Joint Oceanographic Institutions for Deep Earth Sampling
University of California, Scripps Institution of Oceanography • Canada • Australia Consortium • Columbia University, Lamont-Doherty Earth Observatory • European Science Foundation: Belgium, Denmark, Finland, Iceland, Italy, The Netherlands, Norway, Spain, Sweden, Switzerland, Turkey • France: Institut Français de Recherche pour l'Exploitation de la Mer • Germany: Bundesanstalt für Geowissenschaften und Rohstoffe • University of Hawaii, School of Ocean and Earth Science and Technology • Japan: Ocean Research Institute, University of Tokyo • University of Miami, Rosenstiel School of Marine and Atmospheric Science • Oregon State University, College of Oceanography • University of Rhode Island, Graduate School of Oceanography • Texas A&M University, College of Geosciences and Maritime Studies • University of Texas at Austin, Institute for Geophysics • United Kingdom: Natural Environment Research Council • University of Washington, College of Ocean and Fisheries Science • Woods Hole Oceanographic Institute
JOIDES Executive Committee  
Soria Moria Conference Center  
Olso, Norway, June 1996  
Table of Contents and Agenda

Participants .................................................................................................................. 1  
JOIDES Panel Meeting Schedule ............................................................................. 3  
JOIDES Resolution Schedule ................................................................................... 4  
JOIDES Thematic Panel Rankings (Spring 1996) ....................................................... 5  
EXCOM Terms of Reference ..................................................................................... 6

SUNDAY 23 JUNE (1800)
Icebreaker reception: opportunity for informal discussion of concerns (followed by dinner about 1930)

MONDAY 24 JUNE

Item 1 Introductions, Apologies, Agenda approval ..................................................... 7

Item 2 Minutes and matters arising ........................................................................... 9
  a. Revised draft Minutes of the January 1996 EXCOM meeting, Chantilly, VA. .......... 11
  b. JOIDES interim response to ODP mid-term review report .................................. 87

Item 3 Phase III Planning ......................................................................................... 89
  a. Implementation plan ......................................................................................... 93
  b. Innovations and economies ............................................................................. 115

1030-1050 ................................................................................................................. Break
  c. Financial projections ....................................................................................... 139
  d. Scientific Leadership ..................................................................................... 143

1200-1300 ............................................................................................................... Lunch
  e. 1998-2003 RFPs ......................................................................................... 147

Item 4 Current issues ................................................................................................. 149
  a. NSF Report .................................................................................................. 151
  b. JOI and Sub-contractor reports
     i) JOI ........................................................................................................... 155
     ii) Science Operator .................................................................................... 169
     iii) Wireline Logging Services ..................................................................... 195
  c. JOIDES/PCOM
     i) Draft PCOM Minutes of the April 1996 PCOM Meeting, Aix-en-Provence ...... 205
     ii) Conflict of Interest ............................................................................... 269

1515-1545 ................................................................................................................. Break
Item 5 1997 Program Plan ................................................................. 273
  a. BCOM Report ................................................................. 275
  b. Final Resource Allocations ............................................. 281
  c. FY97 Program Plan ........................................................ 283

Review of the day
1730 .................................................................................. Adjourn

Evening: attendees dine at the center (informal discussion)

TUESDAY 25 JUNE

Item 6. Phase IV Planning ............................................................ 335
  a. Scientific definition
  b. Technological implications
  c. Finance, management and operations .................................. 337

1000-1030 ............................................................................... Break

Item 7. Executive Session: actions and motions ................................ 341

1230-1345 ............................................................................. Lunch

EXCOM Executive session

Item 8. Future Meetings and Any other Business ....................... 343

1430 .................................................................................. Adjourn

1500 JOINT SESSION WITH ODP COUNCIL

Item J1 JOIDES Report to Council ............................................... 345
  a. Current issues and short-term planning ........................... 347
  b. Long-term planning: Response to mid-term review and issues raised by Council .......... 353

1615-1635 ............................................................................... Break

Item J2 Council Report ............................................................... 361

Item J3 Member Reports ............................................................ 363

1730 .................................................................................. Adjourn

Evening Dinner hosted by JOI

WEDNESDAY 26 JUNE

ODP COUNCIL.

