the logging program of standard tools with the only question being time for some check shots to tie the seismics.

Larson inquired about the errors in paleo-latitude reconstructions. Tarduno said the issue is that the reconstruction in the Pacific is based on a standard hot spot reference frame, and the Panel feels that there are substantial errors in the record older than 35 Ma. For the Eocene, it probably falls within 5° considering all uncertainties involved in these estimations. The important part of the response is that the proponents will address this question by their latitudinal transect. Humphris commented that ESSEP was very positive about this program, and also endorsed the prioritization of sites in the new addendum. Ludden noted that the time issue is still a problem, now having one leg and a half — can the questions still be addressed by further reduction? Miller replied that looking at the transect, the coverage is quite dense, and it would not be catastrophic if they did not drill all the sites — this is not really an issue. Baldauf estimated the leg with 11 sites and 77 days including logging, as having an overtime of 10 days. Bond inquired about proposal 465 going back to the Eocene as well, and the potential overlap. Miller replied that, in addition to the traditional paleoceanographic proxies, the Paleogene proposal will provide a latitudinal transect for the largest wind system associated with upwelling, and will be able to track the evolution of this system back through time. The two legs are rather complementary and he suggested to take this question back to the PPG.

G 3. SSEPs Reports on the Prospectus Volumes 2 and 3 Proposals

Humphris pointed out that the issue of finances was entering into everyone's minds and she wanted to stress the fact that the prioritization by SCICOM should be a ranking based on the scientific considerations without taking into account budgetary or logistical aspects — that would be done elsewhere.

ESSEP (T. Moore)

485: SW Pacific Gateways — The proponents have responded positively and quickly to the feedback from the Panel. The basic idea is to look at the evolution of the Gateway between Tasman Rise and Antarctica as Australia undocked from Antarctica. High resolution Milkanovitch time scales can be achieved from 1000,000 to about 2 Ma, with the chance of having carbonates down to the Eocene. The area represents one of the major gateways in Cenozoic ocean evolution and may be important for reconstructing the development of the western boundary current (Leg 181). The external reviews were favorable and the proposal has been grouped I by the SSEPs and 1A by the SSP.

482: Wilkes Land — ANTOSTRAT has chosen this proposal to monitor when the E Antarctic ice sheet reached its full extent. The drilling strategy is based on the experience gained with Leg 178 including a couple of shelf sites with only thin topset layers, two or three sites on the slope to get the early Cenozoic at about 1000 m penetration, and several sites in the older foreset beds. Drilling these sites is expected to produce a higher recovery than Leg 178 and be generally more successful. Correlation between shelf and basin is possible based on the seismic record. An additional site survey cruise is planned for this winter. The proposal received favorable reviews and was grouped II by the ESSEP and by the most recent ranking of ANTOSTRAT number 2 following Prydz Bay. The chance of successful drilling is considered good, or even better than Prydz Bay.

489: Ross Sea — The most important contribution of the proposal is the history of variations of the East and West Antarctic ice sheet with emphasis on the latter one as being the only place where it can be addressed. The results are expected to provide a good link to the Cape Roberts project. The proposal is closer to being ready for drilling providing an extensive seismic data set. Some sites have been added in the northern part to achieve higher temporal resolution. Previous drilling in the Ross Sea was among the most successful in the history of ocean drilling — DSDP technology already achieved a good recovery. The proposal has been grouped II by the ESSEP.

ISSEP (J. Tarduno)

448: Ontong Java — The proposal represents a key factor in LIPs initiative and is designed to investigate mantle dynamics and to refine models of mantle topography.

450: Taiwan Arc — The area is considered the best place to address arc-continental collision and important to investigate continental margin development. The proposal was grouped II because of some concerns on how well suited the sites are for testing the existing models. ESSEP recommended that a stronger hydrothermal component be included. Overall, there was a very good proponent response.

451: Tonga — The focus of the proposal is on arc initiation and addresses fundamental geochemical and mass balance questions. ESSEP and SCICOM had requested a more focused proposal, and the proponents have done a great job in responding to the criticisms. The proposal was grouped I. C. Moore inquired on the difference between Taiwan and Tonga. Tarduno replied that the two areas were addressing different theories.

463: Shatsky Rise — The proposal cannot get around the arc volumes being lower than at other LIP areas, which have been given higher priority, even though it has certain advantages as an older LIP, thus providing a better control of the age of the surrounding seafloor. It is a group II proposal. A combination has been suggested with proposal 534 (Bralower) that includes one deep site for drilling. Larson considered the proposal combination as incompatible with 463 requiring sites with thin sediment cover and 534 wanting more sediment.

499: ION (Eq. Pac.) — The proposal includes one ION site and was originally grouped II.

479: PacManus — The proposal is considered as helping to complete drilling of a wide spectrum of seafloor hydrothermal deposits. It will also provide fundamental information to understanding ancient sulfide systems. Both external reviewers and ISSEP had concerns about the logistics and working in this high temperature environment. The proponents have responded providing extensive documentation. This is a group I proposal, but was placed group IV awaiting proponents to address some problems.

500: H_2O — ION proposal, grouped I. The site was selected at a water depth of 45000 m. SSP had no expertise in understanding how the cable deployment works at this water depth. Tamaki remarked that SSP was concerned about locating the cable.

504: Newfoundland Basin — The proposal is based on elements of an older proposal and addresses identification of the paleo depth and interpretation of crust development by drilling a single deep hole. There have been major concerns about achieving a reasonable interpretation based on the strategy of a single deep hole, and the Panel solicited the proponents to provide a updated proposal including a transect of drilling sites under consideration of the findings from the Iberian Margin. Humphris commented that the proponents have realized that this hole cannot be drilled in isolation, and have plans to submit a revised proposal including a transect, in addition to the deep hole.

G 4. Logging Prospectus (D. Goldberg)

Goldberg highlighted the Antarctic drilling issue with results from Leg 178. Logging was important at the drift sites, and especially on the shelf, where core recovery was low and lithostratigraphic units could be identified from correlation of logs and core. Considering additional experience from Leg 174A, gamma ray resistivity is generally the basic logging tool that measures lithology and is extremely important in setting up the sequence stratigraphy when core recovery is poor. The use of LWD on shelf sites has been broadly discussed by the SSEPs and during the recent ANTOSTRAT meeting (Jena), and considered important. This was the rationale for a proposal to Schlumberger to deploy a single CDR tool, just the basic standard gamma ray resistivity tool of high reliability to allow continuous drilling. Thus, without stopping coring, measurements down a 300 m hole can be accomplished in 10 hours. Schlumberger responded and the strategy is to make the tool available for the three following Antarctic legs (if scheduled) and make it successively cheaper. During the first leg there will be two Schlumberger engineers and the tool with costs in the range of $145K. During the second and third legs, personnel will be reduced, thus automatically reducing the costs and making the use of the tool $40K cheaper. He considered this investigation as an insurance — paying $1.5 million for an ice boat, the addition of $100K for CDR logging will ensure that data are obtained from the shelf sites.

Referring to the Prospectus for logging tool descriptions, Goldberg then presented the logging plan for FY'00. For environmental Legs, including Antarctic proposals, he suggested WST, GHMT and CDR. For interior proposals, he suggested ARI, VSP, BHTV, GHMT and LWD.

Nankai and PacManus were grouped separately: Nankai is expensive because it has a specialty LWD and VSP. The main problems at PacManus are high temperature and hole stability. The technique that will be used will be hole cooling while drilling. The limitation of LWD in high temperature environments would be 140°C.

G 5. SCICOM Discussion

450: Taiwan — Ludden considered that the proposal has suffered from the system. Originally there were two Taiwan proposals in the system — the proponents contacted each other and agreed on a series of northern and southern sites. The proposal then went to the Tectonics Panel and was considered as a deformation proposal. When the panel changed in the new advisory structure, it was recommended that the proponents include hydrogeological and geochemical fluid flow aspects. Although the proponents were not keen on doing this, they finally improved the proposal by doing this, but their focus remained the structural aspect. He pointed out the extensive seismic network already done. However, the reviewers doubt that the objectives can be achieved.

Humphris asked if the proposed drilling will be able to differentiate between the two existing deformation models. C. Moore replied that it should be possible to distinguish, but he was disappointed by the resolution of the seismic data in defining the target. Tarduno explained that ISSEP does not believe that you can study the structure without the hydrogeology — only by including this aspect, the proposal gains a competitive edge. Tamaki remarked that there is a very intensive proposal at Nankai investigating hydrogeology, and inquired on the importance of studying hydrogeology here as well — what are the complementary reasons? Ludden said this is a complex structural problem and fluid flow is important, but this is not the place to do this. Pearce explained additional scientific aspects of magmatic processes important to be addressed in this area, but concluded that these do not come out in the proposal. G. Moore, as one of the proponents, noted that the proposal started out with a large fluid flow component and the Tectonics Panel had advised that it be removed, as the focus for such investigations was Nankai and Barbados. Then, in the new structure they have been told to do precisely this. Humphris concluded that the key objective to address here is deformation at a convergent margin.

451: Tonga — Pearce reported that last year, SCICOM differentiated between higher and lower priority objectives. The proponents were advised to focus on the highest priority objectives, and they did this by now proposing three transects from the arc to the forearc with the basic aim of studying subduction fluxes in space and time. The problem is that they do not address why Tonga should be drilled, given that IBM will be drilled. The reasons are that it is possible to look at more aspects than just at the mantle dynamics, because the Tonga System is situated on a boundary between two main mantle domains (Pacific/Indian). Another aspect is to investigate the plume located N of the Tonga System, and how this plume has affected the evolution of the arc system. In terms of subducted sediment, it differs from IBM in that the Louisville Ridge, which is a plume trace, migrates down the arc with time and inputs sediment of a characteristic composition into the arc system. This is very different from the Mariana System. So, there are differences, just as there are between Kerguelen and Ontong- Java, or between Barbados and Nankai. He concluded that the proposal is rather straightforward focusing on a simple arc system and variations in space and time.

463: Shatsky — C. Moore stated that this is a very well-written proposal, but does not rank highly in addressing LIPs issues. There the high priority is on Kerguelen and Ontong Java. The proponents are now trying to tie the proposal with 534, and we will need to wait and see how 534 proceeds through the review process. Humphris reminded SCICOM that last year they had no suggestions for the proponents on how to proceed to improve the proposal. So, if this year it does not rank higher we will need to advise the proponents to give it up — although it is a very well

written proposal, it just does not address LIPs high priority. Pearce asked if there is potential for combination with an ION site. Larson said that site WP2 would be closest, just to the north.

499: Eq. Pacific — Holm referred to the positive results from the OSN experiment previously reported by Romanowicz. Drilling of the ION hole in the Eq. Pacific was a group I proposal. The sediment thickness at the site is 160 m and 100 m of basement penetration is requested; however, 50 m might be enough, according to the Romanowicz report. The proposal will not be a full leg, but is estimated at 14 days, thus providing the opportunity for a combination with other investigations.

