Joint Science Committee (SCICOM)/ Operations Committee (OPCOM) Meeting

18 March 1998
Boulder, Colorado
DRAFT MINUTES
(Corrected 7/21/98)

OPCOM/SCICOM Participant List

OPCOM and SCICOM Members

Kevin Brown	Univ. of California San Diego, Scripps Institution of Oceanography
Robert Carter	University of Townsville, Australia
Dave Hodell	University of Florida, Gainesville
Steve d'Hondt[1]	University of Rhode Island, Graduate School of Oceanography
Susan Humphris (Chair)	Woods Hole Oceanographic Institution
Hermann Kudrass	Bundesanstalt für Geowissenschaften und Rohstoffe, Germany
John Ludden	CRPG, Vandoeuvre-les-Nancy, France
Judith McKenzie	Swiss Federal Institute of Technology (ETH), Zurich
Kenneth Miller	Rutgers, The State University, New Brunswick
Gregory Moore	University of Hawaii
J. Casey Moore	University of California, Santa Cruz
Greg Mountain[2]	Lamont-Doherty Earth Observatory, Columbia University
Jim Natland	University of Miami, RSMAS
Jonathan Overpeck	NGDC, NOAA, Boulder
Julian Pearce	University of Durham, United Kingdom
Maureen Raymo	Massachusetts Institute of Technology, Cambridge
Steve Scott	Canadian Secretariat for Ocean Drilling, Toronto
Kensaku Tamaki	Ocean Research Institute, University of Tokyo, Japan

[1] - alternate for Roger Larson
[2] - alternate for Gerard Bond

Liaisons

Mahlon Ball	US Gological Survey, Denver (PPSP Chair)
Jack Baldauf	Science Operator (ODP-TAMU)
Joris Gieskes	Scripps Institution of Oceanography (SCIMP Chair)
Dave Goldberg	Wireline Logging Services (ODP-LDEO)
Bruce Malfait	U.S. National Science Foundation
Nick Pisias	Joint Oceanographic Institutions, Inc.
Mary Reagan	Wireline Logging Services (ODP-LDEO)
Shiri Srivastava	Geological Survey of Canada Atlantic (SSP Chair)

Guests & Observers

Warner Brückmann	GEOMAR, JOIDES Office Science Coordinator (elect)
Ju-Chin Chen	Chinese Taipei ODP Consortium
Christina Chondrogianni	JOIDES Office, Wooods Hole Oceanographic Institution
Kathy Ellins	JOIDES Office, Woods Hole Oceanographic Institution

John Farrell	Joint Oceanographic Institutions, Inc.
P. Jeff Fox	Science Operator, ODP-TAMU
Bill Hay	GEOMAR, SCICOM Chair (elect)
Tom Janecek	Florida State University (SCIMP Chair - elect)
Brian Jonasson	ODP-TAMU
Jock Keene	University of Sydney, Australia
Kazu Kitazawa	JAMSTEC, Japan
Kate Moran	Geological Survey of Canada Atlantic
Shirley Waskilewicz	JOIDES Office, Woods Hole Oceanographic Institution

Apologies

Emily Klein	Duke University
Alister Skinner	British Geological Survey, TEDCOM Chair

Summary of SCICOM/OPCOM Consensus Items and SCICOM Motions from the Joint SCICOM/OPCOM Meeting

SCICOM Motion 98-1-1
SCICOM and OPCOM approve the Agenda for their Joint March 1998 meeting, and SCICOM approves the Agenda for its March 1998 meeting.

OPCOM: Approval by Consensus
Proposed: S. Scott; Second: G. Moore *15 in Favor; 1 Absent*

SCICOM Motion 98-1-2
SCICOM approves the Minutes of the August 1997 SCICOM Meeting held in Davos, Switzerland.

Proposed: S. Scott; Second: G. Moore *9 in Favor; 6 Abstentions; 1 Absent*

SCICOM/OPCOM 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	$???

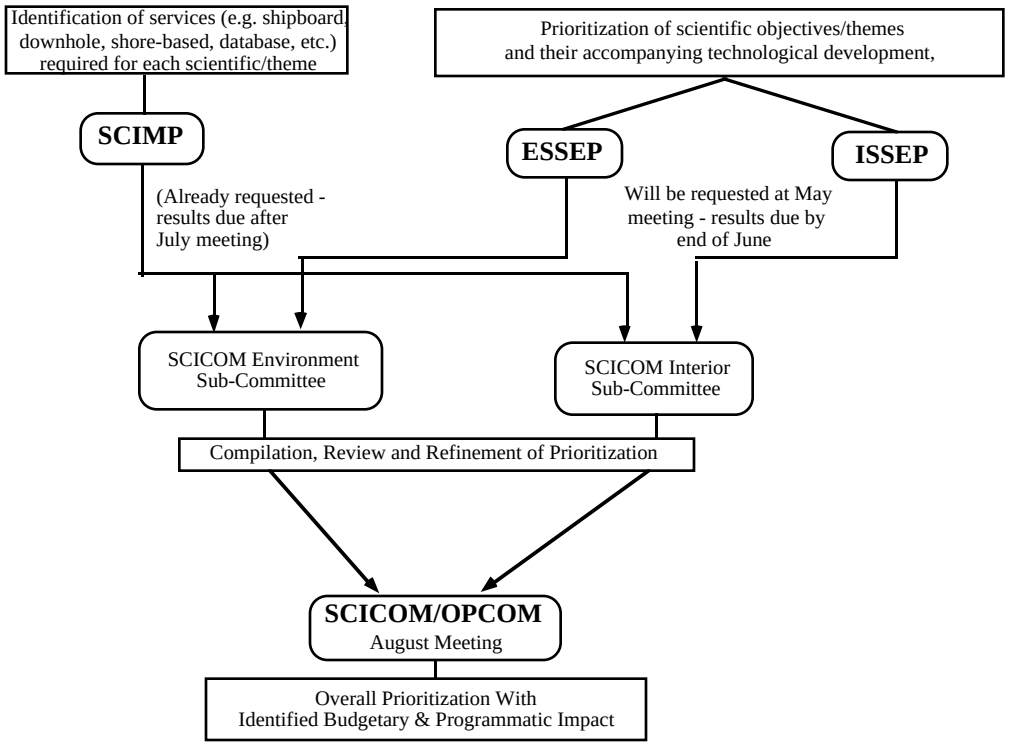
The following items were deferred pending further information:

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

This prioritization is preliminary and will be revisited at the August SCICOM meeting. The Chair of the Biosphere PPG will be invited to present the plans for implementation of microbiological sampling and to provide a range of estimates for equipment and facilities required.

SCICOM Consensus 98-1-4
In response to EXCOM Motion 98-1-8, SCICOM adopts the following procedure to provide a framework based on a prioritization of themes of the Long Range Plan for future budgetary decisions:

Mechanism for Producing a Programmatic Framework for Budgetary Decisions



SCICOM/OPCOM Consensus 98-1-5
By consensus, OPCOM and SCICOM thank the JOI JANUS Steering Committee and, in particular, Kate Moran for their dedication and effort in successfully implementing Phase I of JANUS.

SCICOM/OCPOM Consensus 98-1-6
By consensus and in response to EXCOM Motion 98-1-13, SCICOM will set up a Technical and Operations Workshop in the fall of 1998 to provide advice on the most effective mechanisms to determine the technical requirements and infrastructure of IODP.

A. Welcome and Introduction

The first joint meeting of SCICOM and OPCOM was opened by S. Humphris. Members, liaisons and guests were welcomed and asked to introduce themselves. J. Overpeck was thanked for hosting the meeting at the NOAA-National Geophysics Data Center (NGDC). Overpeck welcomed all attendees and gave information concerning the logistics of the meeting. A further welcome was expressed by Alan Dolan, Acting Director of NGDC, offering regrets that Mike Loughridge, Director, was unable to be present. He gave detailed information on a planned guided tour through the NGDC.

Humphris reported on personnel changes at JOI and JOIDES. N. Pisias stepped in as the ODP Interim Director replacing D. Falvey; J. Farrell has been appointed the new Associate Director replacing E. Kappel; and C. Chondrogianni stepped in as the new JOIDES International Liaison replacing M. Mutti. B. Hay and W. Brückmann were introduced as the future SCICOM Chair and Science Coordinator of the JOIDES Office when it moves to GEOMAR, Kiel, Germany in 1999-2001.

Humphris presented a brief overview of the Agenda noting that the only change concerns the leg reports in item <J>, which would be given in reverse order. Legs 177 and 176 in the morning, and Legs 174 and 175 in the afternoon. Humphris asked if there were any other Agenda items that anyone would like to add, but none were suggested.

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OPCOM: Approval by Consensus
Proposed: S. Scott; Second: G. Moore *15 in Favor; 1 Absent*

Humphris then asked if there are any comments or changes to the Minutes of the last August meeting in Davos, Switzerland. No additional suggestions were made.