JOI BOARD OF GOVERNORS.
**JOIDES EXCOM MEETING, JUNE 1996**

**PARTICIPANT LIST**

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<tr>
<th>Executive Committee - EXCOM</th>
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</table>

**EXCOM Liaisons**

| David Falvey                | Joint Oceanographic Institutions, Inc. |
| Jeff Fox                    | Science Operator (ODP-TAMU) |
| David Goldberg              | Wireline Logging Services (ODP-LDEO) |
| Donald Heinrichs*           | National Science Foundation (United States) |
| Rob Kidd                    | JOIDES Office, University of Wales College of Cardiff (United Kingdom) |

**Guests and Observers**

| Pamella Baker-Masson        | Joint Oceanographic Institutions, Inc. |
| J Paul Dauphin              | US National Science Foundation |
| Michele Fratta              | European Science Foundation |
| Ross Heath                  | University of Washington |
| Hajimu Kinoshita            | JAMSTEC (Japan) |
| Kazuhiro Kitazawa           | JAMSTEC (Japan) |
| Shigeo Kuriki               | Monbusho (Japan) |
| François Madelain*          | IFREMER, Issy-les-Moulineaux (France) |
| Bruce Malfait               | US National Science Foundation |
| Dietrich Maronde*           | Deutsche Forschungsgemeinschaft, Bonn (Germany) |
| Takeo Tanaka                | JAMSTEC (Japan) |
| Akira Ueda                  | STA (Japan) |

**JOIDES Office**

| Kathy Ellins                | Executive Assistant and US Liaison |
| Julie Harris                | Office Manager |
| Colin Jacobs                | Executive Assistant and Science Co-ordinator |

* ODP Council member
**JOIDES MEETING SCHEDULE**

<table>
<thead>
<tr>
<th>Panel / Committee</th>
<th>Dates</th>
<th>Location</th>
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<tbody>
<tr>
<td>EXCOM</td>
<td>24 - 25 June '96</td>
<td>Oslo, Norway</td>
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<td>ODP Council</td>
<td>26 June '96</td>
<td>Oslo, Norway</td>
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<td>SSP</td>
<td>29 July - 1 August '96</td>
<td>Palisades, New York</td>
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<td>19 - 22 August '96</td>
<td>Townsville, Australia</td>
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<td>* IHP ‡</td>
<td>11 - 13 September '96</td>
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<td>3 - 6 October '96</td>
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<td>* OHP</td>
<td>7 - 9 October '96</td>
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<td>* DMP</td>
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<td>(or successor)</td>
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* meeting requested but not yet approved

‡ Pal/Strat sub-committee to be held on 9 - 10 September '96

† Also includes joint session with JAMSTEC

---

Due to the tight budgets at ODP-TAMU and ODP-LDEO, the PCOM Chair will, before approval of panel meetings, require very strong justification if any panel does not request to meet at ODP-TAMU, College Station at least once per year. He will also remind thematic panels to ensure their meetings are held so that proposal reviews and panel minutes can be passed to SSP in good time.
### JOIDES Resolution Operations Schedule

<table>
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<tr>
<th>Leg</th>
<th>Destination</th>
<th>Cruise Dates</th>
<th>Port of Origin†</th>
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<td>Juan de Fuca Hydrothermal</td>
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<td>San Francisco, 16-20 June '96</td>
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<td>169S</td>
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<td>Sedimented Ridges II</td>
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<td>Victoria, 21 August '96</td>
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<td>170</td>
<td>Costa Rica Margin</td>
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<td>San Diego, 17-21 October '96</td>
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<td>21 December '96 - 8 January '97</td>
<td>Panama, 17-20 December '96</td>
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<td>7</td>
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<td>171B</td>
<td>Blake Nose</td>
<td>9 January - 14 February '97</td>
<td>Barbados, 8 January '97</td>
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<td>NW Atlantic Sed Drifts</td>
<td>19 February - 16 April '97</td>
<td>Charleston, 14-18 February '97</td>
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<td>Iberia II</td>
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<td>Hole 735B</td>
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<td>Cape Town, 18-22 October '97</td>
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† Although five day port calls are generally scheduled, the ship sails when ready.
## JOIDES Thematic Panel Global Rankings
### Spring 1996

<table>
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<th>LITHP</th>
<th>OHP</th>
<th>SGPP</th>
<th>TECP</th>
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<tr>
<td>1</td>
<td>448-Rev</td>
<td>Ontong Java LIP</td>
<td>464</td>
<td>Southern Ocean Paleogeography</td>
<td>481</td>
<td>Red Sea Deeps</td>
<td>450</td>
<td>Taiwan arc - continent collision</td>
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<td>3</td>
<td>481</td>
<td>Red Sea Deeps</td>
<td>465-Add</td>
<td>SE Pacific Paleogeography</td>
<td>Generic</td>
<td>Antostrat</td>
<td>431-Rev</td>
<td>Western Pacific Seismic Network</td>
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<td>5</td>
<td>Generic</td>
<td>Seismic Boreholes</td>
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<td>East Asian Monsoon History</td>
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<td>Northern Mariana Rift</td>
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<td>Kerguelan LIP</td>
<td>485</td>
<td>Southern Gateway - Australian Antarctica</td>
<td>476</td>
<td>Hudson Apron</td>
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<td>East Asian Monsoon History/China Sea</td>
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<td>426-Rev</td>
<td>Australia - Antarctica Discordance</td>
<td>452-Rev2</td>
<td>Antarctic Glacial History of Sea Level Change</td>
<td>455-Rev</td>
<td>Laurentide Ice Sheets Outlets</td>
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<td>420</td>
<td>Evolution of Ocean Crust</td>
<td>455-Rev</td>
<td>Laurentide Ice Sheets Outlets</td>
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<td>Bransfield Strait Antarctica</td>
<td>Generic</td>
<td>Mass Balance</td>
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Terms of Reference for the
JOIDES Executive Committee for the Ocean Drilling Program