Ludden stated that a 100 m penetration into the basement would be needed to make sure of casing into basement. Humphris noted that it was not really clear that the ION community knows how deep to go (50 or 100 m) — casing to a reasonable depth below the sediment-basement contact is required as well as a reasonable depth of open hole for the installation of the seismometer. Tarduno said this is a critical issue because the porosity of the upper crust may introduce noise into the hole that the ION community may not be aware of, and therefore we need to have the opportunity to drill deeper to avoid such problems — 50 m is not enough.

Larson recommended that drilling at this remote location should include continuous coring because someone will be interested in the sediment core. Tamaki noted that at the JT sites, there will be drilling of 1400 m of sediment cover and many Japanese geologists are extremely excited about recovering the sediment core.

479: PacManus — Klein said that the proposal has been grouped IV because there have been many open questions with the main criticism associated with technical problems. The proponents have responded and provided very good information on the related land-based, analytical program and additional site survey data that can be considered as satisfactory. There have been connections established to the biosphere group and they are excited about the biodiversity aspect. The main discussion has concentrated on what would be the impact to the scientific objectives if the recovery is low. The proponents have been very convincing that in case of low recovery, even if they have only chips, they can learn a great deal through ICP-MS and microanalysis.

The main questions center on (i) bare rock drilling, (ii) on the problem of logging at high temperature (260°C) and (iii) on how to sample the fluids. The proponents stress in their response that sampling fluids would be wonderful for their program, but the emphasis is on the alteration history and therefore rock is their most important goal. However, they want to sample fluids and have discussed a Sandia sampling tool that has been previously attempted at high temperatures. Concerning the hard rock drilling they mention the positive results from the hammer drill test but they can also use diamond coring. Goldberg commented that the tools and cable rating is at the edge of the temperatures mentioned in the proposal (200+°C) and explained that they will use the hole cooling technique used at Juan de Fuca. LWD has the same temperature tolerance but also addresses the issue of hole stability. Goldberg stated that what actually needs to be cooled is the tool, and not the hole. ARI is included in the LWD and measures density, natural gamma and porosity.

Cann cautioned against being sidetracked by the fluid sampling issues — the place to sample is at the surface, not in the hole and expressed concern regarding fluid contamination. Humphris concurred, and added that fluid inclusions in the rock will provide additional information. Baldauf noted that the proposed four sites would require 73 days of operations. Klein commented that the sites have been prioritized and the last one can be relinquished. Ludden noted that the subsurface geology is more complex than they imply, and suggested 3-D seismics to obtain more information. Humphris noted that the TAG structure turned out to be very simple and she did not think that the expense of 3-D seismics was justified. Klein said that the proponents have addressed different types of architecture. Ludden noted that this area has now been claimed by a mining company, but

they would be happy to have ODP working there and they will not claim the core as one of the lead proponents (Binns) will collaborate with them.

485: S Gateways — Raymo reported that the proposal did not fare well at the last SCICOM meeting, but since then it has been transformed and all questions have been answered. The proponents have provided detailed explanations on how their hypothesis will be tested and how it fits in with previous drilling. She concluded that this investigation is likely to provide very interesting sections of great value to a broad spectrum of the community. Miller added that the area is suitable for obtaining Milankovitch resolution over a long time scale.

482: Wilkes Land and 489: Ross Sea — Kudrass reported that the big advantage of the Wilkes Land proposal would be that the seismic reflectors can be traced from the shelf to the slope, thus allowing correlation and dating of the prograding shelf sequences. Miller stated that drilling the Antarctic shelves are very high priority and agreed with Kudrass on the chronology advantage of Wilkes Land. There was, however, general disagreement about the relative importance of the different ice sheets. Miller said that Wilkes may even be preferable to Prydz Bay because of the chronology advantage. T. Moore stated that in agreement with ANTOSTRAT, Prydz Bay is ranked first over Wilkes Land because it is the area where information on the onset of glaciation in Antarctica can be obtained. Barker confirmed that ANTOSTRAT ranked Prydz Bay first and then Ross Sea over Wilkes Land.

Bond asked for the opinion of a glaciologist in ranking the Antarctic proposals. Overpeck stated that the global effect of the Antarctic ice sheet would probably have started when it reached the ocean. T. Moore commented that all the hypotheses are based on Huybrechts model, which suggests that the time when growing ice sheets begin to have a global influence is when it reaches the ocean. Larson inquired on what we really learn about glaciation by drilling this area — is it just to determine whether there are glacial sediments in the core or not? T. Moore confirmed this and explained that the rate of ice sheet growth is estimated based on the sediment accumulation. Larson doubted that this is possible to calculate the ice sheet volume using the rate of sediment accumulation in one core at one spot. T. Moore explained that if you tie the core to the seismic lines, it certainly tells you more than the one spot. Miller said that we know now there has been a large ice sheet in the Oligocene. If we go and drill and find it is present back in the Eocene, then it will change our understanding of paleoceanography and ocean circulation and the relation to tectonics. This is fundamental to understand the interactions and model our climate system — Prydz Bay is the place to do it.

500: H_2O — Tamaki reported on the key elements of the ION observatory site. The site has been proposed as a potential legacy site for drilling the Moho but this had not been supported by the Lithosphere PPG. So, the main goal is to have an ION site in this isolated area. The second objective is very low in priority. Larson inquired on whether they know exactly where the cable is. Tamaki replied affirmatively, and there is a cruise planned for August to put the junction box on the cable.

504: Newfoundland Basin — C. Moore remarked that a single site will not get the rosetta stone and there is the need to have a transect, which the proponents know.

G 6. - G 9. Ranking of Proposals & List to be Sent to OPCOM for Scheduling

The previously identified persons in conflict left the room (G. Moore: Nankai, R. Larson: Ontong-Java, S. Scott: PacManus, T. Moore: Paleogene Eq. Pacific).

Humphris emphasized again that proposal ranking will be based only on scientific quality and priority and reminded SCICOM of the ranking procedure. She then presented the list of proposals to be ranked and asked for recommendations on any that could be removed from the list. Klein recommended the Shatsky proposal to be removed from the list, but Tauxe disagreed. With no consensus, Shatsky was left on the list. C. Moore proposed that NARM be removed on the grounds that a new proposal is needed incorporating a new sites transect. There was a general consensus to do so, and Proposal 504 was removed from the list. Tauxe requested that Wilkes Land and Ross Sea be removed, and Kudrass agreed to remove Wilkes Land but not Ross Sea. Humphris said they should be left on the list for ranking, and Ellins added that if we do not include them in the ranking, it might mean that special consideration is given to them for next year, but if they are left on the list, they will be reviewed again next year by SCICOM. After removal of the NARM proposal, there were 15 proposals to be ranked from 15 to 1 (lowest to highest). Pearce requested the SSEPs ranking for the proposals. Farrell and Fox were asked to collect the voting papers and calculate the mean and standard deviation.

Humphris presented the ranking list, and then led the discussion concerning identification of the subset of proposals that should go forward to OPCOM for scheduling. There was some discussion as to whether to put the cut-off above or below Tonga (ranked 11); since a consensus could not be reached, Humphris called for a vote. Eight (8) were in favor of putting the line below H_2O, and five (5) were in favor of putting it below Tonga. The proposals below the line will not be forwarded to OPCOM for scheduling. The watchdogs were informed of their responsibility to write up a short paragraph to inform the proponents of the comments by SCICOM.

Ranking		**Mean**	**St. deviation**
1.	Nankai	3.69	3.25
2.	S. Gateways	5.15	2.97
3.	W. Pacific Seismic Network	5.23	3.27
4.	Ontong-Java Plateau	5.31	2.18
5.	SE Pacific Paleo	5.92	4.03
6.	PacManus	6.31	4.50
7.	Paleogene Equatorial Pacific	6.46	3.15
8.	ION Equatorial Pacific	7.46	3.91
9	Laurentide	8.15	2.91
10.	H_20	8.54	2.99
11.	Tonga	9.38	4.01
12.	Wilkes Land	11.15	3.08
13	Taiwan	11.31	3.95
14	Shatsky	12.54	3.26
15.	Ross Sea	13.38	1.80

Humphris then said that SCICOM needed to consider any advice about specific proposals that they wished to send forward to OPCOM. There were several 2-leg scenarios (Nankai, Ontong-Java, SE Pacific Paleo) and SCICOM needed to make decisions on whether to recommend them as 1 or 2 legs. She commented that those requesting 2 legs are each very different situations. For Ontong-Java, there is a request for a time lag between the two legs to evaluate the results from the first leg. Ludden said he understood that Ontong-Java can be successful as one leg, but Humphris reminded him that the 1-leg scenario was greatly over in its time estimates. There was general agreement to recommend Ontong-Java as 1-leg at this time. Proposals 465 (SE Pacific Paleo) and 486 (Paleogene Equatorial Pacific) were recommended to be scheduled as a total of 3 legs — each allocated 1.5 legs, and they can then perhaps be combined with ION sites.

Humphris commented that for Nankai, there is a clear relationship between the first (drilling/coring) and the second leg (logging/CORKing). A discussion followed on the justification for sending it to OPCOM as a 2-leg scenario, with the understanding that there would be contingencies for the scheduling of the second leg in the following year. There was general agreement that the 2-leg scenario was well designed as the most cost effective and efficient way of accomplishing the objectives of this proposal. Overpeck inquired about the flexibility of the ship in anchoring it in the W Pacific if we commit to a second leg of Nankai. Humphris replied that there are some proposals that take the ship across the Pacific, and a number of ION sites that could be done going back. SCICOM has already stated that the ship is going to be in the Indian Ocean and Pacific through 2001. One thing that PCOM and SCICOM have done poorly in the Program is to make commitments to multi-leg cruises. This would be a good chance to demonstrate that SCICOM is willing to commit to a 2-leg scenario once it is considered the best way forward. Humphris suggested that SCICOM recommend scheduling the first Nankai leg in FY'00 and that the second leg in FY'01 be contingent on development of the second generation of CORKs, successful drilling in the currents, and evaluation of science objectives by the panels (SCICOM, SSEPs, SCIMP). The proponents are further expected to identify funds to reduce the costs to the equivalent of two average legs (e.g., $200 - 300K). Humphris stated there will be a commitment for scheduling the 2nd leg in FY'01, and Japanese colleagues are willing to assist with the finances. C. Moore inquired about the cost of the 2nd Nankai leg. Fox responded that it would cost $2M, including $500K for LWD, and $1.1M for hardware — this does not include the CORK development. Raymo said she supported Nankai and did not want to add contingencies.

Humphris explained that part of the reason for bringing up the money issue when SCICOM is supposed to do scientific ranking is that funding will potentially be a problem in the future. In the long-term prioritization, SCICOM will have to address this; however, if SCICOM starts eliminating every expensive investigation, then the scientific ranking process will result in cheap proposals coming up at the top and expensive legs to the bottom. This will be taken as an indication that everything SCICOM decides to do needs to be cheap, and that is not the message the committee should be sending forward. Overpeck recommended that Nankai be endorsed as a 2-leg program, but that costs should be identified now as a factor, and the proponents asked to find funds. Humphris said she didn't have a problem in adding a proviso that proponents should find additional funding. C. Moore commented that people he has talked with at ORI are committed to this program, because it supports their long term objectives and they are willing to put up some money. A general discussion followed on whether to include a specific dollar amount or not.