SCICOM Motion 98-1-2
SCICOM approves the Minutes of the August 1997 SCICOM Meeting held in Davos, Switzerland.

Proposed: S. Scott; Second: G. Moore *9 in Favor; 6 Abstentions; 1 Absent*

Humphris reported on the status of action items from the August 1997 SCICOM meeting.

Action Item for the JOIDES Office: the JOIDES Office will solicit two-page CV's from SCICOM and OPCOM members to post on the web page, or set up links to members' personal web pages.

Requested and posted on JOIDES Office web page for SCICOM and SSEPs.

Action Item for OPCOM: SCICOM requests that OPCOM look into fall-back options for Leg 179 in the event that the hammer-drill test has to be postponed.

Completed at August 1997 OPCOM meeting; not implemented as hammer-drill test proceeding as scheduled.

Action Item for the JOIDES Office: Humphris will send out a request from nominations for the approved legs after OPCOM, and send them to ODP-TAMU by the end of October.

Nominations solicited, distributed to SCICOM for comment, and submitted to ODP-TAMU by end of October. TAMU now has recommendations for Co-Chiefs for all legs scheduled for FY'99.

Action Item for the JOIDES Office: Humphris will forward copies of requests for PPG meetings with the agendas to TAMU and Lamont (and SSP if appropriate).

Implemented.

Action Item for SCIMP: SCICOM asks SCIMP (with input from the Biosphere PPG to look into (1) the existence, and availability of, containerized microbiological labs and the equipment/facilities contained therein; and (2) the methods by which work with radioisotopes is currently handled on other oceanographic research vessels. Natland will write a note to SCIMP to inform them of this decision.

Items included in Feb. '98 SCIMP Agenda and presented to OPCOM yesterday. These questions have been intensively investigated by the Deep Biosphere PPG and SCIMP during the last 3 months. Further discussion to follow during this meeting.

Action Item for SCIMP: SCICOM requests that SCIMP provide some recommendations regarding how data from Leg 171B forward get transferred to, and updated in, the Janus data base.

Data transfer almost completed; plan for migration unnecessary.

Action Item for the JOIDES Office: SCICOM requests that the JOIDES Office invite someone from NAD to the next meeting to provide a status report on planning to SCICOM.

Not done; to avoid an extensive agenda at this meeting. A proposal for Arctic drilling is expected to be submitted to the 3/98 deadline. Upon request by EXCOM to appoint a Liaison to NAD, Gerard Bond has agreed to serve in this capacity.

Action Item for OPCOM: SCICOM requests that OPCOM look at whether logistically it is possible to incorporate an oblique VSP experiment into Leg 179.

This had been evaluated during the August '97 meeting. The VSP experiment is planned to occur during Leg 179.

Action Item for the SSEP Chairs, JOI, and the JOIDES Office: this group should review the external comment criteria, and revise them as necessary for the next external comment process.

Review of external comment criteria carried out in the fall. The review was accomplished during last fall, and changes were incorporated in the criteria used for external comment of the proposals sent for review in 11/97.

Mountain asked if any information from NAD should be forwarded to Gerard Bond. Humphris replied that NAD has been informed of G. Bond's nomination as liaison and he would be contacted by them.

B. Reports of Liaisons

1. NSF (B. Malfait)

PHASE III CONTINUATION: Malfait presented a timetable (Appendix 4a) of planning for extending ODP into Phase III showing activities related to NSB reviews, contracts and the mid-life refit of the ship, and MOU's and partner commitments.

The NSB met in November and had many positive comments about ODP and only a few concerns regarding big science programs in relation to individual investigator participation. The NSB has approved $193 million for continuation of the program from 1999-2002. The year 2003 is viewed as a major "transition" year that will be the termination of ODP and the transition into IODP. The NSB is interested in the planning for IODP and the budget level required for the new program.

Contracting issues are going well. The NSF-JOI prime contract is under negotiation concerning some modifications of its terms for Phase III of the program. The extension for the ship operations

contract is on schedule, and NSF has agreed to provide $6 million dollars in support of needed upgrades. The day rate for the JR will increase, but not by as much had been projected a year ago.

In terms of international partner commitments, formal commitments have been received from all but France and the ESF. French participation would be held at a maximum of 2/3 in 1999 with no commitment to return to full membership. The 2/3 level will be negotiated, and NSF will not move forward on an approved participation level without discussion among the international partners, which is expected to take place at the Council meeting in June. Italy has not yet committed to the ESF consortium. NSF is in the process of signing an MOU with China and it is expected that China would join ODP this fiscal year as an Associate Member at a 1/6 level of participation.

RESOURCES: The present 1998 Program Plan budget $49.1M. This includes $1.7M of unspent funds from 1997. Of the $47.4M in new funding, 64% ($30.1M) is contributed through NSF and the balance through the international partners ($17.3M). This budget includes $3 million for the refit of the vessel.

For FY'99, the target budget is currently $48.5M, which represents an increase of 1.5% above 1998. It includes additional funds of $3M for the refit. There is considerable uncertainty in the contributions of the international partners, so the possible ranges of support are likely to be:

International Partners	$17.3M (maximum)	to	$14.3M (minimum)
NSF	$31.2M (64%) to		$34.2M (71%)

The overall NSF budget for FY'98 shows an increase of 2-3% with research levels up 5% compared with FY'97 (Appendix 4b). The Division of Ocean Sciences was up from $200M to almost $204M -- a 2% increase. Taxes went from $8.9M to $13.28M. Essentially, every research program in the Division, except ODP, had a decrease in budget. The NSF budget for 1999 is projected by the President to go up by 12% which would result in an 11% increase ($5M) for ODP; this, however, is uncertain. If funding levels do not increase, then any additional NSF funds to cover the decrease in international participation will have to come out of US science funds, thereby decreasing the funds available for site surveys, etc.

OTHER ITEMS: Malfait announced that Jamie Allan has joined the staff at NSF in a two-year rotator's position. Future activities of NSF will include issuing a MARGINS Program announcement, and a meeting of the IODP Working Group in June after the EXCOM meeting. The OSN pilot experiment is underway, and the data and the borehole instruments deployed in January will be recovered in June.

McKenzie reported that, based on a recent meeting in Milano, she expects Italy to commit to continuation in the ESF Consortium. She explained that the current reorganization of the Italian government might have caused a delay and she would expect a decision by the middle of April. Ludden reported that the amount of the French contribution would not exceed $2M, but this may be possible to negotiate.

2. JOI (N. Pisias)

PERSONNEL CHANGES: Pisias reported that Dave Falvey left JOI on 31 December and he (Pisias) accepted a four-month contract as the ODP Interim Director. He also announced the following changes:

- Ellen Kappel is on professional development leave working on USSSP education and public outreach activities. In addition, Ellen is also the project manager for the SeaNet project.
- John Farrell has been promoted to Associate Director of ODP and Director of USSSP.
- Brecht Donoghue is the new Administrative Assistant in the JOI Office.
- Susan Costilow has been selected as the new Travel Coordinator and started on 16 March.
- JOI is in the process of reviewing applications for the new Director of ODP and Assistant Director of ODP and USSSP. There have been three invitations for interviews for the Assistant Director's position; these will be completed by the end of the week. An advertisement for the US representative for the future JOIDES Office in Germany has been sent out.
- The contract for the new JOIDES Office beginning in January 1999 has been sent to Germany.

JOI-NSF CONTRACTUAL RELATIONS: The prime contract between JOI and NSF is being revised. The changes relevant to JOIDES aim to:
- Seek NSF recognition of the goals of the new Long Range Plan (LRP)
- Reaffirm JOI's commitment to ensuring that the planning, execution, delivery, and reporting of ODP will be responsive, within specified budgetary limits and operational constraints, to the needs of the broadly based international community, as expressed through the JOIDES Science Advisory Structure and EXCOM
- Clarify the role and function of the JOIDES Advisory Structure and its relationship to the JOI Board of Governors.

USSSP ACTIVITIES: In preparation for an extension of scientific ocean drilling beyond 2003, USSAC has been charged to provide advice to NSF and is addressing the following questions:
- How do we gain broad community support for the future of ocean drilling?
- How should the US component of a scientific ODP be structured in 2003?
- How can industry be more effectively involved in a new program?

In addressing these above questions, USSAC workshops will be held in the summer to formulate strategies.

Pisias added that a new US report has been published (COMPOST II document) that makes the case for continuation of scientific ocean drilling. This will be distributed to the U.S. community and used as part of the planning process for the new program. Copies will also be sent to national offices of ODP partners.

3. Science Services (J. Baldauf)

LEG STATUS:
Leg 175 - Benguela Current: 40 holes were drilled at 13 sites with a record core recovery of 8003m of sediment representing an overall core recovery of 97.5%. A Seismic Stratigraphic Tool was lost at site 1087 (SCB-1). Dolomitic layers at Site 1080 (SAB-2) limited penetration to 52 mbsf.