1. This committee shall formulate scientific and policy recommendations with respect to the Ocean Drilling Program (ODP). It shall conduct the ODP planning, as well as evaluation and assessment of the Program as to its accomplishments as compared to the goals and objectives which have been established. It may be assigned managerial and operational responsibilities for appropriate tasks.

2. The members of this committee shall be representatives of oceanographic and marine research institutions or other organizations which have a major interest in the study of the seafloor and an adequate capability in terms of scientific manpower and facilities to carry out such studies.

3. The membership of this committee is now comprised of one representative of each of the six non-US countries or consortia with an active Memoranda of Understanding (MOU) with the National Science Foundation (NSF) [Canada/Australia Consortium, European Science Foundation, France, Germany, Japan, and the United Kingdom] and one representative of each of the ten existing US institutions [University of Miami, University of Washington, Oregon State University, University of Hawaii, University of Rhode Island, University of Texas at Austin, University of California at San Diego, Texas A&M University, Woods Hole Oceanographic Institution and Columbia University]. The appointment of additional members will be determined by the JOI Board of Governors on the recommendation of the JOIDES Executive Committee. In the case of representatives of non-US country participants, the existence of a valid MOU with NSF is a prerequisite to membership.

   Membership of any member may be canceled by the Board of Governors on the recommendation of the JOIDES Executive Committee or in the event of a non-US country participant ceasing to have a valid MOU in existence.

4. Each institution or organization designated for participation on this Committee by the Board of Governors shall provide one voting member, normally the director or senior deputy thereto.

5. The Executive Committee shall reach all its decisions by the affirmative vote of at least two-thirds of all members, including members from at least three non-US members. A quorum shall constitute two-thirds of the Executive Committee. If a member of the Executive Committee is absent from a duly called meeting of the Executive Committee, he or she may designate an alternate with full authority to act for him or her in his or her absence.

6. The Executive Committee may establish subcommittees for cognizance of certain components of the Ocean Drilling Program. Areas of cognizance and the Terms of Reference for each subcommittee shall be defined by the Executive Committee. In particular a Planning Committee and a Budget Committee shall be established.

7. The Committee, and all subcommittees thereto, shall keep written records of their proceedings.

8. Members of this Committee, and members of subcommittees duly appointed thereby, while acting within the Terms of Reference, shall be indemnified, and held harmless by the corporation from and against any and all liabilities, damages and demands, losses, costs and expenses arising from acts or omission related to performance as committee members.

9. These Terms of Reference, upon ratification by members of the existing JOIDES Executive Committee and adoption by JOI, Inc. will supersede all previous JOIDES agreements.

Ratified by EXCOM: 15 September 1988
Adopted by JOI Board of Governors: 15 September 1988
JOIDES EXECUTIVE COMMITTEE. 24-25 June 1996
Soria Maria Conference Centre, Oslo, Norway

Agenda Item 1: Initial Business (15 mins)

(a) Welcome and opening remarks (Dr Briden)

(b) Apologies for Absence
   Apologies were received from Admiral James Watkins, JOI Inc.

(b) Adoption of Agenda
Agenda Item 2: Minutes of the Last Meeting (20 mins)

(a) Approval
The revised draft minutes attached take account of all comments received in the JOIDES Office by 31 May 1996. EXCOM is asked to APPROVE the minutes of the meeting held in Chantilly, Virginia on 29-31 January 1996.

(b) Action on motions
All of the motions and consensus's adopted at the January 1996 meeting have been acted upon. Those that have not been completely discharged return at this meeting for reporting of progress and for further decision, as follows:
96-1-5: conflict of interest issues will be definitively resolved at Item 4(c).
96-1-10: implementation strategy proposals are presented at Item 3(a)
96-1-11 and -17: leadership is to be dealt with at Item 3(d).
96-1-12: partnerships with other Programs are part of the Implementation Plan proposals (Item 3(a)) and specific actions are also reported by Dr Falvey at Item 4(b).
96-1-13: services and subcontracts are the subject of Items 3(b) and (e).
96-1-14: economies and innovations are at Item 3(b); financial projections for Phase III are at Item 3(c). EXCOM’s request that "all partners on ODP Council start immediately to consider possible new mechanisms and partnerships to build the new financial structure to support the needed 2-ship Program" was transmitted by the EXCOM Chair to NSF, and is a matter for Council.
96-1-15: planning for proposed Japanese vessel and its use - see Item 6 of this meeting.