Fox recommended that in trying to set up a target, it might be appropriate to look at the SOEs of other highly ranked proposals — these range between $75K - 300K. Hence, a target figure of $200,000 per leg could be used as a guide for additional funds to be contributed from other sources. A typical leg has SOEs between $75 -100K. The target for outside sources for Nankai will then need to be $1.8M. Moran suggested asking proponents to reduce the costs to the level of a standard or moderately expensive leg in any way they can, instead of asking for a certain amount of money. Humphris recommended that proponents be expected to identify funds to reduce the cost of the whole Nankai program to be the equivalent of the cost of 2 average legs.

SCICOM Motion 98-2-7
SCICOM recognizes that the scientific objectives of drilling at Nankai are of very high priority and require a 2-leg program. Hence, SCICOM supports a first leg of drilling and coring to be scheduled in FY'00, and a second leg for LWD and CORK emplacement to be scheduled in the following year. The conduct of the second leg will be contingent upon:
1. successful drilling and station-keeping in the current conditions encountered;
2. the timely development o the second generation of CORKS. This requires that time necessary for development by ODP-TAMU engineers be given high priority;

3. evaluation by the JOIDES Advisory Structure (SSEPs, SCIMP and SCICOM) of the detailed scientific plans of the second leg;
4. identification of funds to reduce the cost of the whole Nankai program to be equivalent to the cost of two moderate legs (i.e. $200,000-$300,000 per leg).

Proposed: E. Klein; Seconded: C. Moore *13 in favor; 3 abstentions*

Bond asked if it will be clear to the community that this is becoming the policy. Humphris replied that this policy can be included in the Proposal Guidelines. Miller suggested that a motion making the broad community aware of the budgetary constrains might be appropriate, and would also inform EXCOM that this is the way that SCICOM has chosen to deal with this issue.

SCICOM Motion 98-2-8
SCICOM supports, encourages, and recognizes the scientific importance of innovative programs which incur more than typical leg-related costs (<$300,000). Such expenses could include ice boats, alternate platforms, LWD, and CORKs. However, given the financial constraints under which the ODP operates, proponents or partner programs of such legs are strongly encouraged to seek additional resources to help cover costs in excess of a typical leg.
We hope that the opportunity to leverage against ODP's financial and technological resources will provide the international scientific community with exciting new opportunities.

Proposed: M. Raymo; Seconded: K. Miller *13 in favor; 3 abstentions*

C. Moore asked how this Motion would play at NSF, and Malfait replied that this recommendation probably would not enhance the chances of finding additional resources at NSF. His opinion was that SCICOM should look at the science, hand over to OPCOM to scheduling, and then the Budget Committees would look at costs. He did not understand what the purpose of this was with respect to OPCOM. Humphris replied that this is a way to convey to the community that expensive proposals are going to be encouraged to find other resources, given the limited resources in ODP. Miller questioned how it is possible to consider proposals without budgets, and Malfait replied that those considerations should be left for later when OPCOM responded with the schedule. Humphris stated that the amount of money available for SOEs varies from year to year. The sense of this Motion is to get proponents to leverage money against ODP resources. However, requiring in every case exactly the match of excess money over a standard leg level may be too limiting. OPCOM will produce options for the schedule, and then budget the leg and non-leg related costs for review. Overpeck expressed concern that it might be compromising to put <e.g.> before the number. However, it is good to have a number in there because we do not want to cause speculation. If he were a proponent, he would want to know how much he would need to raise. Humphris said she didn't think an individual having to raise money is a criterion for ODP to drill. C. Moore expressed concern that if you define a standard leg it is locked into perpetuity.

SCICOM Motion 98-2-9
SCICOM approves the following ranking for programs to be considered for scheduling by OPCOM in FY'00 and beyond:

1. 445 - Nankai
2. 485 - Southern Gateways
3. 431 - W. Pacific Seismic Network (WP-1 and WP-2)
4. 448 - Ontong-Java Plateau
5. 465 - SE Pacific Paleoceanography
6. 479 - PacManus
7. 486 - Paleogene Equatorial Pacific
8. 499 - ION Equatorial Pacific
9. 455 - Laurentide Ice Sheets
10. 500 - H_2O Observatory

SCICOM recommends that Nankai be allocated 2 legs (see Motion 98-2-6) and SE Pacific Paleoceanography and Paleogene Equatorial Pacific be allocated 1.5 legs each. Ontong-Java is approved for 1 leg at this time.

The following proposals ranked below the above proposals and will not go forward to OPCOM:
11. 451 - Tonga
12. 482 - Wilkes Land
13. 450 - Taiwan
14. 463 - Shatsky Rise
15. 489 - Ross Sea

Detailed correspondence will be sent to the proponents by the SCICOM Chair appraising them of their proposal status.

Proposed: J. Overpeck; Seconded: K. Miller *13 in favor; 3 abstentions*

Raymo asked if the proposals ranked below 10 go back for consideration for next year, or if it is terminal and who makes the decision. Humphris said that SCICOM decided already that for Taiwan and Shatsky having now been twice through the ranking procedure, the proponents would be notified that their proposals would be deactivated. The others will go back into consideration for next year.

Humphris asked that nominations of Co-Chiefs be submitted to her by 1 Oct. and she will forward the list to TAMU.

G 10. Availability of Proposal Abstracts on the Web (W. Hay)

Humphris presented the recommendation from Bill Hay that abstracts of active proposals be posted on the JOIDES web site. This would entail getting permission from proponents as the proposals are proprietary until they are published in the Prospectus. It would be a way of getting the word out as to what proposals are in the system. Larson agreed that this is a good idea and suggested that it to be done after the proposals have been forwarded to the panels. Humphris recommended that this should concern only Full Proposals and not Preliminary Proposals.

SCICOM Consensus 98-2-10
SCICOM recommends that the JOIDES Office seek permission from proponents to publish abstracts of full proposals on the web.

H. FY'00 ODP Budget (K. Moran)

Humphris explained that although a schedule for FY'00 has not yet been established, SCICOM typically provides a prioritization of non-leg related SOEs to OPCOM, and then OPCOM integrates them with the leg-related expenses and sends them back to SCICOM for approval.

Moran then presented the cost estimates for a typical 6 leg year. As a base for the estimate, she used the average cost of $6 million ($5.8 million) for a leg from this year, although this is more expensive because of the ice boat for Leg 178. The costs for publications, information services, administration and JOI/JOIDES were considered as flat funded. The list included the following expenses:

Budget Item	Cost($M)
6 legs	36.0
Remote Ocean Tax	1.0
Day rate difference	0.5
Publications	1.6
Information	2.0
Administration	2.0
JOI/JOIDES	2.1
	45.2

Compared to the budget previously estimated by N. Pisias ($46M) and negotiated with NSF, the present budget makes $800K available that can be used for engineering development SOEs. The engineering development items and their priority (H=high, M=medium, L=low) were listed as follows (*JAMSTEC):

Hammer	H
Core orientation	M
*New CORKs generation	H
MDT (Fluid sampler)	L
*DCB	H
*MWC	H
Pressure core barrels (MAST/Germany)	L
Piston core gas sampler	L

Discussion: C. Moore asked where the hammer drill system is budgeted, and Fox replied it could be part of FY'00, depending on whether PacManus will be scheduled — if PacManus gets scheduled, it is a commitment that we will have the hammer. The cost for the new design of the hammer drill-in system is ~$150K. Humphris inquired on non-engineering SOE costs, and Moran replied that she would need to look at FY'99 budget and see what can be done. Humphris said that there are other items that were removed from the list last year, and which could be considered now (Lamont projects, software development, XRD, gas chromatograph, mirror sites). Moran said they are not included on the list and there are some other items recommended by SCIMP that are of high priority to be accomplished. Humphris then initiated a discussion to indicate the priority of the listed items. Goldberg explained the function of the fluid sampler: it seals off the borehole and evacuates it until there is inflow, which is then diverted into a clean sample chamber, thus avoiding contamination. Fox then explained that the diamond core barrel is planned for a comparative test during Leg 185 to improve core recovery as part of an initiative with JAMSTEC. Humphris concluded that a prioritization was difficult without a schedule, and that this list would be sent to OPCOM so that they can add leg- related costs. This will be an issue to be revisited at the next SCICOM meeting.

I. Update on PPGs

I 1. Deep Biosphere (D. Prieur)

Prieur begun his report with the first meeting of this PPG (Dec. '97 in San Francisco) by presenting a list of the members and reminding that their goals are (i) to investigate the distribution and depth extent of the sub-seafloor biosphere, and (ii) to study its nature, ecology and contribution to the global biogeochemical budget. The mandate of the PPG includes the following tasks:

- to develop a plan for microbiological sampling and analysis;
- to organize and develop drilling proposals;
- to provide advice for sampling procedures and for a shipboard microbiology facility; and
- to develop an active collaboration with appropriate international initiatives.

The themes addressed during their first meeting included (i) the distribution of bacteria in different environments, (ii) the physiological and phylogenetic diversity of microbial populations, (iii) their growth rates and energy sources, (iv) their substrates, (v) the fate of microbial carbon, (vi) the bacterial effect on geochemistry, mineralogy and isotopic composition of deep sediments, (vii) interplay between bacterial processes and abiotic reactions, and (viii) identification of the limitations on the deep biosphere.

The research objectives of the PPG were formulated closely addressing the above themes of their mandate. Realization of these objectives first requires technological development of the sampling procedures in order to avoid contamination. A second technological requirement would be to establish a microbiological facility on board the *JR* to enable analysis of freshly collected samples. He reported on the collaboration of J. Parkes with TAMU engineers in the development of the samplings technology and on their plans to run initial tests during Leg 185. Accordingly, the location of the next meeting of the PPG for this year is planned to be one of *JR*'s portcalls (New Zealand), so that the PPG members can get an idea of the ship, the core flow, and the possibilities of working on board.

Discussion: Humphris asked whether the experiment addressing contamination downhole, initially planned for Leg 180, would now be performed during Leg 185. Prieur replied that he had no exact information about this, but the experiment would need to be done. Holm asked whether any specific microbiological proposals have been developed and Prieur said that they first wanted to run the contamination experiment and then set up a proposal for a mini-leg. Humphris asked whether their work in future was designed as adding to existing legs or would there be a need for focused legs or mini-legs. Prieur replied that this would depend on how many microbiologists can be included in one leg. According to the different techniques used in microbiology, 8 - 10 specialists would be needed to participate. If there is no room to include these experts in an existing leg, then they will have to ask for a special cruise.

C. Moore stated that it is clear that pore waters are not contaminated — why do they think there would be a microbiological contamination of the sample inside the sediment core? Prieur said that they need to be sure that there is no risk of contamination because of the possible consequences of their findings. If it can be proved that bacteria are living in deep sediments, then the deep biomass may be higher than the biomass on the Earth; hence the work has to be done very carefully. Cann stated that most of the SCICOM members would not understand the issue of contamination clearly, and explained that the main problem is the amplification factor — the contamination itself can even be amplified.