Leg 176 - Hole 735B: Hole 735B was deepened from 500 to 1508 mbsf. 866m of basement (gabbro) was recovered with 86% recovery. A failed pipe connection resulted in 1403 m of pipe and the BHA being dropped into the hole. Although 497 m of pipe were recovered, the hole remains filled with 734 m of pipe and 172 m of BHA. Considering the condition and quality of the hole, and the likelihood of recovering all the pipe, ODP recommends that a new hole should be started rather than returning to Hole 735B for fishing operations.

Leg 177 - Southern Ocean: Drilling completed 38 holes at 7 sites and recovered 4046 m of sediment (81.8% recovery). Towards the end of this Leg, a portion of the lower guidehorn (LGH) and pin broke (Appendix 1) requiring revised operation parameters . However, 4 holes were completed at the final site (171 mbsf) before parameters were exceeded. The LGH system will be repaired in Cape Town after Leg 178. There was also an unusually high rate of core-liner failure (46.8%) which may have been due to damage caused by a worn drill collar seal. The drill collar was replaced before Leg 178. Of particular concern was the fact that the JANUS paleontology application was not used by the participants of the leg. TAMU is preparing a report to SCIMP and to the JANUS Steering Committee on the circumstances of this situation and recommendations for improvement of the JANUS application.

Leg 178 - Antarctic Peninsula: 8 primary sites (2 drift, 6 shelf) were proposed, of which 3 sites have been occupied to date:
- Site 1095 (APRIS 2A) -- triple APC with XCB and maximum penetration of 570 mbsf (87% recovery). Recovered sediments included Miocene-Quaternary diatom clay and clay silt.
- Site 1096 (APRIS 1A) -- triple APC with XCB and maximum penetration of 607 mbsf (89% recovery). Recovered sediments included Pliocene-Quaternary diatom silty clay.
- Site 1097 (APSHE 5A) -- RCB to 217 mbsf; poor recovery.

Drilling operations have not been impeded by the broken LGH and limited operating parameters.

Leg 179 - Hammer Drill/NERO: This leg includes a test of the Hammer Drill-in Casing System (15 days), the NERO Project (6.5 days) which will establish a cased reentry hole approximately 200 m into basement for installation of a broadband seismometer, and additional seismic experiments (4 days) using standard logs, SWD, VSP, offset seismic experiment, and test of a strainmeter. If the drydock repairs prior to this leg require an additional 2 days to the scheduled 5 days, there will be some prioritization within the logging components as recommended by OPCOM.

OPERATION SCHEDULE: The port call after Leg 181 has been changed from Townsville to Sydney for a PR event. Three days were removed from Leg 181 which will pickup 4/10 of an operation day.

CURRENT STAFFING: The Co-Chief Scientists for Legs 177-183 are already invited while those for the Legs 184-186 still need to be identified. US scientists represent 46.13% of shipboard participants (not including ODP Staff Scientists and LDEO Logging Scientists), with each of the other ODP partners representing approximately 8%. Student participation remains at about 40-50 per year and shows no major changes since the beginning of ODP.

SCIENCE SERVICES: Several items of interest include:
- A Staff Scientist position has been advertised
- A new Laboratory Office has been appointed - Kazushi Kuroki
- The Gulf Coast Repository Superintendent is now Phil Rumford
- Guidelines for the temporary MLS have been completed
- The Core Wrap Project has been implemented
- A Sample Policy change has been recommended that eliminates the requirement to return residues
- A new core repository is now under construction at ODP-TAMU.

ACTIVE HEAVE COMPENSATOR: The proposal was submitted in Sept.'97. Following negotiations with ODL in Nov.'97, the proposal was considered inadequate as it lacked results of ship review, costing, and technical data. ODL finally withdrew the proposal in Dec. 97. A meeting was held in Jan.98 with TAMU/ODL/RESCO to develop a new strategy. The installation of the active heave compensator is anticipated for the dry dock.

PUBLICATION SERVICES: JOI issued a directive to TAMU that ODP Volumes should be produced in electronic format (CD-ROM/WWW) and that a printed booklet be included to provide an overview of the leg before viewing the volume on CD-ROM. The booklet contents are expected to include: CD-ROM User Guide, a Leg summary, Hole information, principal results, a coring summary table, and lithostratigraphy figures. The CD-ROM/WWW contents would be: the booklet contents, explanatory notes, site chapters, leg specific chapters, core description forms/ color core images, smear slide and thin section descriptions. The volume will be designed for on-screen viewing, but will be printable as well. Legs 176 and 177 will be the first IR volumes in the new format, whereas the first electronic SR volume will be Leg 169.

Post-cruise science results became open for publication in the outside literature beginning with Leg 160. Historically, the average number of papers submitted for each SR volume was 41. Based on data from Leg 160 - 176, projections suggest that this may decrease to about 23 papers, with an additional 26 papers being published in the outside literature.

INFORMATION SERVICES: Russ Merrill has left TAMU for another position; his position will be advertised shortly. Shipboard support requirements for JANUS are currently being reviewed. The data migration project is on hold (FY'98/FY'99) although the core log and sample data have been completed.

DRYDOCK: The schedule of the drydock operations is as follows:
- March 98 Expressions of Interest
- June/Aug 98 Reconnaissance
- July 98 RFP

- Aug 98 Contract Awarded
- Aug 99 Drydock (6 weeks)
- Sept/Oct 99 Sea-Trial (1 week)

The TAMU drydock projects include expenses totaling $302,788 and are listed in Appendix 5. The ODL drydock projects (Appendix 5) include expenses totaling $6,484,000. These will have to be reduced to meet the $6M budget.

FY'99 TAMU BUDGET: The ODP-TAMU FY'99 budget is currently:
- Base $36,314,827
- SOE $ 5,361,518
- Total $41,676,345

Achieving this level of funding required reduction of $609,299 from the proposed budget and resulted in the elimination of 2 hammers ($314,299), elimination of gas chromatographs ($95,000), and an assessment of IS requirements ($200,000).

Discussion: Miller asked about the status of investigating the production of paper copies of the IR Volume on an on-demand basis at user cost. Baldauf expressed his concern regarding the quality of the core photos. Pisias stated that TAMU has been asked to find a subcontractor to offer this service. The issue is that it will look like the book that is currently produced, but rather like a manuscript because the format for screen-reading is very different.

C. Moore asked about the commitment of TAMU to retain SR volumes on the web site. Baldauf replied that the initial strategy was to maintain all the volumes on the web over the long term. Humphris reported on the discussion during the previous OPCOM meeting regarding the options of maintenance of all the volumes or just a subset for the last 1-2 years. Costs for maintaining all the volumes are extremely large, so it is most likely that only the last one or two years will be maintained on the web and earlier volumes will be accessed through CD-ROMs. Humphris said that this is an issue that SCIMP has been asked to address.

Mountain inquired whether developing an active heave compensator is better than buying one that already exists. Baldauf emphasized that the *JOIDES Resolution* has a unique system which eliminates the possibility of buying one off the shelf; it would require considerable modification. Fox stated that it would cost $3 million as opposed to $1-1.5 million. A retrofit is required; these are done routinely in industry but the JR has a unique compensator. RESCO is the leader in industry in active heave systems and have a good track record, so they should be able to solve ODP's particular needs. Mountain asked if it will be installed fairly soon and what are the milestones in its implementation. Jonasson answered that once it is installed and operational, it is only a matter of the crew becoming familiar with it. Malfait asked about the criteria for acceptance, and Jonasson replied that there has been extensive internal analysis of the system, and the results will be compared to the ones resulting from RESCO's analysis and design.

Pearce questioned whether the drydock plans fulfilled the requirements of the Biosphere PPG. Baldauf replied that the Biosphere PPG is met only last week at TAMU and are in the process of pulling together their requirements, which will need to be reassessed. Any critical issues need to be identified prior to the RFP being issued. Humphris reminded SCICOM that their suggestion had been that a space be identified for a containerized lab on the ship during the drydock with the idea that the microbiological activities would be phased in. The space has already been identified. Baldauf said that a van can be installed above the core tech shop directly aft of the rig floor.

4. Logging Services (D. Goldberg, M. Reagan)

FY'98 RESULTS:
Leg 175 - Benguela Current: Downhole logging was carried out at 5 Sites, and were successful. Gamma ray and clay content were determined to follow glacial-interglacial stages of the oxygen isotope record, and a cyclical pattern identified in the logs indicated changes in the paleoclimatic

history of the Benguela Current. The dolomitic layers were clearly identifiable with the FMS. A tool string was lost at the final site.

Leg 176 - Hole 735B: Better quality logs were obtained in Hole 735B than those obtained during Leg 118. This was clearly demonstrated by a comparison of the porosity curves logged during the two legs. Goldberg expressed concern that, although the comparison clearly showed that the porosity tool used during Leg 176 was superior, its use may be limited due to budgetary restrictions. FMS and DSI logs were obtained in the upper 590 m of the hole, and a VSP experiment was completed. More than 800 m (>92% of the recovered core) of core images were scanned.