(c) Matters arising from the Joint Meetings of EXCOM and ODP Council
The EXCOM Chairman has written to Council on EXCOM’s initial response to the Greve Report. This initial response is attached here and is also presented at Item J1 of the Joint Session. At this point in the meeting EXCOM is asked to endorse the Chairman's initial response. EXCOM is also recommended to ask the JOIDES Office and JOI to draft the definitive response to the International Review Committee Report and bring it to the next EXCOM meeting.
JOIDES Executive Committee
Chantilly, Virginia, 29-31 January, 1996

Revised Draft Minutes
JOIDES Executive Committee
Chantilly, Virginia, 29-31 January, 1996

Participants

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<td>David Drewry*</td>
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<td>Suzanne Egelund*</td>
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<td>Takeo Tanaka</td>
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<td>Akira Ueda</td>
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* ODP Council member

JOIDES Office

Colin Jacobs  Executive Assistant and Science Co-ordinator
EXCOM MOTIONS AND CONSENSUS STATEMENTS

EXCOM Consensus 96-1-1
EXCOM adopts the revised meeting agenda as outlined above.

EXCOM Motion 96-1-2
EXCOM approves the minutes of the last meeting subject to the above change.

Proposed: Nowell, Seconded: Orcutt
Unanimous (1 Absentee)

EXCOM Motion 96-1-3
EXCOM confirms its endorsement of the ODP Long Range Plan.

Proposed: Orcutt, Seconded: Leinen
Unanimous

EXCOM Consensus 96-1-4
EXCOM endorses a wording change to the JOI ODP Policy manual so that the Conflict of Interest section 11.03 will read as follows:

11.03 When participating in the Ocean Drilling Program as part of the shipboard scientific party, a full-time Ocean Drilling Program employee will not receive additional salary compensation. A full-time Ocean Drilling Program employee, working as part of the shipboard scientific party on activities unrelated to his/her terms of employment in the Ocean Drilling Program will be required to take leave without pay.

EXCOM Motion 96-1-5
EXCOM tables discussion of conflict of interest issues until the June 1996 meeting.

Proposed: Detrick, Seconded: Dalrymple
13 For, 1 Against, 2 Abstentions

EXCOM Consensus 96-1-6
EXCOM accepts the Management Reports as presented at this meeting.

EXCOM Consensus 96-1-7
Facing extreme hurricane conditions, 60 to 70 foot seas, and damage to critical navigation and manoeuvring systems while in iceberg-laden waters off Greenland, the crew of the JOIDES Resolution extracted the vessel from danger and brought her safely to Halifax. The Executive Committee recognises the courage, skill and fortitude displayed by the participants of Leg 163 and expresses its most sincere thanks to the crew, staff and scientists, who even in the most trying of circumstances epitomised the character and spirit of research, exploration and the pursuit of excellence.

EXCOM Consensus 96-1-8
EXCOM accepts the Planning Committee Reports as presented at this meeting.

EXCOM Consensus 96-1-9
EXCOM has endorsed the Long Range Plan and shares the enthusiasm of the Planning Committee and the Mid-term Review Committee for the new focus of ODP and the exciting science it will make possible. We are committed to the implementation of this plan and recognize that this will require significant changes in our management and planning of the program.

The technical and financial challenges that the Long Range Plan places before us are considerable and our past experience suggests that we will need to establish clear scientific, technical and administrative priorities in order to ensure that we meet these challenges. We
are setting into motion planning and evaluation mechanisms that will allow us to set these priorities. We intend that our scientific and management implementation plans will be completely linked to the goals of the Long Range Plan. This will enable us to demonstrate the accountability of our entire program - from panels through ODP Council - in terms of the Long Range Plan. We believe these changes are essential to maintain the viability of the program and will provide the most compelling rationale for the continuation and evolution of ocean drilling in the 21st century.

EXCOM Motion 96-1-10
EXCOM reiterates its endorsement of the Long Range Plan of January 1996 as providing the scientific objectives and strategies for ocean drilling to the year 2003 and beyond. Drilling proposals submitted to ODP should henceforth be evaluated in the context of this Long Range Plan and each year's Program Plan should clearly identify how each leg contributes to the goals of the Long Range Plan. EXCOM directs PCOM to develop an implementation strategy for the LRP, including necessary changes to the scientific planning structure, which EXCOM can review at its June 1996 meeting.

Proposed: Detrick, Seconded: Orcutt 15 For, 0 Against, 1 Abstention

EXCOM Motion 96-1-11
EXCOM will establish a sub-committee to evaluate the scientific leadership of the program. The sub-committee will consider input from PCOM, from JOI, EXCOM members and from other members of the scientific community. The sub-committee will report back to EXCOM at the June 1996 meeting.