T. Moore explored the issue of the 10 microbiologists on board which represents about one-third of a scientific party. If ten is a really hard number rather than, for example 3, then it would be necessary to reduce several other areas of expertise. Prieur explained the need for working directly on freshly collected samples and that improving knowledge of this biosphere requires different experts. Humphris noted that this would not be much different from a hydrothermal drilling leg involving 8 sulfide petrologists. Scott commented that these petrologists still have to do a lot of other tasks on the ship that are not their specialty, and surely a microbiologist can also do more than one thing. He asked for clarification on what really needs to be done onboard, and what can be done on shore. Prieur replied that molecular biology studies need to be done on fresh samples; other studies could be done on shore.

Kudrass asked about the sensitivity of the microbes to decompression and Prieur explained that by adaptation to less pressure, certain organisms would produce stress proteins and that would be something to examine during the experiment on Leg 185. Ludden asked for clarification on Leg 185 — whether it is clear that TAMU is ready to put a microbiology van on the ship. Baldauf

assumed that the experiments will be done even if there is not a full fledge facility onboard. The experiment is planned to have been completed prior to Leg 185.

I 2. Climate-Tectonics Links (M. Raymo)

The PPG met in May in College Station and since more than half of the members are not familiar with ODP, someone from ODP-TAMU explained how the Program works. The discussion then focused on what are the important climate-tectonics issues. Gateways were discussed as one mechanism causing climate change, after both closures or opening. Another scenario discussed was changes of the atmospheric CO_2 content and its effect on weathering. After a general science discussion, they discussed potential projects in relation to proposals in the system and identified scientific and geographic gaps. The discussion focused on developing hypotheses to drill in the north Indian Ocean and on the Greenland/Scotland Ridge and they plan to solicit proposals for their next meeting that will be held in Toronto after GSA.

The PPG did not understand exactly what their task was — to design new proposals for the remaining 3 years of the program, or to focus on a science plan relevant to post-2003 drilling. When they realized that there are only 27 more Legs to be scheduled, they did not know how to proceed. They are still struggling with that concept because many of the members are not familiar with ODP. However, this has brought new people into the Program.

I 3. Gas Hydrates (C. Moore)

The PPG met at TAMU in June. There was a wide range of discussions and there are several proposals in the system that are good gas hydrates proposals. The outcome was to prepare a recipe for proposal development, and a set of guidelines that explains what a gas hydrate proposal should include. The environments to investigate under this theme were identified to include (i) a high flux tectonic feature on a convergent margin, (ii) a gassy environment that is tectonically active, and (iii) a petroleum environment like the Gulf of Mexico.

The group prepared a critical list of infrastructure needs with the central item being additional pressure core barrels based on the experience from Leg 164. Further requirements include (i) automated recording of core temperatures and (ii) measurement of temperature, pressure and conductivity while coring. The group assigned watchdogs for proposals in certain areas, industry contacts, and tool development. The PPG will meet again at AGU.

I 4. Architecture of the Oceanic Lithosphere (J. Cann)

The group held its first meeting at SIO in May and the Minutes have been placed on the ISSEP web page. High priority for drilling targets before 2003 focus on (i) the plutonic foundations of the oceanic lithosphere, and (ii) an intact section of fast-spreading oceanic crust. The issue of the plutonic foundation of oceanic lithosphere includes the lower crust and/or the upper mantle. There is a critical need for understanding how that part of the crustal section is generated because this problem is surrounded by intense controversy. Offset type drilling is expected to provide a critical contribution to resolve this debate. There are already many good pre- proposals in the system to drill in the Atlantic, Indian, and Pacific Oceans. They can not provide full proposals at the moment as they need additional site survey data which, however, are not funded by NSF. The best of these targets combine several aspects to improve our understanding of the geological relationships within the plutonic section, and the means by which plutonics reach the sea floor. The crucial technical requirements to achieve new results before 2003 would be the installation of an active heave compensation on the JR and a functioning hammer drill-in casing system.

With respect to the intact section of fast-spreading oceanic crust, a start could be made by 2003 but completion would need to await the 4 km riser system. If drilling commenced now, it should be possible within a couple of legs to reach the Layer 2/3 boundary. The best area identified for drilling (c 15 Ma crust, <4 km water depth) is in the Pacific close to Central America. The problem with this area, however, is that the crust has formed at low latitude and requires oriented drilling in order to allow interpretation of the magnetic inclinations. Therefore, a hard-rock core orientation is required. One exists at ODP but does not work. Thus, completion of the development of this tool would be required as well as a fully functioning active heave compensation.

Finally, the PPG questioned their responsibilities outlined in their mandate and felt that there would be a substantial overlap with the tasks of the SSEPs. Both are looking at proposals in the system, PPGs at narrower areas than the SSEPs, but the communication between the different groups needs to be improved. The PPG felt there was some duplication with the SSEPs, and have requested some guidance on how to proceed.

Discussion: C. Moore stated that it is clear what the task of a PPG is, namely to foster the science for the drilling program — so, the sense is to develop proposals and this is an incredible opportunity to put together the science to guide the drilling program. Klein asked whether a PPG should be writing, or only responding to, proposals on table — clearly the SSEPs have broader expertise than PPGs. Tauxe added that the SSEPs evaluate and rank the proposals. Scott said that PPGs were set up for scientific areas identified as important in the LRP, but without sufficient proposal pressure with the intent of increasing the number of proposals. Humphris said that an additional responsibility of the PPGs is to identify priorities within their specific scientific area — they can choose to nurture existing proposals, or write own proposals. In order to do this, the PPGs need to know what proposals are in the system, but evaluation of proposals is clearly in the realm of the SSEPs. Fox added that one other component that the Program struggles with is to respond to criticism that the Program is trying to do too many things rather than focusing on specific problems. The purpose of the PPGs was to serve as focusing mechanisms for specific science areas, optimizing the interests and creating an integrated strategy to solve fundamental problems identified in the LRP.

Larson was concerned that drilling an intact crustal section through the Moho requires knowing where the Moho is. This, coupled with the need to be close to an isochron that balances a minimum water depth and a minimum temperature at Moho, results in a restricted geographical location from which so far no geophysical data are available. Cann replied that a site survey using the *Ewing* has been funded with multi channel seismics and a new long streamer. This should be able to determine the Moho geometry and also the seismic velocity in the crust. Larson further pointed out the big uncertainty of calculating the temperature at the Moho. In terms of technology this would require high temperature tools — so there is a need to determine the technological requirements very carefully.

I 5. Long-Term Observatories (G. Moore)

During their last meeting earlier this year in Hawaii, one of the main topics had been a discussion of the results from the OSN experiment. The PPG had concluded that borehole instruments are worthwhile because they yield a more broadband response which is necessary for detection of small events. However, a combination of buried and borehole instruments was considered more cost effective.

The main PPG action so far has been focusing on the status of CORKs. All proposals in the system involving CORKs have been evaluated, and the PPG endorses the new multi-packer liner system as more appropriate than the existing design. Little progress has been achieved towards the ridge-axis borehole observatories — the PPG is seeking advice from Inter-Ridge. Another important issue has been legacy holes. JAMSTEC continues with the development of long-term monitoring hardware, including fly-in reentry and ROV/submersible servicing systems. The OSN

hole is now available for long-term experiments. JAMSTEC is interested in a legacy hole near Japan. Hole 793B might be useful but Hole 808E is not suitable.

The PPG is progressing very well. They are, however, confused about the reporting procedure and need to know whether to submit their report directly to SCICOM or to the SSEPs.

Discussion: Scott asked if the new generation of CORKs can be deployed without the drillship. Moore replied they need to be emplaced with the drillship, but can be serviced by an ROV.

Humphris said that the official line of reporting is that the PPGs report to the SSEPs. During the last meeting, SCICOM decided to help increase the information flow by assigning a SCICOM liaison to get direct feedback and keep track of the progress. Humphris then addressed the issue of B. Carson's replacement. The PPG has requested a microbiologist. She asked for recommendations which she would then forward and discuss with the Co-Chairs.

I 6. Recommendations for Hydrogeology PPG

Humphris reported on a request from the SSEPs for a hydrogeology PPG. T. Moore commented that the SSEPs had sent members to the Long-Term Observatories (LTO) PPG meeting, but this PPG is not specifically charged with developing a strategy to explore the nature of the hydrogeology of the Earth's upper crust. Therefore, the SSEPs request SCICOM to consider either altering the mandate of the LTO PPG, reconstituting it, or naming a new PPG. Humphris stated that, for financial reasons, she would not like to consider an additional PPG at present. However, the LTO PPG will be finishing its job after one more meeting, and could then be replaced by the requested one, rather than changing the mandate of the existing group. Hence, after the final meeting of the LTO PPG, SCICOM will create a mandate for a hydrogeology group and SCICOM will need to bring suggestions of a new membership.

SCICOM Consensus 98-2-11
In response to a recommendation from the SSEPs, SCICOM expects to replace the Long Term Observatory PPG with a Hydrogeology PPG once it has completed its task. This is expected to occur at the March 1999 meeting.

Farrell announced the Hydrogeology Workshop scheduled for December, and Humphris said that this might provide some guideline on the formulation of the mandate and the membership of a new PPG. Farrell asked what criteria SCICOM will use to determine when PPGs are done? Humphris explained that at their spring meeting, SCICOM will have to review their mandate, their final report and their progress, and evaluate whether they have accomplished their task.

I 7. Sea Level Workshop

Miller informed SCICOM that the Sea Level Workshop will be held in Houston at Rice in February 1999. According to communications last week, Texaco is considering funding a portion of the expenses. Proposals are still under review by a sub-committee from JOI/USSAC which is expected to be accomplished within the next month.

J. Phase III Programmatic Prioritization

Humphris reminded SCICOM of the task put to them by EXCOM Motion 98-1-8:

EXCOM Motion 98-1-8:
Presently determined budgetary constraints through 2003 will negatively impact the delivery of the Long Range Plan. EXCOM asks SCICOM to prioritize future science objectives to maximize the objectives of the Long Range Plan, clearly indicating those which cannot be achieved under existing budget projections. SCICOM should also identify and prioritize changes in program activities, services, equipment needs and technological development. SCICOM is asked to forward its report to EXCOM by September 1998.

She suggested that the key questions to be considered by SCICOM in the prioritization are to identify (i) the themes that can be accomplished by the end of the Ocean Drilling Program, and (ii) the initiative steps to guide ODP into the next program of scientific ocean drilling?

The SSEPs (with input from the PPGs) and SCIMP had been asked to send their input as defined by SCICOM last March, and they all have provided reports. Based on this input, the SCICOM sub-committees (environment/interior) were tasked with prioritizing scientific objectives within each major theme.

Prioritization Under Dynamics of Earth's Environment (K. Miller) — Scientific objectives within the *Dynamics of Earth's Environment* theme were prioritized by individual sub-themes, with highest priority being placed on themes of greatest societal relevance. Discussion by the Environment Subcommittee culminated in a prioritization by secret ballot.