Leg 177 - Southern Ocean: The hole conditions of Leg 177 were poor and most of the logs were viewed as unusable or highly degradable, although the magnetic susceptibility, caliper, and gamma ray logs were acceptable. These have been correlated using the SAGAN software package.

Natland asked what was causing the spiky response. Goldberg suggested they were heavy clay-rich sequences related to glacial-interglacial cycling and the variations in ice-rafted detritus. Goldberg stated that the sequence is more carbonate-rich towards the bottom of the hole and the logs improved. Raymo asked whether there will be use made of downhole logs. Hodell replied that at Hole 1093, the recovery in the deeper part of the hole was poor due to the presence of diatom mats. When XCB was used, the jets and circulating fluids resulted in low or no recovery of the diatom mats. Hence, the logs represent the only data from some parts of the hole. Miller asked whether the log data are reliable enough for calibration. Hodell replied that there appeared to be a reasonable correlation with the susceptibility and natural gamma but it needs further investigation.

Leg 178 - Antarctic Peninsula: A good correlation between core and log was achieved at Hole 1095. In total, 12 stations were successfully logged during Leg 178. It was emphasized that the transmission of the file by a satellite system, installed last fall, took only 8 seconds. During Legs 179, 180, and 181 the use of magnetic tools will be continued.

An instrument designed to transmit data to the DML was tested on Leg 178 and collected data successfully under all operating conditions. The major advantage of this system is that it allows continuous information flow while drilling, which was considered as important, especially concerning supervision of the drilling operations on the ship.

Leg 179 - Hammer Drill/ NERO: Three logging scientists will be on board as there will be standard logging, VSP, SWD and a two-ship offset seismic experiment.

Humphris asked why there were 3 people scheduled to sail on Leg 179. Goldberg responded that Leg 179 has an extensive amount of operations (standard logging, VSP, SWD) requiring a logging person, an engineer and a trainee. Humphris said that she was under the impression that at least 2 scientists were going out to deal with the third-party WHOI VSP that would be used for SWD and the offset seismic experiment, and questioned the need for additional people from LDEO. Goldberg replied that 2 from WHOI would be sailing but the complex OBS component of the SWD would require more personnel. Fox mentioned that there would be a personnel exchange after the hammer drill test. Goldberg stated that all logging personnel will be staying on throughout Leg 179.

Leg 180 - Woodlark Basin: Logging will include the standard string, BHTV, VSP, DLL and CBL.

Leg 181 - SW Pacific Gateways: Logging will include the standard string and the GHMT.

FY'98 PROJECTS:

- The DMT Color Core Scanner was tested during Leg 176 and provided images from more than 800 m of core, amounting to approximately 14 GB of data on CD. The excellent quality of the scanned images allowed dips of veins and foliations to be determined using the DMT software Core Log. Conversion from BMP to JPEG files is underway for further distribution among the science party, and correlation with FMS data is underway.
- Core Log Integration Platform (CLIP): Development of Splicer was completed in June 1997 and was installed in during the New York port call. Development of core - log integration software

Sagan is underway. Modules from Splicer are used in Sagan for creating a graphic interactive tool to depth-match core and log data. Development of Sagan will continue for the remainder of FY'98 and into FY'99

- Inmarsat-B was removed from the JR during the Cape Town port call in December and has been replaced by a new terminal purchased jointly by TAMU and LDEO. It was successfully tested during Leg 176, and testing will continue through Leg 178.

C. FY '98-FY '00: Outstanding Science Issues

1. Science Programs (J. Baldauf)

Baldauf reported that the ODP-TAMU operational group has reviewed all the highly considered proposals and have found no problems. The Nankai program (Proposal 445), if scheduled, will require the use of a televiewer due to the strength of the Kuroshio Current. Greg Moore, lead proponent of 445, submitted a report on the Kuroshio Current to TAMU, as had been requested. ODP-TAMU has reviewed the document and is willing to schedule Nankai. The scientific objectives for the first leg of Nankai drilling are unclear as they have changed a number of times. ODP-TAMU has requested a meeting with the Nankai proponents in May or June in order to clarify the operations required for the first leg of drilling. The other proposal that had operational problems last August was Ontong-Java, for which the proponents' drilling time estimates were considerably different than those calculated by TAMU. Ellins noted that this has been addressed by the proponents who have just completed two site survey cruises. A revised drilling strategy, with new drilling time estimates, is expected in an update before the SCICOM meeting in late summer.

ODP-TAMU is engaged in discussions with the U.S. Coast Guard, Australians and Canadians regarding the potential of procuring an ice boat for high latitude Legs.

Srivastava presented the site survey readiness of proposals that will be considered in August by SCICOM. All programs, except 482 (Wilkes Land) are ranked 2A or higher. Wilkes Land is 3A.

2. Logging Programs (D. Goldberg)

Goldberg presented a revised logging prospectus for FY '99:

- Leg 182 - Std., WST, GHMT
- Leg 183 - Std., DLL
- Leg 184 - Std., GHMT
- Leg 185 - Std.
- Leg 186 - Std., BHTV

Fifty percent of the proposals highly considered for FY'00 have been reviewed and the logging plans discussed at the last SSEPs meetings. In general, only about 20% of the logging plan had to be added by LDEO/BRG to the proposals included in the last set selected for external evaluation by the SSEPs. This indicates that the process of requiring proponents to submit logging plans and then evaluating these plans in conjunction with the SSEPs is working well. Proposal 479 (PacManus), if scheduled, will require high temperature logging tools; LWD might also be useful.

D. Phase III Technological Planning

1. ODP Development Projects (B. Jonasson)

Humphris commented that one year ago, SCICOM was asked by EXCOM to prioritize technology development. The result is contained in SCICOM Motion 97-1-20, and that she had invited Brian Jonasson (Manager of the ODP/TAMU Drilling Services Department) to report on the planned engineering projects and associated technology development.

Jonasson reported that, based on the science objectives of the Long Range Plan, a number of requirements have been identified:

a) Improved Sedimentary Cores
   - APC Coring: Longer and Larger Diameter Cores
   - XCB Coring
   - Unconsolidated Sands: Vibrapercussive Coring (BGS); Shallow Water Reentry
   - Pressurized Coring (HYACE): Gas Hydrates
   - Riser Drilling
   - Other Platforms
b) Improved and Deeper Hard Rock Coring
   - Establish Surface Reentry Hole (HRRS)
   - Establish Multiple Casing Strings (Dril-Quip)
   - Improve Core Recovery (DCB)
c) Enhanced Downhole Measurements
   - *In situ* pressure, temperature, fluid samples
   - Sampling Tools
   - Flow Rates
   - Zonal Isolation
   - *In situ* Pore Pressures
   - Multiple Zones
   - Hole-to-Hole
   - Build up and Draw Down
   - Real Time Monitoring at Surface
d) New Generation Observatories
   - Hole Design and Completion
   - Intervention Methods
   - Long-Term Monitoring: Seismometers; Strain and Tilt Meters
   - Zone Isolation and Monitoring: Pressures/Temperatures/Fluids; Flow Rates
   - Real Time Data Logging: Subsea Cables; Satellites

A performance analysis of ODP's current coring systems has shown that core recovery is poor in hard rock and unconsolidated sediments, but excellent in most formations with younger paleoclimate objectives. In some sediments with older paleoclimate objectives, it is necessary to stabilize the hole.

The strategy of developing technology to meet LRP requirements is based on priority rankings by SCICOM and TEDCOM after internal review within ODP-TAMU. Limitations include the available funds for engineering development, and the engineering manpower available to work on these projects as well as to support on-going legs.

Operational hammers will improve hard rock coring and will save time since the installation of HRGB will no longer be needed. In FY'98, Leg 179 will establish three reentry sites, with different casing diameters, to test the hammer drilling system which will lead to improved hard rock coring. The system requires both an auxiliary casing hammer and an operational hammer. Delivery time is the same for both - one year. During operations, it is necessary to synchronize the auxiliary hammer with the operational hammer. In addition, the auxiliary hammer must be integrated with the casing running tool. The auxiliary reduces hole sticking and allows drilling ahead. Costs are about $125-195K per hammer.

Diamond Core Barrel Improvements could result in less rock removal and more core compared with RCB drilling, as well as an improved rate of penetration. The core size is 110% larger than that acquired with the RCB. In addition, the smaller hole (53% of RCB) is more stable thereby potentially allowing deeper holes. The use of retractable bits would also allow bits to be changed via wireline rather than having to be round-tripped. In FY'99, ODP-TAMU plans to modify the inner core barrel and retractable bits. Total cost of this project would be ~$680K over four years.

Measurements While Coring (MWC) benefits science by improving the core recovery and quality. Jonasson explained how MWC works to record torque, pressure, etc. Measurements transmitted via

pulses permit real time transmission. This enables the driller to respond to what is happening at the bit, thereby improving recovery. In the development and evolution of MWC, ODP-TAMU anticipates working with LDEO. A sea test will be carried out in FY'99 in which the TAP tool will be mounted in the core barrel. Data retrieved will be downloaded to a VAX system on ship for analysis. Prototype development is planned for 1999-01, with operational deployment expected in 2002. Costs are likely to average about $290K + 2.5 engineers/year.