Proposed: Leinen, Seconded: Taylor Unanimous

EXCOM Motion 96-1-12
EXCOM strongly endorses closer ties with international groups involved in studying the Earth using drilling or coring platforms or proposing to use such platforms, including the JOIDES Resolution. Initiation and strengthening of such ties must be without prejudice to the scientific goals and legal mandates of the JOIDES enterprise. EXCOM recommends that partnerships be initiated with other international geoscience programs. EXCOM recognizes that PCOM Motion 95-2-6 provides one framework for negotiating such formal ties.

Proposed: Eldholm, Seconded: Duce 14 For, 1 Against, 1 Abstention

EXCOM Motion 96-1-13
EXCOM requests JOI and PCOM to provide by June 1996 recommendations on specific services, and their related costs, that are currently provided, for Wireline Logging Services and Site Survey Data Bank Services to ODP. This information will be used by EXCOM to advise JOI on the scope of the RFP's to be issued for these services and how to encourage innovation in the bidding for these services.

Proposed: Detrick, Seconded: Lancelot 14 For, 1 Against, 1 Absent

EXCOM Motion 96-1-14
EXCOM, having endorsed unanimously the scientific directions for the program embodied in the LRP, recognizes the need for immediate and concerted actions to secure the necessary funds. The International Review embraced the LRP and recommended that to achieve its short-term goals (pre-2003) would require real growth in the budget of about 2 1/2% a year. EXCOM requests the following actions be taken:

1. JOI, in consultation with PCOM & BCOM, examines the important new innovations in the program (Borehole Utilization, Legacy Holes, inter alia) and detail their costs. PCOM & BCOM should advise JOI on what existing components (publications, logging, indeed all
components) might be dropped or reduced to accommodate these new initiatives and clearly label the costs, benefits and losses. This step is fundamental to addressing concerns from funders that all cost cutting measures have been examined prior to requesting additional funds. Action by June 1996.

2. JOI, with appropriate consultation, should develop full financial projections for the LRP with the goals of presenting EXCOM, before June 1996, with the information to allow all EXCOM members to advocate increases in contributions with their respective funding agencies at possibly the 2 1/2% a year real growth level (98-03).

3. EXCOM at the 1994 Kyoto meeting recognized the necessity for a leadership role by one or more nations if the program is to engage in riser drilling as advocated by the LRP. EXCOM requests all partners on ODP Council, start immediately to consider possibly new mechanisms and partnerships to build the new financial structure to support the needed 2-ship Program.

Proposed: Nowell, Seconded: Taira Unanimous

EXCOM Motion 96-1-15
EXCOM, after reviewing the Japanese proposal for new drilling vessel construction:

i) highlighted that the ODP LRP identifies the need for two drilling platforms, one with deep water well control (riser) capabilities, as central to the achievement of Phase IV;

ii) noted that riser capability is the only possible means to drill the areas of the ocean floor excluded from current JOIDES Resolution drilling by safety consideration and is necessary to achieve our Phase IV scientific objectives;

iii) noted with approval that the proposed OD21 program would be operated through close international cooperation;

iv) appreciates all the efforts made by the Japanese authorities (in particular, the Science and Technology Agency and the Japanese Marine Science and Technology Center) for their studies in application of riser capability in scientific ocean drilling;

v) recommends that Japanese authorities continue work towards construction of a new drilling vessel with riser capability beyond that of the current JOIDES Resolution.

In order to facilitate planning for this vessel and its use, EXCOM

i) recommends also, that the PCOM and OD21 science planners organise a series of discussions on scientific research as soon as possible (These discussions should identify the relationship between the goals of the ODP and the OD21 Science Programs and report back to EXCOM at its June 1996 meeting);

ii) further recommends that the TEDCOM and OD21 discuss the engineering development needs of OD21 as soon as possible. The engineering development workshops should identify the technical and engineering development needs of OD21 and a timeline to meet these needs (They should report back to EXCOM by January 1997, but should also provide a progress report at our June 1996 meeting);

iii) EXCOM will identify STA/JAMSTEC, MONBUSHO and JOI as key organisations in the current and expected future ocean drilling operation and requests that they discuss options for international operation and management of Phase IV of the LRP and their funding implications. (This group should report back to EXCOM in January 1997, but should provide a progress report at our June 1996 meeting).

Proposed: Leinen, Seconded: Beiersdorf Unanimous

EXCOM Consensus 96-1-16
EXCOM expresses its gratitude to the ODP Program Director, Dave Falvey, and to Ellen Kappel and Rob Kidd for their cooperative dedication and unselfish leadership in completing the task of the LRP under most trying circumstances and time pressures.

EXCOM Consensus 96-1-17
EXCOM will at its June 1996 meeting consider a report from Otis Brown on the issue of Scientific Leadership of the Program as alluded to in the Greve Report.
Monday, 29 January 1996

1. INITIAL BUSINESS

(A) WELCOME, INTRODUCTIONS AND APOLOGIES

Briden welcomed all to the meeting, especially the new EXCOM attendees. Briden said that Adm Watkins and Otis Brown send apologies and will be attending later. Briden also welcomed the observers from STA/JAMSTEC and Monbusho. He also welcomed Mike Purdy the new Director of the US NSF Ocean Sciences Division.