The Deep Biosphere, the Antarctic, Arctic, shallow-water drilling require clarification. The Deep Biosphere topic widens the scientific communities that we serve to a broad spectrum of scientists (biologist, biochemists, etc.) outside of geosciences. The subcommittee unanimously ranked the Deep Biosphere as one of the top priorities.

Priority	Subtheme
Themes within Dynamics of Earth's Environment	
1.	Oceanographic and climatic variability on Milankovitch time scales, with special emphasis on Arctic drilling
2.	Decadal to century-scale climate variability
3.	Extreme warm climates
4.	Understanding history and effects of sea level
5.	Exploring the link between climate and tectonics
Themes Partly Overlapping with Dynamics of Earth's Interior	
1.	Deep biosphere
2.	Gas hydrates
NR	Long-term observatories
NR	Fluid flow
NR	Carbon cycling

NR = Not ranked either because they address goals more relevant to Earth's Interior themes (fluid flow and observatories) or because of insufficient information available to rank (carbon cycling).

Both the Arctic and Antarctic targets are major aspects of the global change theme, encompassing several subthemes; Antarctic drilling also addresses major issue of the Sea-level theme. In phase III and previously, ODP has made a major commitment to explore the Antarctic. Budgetary constraints may affect our ability to drill Antarctic targets in Phase III other than those

currently scheduled. The subcommittee was unanimous in its endorsement of Arctic drilling and believe that efforts to support Arctic drilling must begin in Phase III. Very-high resolution paleoceanographic and paleoclimatological studies require drilling on coral atolls and terraces, while sea-level studies require drilling in water depths shallower than possible with the *JOIDES Resolution*.. The costs of drilling with these supplementary platforms is also high and it is unlikely that funds will be available to support direct drilling costs in Phase III. Although costs of Arctic and shallow water drilling are high, costs to ODP may be kept to a minimum. ODP offers engineering, archiving, publication, and logging expertise that can be used to support ongoing efforts (e.g., NAD, others) to drill at minimal costs to the program.

Prioritization Under Dynamics of Earth's Interior (J. Pearce) — Scientific objectives within the *Dynamics of Earth's Interior* theme was accomplished by grouping sub-themes into 3 main priority levels (top, high, moderate), taking into account what could be achieved by the end of ODP, as well as what preliminary drilling is required to prepare for the post-2003 drilling program.

Priority	**Subtheme**
Top	• Understanding active deformation and fluid flow at convergent margins • Hydrothermal processes at convergent margins • An intact section of oceanic crust
High	• Seismological observatories at ION sites • Emplacement of oceanic Large Igneous Provinces (LIPs) • The plutonic foundations of the oceanic lithosphere
Moderate	• Mass balances at convergent margins • Rifting initiation and extensional margins

Discussion: Humphris then recommended that these two prioritizations be integrated into one list. Initially they were ranked under two headings: *Projects that Will Achieve the LRP Goals by 2003*, and *Projects that Lead into Post-2003 Drilling.* Those in the first heading were divided into three groups that were later reduced to two groups. Arctic drilling , Deep Biosphere, Intact Crustal Section and Seismogenic Zone were grouped together under the second heading because they are unlikely to be accomplished before 2003 — they represent themes leading into the next program (IODP). This resulted in the following:

	Projects that Will Achieve the LRP Goals by 2003			
	Environment		**Interior**	
I	Milankovitch Very high resolution Gas hydrates	(S) (S-H) (H-E)	Hydrogeology	(H-E)
II	Past warm climates	(S)	ION LIP Plutonic sections	(S) (M) (M-E)
III	Climate-Tectonics Sea level Antarctic	(S) (M)	Mass Balances Extensional margins	(M-H) (M-E)

Projects Leading into Post-2003 Drilling

Arctic	(H)
Deep Biosphere	(S)
Seismogenic zone	(H-E)
Deep hole	(E)

A debate developed on moving themes from the post-2003 category into the high priority group I, because initial steps would be started during ODP. They are just new projects coming on line as opposed to long-term commitments. Overpeck stated that high resolution drilling would require exploration of alternate platforms and suggested adding coral reef drilling as an additional objective leading to post-2003. There are British, Australian & US scientists putting together a proposal and Australia has an adequate facility. Humphris, however, cautioned that in this situation of being in a budgetary crisis, there may be no additional funds for an alternate platform? Overpeck insisted that new science and a new community is going to come from drilling reefs. Humphris asked if he saw proposals coming in — there is only have 1 reef proposal in the system. Overpeck said there is another one coming in — a very strong one. Klein and Pearce were concerned that group I included more environment themes compared to interior and suggested moving the plutonic sections in order to avoid the perception that ODP's highest priority goals would focus on environmental science.

Tauxe asked for clarification of the reason for this prioritization. Humphris explained EXCOM's concern that, based on inflation and the fixed costs for ship leasing, Schlumberger contracts, etc., the real resources are expected to decrease each year, and by 2003 the budgetary gap could be as high as $2.5M. Thus, the Program will not have the ability to do high cost projects and maintain all services on the same level. In order to avoid this situation, EXCOM has asked SCICOM to look at the high priority items and the required services. Larson inquired if this would be a decision on science or pragmatically a consideration of the whole Program? Humphris replied that there would be a need to consider the whole Program in terms of programmatic changes on the basis of science, services, equipment and technology — we first prioritize the science and then attach the technology and the services required to address that science.

Klein and Pearce were still concerned about the balance of environment and interior themes and Overpeck suggested to split group I into (a) and (b), with (b) including the post-2003 themes. Bond suggested a ranking mode in parallel, 1 theme from interior and 1 from environment — then people would agree that they are equally important. Humphris, however, stated that we will not be always able to investigate two themes — so, there has to be an integration when it ultimately comes to decision. Tauxe mentioned that the themes Arctic and Biosphere would include both environment and interior aspects, and Bond said that, in terms of the Arctic, there is no proposal so far in the system. Humphris stated that Arctic is not itemized in the LRP. Malfait cautioned care in talking about the Arctic because there is a JOIDES plan to cooperate with NAD which is another group of people with international recognition that wants to drill in the Arctic. If JOIDES comes forward saying the Arctic is the top priority, that group might get a different response out of the agency. Moran informed SCICOM that NAD came to JOI a month ago with the informal suggestion that NAD may want to reorganize and request to be part of the JOIDES Advisory Structure. Humphris asked for clarification whether the idea was that NAD would become part of JOIDES. Moran said 'no', but more like a PPG. Klein recommended that the Arctic be listed as in cooperation with NAD. Humphris said she would prefer to remove it because of Malfait's comment, and in order to avoid separating out a specific region from the LRP that has only thematic goals. Raymo emphasized the critical importance of the Arctic for climate change and recommended a separate motion. Humphris finally suggested taking it out of the list and creating a separate paragraph stating how excited ODP is about the scientific importance of the Arctic.

SCICOM then decided to further narrow the prioritization so that decisions could be taken between projects under the two headings. The result was the formation of two groups as follows:

GROUP I (in no particular order):

- Oceanographic and Climatic Variability on Milankovitch Time Scales (with emphasis on Arctic drilling)
- Decadal to Century-scale Climate Variability
- Gas Hydrates
- Hydrogeology — Hydrothermal Systems
- Deep Biosphere
- Seismogenic Zone
- Section of the Oceanic Crust
- Extreme Warm Climate
- ION Observatory Sites
- Large Igneous Provinces

GROUP II (in no particular order):

- Plutonic Sections of Oceanic Lithosphere
- Climate-Tectonic Links
- History and Effects of Sea Level
- Mass Balances at Subduction Zones
- Rifting Initiation & Extensional Margins

Humphris said that the 2nd step now it would be to prioritize within each group. Each of these groups contains scientific projects which range in cost from that of a "standard" (S) leg (as defined by ODP for budgeting purposes) to extreme (E) expensive legs that involve high Special Operating Expenses (e.g. extensive casing, LWD, ice-support vessels, advanced CORKs).

A new debate developed on how to move themes up and down in order to achieve a balance between environment and interior. Miller commented that considering that the program is moving into 2003, we need to put seismogenic zone on top, and right behind that the high resolution and after that gas hydrates. The following ranking was agreed within groups I and II:

Prioritization of Scientific Themes Likely to be Affected by Budgetary Constraints

	Priority	Scientific Theme	Cost
GROUP I	1	Seismogenic Zone Experiments	H-E
	2	Decadal to Century-Scale Climate	S-E
	3	Gas Hydrates	H-E
	4	Section of the Oceanic Crust	H-E
	5	Hydrogeology — Hydrothermal	H-E
GROUP II	1	Plutonic Sections of Oceanic Lithosphere	M-E
	2	Mass Balances at Subduction Zones	M-H
	3	Rifting Initiation and Extensional	H-E

Grouping of Scientific Themes Unlikely to be Affected by Budgetary Constraints

GROUP I			
		Dynamics of Earth's Environment	
	1	Oceanographic & Climatic Variability on Milankovitch Time Scales	S*
	2	Deep Biosphere S-M	
	3	Extreme Warm Climates	S
		Dynamics of Earth's Interior	
	1	ION Sites	S-M
	2	Large Igneous Provinces (LIPs)	S-M
GROUP II	1	Understanding History and Effects of Sea Level Change	S-M
	2	Climate and Tectonics Links	S

Note: * — High latitude drilling for climate or sea level themes will require ice support vessels (Antarctic and Arctic) and possibly an ice-class drilling platform (Arctic). These would place such legs in the H-E category and they would be seriously impacted by budgetary constraints.

Larson asked for clarification on the categorization according to the costs and Humphris gave the following information: standard (S)= ~$90K, moderate (M)= <$250K, high (H)= $250-500K and extreme (E)= >$500K.

Humphris said that the final step now would be to identify the technology and the services needed for each of these themes. She suggested that sub-committee Chairs Miller (environment) and Pearce (interior) produce a short discussion of each of these areas, and identify the key contributions to be accomplished by the end of 2003 and the key areas that need to be addressed (Arctic, coral reef issue). The focus should be on (i) the accomplishments that can be achieved and (ii) our position for post-2003. The reports produced by Miller and Pearce will be incorporated by Humphris into an overall document including technology and services to be forwarded to EXCOM by the end of September.

SCIMP Recommendations (T. Janecek)

SCIMP had been tasked to look at the services within the program and determine what is essential to the achievement of each of the Long Range Plan themes. They evaluated the impact of eight services offered by ODP and had some recommendations in terms of possible economies in times of tight budgets. SCIMP had also prepared detailed breakdowns of how each area of service relates to the LRP.

Laboratories: (paleontology, paleomagnetics, core description, physical properties, underway geophysics, chemistry lab). The consensus of this examination was that most of the equipment on the ship is useful and essential to the Program and there is not much to be saved. Each of the above six shipboard laboratories is essential for at least one of the themes of the Long Range Plan, and it is not cost effective to install or remove equipment depending on the nature of each Leg. Some savings can be made by deferral of capital upgrades, but this amount is not large as the need for equipment replacement in the near future is not significant. Furthermore, a reduction in shipboard laboratories or services is considered counterproductive because the savings are small considering the loss of primary data and its effect on the international scientific constituency.