Multiple Zone Isolation Systems are required for long-term observatories and fluid sampling at different levels within a drillhole. This system is a joint design with Scripps, and has a delivery time of only 3-6 months because most of the equipment exists. Installation could be carried out using the Scripps wireline system, and these installations would be serviceable by third party ships. This development effort is currently not scheduled or budgeted.

Shallow Water Coring is a spin-off from the problems encountered on Leg 174A and would provide access to the continental margins in water depths of 76-300 m. It would require 3-6 months design/operations development, and also MWD pilot holes (real time) rather than LWD. The technological challenge is carrying out the casing operations in shallow water. This development efforts is currently not scheduled or budgeted.

Jonasson the discussed plans for cooperation with JAMSTEC on some of these projects. This would involve the following elements:

- Joint design and development team
  - Auxiliary and Operational HRRS Hammers
  - Improved Diamond Core Barrel (6 3/4")
  - Measurements-While-Coring
  - Multi-Zone Isolation System

- Design and operational support team located in College Station
- Operational testing of new technology from *JOIDES Resolution.*

Discussion: d'Hondt inquired whether the deep biosphere sampling required any additional line of ODP development or just the multi-zone isolation system. Jonasson responded that there had been a meeting the week before in which some plans were developed for a contamination test procedures for microbiological sampling that it was hoped could be carried out on Leg 180. This would involved the following:

1) Locate APC BHA at core point
2) Displace 1 ml/barrel of formation tracer fluid (1) to load the drill pipe and spot hole
3) While displacing formation tracer fluid (1), manually load liner tracer fluid (2) into APC core liner
4) After loading liner tracer fluid (2) into APC end, manually load core tracer beads into APC end, followed by frangible separation plug
5) Run APC in with sandline. Pressurize to land and fire. Retrieve APC with sandline.

The microbiologists need to be able to identify, not isolate, contaminants. He added that it was hoped that the necessary modifications could be made prior to Leg 180.

Natland asked for clarification on the connection between the active heave and diamond coring barrel systems, and inquired about the status of DCS. Jonasson said that DCS had been shut down, and the funds directed to the active heave compensation system, which will remove 90% of the heave. Thruster subs on the seafloor will aid in the reduction of some of the remaining heave. The diamond core barrel (DCB) is the best bang for the buck, although it will not function well without the active heave compensation system.

Kudrass said that some national partners have shown a willingness to provide in-kind contributions to ODP and noted that there are possibilities for joint engineering development in Europe. He asked how active JOI, JOIDES, TAMU had been in trying to solicit these in-kind contributions or how active should SCICOM members be. Fox said that ODP-TAMU is currently actively pursuing joint technology collaboration with JAMSTEC. Pisias commented that the process was started at EXCOM

with respect to an MOU between JAMSTEC and ODP-TAMU. He requested help in identifying potential international collaborative relations, advice on how these partnerships could be pursued, and whom to contact. Humphris said that Falvey had presented joint ODP/industry partnerships as an option and that Kudrass had responded by trying to introduce this idea at a European meeting.

Brown asked how deep casing for an observatory-type system could be driven in, particularly as it relates to ridge crest processes. Jonasson said that this would be determined on Leg 179, which has the goal of setting 60 m of casing. Pisias asked about the length of the casing planned for Woodlark. Jonasson replied that it is about 1000 m, and Humphris commented that this is the longest casing that will have been set with the Dril-Quip system.

Scott sought clarification on the auxiliary vs. operational hammer. Jonasson advised that the operational hammer is the drilling hammer that SDS developed. Scott asked when it was likely that ODP would have the capability to drill into hard rock. Jonasson responded that, by the end of Leg 179, ODP expects to be able to drill into hard rock better than at present. What remains is to purchase the 13-3/8" hammer.

Jonasson then commented that the DCS may be used on a couple of land operations through a loan of the equipment. Pisias asked whether ODP leased the equipment. Jonasson commented that since the development is NSF-funded, if another NSF-funded project wishes to use it, it has to be loaned. Ludden asked about the CONOCO Hi-Drill riserless system. Jonasson said that this project required placing 250,000 lbs of weight on the top of the stack, which was not possible on the JR. Ludden asked if ODP-TAMU had a diamond drilling rig that could be put on another platform, such as a barge. Jonasson said there is not a complete system, but there are components of a system. Assembly would require a lot of man-hours.

Humphris noted that nothing is budgeted for the shallow water coring. She asked if the Program was better off trying to develop the capability to drill in 75-300 m water depth for the JR, or is it better off using alternative platforms that already work in these water depths. Jonasson replied it is better to use the JR because of its mobility, lab stack, and lower cost rather than to try and procure commercial equipment that is subject to commercial rates.

2. Downhole Technology Development Projects (D. Goldberg)

Goldberg reported that LWC (Logging While Coring) emerged four years ago immediately after LWD was initiated on Leg 156. The advantages include time savings from simultaneous coring and log measurements, and co-registration of core and log depth. Disadvantages include fewer LWD measurements, a lower quality hole for LWD, low industry interest, and a high cost exposure of the BHA. Anadrill is receptive to LWC technology. The objective is to determine how to get more measurements at the base of the hole. Current development is focused on measuring downhole acceleration. The next step is to measure the acceleration of the drill pipe at the surface, and then the measurement of acceleration while drilling. This will permit a comparison between what is occurring downhole and at the top of the hole. This development should be done before the active heave tests. The next project would be an off-the-shelf LWD/MWD sensor for real time acquisition of measurements pulsed up the hole. At this point, a decision could be made on whether to move to a more expensive MWC system.

In terms of the active heave compensation/at bit measurements, the goal for 1998 is to modify the TAP tool to measure at-bit heave motion of the drillstring. In FY 1999, the rig floor will be instrumented during dry dock, and further modifications of the TAP tool to measure acceleration while coring will be carried out. The goal for 2000 - 2001 is to utilize off-the-shelf LWD/MWD equipment to acquire logging and drilling data down hole. This approach represents a more conservative step wise progression and integrates off the shelf equipment with ODP development. In addition, the core barrel would be modified to run inside the LWD collar for logging while coring.

3. Discussion of Technological Priorities

EXCOM has requested that SCICOM examine the LRP and set priorities so that a framework can be established within which decisions can be made in a declining budget situation.

Pisias asked about the feasibility of leasing alternative platforms for shallow water drilling versus the modification of the *JOIDES Resolution*. Mountain indicated that the day rate is around $24,000, and added that it is the mobilization costs that are expensive (bringing a jack-up rig out of the Gulf of Mexico, for example). Moran said that, in some cases, industry is willing to cover the mobilization costs. The rate of recovery of self-propelled jack-up rig is not known. In the case of Ginsberg's Bahamas project, the rate of recovery was 85%. The "black hole" in shallow water drilling is in the depth range between 30 and 75 m, and here the drilling prices can jump from $2M (the cost of a leg with the JR) to $6M. Moran advocated the development of better relations with industry and determination of how the Program can modify its science goals to accommodate industry. She said that she has done geotechnical drilling on the Canadian margin at a cost of $80K with 80-85% recovery in unconsolidated sand. She noted that the Norwegian co-owner of the JR has another platform. Ludden noted that the Danish Lithosphere Center is mobilizing a drill ship to drill the East Greenland margin. The technology exists to use a DP vessel with a sea bed frame; however, such a platform can hang only ~500 m of pipe. The quality of recovery is very good. It was determined that the Shallow Water Drilling PPG should address these issues in their deliberations.

E. FY'99 Budget Reconciliation

1. ODP Budget Reconciliation (N. Pisias)

Pisias presented some Phase III budget projections already reported to EXCOM looking at estimates of the impact of inflation and day rate through FY'02 (Appendix 6). The day rate for FY'99 has been negotiated at $17.4M and for FY '00 at $17.8M. In addition to the day rate is a day rate bonus that requires SEDCO be given $1M, which in effect increases the day rate costs. The total impact of inflation (assumed to be 2%) and day rate increases from $0.77M in FY'99 to $5.86M in FY'02. Based on some more recent estimates and efforts to balance the FY'99 budget, these have been revised to reflect an impact of inflation and day rate increasing from $0 in FY'99 to $2.57M in FY'02 (Appendix 6).

In early January, Malfait has presented the target figure for the FY'99 budget of $48.5M that included $3M for the drydock. Based on the initial budget estimates (Appendix 6), it was clear there was a deficit of $1M, even though many SOEs (i.e. microbiology lab, XRD, downhole lab, sampling parties, borehole stability, data migration, LDEO extra Leg Based, P-code receivers and FMS atlas) that SCICOM had prioritized in August had already been removed from the budget. In fact, all that remained was leg-related science and engineering development. Pisias told EXCOM that he was confident the budget could be balanced for FY'99, but unlikely that similar savings could be found in future years without a reduction in services. Hence, in Motion 98-1-8, EXCOM tasked JOIDES with the prioritization of the services that would be cut if necessary. Pisias was, however, optimistic that there would be still a couple of ways to fix the deficit (e.g. FY'99 carry forward, cut the X-base budget, additional cost savings in A-based and Fixed budgets; or an FY'99 budget supplement), and he presented a timetable for solving the problem. Based on a Manager's meeting in March, a new budget has been developed that mostly solves the problem but still leaves a $96K deficit, which is in the noise.