(B) ADOPTION OF AGENDA

Briden said that there was a request to add a joint session with STA/JAMSTEC after the agenda book was published. With EXCOM consent this would become agenda Item 6d iii. Briden pointed out that the notes of the Greve report were written before the report was officially published, and suggested that EXCOM should wait until they hear the report from Gordon Greve before they have significant discussion. He said that there will probably only be a few issues that EXCOM need to discuss today because effectively the review report commended the Long Range Plan as the basis for future ODP science. Implementation of the Long Range Plan (LRP) is likely to become a substantive issue. As time is short for the planning and execution for Phases III and IV, he would like EXCOM to have as much time as possible (on Tuesday) to discuss this issue. Therefore he proposed that the Country Reports be completed today.

EXCOM Consensus 96-1-1
EXCOM adopts the revised Meeting Agenda as outlined above.

Briden then asked if all meeting participants had received the papers from NSF that were delayed by the US federal government shutdown. Malfait apologised for the fact that the papers were not distributed to Council members and they were tabled.

2. APPROVAL OF THE MINUTES OF THE LAST MEETING AND MATTERS ARISING

Minutes of last meeting, Edinburgh, United Kingdom. Orcutt said that on p.40, item 8a, should read "the motion fails".

EXCOM Motion 96-1-2
EXCOM approves the Minutes of the last meeting subject to the above change.

Proposed: Nowell, Seconded: Orcutt Unanimous (1 Absentee)

Briden said that he had listed all actions and resolutions from the previous meeting to give some continuity between meetings. Fox confirmed that he would be referring to resolution 95-2-4 in his report. Briden said that he wanted to return to resolution 95-2-5 after agenda item 6, when re-competition for science delivery operations had been discussed. The meeting in Japan (see resolution 95-2-6) will be dealt with in the joint session with STA/JAMSTEC. Resolution 95-2-7, on co-operative technology is referred to by Falvey in his report, and it is also in the ODP Council record. Regarding Resolution 95-2-9, Expressions of Interest for science delivery operations have been sought; the results will be presented at agenda item 6b. The relationship between ODP and the Nansen Arctic Drilling Program (NAD) will be presented later by Falvey. Briden reported that resolution 95-2-13 has been implemented in part, and is also dealt with in the management reports. Briden said the main part, Conflict of Interest, has been implemented, though this issue may return as PCOM have queried the appropriateness of the current rules. He advised that when this issue is discussed EXCOM must resolve it with a definitive decision.

In reference to resolution 95-2-13, Briden asked Falvey to clarify the wording of the JOI policy manual, section 11.04. Falvey said that it is intended to mean that employees of the Program cannot become part of the shipboard party and also receive additional salary support from USSAC, that Program employees who wish to take salary from USSAC will have to take leave without pay. Briden said that the phrase "on activities unrelated to ODP business" is not clear. Falvey said that if employees go onto the ship, then they will likely be doing personal research. He said that is not strictly ODP business. Dalrymple said that it could be clarified by saying that if ODP employees take part in a cruise then they must not be paid by ODP. Kappel said that it has not been a problem in the past. Nowell proposed a wording change to "Full time ODP employees working as part of the
shipboard scientific party on activities unrelated to his or her primary ODP employment would be required to take leave without pay”.

Briden said that the next resolution referred to BCOM and he called EXCOM’s attention to p.34 of the minutes of the last EXCOM meeting. He said that there was some unease as to the effectiveness of BCOM due to the lack of detailed information at hand and changes in budgets and the Program plan between March and June (when BCOM report to EXCOM). Orcutt said that the way the budget was presented to BCOM, there was no flexibility built into it and therefore no room to allow for savings and prioritisation. He said that this was one of the bigger problems, and that it was hard to know that if $100K was removed from one area, what effect that would have on the Program. Orcutt said this was the kind of thing that led to the desire to change the management scheme that Falvey and Fox have embarked upon, to try and clarify this issue. He said that he felt it was important that as this BCOM cycle is approached BCOM has a better idea of where flexibility may be in the budgets that BCOM reviews. He said that maybe the planning that is done ahead of time between contractors and JOI will result in a substantially reduced deficit. He said that last year BCOM had to ‘find’ over $1M.

Briden said that rest of the resolution items were quite straightforward and would be covered in other reports.

3. INTERNATIONAL REVIEW REPORT (GREVE REPORT)

Briden said that there is a brief factual record on pp.65 of the agenda book (written before the report was published) and the referred EXCOM to this. He said that EXCOM should think about an initial response, and that this item had been placed here in the agenda in case there was a major problem flagged by the report. Briden said that the LRP has now been approved by the EXCOM subcommittee and that the LRP and the review report are coupled together. Briden said that the tabled paper (page 65a) was written after he had read the report. He asked EXCOM if there were any comments on his agenda book notes on p.65. There were none.