Tauxe commented that by removing equipment you can also eliminate technicians which would save money. C. Moore commented he always felt underway geophysics, was useless and Janececk replied that specifically in this area they categorized some of the equipment as useful and others as essential. Shrivastava replied that it would be useful to determine the number of scheduled legs that had used this equipment to select the site — in those situations, it was essential. Hodell said that this can also become a safety issue in cases where no crossing seismic lines are available.

Publications: SCIMP concluded that, as the primary record of the cruise, the IR is an essential product of the Program. The SR is considered useful but not essential.

Information: (data capture, database maintenance, data migration, computers and computer networks, and core photography). One of the most essential services is data capture, since the cruise data represent the legacy of the Program. Core photography, computers and computer network are also essential. Maintenance of a relational database and data migration into the database are very useful, but not essential to the success of the Long Range Plan. However, these aspects of Information Services provide access to ODP data for the international community, so they are considered extremely important to the dissemination of the results of the Program.

Repositories: It is considered essential to provide a controlled environment for at least the short-term (~5 years) safe storage of ODP cores. ODP-TAMU studies have shown that the majority of sampling takes place within a few years of core collection, and that older cores are rarely sampled. Hence, the cost of retaining more than one or two active repositories needs to be carefully evaluated relative to the usage by the scientific community.

Public Affairs: A concerted public affairs effort is important to keep the scientific community and general public informed about the results and advances of ODP, and to keep a visible profile in all member countries. However, there appear to be redundancies between JOI and TAMU, and SCIMP recommended a review and possible consolidation of efforts.

Wireline Services: Downhole logging is an essential and central part of the success of many objectives in the LRP. The present equipment is considered as the minimum package and SCIMP recommends to increase the use of specialty tools. However, better scrutiny and justification of the logging programs recommended for each drilling leg could result in some minor cost savings. For example, additional tools are often added to routine paleoceanographic legs which may offer an enhancement, but may not be essential. In addition, it appears that the infrastructure of wireline services is extensive given the scope of the current logging programs, and SCIMP recommends a review.

Drilling Services: Evaluation was considered difficult because SCIMP does not have the necessary expertise to do this. Most of the on-going development projects were viewed to be useful but not essential. SCIMP has recommended that OPCOM and TEDCOM evaluate whether the engineering projects underway can be accomplished in a realistic time frame.

Personnel: The level of personnel is considered high and SCIMP recommends evaluation of the present staffing throughout the ODP organization.

Discussion: Humphris pointed out the four items (SR volumes, relational database, data migration, additional core repositories) considered as useful but not essential and asked SCICOM for feedback and prioritization. C. Moore asked about the prices but Janecek had no numbers — they have been told to do the evaluation without budgetary considerations since every service needs to be justified on the basis of the Program. Humphris asked about the costs of the SR, and Fox replied that the printing contract is ~$300K/yr but that includes the IR and other items —

elimination of the SR would reduce the costs by ~$100K/yr. Fox further explained that the relational database is the major piece of Information Services and is the big ticket item — the heart and soul of what we do. No money has been dedicated to data migration so far. The core repository at Scripps is ~$200K/yr, Lamont ~$300K/yr and Bremen is cheaper, because our German colleagues cover parts of the costs.

Klein commented that it is very important to keep the cores in good condition, but she criticized their wide geographic distribution, which might be wise politically, but creates expenses. Tauxe added it would also be expensive traveling around to sample at four repositories. Larson commented that the decision to have them in different places was an attempt to "spread the pie around". Janecek, however, stated that $500K is not one of the largest pots of money that can be reduced. There are some other large pots of money; e.g. $3-5M for engineering projects. Fox clarified that the number for engineering development is only $750K and not $3-5M — then you add the development costs of $1-1.2 million/yr.

Humphris suggested that the list be included in the document to EXCOM, with the recommendationthat items defined as not essential be re-evaluatedwhen the time comes requiring hard decisions. Malfait commented that it may be a valid list, but suggested not put numbers on it..

SCICOM Consensus 98-2-12
Based on the recommendations from SCIMP and the need to ensure effective use of ODP's limited resources, SCICOM recommends the following program areas to be reviewed:
1) public affairs with respect to a consolidation of effort (SCIMP recommendation 98-2-9)
2) overall costs of the current wireline operations (SCIMP recommendation 98-2-10)
3) the staffing levels throughout the ODP organization (SCIMP recommendation 98-2-12).

SCICOM also requests that OPCOM and TEDCOM evaluate the cost benefit and feasibility of engineering projects to determine if they can be accomplished in a realistic time frame to benefit the goals of the LRP (SCIMP recommendation 98-2-11).

Proposed: E. Klein, Seconded: C. Moore *15 in favor, 1 absent*

K. SCICOM Action Items from Panels that have Recently Met

K 1 - 2. ESSEP / ISSEP (T. Moore / J. Tarduno)

Tarduno said that the SSEPs had an action item on PPGs and requested the Chairs of all those PPGs that did not yet have SSEP liaisons to contact the SSEP Chairs and arrange for such an appointment. He further stated that the SSEP Chairs request the PPGs to send a report of their activities and results as there is a problem of information being reported in a timely fashion. He also reiterated comments made during the PPG reports that there is some confusion as to whom the PPGs are supposed to report.

Humphris said that, when the PPGs were set up, she had not indicated the need for written reports after every PPG meeting. However, now that this has been identified as a problem, she has written to all the PPG Chairs indicating the need for brief reports that the JOIDES Office will make available on the web page. With regard to the reporting issue, the comments made this meeting have clearly identified the confusion that exists. Humphris takes it as an **action item** to write a letter to all PPG chairs clarifying to whom they are reporting, what the liaison relationship should be, and the expectations for reporting.

K 3. SCIMP (T. Janecek)

Janecek said that he had two items for discussion. The first was the same complaint reported from the SSEPs that SCIMP had not received any reports from the PPGs. SCIMP needs reports from the PPGs on what measurements and instrumentation they consider essential. Therefore he strongly encouraged any steps to be taken to get the required reports.

The second item was the Integrated Publication and Sampling Policy, and he referred to a draft copy included in the Agenda Book. The final version of the policy is expected to be completed by the end of September, as requested by Humphris, in order that it be included in the new Guide to ODP. He explained that the policy basically defines the obligations of participants on ODP cruises, how to obtain samples, what is considered fulfillment of obligations with regard to publications, and finally which results should be submitted to the database.

Humphris stated that a new policy needs to have a motion from SCICOM, and therefore she asked Janecek to explain the major points that have been changed. Janecek presented the three major points that have been changed:

1. Selection of ERB members — The need for external ERB members should be determined on a leg-by-leg basis and not a requirement. The need should be evaluated based on workload (i.e., the number of papers) and co-chief/staff scientist expertise.

2. Definition of obligation — An obligation to ODP is incurred if you a) sail on a leg, or receive samples or data as a shore-based participant during the moratorium, or b) receive samples during the post-moratorium period.

3. Fulfillment of an obligation — a) publishing a paper in a scientific journal, or if the paper is rejected by the journal, submitting a data report to the Scientific Results volume, or (b) publishing a paper or data report in the Scientific Results volume. (c) If a sample or data recipient is unable to produce research results because appropriate samples or data were not retrieved during the cruise, or because data could not be obtained during postcruise analyses, a letter of explanation must be submitted to the ODP Curator.

He explained that a major change is that submission of the data are considered as part of the obligation that must be fulfilled. A major change is the deadline for meeting the obligation. Papers can now be submitted 28 months post-cruise. If a paper is rejected by the outside literature, then you can submit a data report to the SR volume and it will be included in the data synthesis.

Discussion: C. Moore asked what happens if your paper gets rejected after the deadline for submission to the SR volume? Janecek admitted that this is still a problem that needs to be worked out. Tauxe inquired about the CD-ROM and Janecek replied that this is an item of another major change — now we are moving towards a web-based publication. Papers will be published on the web as soon as they are ready, and the CD-ROM, including the synthesis paper, will then be compiled 4 years post-cruise, so there will be no problem with the deadline if a paper is rejected by the outside literature.

Ludden commented that the SR has always been "gray" literature, and he suggested eliminating external reviews, and have the Co-Chiefs do a general review. Humphris stated that the review is important to maintain the level of quality of a publication and she, personally, would hate to see papers going into the SR that have not been peer reviewed — why make a perceived gray volume grayer? Janecek stated that the response of the authors to the reviews considerably improves the paper, and he would doubt the authors would care that much in the case of internal reviewers. Miller explained he had a different view to the grayness of the volume, and stated that ODP should be commended for having improved the quality of the SR volume. He considered the ODP editorial process as quite successful and the rejection rate (20%) as relatively low.

Hodell suggested that data published outside of ODP should also be contributed to the synthesis in order to produce a complete data set of each leg. Janecek said that that is not required now, but that has been discussed at SCIMP. However, there have been several very vocal people who do not want to impose this. Some of the arguments have been that they do not know what format is required but these are no real arguments — ODP can deal with the format. Janecek stated that he would like to see it as a requirement, it should be mandatory that you submit data to the ODP database in ASCII format, but that was voted down at SCIMP. Tauxe agreed to this as very important — people are publishing everywhere now and that makes it impossible to find and get an overview of all the data. Humphris agreed also that all data should be included in the SR CD ROM.

Humphris raised the issue of where the responsibility ultimately lies in determining whether the participants have met their obligations. In past it has fallen to the Chair of SCICOM — is there a suggestion to change this? Janecek replied that this not quite clear. TAMU will provide a checklist at the end of the obligation period, and ODP then communicates with participants to question why they have not submitted. However, the next step is confusing. SCIMP recommends that JOI be the authority to avoid TAMU policing the policy. Humphris stated that this is an ODP policy, and therefore it should not be TAMU's responsibility. The question is, should this become JOI's responsibility or is it better left in the JOIDES Advisory Structure with the SCICOM Chair continuing to do it? Baldauf said that TAMU should not get beyond the point of involvement that has been used so far, but he was concerned with JOI taking on this responsibility as, although this might work well in the U.S., it would not be successful in the international community. Moran stated that if we have a clear policy and someone does not submit a data report, but later requests samples — why should TAMU not be able to reject this request? Humphris explained that the letter that non-performers receive states that their violation may influence future sample requests and future participation in the Program depending on the severity of the violation. Klein said there needs to be some mechanism of reminder letters.

Tauxe asked what happens if someone gets samples and tries to do something that doesn't work? Janecek explained that this aspect is addressed in the policy — you have then to write an explanation letter to ERB and thus you are not considered in violation. Baldauf said that typically TAMU would review whether people have fulfilled their obligations, but the JOIDES structure should be the place for undertaking further action. Miller said he would not feel comfortable leaving these final decisions to TAMU. This letter has to come from some high authority and, given Baldauf's concern with the international community, the JOIDES structure would be more appropriate. Scott said it has to be handled very carefully and the letter should come from as high an authority as possible because it has ramifications beyond ODP. Humphris concluded the debate in that this item needs further clarification to be discussed with JOI.