Assuming a balanced budget in FY'99 and re-calculating, new Phase III budget projections to determine the impact of inflation and day rate suggest a $600K problem in FY'00 increasing to a $2.57M problem in FY'02.

Discussion: Overpeck asked where the money would be expected to come from, and Pisias replied it would be uncommitted carry-over or additional funds from China joining the program. Miller asked whether the reduced contribution from France is factored in. Pisias answered that all the information available was taken into consideration in producing the number of $48.5M, but that any additional funding from NSF would come out of the US science budget. Ludden stated that France will not go

down to zero, but will likely be at a 2/3 level in order to maintain visibility in the Program and participation in cruises.

Miller said it was very awkward for him to have numbers flying by and suggested it would have been extremely helpful to have hard copies of these numbers before the presentation. Overpeck agreed and suggested that anyone giving a presentation should distribute copies prior to their presentation. Humphris concluded that we could request summary reports for the Agenda book, or copies of the presented overheads that could be distributed to the meeting participants prior to presentation.

2. Recommendation from OPCOM (S. Humphris)

Humphris presented the consensus from the previous day's OPCOM meeting on their prioritization for the use of any additional SOE funds that become available in FY'99. (A full discussion of the items and their prioritization can be found in Section F of the OPCOM Minutes for 17 March 1998).

OPCOM Recommended Prioritization of ODP SOE Options for FY 1999

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

Other Big Ticket Items:

DML		$450K
Microbiology lab		$200K
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

Discussion: d'Hondt asked if the other big ticket items are prioritized and Humphris responded that they were not because the chances of getting sufficient funds for these may not be high. She also advised there is a timing problem with DML as, if it is not done now, it will not get done. However, SCICOM can revisit this prioritization in August by which time there may be some indication as to whether there are any additional funds to apply to these items.

Brown wanted a clarification on whether the listed hammer is an auxiliary one or the operational one. Jonasson answered it is the operational one. Humphris clarified that if the hammer drill works, ODP will need to buy a hammer drill system. Brown inquired why they would need to buy two hammers; Humphris replied that a second hammer was as a back-up in case one breaks on the leg. Jonasson said that a decision has to come out of this meeting as to which size to buy. Humphris stated that this cannot happen until SCICOM sees what proposals are high priority and the types of drilling required. Natland asked whether one hammer could be taken out on a leg as long as there was a back-up plan to core other sites with RCB. Pisias commented that the back-up system to the hammer drill is the hard rock guide base that costs $100K so that is not a cost savings. Jonasson was skeptical in taking

the risk of having only one hammer; he said that possibly one can be built in relatively short time if there are enough spares on board.

Raymo said she was concerned that sampling parties had been crossed off the list since paleo legs cannot function without them. Humphris explained that these are now incorporated into TAMU's base budget. Raymo questioned whether the WST was important for a sediment leg. Goldberg responded that it is the checkshot tool and was used very successfully on Leg 166, and is required for high-resolution seismic correlations.

McKenzie asked whether this prioritization means that there is no chance of getting the microbiology lab. Humphris said that her interpretation of the OPCOM discussion was that ODP could not afford to construct a full lab on the ship, but preferred to go down the path of a container ($30K) equipped with some minimal equipment to start (~$100K). However, during the TAMU Biosphere meeting, it was mentioned that they would seek different sources of funds for the microbiology lab. McKenzie asked whether the calculated costs of $200K were just for the outfit, or for buying the whole lab. Humphris said that outfitting a container was estimated at about $130-150K, and that the lab has to be in a separate container because of the radioisotopes. However, McKenzie pointed out that, regardless of cost, it was still not listed as a priority. Humphris commented that OPCOM decided not to include it as, first, the Biosphere PPG had not clearly defined what was desired, compared with what was absolutely the minimum, and also had indicated that they were seeking other sources of funding.

Mountain asked whether this facility is a threshold item for examining the deep biosphere or if there is any other way to make a start. Humphris replied that she asked SCIMP to investigate the costs of leasing a containerized microbiology lab (which already exist) or inviting a scientist onboard the *JOIDES Resolution* with a facility to determine the feasibility of this work. This was in response to a recommendation from one of the reviews that the Program had gone through for NSF that suggested a more phased approach, rather than building a new lab for something that we were unable to assess its likely potential of success. Raymo asked why skip leasing or renting? Humphris said that she has not yet had a report from the Biosphere PPG; however, there are microbiologists going on Leg 180 and 185 who will begin doing some experimental work on sampling and sample contamination. d'Hondt said that the costs of $130K are the minimum needed to have microbiologists routinely going out on cruises and assuming they bring their own specialized equipment, so the $130K option may be the way to start. Ludden asked about the chances of additional funding, and Humphris said that the sources in discussion were NASA and DOE. Ludden brought up previous discussions regarding funding from the European community, and Kudrass indicated that there may be a proposal submitted at the end of this year. Fox said that the strategy laid out at the meeting in TAMU is to end up with a full-blown lab on the ship if the money becomes available. This would require a new floor on the science stack, and Fox informed them that ODP did not have the funds to do this. Their response was that DOE has the type of funds available, and the Biosphere group seemed to be committed to moving in that direction. Overpeck added that he would like to encourage a long term plan but that the direction seemed fuzzy, and proposed to postpone it until detailed information is provided. Humphris advised that the Deep Biosphere PPG had first met in December, and had become sufficiently excited that they had arranged the recent sub-group meeting with TAMU engineers. She reminded SCICOM that ODP is entraining a new group of people who have mostly not been involved in the Program before, so there is a huge learning curve for them in understanding the sampling and procedural problems they are likely to face. Scientific objectives have not yet been developed and encouragement from SCICOM is needed. However, Humphris expressed concern that she was unsure what the Program would be getting by dedicating the $200K at this point.

McKenzie said that the main issues discussed by the PPG have been (1) what would be needed to do a minimum amount of microbiology, and (2) how to approach the contamination problem. They then obtained estimates for equipment, and that is what is represented in the list that totals $200K. Overpeck suggested that SCICOM really needs to hear from the Biosphere PPG what their plan is, rather than make decisions on the basis of second-hand information. Humphris suggested that J. Parkes be invited to the next meeting to present detailed information, but pointed out that the issue on the table is whether to move the microbiology facility into the top prioritized group of items.

Pearce asked what the consequences would be to their plans if the microbiology lab wasn't assigned a high priority. Humphris stated that was not known as they left the TAMU meeting with plans to approach other sources. Jonasson commented that the bottom line was that they would like to start doing some contamination experiments as soon as possible. If they had to, samples could be analyzed off the ship; the main thrust was to get the tools modified to being the contamination tests. d'Hondt commented that the cost of the items prioritized by SCIMP plus a container totals $130K, so the outfitting can be done in much cheaper increments than the $200K estimates. Mountain reminded SCICOM that when the Long Range Plan was developed, the emphasis was in hitting some home runs and bringing in new communities into ODP. This is one opportunity where ODP can do this, but SCICOM does not have enough information to decide whether this is likely. He agreed with Humphris in that a report in person should be requested for the next meeting. Overpeck suggested that a compromise position would be for SCICOM to leave a place holder for the microbiology initiative in the top priority group, and that they submit a written document for the Agenda book and make a presentation at the August SCICOM meeting as to their requirements. Pisias commented that if something is not done now, then it is essentially putting off any progress for two years (until the FY'00 budget). Overpeck added that the international community is excited about this, and that a small investment could result in a lot of collaboration and benefit to the Program.

McKenzie said that perhaps not everyone is familiar with the work that has been done so far. The SCIMP Minutes include information on what is needed to achieve a minimum amount of work, including sample handling, and so they have thought very carefully about what they to need to accomplish. They have also invested time in understanding what the contamination will be. SCICOM needs to back them in their efforts.

Miller asked about the scientific justification that sampling is required on a routine basis as opposed to an *ad hoc* basis. Since none has been presented, then why should funds be committed? Humphris replied that the Deep Biosphere PPG just met so they have not presented anything to SCICOM yet. She recommended to move the microbiology lab as a place holder (with no dollar amount) into the top priority list until detailed information for a final decision is provided. Humphris further suggested that Parkes be invited to the next meeting, particularly as there is no microbiologist among the SCICOM members. Overpeck suggested that they be asked to come with options that require various levels of investment. After some discussion, it was agreed to put a range of $30-150K as a place holder, with a request for a presentation (including options) at the next SCICOM meeting when the prioritization list could be revisited.