Briden said that the report is strongly supportive of the Program particularly along the lines proposed in the LRP. He said that the review report is wonderfully brief, and follows the committee’s Terms of Reference very well. He said that there are one or two points that were not covered in the written report, and had written to Gordon Greve asking him to refer to those points in his presentation.

Briden stated that EXCOM has two opportunities to prepare its position. He said that EXCOM should check that it is happy with the main recommendations in the report. Briden said that the paramount recommendations are #1 and #4. He referred EXCOM to the agenda notes on p.65a, and said that recommendation #5 was also very good for the Program and was a major goal of the LRP.

Mutter asked if PCOM had seen these recommendations, and what their feeling was, especially about recommendation #2 (drilling to remain focused in deep water). Briden said that PCOM had not seen the report yet. Kidd said that he would be looking for Greve to expand on this in his verbal report, as PCOM has planned to drill on continental shelves in conjunction with other Programs. He said that the shallow water drilling plans were presented at the Frankfurt meeting. Kidd also said that one of the items that both he and Fox will speak to are the new guidelines for drilling in shallow water, that have been formulated following the experience on Leg 163, the Greenland margin. Kidd said that the general feeling was that the JOIDES Resolution may not be the appropriate platform for drilling on the shelf. He said that one science program has already been affected by the new guidelines (New Jersey Margin) and that an alternative platform would be required to fulfil the objectives of that proposal. Kidd said that ODP intends this project to be carried out on an alternative platform drilling. Heinrichs said that he thought that the recommendation of the Greve committee referred to the use of the JOIDES Resolution post-2003, when a riser ship will be available for margin drilling. He said that the Greve committee was looking at a time-scale from now to 2003 and beyond.

Briden referred EXCOM to the recommendation #5, that a riser capability is mandatory. He said that the report also recognised that other aspects of ODP beyond 2003 would not require a riser vessel. Briden asked Taira if he was happy about this recommendation. Taira said that it was a very good statement so far as Japan was concerned. Briden asked Lancelot what he thought. Lancelot said that he thought there was a difference between the body of the text and the short recommendation statements in the report. He expressed a concern at the concept of the dual track program. He said that it would be very expensive and suggested that some members might wish to buy one track and not the other. He said that this could jeopardise the entire Program. Dalrymple said that if the riser
ship is not built, for whatever reason, with the statement in the report that it is mandatory, then perhaps ODP would fail. Taylor said that the preamble statement said that it (the riser vessel) is mandatory to meet the Program objectives. Dalrymple said that he was just pointing this out as a possible pitfall. Heinrichs referred EXCOM to p.70 of the LRP, where he said, the objectives of ODP are made clear. Dalrymple said that some politicians may only read the one page of the Greve Report and chose to ignore the LRP. Heinrichs replied that he felt that the Greve Report made it clear that the report was to be taken along with the LRP, where the Program objectives were set out, and that the report could not be interpreted without the LRP. Falvey said that should be stated on the cover of the review report. He said that maybe the review report should be distributed in the same binder as the LRP to ensure that they are read together.

Briden asked Kidd what components of forward planning PCOM was assuming. Kidd said that it became clear to PCOM that Phase III would be very different from Phase II, and PCOM recognised that it will need to put in place, in Phase III, a planning entity to plan for Phase IV. Kidd said that EXCOM should take the lead in establishing the mechanisms that will be put in place during Phase III for Phase IV planning. He then said that the review committee came out with a strong statement that ODP should follow the twin-track approach, and that PCOM has also considered how this approach should be implemented in Phase IV. Kidd said that Greve should be questioned on this. Falvey said that it will be a major change to involve the management of two platforms, that it will be immensely complicated, and should begin as soon as JAMSTEC commit to the building of the riser vessel. He said that a joint planning office will be required, with experienced staff working closely with JAMSTEC. Taira said that in the joint session STA/JAMSTEC will identify the requirements for joint planning. He said that it will be very important to come up with scientific and technological requirements for Phase IV. He said EXCOM have to give maximum support to OD21, but it should not jeopardise projects from other countries. Taylor said that every part of the JOIDES structure is looking to EXCOM to give a strong lead in finding the extra funding required. He said that until the community see moves in that direction, there will not be a lot of enthusiasm behind the OD21 project. He said that members must start to make statements now about how ODP will get to Phase IV.