SCICOM Motion 98-2-13
SCICOM accepts the revised Integrated Curation and Publication Policy in principle. Several points require clarification, including: (1) the deadline for supplying material for inclusion in the SR for manuscripts rejected in the outside literature; (2) the requirement that authors are obliged to submit data (including that for papers published in the outside literature) for inclusion on the SR CD-ROM; (3) the party responsible for informing non-performers of their status.

Proposed: L. Tauxe; Seconded: G. Moore *15 in favor; 1 absent*

K 4. SSP (S. Srivastava)

As a response to several complaints, SSP recommended simplifying the Site Summary Forms for proposals to make them less cumbersome. It will then be made explicit to the proponents which forms need to be filled out at which stage of the proposal process. SSP also proposed that the forms will be available electronically so that they can be transferred directly into the database. Thus, they will be also available to all Panels that need to look at them (SSP, PPSP, SSEPs etc.).

How this can be achieved will be the subject of a discussion involving JOI, JOIDES and the SSP Chair. SCICOM informally approved this suggestion. Site Summary Forms will be changed and will be incorporated into the Guide to ODP. Logging forms will also be simplified in order to minimize the work that proponents need to do.

The second recommendation concerned proposals that potentially might have problems with drilling, thus resulting in the possibility that the scientific objectives may not be achieved. SSP recommended that more than one alternate sites be included in the proposal that might address alternative scientific objectives. These alternate sites should also be included as mandatory in proposals that imply potential drilling problems in order to minimize the risk that a leg cannot achieve the scientific objectives by drilling the primary sites.

Discussion: Humphris asked whether this would beyond the normal procedure which is to have alternate sites on such proposals. Srivastava replied that SSP is suggesting alternate sites with alternate objectives. Miller said that Leg 174A had alternate sites on the slope in case they did not have sufficient core recovery on the primary sites.

Humphris expressed concern about alternate sets of scientific objectives. She argued that when deciding on the priority of a leg, SCICOM does this on basis of the science objectives of the cruise. She did not think SCICOM would approve having a different set of science objectives. Instead, SSP should ensure that there are sufficient alternate sites with the same objectives. Srivastava mentioned as an example Site 2A on PACMANUS — if the target cannot be drilled, where will they drill? G. Moore replied that they have enough alternate sites. Hodell commented on Leg 188 as an example where the primary Site 6A may be problematic to drill — the two alternate sites are geographically close together, and thus may have the same problem if there is ice. The recommendation concerns having sufficient alternate sites, even if they address different science objectives, for the event that the primary sites cannot be drilled. Larson commented that this way of planning may have been appropriate during DSDP times when technology was less advanced. Now, however, we know more about the ship and the area we are trying to drill. Thus, it seemed to him superfluous and inappropriate to try to generate a whole alternate scientific program for any leg. There is always a way you can find something to do with the rest of the time that will give you a certain percentage of your goals and ODP is flexible enough to allow this. That's what Chief Scientists are for — they can make decisions in the field, but keep them focused on the goals they are set out to achieve. Miller agreed, and mentioned as one of the worst scenarios Leg 150 when they ran out of approved sites. ODP did an extraordinary job of approving new sites while they were out in the field, and communications technology permits that. Then he asked if it was not within the SSP's mandate to make recommendations to the proponents — for example, for Prydz Bay. Srivastava replied that in the high latitudes it is mandatory to have alternate sites. Humphris concluded that we just need to ensure that cruises have realistic alternate sites.

K 5. PPSP — PPSP had no action items for SCICOM.

K 6. JOI (K. Moran)

Moran proposed to change the target leg length of legs from an average of 61 days to 56 days starting after dry dock in October 1999.

- The advantages of this suggestion include the following:
  1. to gain the equivalent of two full legs for Phase III,
  2. to use the time for science, industry partners, and engineering tests,
  3. to largely improve ship morale, and
  4. to improve crew rotation logistics.

- The disadvantages are:
  1. cost (~$1M over 4 years) and
  2. SCICOM will need to better focus the leg objectives to meet LRP priorities.

There was a general skepticism about trying to cut the length of the legs uniformly by 5 days. It was stated that detailed discussions with the proponents would be required in order to assure that shortening the legs will not impact the scientific objectives of the proposed investigations. Further skepticism arose with regard to the additional expenses in the context of ODP's overall budgetary constraints that led to the previously achieved programmatic prioritization (section J). Moran's suggestion was determined to require further discussion.

L. Planning for IODP

L 1. Update on Planning for OD-21 (K. Tamaki)

Tamaki reported on the new OD-21 brochure published by JAMSTEC and distributed copies to SCICOM. He then presented information on the membership of the Japanese Advisory Committee which is chaired by Kiyoshi Suyehiro. The Committee will provide advice about the coordination of Japanese scientists and engineers related to IODP, as well as scientific and technical advice to STA, MONBUSHO, JAMSTEC, and ORI. They will also be in charge of sending Japanese scientists and engineers to IODP international meetings and will submit a report to the Technical Workshop that will be held in Houston in November. He (Tamaki) is co-chairing the Operations WG.

Tamaki reported that JAMSTEC completed the preparatory study for the basic design of the riser ship at the end of March, and stated that there is strong competition among big science this year. JAMSTEC submitted a budget for the basic design and follow-on construction of the new drillship for FY'99. The decision about the drill ship is expected on Dec. 31 of this year. JAMSTEC has started the technological development of the core sampling system and the long-term monitoring system. JAMSTEC and JOI established a MOA for technical collaboration and the framework of cooperation has been identified.

STA has established an external Program Plan Review Committee for the OD-21 plan. A mid-term report is expected by the end of August, and the final report by mid-November. The appointed reviewers from outside Japan will be Sean Solomon from the Carnegie Institute in Washington, and Jim Briden from the UK.

Discussion: Humphris asked whether the preliminary design of the ship defines the lab space and layout. Tamaki replied that is not clear. Humphris inquired about the JAMSTEC/JOI agreement, and Fox explained that it will be signed in the next week or so. In Houston, prior to the Technological Workshop, there will be a meeting to lay out a three year strategy for the project, an implementation plan, as well as strategy and resources for the pre-technology program. The Japanese calendar year began in April, so they (TAMU and JOI) will move quickly this fall to get things underway.

L 2. Status of the Spring 1999 Conference (S. Humphris)

The objective of the IODP Conference is to identify the major scientific goals for an ocean drilling program that will be complementary to the riser drilling goals that are already enunciated in the CONCORD report. The planning mechanism was endorsed at the March SCICOM meeting. The

Executive Organizing Committee has been set up and is co-chaired by N. Pisias and A. Taira and includes the following members: L. Mayer, M. McNutt, H. Okada and R. Zahn.

Since then, a call for submission of brief statements of interest has been advertised with an original deadline on September 1, now extended to October 1. This advertisement has been published widely in Journals, on the web, and distributed through the ODP partner administrative offices. Every member of the JOIDES Advisory structure (~200) has been informed by letter. It was also send to international geoscience initiatives (IMAGES, InterRidge, NAD, Margins).

The conference is planned to be held in 26-29 May at the University of British Columbia in Vancouver. So far, the JOIDES Office has received 40 statements of interest — there are statements from individuals as well as from groups, and some communities have made a real effort e.g., there are many Arctic letters. Only two letters from industry clearly demonstrates that ODP does not do a good job in contacting industry. Some individuals have submitted multiple letters. The list of letters of interest is now available at the JOIDES Office web site. Humphris concluded her report by encouraging the SCICOM members to submit their statements of interest.

Discussion: C. Moore asked why the call for statements is being advertised so far in advance. Humphris explained that the organizers will need time to view the statements and select from amongst them the members of the broader organizing committee. Then the conference needs to be planned and an agenda been set up. Larson asked whether individuals can send letters even if they will not be present at the meeting. Humphris replied that it is the content of the letters that will structure the themes of the conference — not whether an individual can attend. Srivastava inquired about travel funds, and Humphris replied that the funds for attendance will need to come from the member countries. Pearce remarked that it is expensive to go from Europe to Vancouver, and asked about funds from the US to subsidize. Humphris replied that there are no funds available, but the lodgings are very cheap. This had been a goal in planning for it. Srivastava suggested that it may be necessary to pay for industrial representatives to attend. Moran said that JOI has distributed the advertisement to oil industry groups operating in the Gulf of Mexico, so there has been some effort made.

The acronym "COMPLEX" (Conference for Oceanic Multi Platform Exploration) was suggested as a name for the Vancouver Conference.

L 3. Status of Seismogenic Zone Drilling (S. Humphris)

During the last SCICOM Meeting, a mandate was set up for a Detailed Planning Group (DPG) for drilling in the seismogenic zone. From the five people invited to form the core group, four accepted: R. Hyndman (Chair), H-P. Harjes, S. Kodaira, K. Brown. They have sent out a call for letters of intent that has also been widely distributed as described above for the Vancouver Conference. The deadline was 1 August. Humphris presented a list of the ~20 letters of interest that have been submitted for experiments associated with a seismogenic zone.

Humphris then requested suggestions from SCICOM for additional members of the DPG. She presented a list of individuals that have been suggested by the core group of the DPG based on the letters of intent, as well as on nominations from various National Committees. SCICOM produced a list of suggested names that Humphris agreed to forward to R. Hyndman so that he can decide according to the expertise needed in the group. Hyndman has contacted WLS and would like to include someone with a strong downhole component. Goldberg said there is already one included on the list, and he had no further recommendations. Srivastava has contacted Hyndman regarding site survey requirements, and Hyndman intends to invite an SSP person when site survey issues are being discussed.

L.4 Technical and Operational Workshop (S. Humphris)

At their March meeting in Boulder, SCICOM agreed to set up a workshop to define the technical and operational issues that need to be considered for the future ocean drilling program. ODP's major intent is to bring together experts from the oil industry to advise on technical and infrastructure issues. In collaboration with Moran and Tamaki, a tentative agenda has been set up for a two-day meeting, with perhaps different participants on the two days. The discussion on the first day includes mainly drilling and logging technology. A short time will be used to give a brief overview of what ODP is and the future plans. The discussion will be focusing on identifying new developments and drilling requirements (bids, logging tools, etc.) to advance our technological needs. During the second day, the operational side of the issue will be dealt with. This discussion will focus on identifying the most efficient way to organize operations with two ships. Site survey needs and requirements will also be an issue.

Humphris presented a list of invited attendees (~30 people) explaining the expertise of the several individuals from JOIDES, JAMSTEC, JOI, TAMU and others from oil companies, and drilling industry. The Workshop will be held in Houston, Texas on 17-18 November.

Discussion: Ludden said that Europe is absent on the participant list. Humphris said she would like to involve Europeans and asked for recommendations. Kudrass suggested Betz from the former KTB project and D. Horn, and Hay suggested Y. Kristoffersen. A few other recommendations followed. Tamaki mentioned that Japan will add three or four people from industry as none is represented in the list provided. Humphris intended to ask B. Jonasson to help identifying a Chair. Moran recommended someone familiar with ODP planning.