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

This prioritization is preliminary and will be revisited at the August SCICOM meeting. The Chair of the Biosphere PPG will be invited to present the plans for implementation of microbiological sampling and to provide a range of estimates for equipment and facilities required.

F. Phase III Budgetary Planning

Humphris presented EXCOM motion 98-1-8 in which SCICOM is tasked "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."

Humphris emphasized that there is only one more SCICOM meeting to develop this framework by September, so the discussion should focus on how to proceed. Rather than view this as an exercise in cutting out objectives, she commented that a more positive and constructive approach might be to consider building the Program from its base. She suggested that a programmatic approach be taken that consists of three activities:

- prioritization of scientific objectives/themes for Phase III, and their accompanying technological development. She suggested the SSEPs be asked to begin this at their May meeting, and provide advice to SCICOM by the end of June.
- identification of services (i.e. shipboard, downhole, shore-based, database, etc.) required for the accomplishment of each scientific theme for Phase III. SCIMP were already tasked with this at their February meeting.
- compilation of a prioritized list of scientific objectives/themes for Phase III, and their accompanying technological development, shipboard, downhole and database services. This should be done by sub-groups of SCICOM and presented at the August meeting.

SCIMP has been requested to begin the process by taking themes of LRP and identifying what ODP services are needed to accomplish those objective. There exists already a list of capital replacement items from TAMU which will serve as input for this exercise. The SSEPs in May will be asked to take the themes of the LRP under their jurisdiction, prioritize them, and incorporate into those themes what that prioritization implies about technological development that needs to occur to accomplish those themes. She suggested two small groups from SCICOM (Environment and Interior) to take this information from SCIMP and SSEP and compile the information so that each theme has a listing of the required technological development, and required services, for the August SCICOM meeting in order to set up the overall framework requested by EXCOM.

Discussion: Overpeck asked if the reason for this exercise is to maximize the objectives of the LRP, to which Humphris replied that was correct. Natland said in light of yesterday's OPCOM discussion about extraordinary expenses for certain legs, he felt that we needed information not only on thematic priorities, but information on budget figures as well since that would influence decisions based on the size of the budget reductions. Humphris endorsed the need of budgetary information, but stated that the focus should be to take a close look at the science themes and come up with a prioritization. She said we need to make sure that by the end of 2003, we can point to some themes and say we have done them. Overpeck doubted that all of the LRP objectives will be successfully accomplished. Humphris replied that, although budgetary concerns would enter into the decisions ultimately, the fundamental prioritization of themes should be done on the basis of the priority of the science. Overpeck questioned if we can hardwire feedback from the PPGs to meet this objective. Humphris said that the PPGs now report to the SSEPs, and we have to ensure that their feedback gets requested and incorporated into the prioritization.

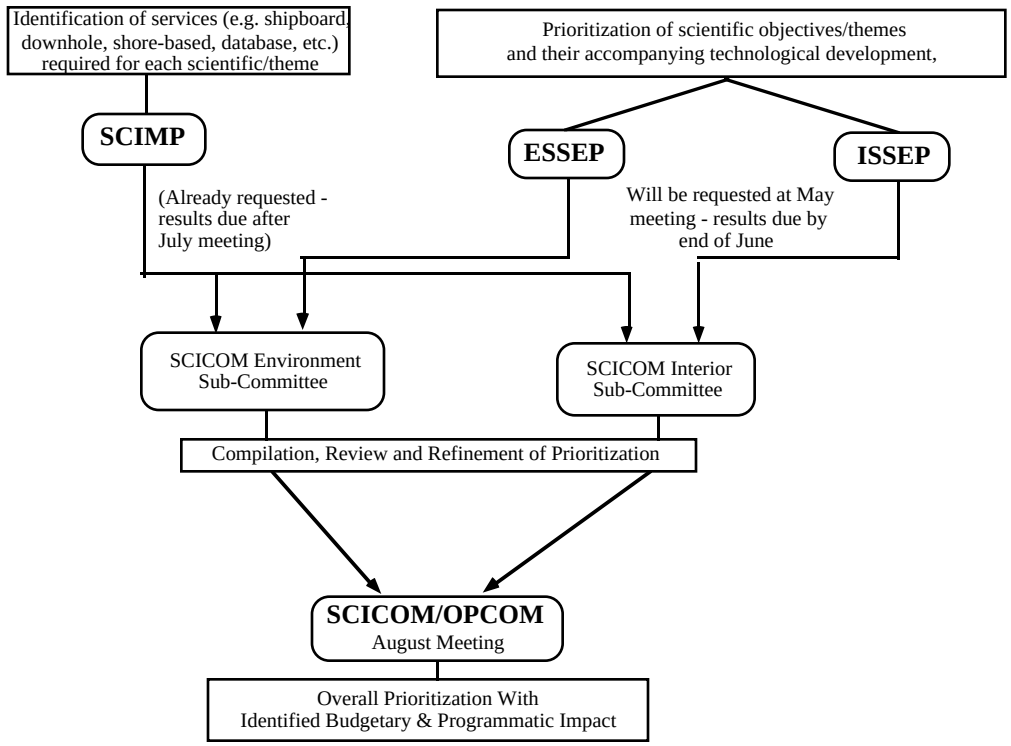
Pisias said that decisions can be made based on what we know, based on the proposal pressure and what services are needed to meet the LRP. Overpeck disagreed that the proposal pressure reflected the good science that the Program should be doing, and Humphris pointed out that if that was the case, there would be no microbiology. Pisias said that SCICOM needs to define services, and which are the ones that are not necessary to achieve the goals. Overpeck repeated his concern that the PPGs have input since they are planning long-term. Humphris said that the PPGs have long-term planning as part of their mandates. They can give recommendation on themes that can be accomplished in this program, but also on what themes need to be the subject of the next Program.

Humphris said we need to come up with the prioritization and know which services are required to accomplish the science we prioritize. Pisias said it must include a vision for the future, otherwise 2003 will be the end of ODP. Humphris agreed that it is important to build for the future, but it is equally important to finish this program feeling that some themes have been accomplished.

Consensus 98-1-4

In response to EXCOM Motion 98-1-8, SCICOM adopts the following procedure to provide a framework based on a prioritization of themes of the Long Range Plan for future budgetary decisions:

Mechanism for Producing a Programmatic Framework for Budgetary Decisions



Natland said that prioritizing scientific themes and cutting some off will not save money unless you know what costs are required for the big ticket themes. They have to be evaluated as a total package. Humphris said that budgetary issues are important and that JOI has volunteered to provide the budgetary information that is needed. Moore asked whether this was not already done in Townsville in coming up with an implementation plan. Humphris reminded SCICOM that the plan ended up with legs to fill 150% of the time available, and took every theme and determined the number of legs needed with no prioritization. Scott stated that, given the lead times, many PPGs are really looking at post-2003. Hence, we are not going to get guidance from PPGs in this process. Humphris replied that the PPGs are looking at what drilling can be done now and can be incorporated into the vision of

the future. Carter suggested that the implementation plan the came out of the Townsville meeting be circulated to SCICOM and OPCOM; JOI agreed to this.

Humphris then divided SCICOM into two sub-groups to deal with prioritization of Environment and Interior objectives. Ken Miller will lead the Environment Group; Julian Pearce will lead the Interior Group; and Casey Moore will ensure that the fluid flow objectives (which might otherwise fall between the two groups) are prioritized.

G. Janus (K. Moran)

Moran gave an overview of the advantages provided by the Janus Data Management System, and a historic review showing the development of Janus through the different phases of implementation. The vision is a fully integrated data management system, the design of which includes all data, provides accessibility, links to program publications, and acts as a true long-term archive. A major future task will be to maintain the functionality of the Janus database as community needs change. Furthermore, decisions will need to be made on what post-cruise data it would be beneficial to have in the Janus database and accessible to the community. After the contract with Tracor ends, it is expected that JOI will relieve the Steering Committee of its duties and responsibility will be transferred to the JOIDES advisory structure. In November, the Steering Committee discussed the advisory activities that need to continue as the final stages are implemented and as the database matures and grows. These activities were presented to SCIMP and included:

- Assisting TAMU by evaluating and filtering community input
- Maintenance of the Janus Paleontology application through upgrades to the dictionaries, improvements in user training, communication to the broader science community on requirements for data.
- Training and upgrading of shipboard manuals.
- Advice and guidance on new database queries to meet the needs of the community.
- Advice and guidance on the long-term Janus operation and maintenance of software and hardware.
- Janus will require an upgrade once Sagan has been completed.
- Advice on a data archive plan.
- Advice on data types and methods for incorporating post-cruise data into Janus.

Moran also reported that data migration is an important Program goal and a strategy is needed to accomplish this. The Steering Committee recommended an evaluation of the following options:

- Migrating data on a site-by-site basis so that, as sites come on-line, all data are useful in a relational way
- Migrating data types that are digital and of a consistent format (e.g. MST data) could be readily accomplished
- Developing procedures so that the data librarians would migrate data as requests came in from the user community.

Moran commented on the lessons learned about JOI Steering Committees. She felt that they are an effective and efficient way to meet ODP objectives, particularly when rapid consensus building and decision making is required. Membership should be based on specific qualifications and technical expertise. She added that JOIDES involvement is essential to maintain the Program's goals, and that JOI-consituted Steering Committees could work on JOIDES-drfined activities to address new initiatives of the LRP and other goals.

Discussion: Natland asked about the mechanism for establishing a JOI Steering Committee, and Pisias replied that if the contractors feel they need technical advice to deliver the service, that is a mechanism by which they can get advice from experts on implementation issues. Natland asked if it is appropriate for SCICOM/OPCOM to recommend formation of Steering Committees to JOI. Pisias stated that JOI would take the advice of SCICOM and evaluation each situation.

Pearce asked if there is money available for legacy data migration and Pisias answered that he believes there is money available and that the Borehole Group has been able to do data migration in their activities. Pearce pointed out that he is involved in GERM which would make use of an ODP database if the data were in the system. He asked how to proceed in getting data into the data system. Pisias said we need to be flexible and open to any strategy to bring resources into the program and use any opportunity to get the data into the relational database. Miller mentioned one hazard of putting data out which have not been published yet and at some point, there must be a date of publication or a stamp of approval on it after which it is not changed. Reagan said that no logging data are archived until there is final processed data. Moran pointed out that data coming off the ship are in several stages of "finality" -- from "final" data to data that can be changed by the users based on post-cruise work up until the first post-cruise meeting. In each lab, there has been a decision made on when data can be changed and when it is considered "final". Miller asked what the citation is -- Moran responded that it has to be the IR volume. Miller commented that the details of citation need to be explicitly stated as the data are being released on the WWW. Moran said that there is a moratorium for one year post-cruise when the data are not accessible to anyone. Miller said it is an issue of scientific priority and intellectual property. Humphris suggested that there is an easy solution to this problem, and that the correct citation must be made clear. Overpeck agreed to the need for a citation and for accountability. He commented that SCIMP is responsible for this issue, which is important because post-cruise data are the legacy of ODP.

Kudrass asked if TAMU was ready to keep the database running on the long term. Baldauf replied that TAMU is on a learning curve and is in the process of identifying what the needs are, and looking at personnel requirements. Moran replied that TAMU is capable of this, and Janus has now worked over several legs.

Humphris stated that Moran had outlined the tasks SCIMP will take on, but it did not comment on when and how transition will take place. At present Janus Phase II is underway, so will the JOI Steering Committee see the implementation through or will the transition occur while Janus Phase II is going on. Moran said that the Steering Committee will end its function at the end of Phase I (this summer) which means that Phase II is something that SCIMP will follow through. Janecek has invited someone from the Steering Committee to the next meeting of SCIMP. An additional issue for SCIMP will be to get an appropriate person on the Panel as the leader of the Janus issues.
Humphris asked Janecek if there would be any kind of a Janus advisory group either internal to SCIMP or an external Group. Janecek commented that there would be a group set up and that he will invite someone from the Steering Committee for the next meeting as a guest. Humphris stated that we owe a large debt of gratitude to the JOI Steering Committee and K. Moran, and SCICOM would like to convey thanks to her and to the entire JOI Steering Committee.

Consensus 98-1-5
By consensus, OPCOM and SCICOM thank the JOI JANUS Steering Committee and, in particular, Kate Moran for their dedication and effort in successfully implementing Phase I of JANUS.

H. Phase IV Technological Planning

1. OD-21 Technology Projects (K. Tamaki)

Tamaki reported on the Japanese proposal for the Sub-Seafloor Prototype System. The system includes development of a special core sampling system and a long-term monitoring system for monitoring legacy holes. The system is based on scientific and technological developments identified by CONCORD as necessary for IODP. The tentative schedule for the development of the special core sampling system is for the design phase, followed by land testing in FY'98 and FY'00, and then a sea trial with the *JOIDES Resolution* in FY'01. Japan has allocated $20M to this development effort. The purpose of the core sampling system is to get better recovery and to facilitate penetration of formations difficult to drill with current ODP technology.

The monitoring system is to provide easy access to legacy holes with a non-drilling vessel, using an active launcher such as Japan's ROV, Kaiko, which can operate at a depth of 11,000 m. Japan may, depending on technology required, develop a second active launcher. A fiber optic cable will permit real time data transmission for short duration. For long term monitoring, deployment and recovery of the system by the active launcher. Other ROVs or submersibles would be able to access and read out the data.

Japan has set up an IODP steering committee with Ikuo Kushiro as Chair.

Discussion: Humphris noted that the JAMSTEC proposal was presented to TEDCOM who had supported, in principle, the joint development between ODP-TAMU and JAMSTEC. In particular, TEDCOM favored the core sampling technology because it is directly applicable to ODP. Pisias said that he hoped resources would be provided to ODP through this cooperative effort with the Japanese. He will meet with the Japanese in the near future to work out the details of establishing a collaborative relationship.

Brown reported that the Long Term Observatory PPG, which met in Japan recently, considered the proposed JAMSTEC monitoring system. Brown said that Fred Speiss' wireline reentry system differed from the Japanese system in truly fundamental ways. Speiss' system is a static system while the Japanese system will move up and down the borehole to permit sampling at different levels. This will allow a complicated monitoring strategy to be set up, and facilitate return and subsequent modification of the strategy.

2. IODP Planning - Technical Advice (S. Humphris)

The International Working Group for an Integrated Ocean Drilling Program (IWG/IODP) was established in April 1997 to explore fully the concept of a comprehensive scientific ocean drilling program for the year 2003 and beyond. The IWG is composed of organizations and/or funding agencies that are interested in IODP. The US (Purdy) and Japanese (Maruyama) representatives Co-Chair the IWG. In a letter to the EXCOM Chair, the IWG asked for assistance in science, technical and budgetary planning. In response, a mechanism for the provision of planning advice from JOIDES to the IWG was presented to, and approved by, EXCOM.

EXCOM Consensus 98-1-13
By consensus, EXCOM (1) approves the proposed general structure presented by the SCICOM Chair for providing short-term scientific and technical advice for IODP planning; (2) recommends the utilization of JOI and appropriate members of the JOIDES advisory structure to assist IWG in determining IODP budgetary and management requirements; and (3) agrees to the establishment of formal liaison relationships between EXCOM and IWG.

In a letter of response to the IWG, the EXCOM Chair, Bob Detrick, tasked SCICOM with a number of items, including the organization of an *ad hoc* drilling technology workshop to:

(1) identify the most important infrastructure issues that must be addressed in planning for IODP;
(2) suggest the most effective mechanism by which these questions can be addressed.

The drilling technology workshop was believed to be necessary because JOIDES does not currently have the breadth to tackle some of the technical planning and operations issues for post-2003 scientific ocean drilling. Humphris requested any input from SCICOM members on individuals within industry who should be invited to the meeting; she is also soliciting input from PPSP, TEDCOM, TAMU and the Japanese IODP Steering Committee. In addition, three scientists were identified who should attend: K. Suyehiro, J. Natland and G. Moore. A reply from the IWG to Detrick's letter is expected in June.

Discussion: Fox said that there is insufficient expertise in the JOIDES Advisory Structure, and that we will need to reach out to a wider community. Humphris requested names of four people who could assist in selecting the appropriate expertise and organizing the workshop. Jonasson agreed to provide some names of people who are involved in activities connected to the twelve deep water drilling

vessels under construction. Mike Enachescu and Charles Sparks were also proposed as being able to provide input. The Japanese IODP Steering Committee will provide names of contact people with whom the JOIDES Office can work.

Some of the questions that ultimately need to be addressed include: What is the infrastructure that is needed in a two ship program? Are labs needed in both ships, or are cores transported from the ships to a shore-based lab? Natland said that it would be necessary to determine how to integrate the science of the riser ship with the science of the JR-type vessel. He advocated a project-oriented approach for the riser vessel science rather than a leg-by-leg approach. Humphris concurred that the Program would have to clearly change to a project-oriented approach. It will be important to define the types of integrated activities that need to be designed to approach post-2003 ocean drilling.

Srivastava noted that a lot of work will need to be done with respect to site selection and characterization. It will be important to understand what is required in terms of site information before drilling a deep hole. Kudrass said that the former manager of the KTB Hole project would be willing to lend his expertise.

Consensus 98-1-6
By consensus and in response to EXCOM Motion 98-1-13, SCICOM will set up a Technical and Operations Workshop in the fall of 1998 to provide advice on the most effective mechanisms to determine the technical requirements and infrastructure of IODP.

Joint SCICOM/OPCOM Meeting

18 March 1998

APPENDICES

Appendix 4 a) Timetable of activities and planning for extending ODP into Phase III.
b) The overall NSF budget for FY'98

Appendix 5 The TAMU drydock projects expenses

Appendix 6 Phase III budget projections reported to EXCOM