L 5. Structure and Management issues of IODP (B. Malfait)

Malfait mentioned that the IWG met in Bonn in June during the EXCOM meeting. He reviewed the activities and the calendar of events. NSF will meet with the National Science Board and brief them on the potential of the new ocean drilling program.

In a review of the planning and resources invested in ocean drilling since the Mohole Project in 1955, it is clear that the outcome is always quite different from the initial intention. Hence, what finally materializes in 2003 may be quite different from what we are envisioning today. A two ship program is still primarily envisioned, although other platforms are under consideration, with a JOIDES-like planning structure. Referring to the above mentioned Technical Workshop, he said that we now need to identify the problems that may come up and try to figure out the solutions. In terms of money, in that area there has not much changed either — A 1/3-1/3-1/3 cost sharing arrangement between Japan, the US and other partners is still envisaged by the IWG.

Discussion: Larson asked if the discussion about the annual budget was still $120M, and Malfait replied it was still as estimated in 1996 in the range of $120-130M for the operation of the program. Klein said that the 1/3 sharing cost concept will require a huge ramp-up in support from the other partners, and asked whether Malfait had heard any enthusiasm for that kind of support from the other countries? Malfait said that the IWG has 10 to 15 members and as the costs are better defined, these countries will be better understand what this will mean financially and to seek the funds. Within NSF, he was optimistic.

Humphris informed SCICOM that after the IWG meeting Detrick, Moran, and herself had written a letter recommending to the IWG that a formal planning structure be put in place to take over the planning activities for the future program — a planning structure that would not directly involve the Chair of SCICOM. Since then, she and Detrick had met with M. Purdy to informally discuss the issue of resources for the planning effort. Although initial planning efforts have been done through SCICOM, as momentum builds, we may need other additional committees more devoted to that planning effort.

Moran said that they still need to find a name for the future ocean drilling program instead of IODP and asked SCICOM for suggestions. One considered was Odyssey but has been rejected as too long.

N. Other International Programs

NAD — Bond reviewed the current activities of NAD. He reported that holes drilled off Canada have recovered a high resolution core containing 8 glacial/interglacial cycles. He also discussed a site survey investigation in the Laptev sea. There will be a proposal for drilling on the Lomonosov Ridge, and a Swedish group with drilling capabilities will reduce the cost of a leg so that it is close to a standard leg cost. Drilling on the Yermak Plateau was planned to investigate the question of the Gateways, but the cruise could not get up there because of difficult ice conditions. A Canadian site survey in the Basin has just been completed. Bond concluded that there are a lot of Arctic activities and said that although ODP has an agreement with NAD, it does not convey the strong interest that ODP has in the Arctic. NAD is meeting again October.

Ludden inquired on how ODP will fund these expensive legs, and Humphris referred to SCICOM Motion 98-2-8. She said that, as agreed before, she will place a statement in the proposal guidelines on to inform potential proponents of the funding situation.

ICDP — Kudrass reported that the membership of the ICDP now includes Germany ($700K), US ($700K), China ($200K), Schlumberger ($100K annually) and UNESCO with a small contribution. Concerning other members, Russia has tried to provide in-kind contributions, Japan will probably sign on, and ESF (7 countries) was close. France has resigned from membership.

The current ongoing projects are: Lake Baikal, Long Valley (USA), Hawaii, Lake Titicaca and a lake drilling feasibility study. The new projects include drilling in the Gulf of Korinth, Osa Peninsula (Costa Rica subduction) NE China lakes, Crete (continent-continent collision) KTB (Germany), Qinqhai Lake (Tibet), Dabie (China), Uralskaya (Russia logging), and New York (Pangea evolution). There is an overlap with ODP and interest in collaborating on joint projects.

The next meeting will be on 7-8 April in Hawaii. A liaison should be assigned and Tauxe would be interested but she is an alternate. Hodell and Miller both are also interested.

DOSSEC — Miller explained that DOSSEC is the continental drilling equivalent to the ODP that represents the US portion of the ICDP. The next meeting will be at the Hawaii site in June. Miller is the liaison and will attend. Malfait said that DOSSEC actually runs the drilling operation for ICDP.

O. New Business

Letter from J. Mutter: The letter from J. Mutter to SCICOM was distributed and described a multi partner group, involving a number of universities and Schlumberger, interested in establishing a science and technical center to investigate the possibilities of sequestering liquid CO_2 on and beneath the sea floor. A proposal will be submitted at the end of August, and Mutter was requesting a letter of support from SCICOM indicating interest on participating in a collaborative study.

Discussion: Humphris stated that she thought this project was very exciting, and certainly societally relevant. She indicated that a letter of interest is all that is required at this stage, and the ODP is not promising anything except interest in the development of a partnership. Scott said what they are doing is getting rid of CO_2 into the ocean, and asked whether ODP wants to get into that

kind of business. Raymo said it is better done in the research realm than in private industry. Hodell said we have to be concerned with safety issues. Humphris said that SCICOM should be encouraging any innovative ideas, especially when it potentially has a high impact on societal issues. ODP should keep an open mind and be encouraging.

• The general consensus of SCICOM was to encourage the effort, and indicate interest in collaboration with this multi-partner group.

Membership Issues: Membership on SCICOM will change as follows:

SCICOM: H. Kudrass will be replaced by W. Hay who will become Chair.
M. Coffin and D. Wiens will replace R. Larson and G. Moore.
A. Robertson will replace J. Pearce

Miller commented that representation on SCICOM is heavy on Interior and light on Environment. Humphris said next year there will be several who are Interior-types rotating off and SCICOM needs to replace those people by Environment-types. Klein said the point is well taken, but pointed out that in ranking of proposals, she found it remarkably balanced. Miller said he thought SCICOM has done an extremely good job, but the balance should be brought up. Tamaki said he is Interior but would think about both when voting. Humphris said she will recommend to JOI BoG that when they think of replacements for the US members, they suggest scientists with Environment theme interests.

Liaisons to other Panels:

SCIMP: J. Natland (OPCOM)
TEDCOM: J. Ludden will be replaced by M. Coffin (pending Coffin's agreement)
PPSP: S. Humphris will be replaced by W. Hay
SSP: D. Hodell will be replaced by K. Tamaki

ISSEP: S. Scott (in fall); will be replaced by A. Robertson in 1999 (pending)
ESSEP: M. Raymo (in fall); will be replaced by G. Bond (pending)

PPGs

Shallow Water Drilling	J. Overpeck
Gas Hydrates	C. Moore
Architecture of Oceanic Lithosphere	E. Klein
Deep Biosphere	N. Holm
Extreme Climates	K. Miller
Long-term Observatories	K. Brown
Climate-Tectonics	M. Raymo

P. Future Meetings

Hay proposed holding the spring meeting in Freiburg, Germany (close to Strasbourg) in order to give the attendees the opportunity to attend the bi-annual EUG Meeting (28 March - 1 April) in Strasbourg, France. The summer meeting would be in California. Miller said he would prefer to leave it as previously planned, because of travel during the semester. Tauxe said she finds the EUG argument compelling. Humphris said that, at this time of transition in the Program, it would be helpful to have a strong presence at that meeting. Based on a vote, (9 for), the meeting will be in Germany.

The meeting is therefore scheduled as: PANCH meeting: 23 March 1999
OPCOM meeting: 24 March 1999
Joint OPCOM/SCICOM meeting: 25 March 1999
SCICOM meeting: 26-27 March.

Q. Other Motions

SCICOM Consensus 98-2-14
The field party would like to thank Julian Pearce for his hospitality in Durham, and for arranging a two-day travel through historical periods, starting with Hadrian's Wall at the fringes of the mainly land based Roman Empire, we ended with a visit of James Cook's ship and scientific equipment used for the first ODP-type of global marine scientific investigations.
Proposed: H. Kudrass

SCICOM Consensus 98-2-15
SCICOM bids farewell to four long-term members. We will sincerely miss the good cheer of Julian Pearce, the sage advice of Greg Moore, the stoic pragmatism of Hermann Kudrass, and the ascerbic wit and startling insights of Roger Larson. Our corporate memory will suffer from the loss of these veterans of PCOM. We wish them well.
Proposed: K. Miller

SCICOM Consensus 98-2-16
SCICOM takes this opportunity to applaud and thank Susan Humphris for her leadership of SCICOM and JOIDES over the past two years. Working with foresight, insight and industry, she has kept a steady hand on the science helm while leading us through the peripheral rocks and shoals that often threaten our overall goals. We wish her well in her return to a more normal life as "just" a world-class scientist and look forward to her wisdom during her last year as a regular member of SCICOM. At the same time, we welcome Bill Hay as he takes the SCICOM helm and leads us on in our never-ending voyage of discovery.
Proposed: R. Larson

SCICOM Consensus 98-2-17
SCICOM takes this opportunity to thank the JOIDES Office staff for their excellent and tireless service to JOIDES during their tenure at Woods Hole. In these days of ever-increasing bureaucracy and sometimes decreasing funding, it has been absolutely essential to rely on the professional support of Shirley Waskilewicz, Kathy Ellins, Maria Mutti, and most recently, Christina Chondrogianni. We especially thank Kathy Ellins for her trans-Atlantic service in two JOIDES Offices over the past 4 years. We wish her well in her new position at the University of Texas at Austin where she will have the opportunity to bring civilization from the Atlantic Seaboards to what many still regard as the "wild west".
Proposed: R. Larson

SCICOM Consensus 98-2-18
SCICOM thanks Nick Pisias for his role as Interim Director of JOI. We appreciate the significant investment in time, and the dynamism of Nick during this important transition in the direction of JOI and the renewal of the ODP.
Proposed: J. Ludden

SCICOM Consensus 98-2-19

Occasionally, the stars are in confluence and events transpire as they should. One such time was when Kate Moran accepted the directorship of the Ocean Drilling Program. The entire ODP community rejoices at this decision and no less so the Canadians from whose bosom Kate has sprung. Kate, a dual Canadian-U.S. Citizen, made her career and superb scientific reputation at the Geological Survey of Canada-Atlantic in Dartmouth. There, she was a member of an exceptional group of marine scientists who were the first in the country to grasp the significance of DSDP/ODP. Kate herself established a specialized physical properties lab as part of this pioneering effort. Kate has participated on 7 ODP legs and chaired the former Shipboard Measurements Panel. More recently, Kate has deftly steered JANUS through the shoals to a successful conclusion. Having these credentials, Kate is superbly well equipped to direct the Ocean Drilling Program through to a successful conclusion in 2003 and to lay the groundwork for IODP.

It is moved that a most warm welcome be extended to Kate from SCICOM with our best wishes for a continuation of her string of successes.

Proposed: S. Scott

SCICOM Approval 98-2-20

SCICOM approves by e-mail the schedule for FY'00 (and beyond) as follows:

Leg 188	Dec - Feb	Prydz Bay*
Leg 189	Feb - April	Southern Gateways
	Transit (14 days)	
Leg 190	April - June	Nankai
Leg 191	July	WP-2 Site
Leg 192	July - Sept.	Manus Basin
Leg 193	Sept. Nov.	Ontong-Java

* - contingent on availability of affordable ice support

12 in favor; 2 against; 3 abstentions