Briden said that Japan will be taking the lead on OD21, and the review report asked if Japan will take the same stance over that proposed vessel as the US has with the JOIDES Resolution. He said that ODP needs to hear that kind of statement very clearly from Japan. Briden then said that ODP Council members will have to go back to their funding authorities, after consideration of the review report and LRP, and feedback from them would not be immediate. He reiterated that the first requirement is for Japan to make a clear statement. Taylor said that contributions from non-ship supplying members would have to be doubled, and he has not seen any statements from those members; EXCOM should also press for commitment from these partners as well as from Japan. Briden said that at the last ODP Council meeting some members asked for funding scenarios. Falvey said that he has prepared some funding scenarios, but he would like to show these to the Japanese colleagues first. He said that other subscriptions would not require doubling, but there would be significant increases.

Briden said that in terms of scientific leadership, the report is not prescriptive. He said that he did not read it as a direct criticism of current leadership, and did not believe that it was intended as such. Falvey said that he read it as a lack of definition of the roles of the current management. Briden said that EXCOM should consider how to react to this. He said that by Wednesday, the ODP Council members will be attending on behalf of their agencies and they will probably give a first reaction that will not commit their agencies. He said that they will need to evaluate the report and the LRP within their national agencies. Briden said EXCOM should consider what other impressions it wishes ODP Council members to take away with them. He said that he thought one impression should be that JOIDES means what it says and that ODP is going to pursue the goals in the LRP. He said that EXCOM should avoid giving a negative impression, it should positively welcome the report and state what EXCOM intends to do about it. He asked if EXCOM are content for a response along the lines of the notes on p.65a, and received the following comments from a tour de table:

Nowell: Said he supported the response as outlined by Briden.

Duce: Said that he agreed with Taylor, and felt that the scientific leadership aspect was in important issue that EXCOM needs to consider.

Taylor: No further comment.
Leinen: EXCOM should say what steps have been taken to address the issue of scientific leadership. Taylor's comments were appropriate, but she acknowledged that earlier exchanges between EXCOM and Japan have had to be delicate. It is only now that statements need to be more explicit in terms of funding and management.

Detrick: Said that the abstracted bullet points seem more specific than the text of the report. The options presented have different costs, and EXCOM need to get together with ODP Council and STA/JAMSTEC to review the different options and their financial implications. To maintain credibility ODP must demonstrate that it can become more focused, suggesting as an example of focusing, multiple legs on single sites.

Shipley: It has to be made clear that EXCOM can restructure the Program and focus the science more. EXCOM must begin very soon to show that it is serious, he said the scientific community is looking for guidance.

Taira: STA/JAMSTEC are undertaking a huge effort to provide the riser capability, and this should be recognised. EXCOM should not be hesitant in making decisions on how ODP is going to provide the planning and financial increases that will be required.

Mutter: Commented that there is some orthogonality between recommendation #2 and the current planning. He agreed with Taylor that EXCOM needs to put in place something that will make the Program as planned come to reality. He saw recommendations 5 and 6 as criticisms.

Beiersdorf: Said that he needs clear finance figures before he can talk to politicians. If the dual track is not followed then nothing will change, and ODP will lose a large part of the community. In terms of scientific leadership, he said that there is both praise for achievements as well as criticism, and he did not understand what the report was getting at. In terms of OD21 planning, he said that maybe things would be clearer after the meeting in Japan in February.

Eldholm: Said that the recommendations have to be addressed and taken seriously. He is concerned at the issue of scientific leadership, and said that EXCOM has to act on the suggestions.

Orcutt: Said that many things he agreed with have already been said. The issue of scientific leadership was important. EXCOM must pay attention to this and it may mean substantial changes to the Program. Some real effort must be made to focus on the issues in the LRP, and it must not be seen by the community as another COSOD-type document. As regards riser drilling, ODP must proceed to something much more specific than the current proposals. EXCOM must seek strong support from the member institutions.

Lancelot: Most points regarding leadership have already been covered. As regards the riser drilling, there is strong criticism on the part of the French scientific community: there could be more enthusiasm generated. The French scientists are generally happy with the LRP, but the French community behind riser drilling is very small. Recommendation #5, taken as is, will not be accepted in France due to the increased costs, at least not until details about exactly how riser drilling will be achieved are also presented.

Dalrymple: Said that he agrees with many comments. The report is a strong endorsement of ODP and we couldn't have had a better one. He said EXCOM should read the report as an endorsement of the LRP and use it in that manner.

Mayer: Said that from an Aus-Can perspective, recommendation #2 needs to be clarified as it is important to both countries. He agrees with Lancelot on the issue of riser drilling. EXCOM needs to present a clear demonstration of how it is planning to implement the changes in the Program. We need to have a clear picture of how the program will evolve, with enough lead time to make arguments for increased contributions for renewal in 1998.
4. ODP COUNCIL REPORT

Heinrichs reported to EXCOM, and referred to the tabled papers. In July 1995 Council discussed the mid-term review (see above). He said that there would be no change in the membership or subscription rate for FY97. Council had discussed and accepted the Associate Membership issue. Discussions are continuing between JOI and NSF on co-operative development. The LRP was also discussed (in EXCOM minutes). Council agreed that the EXCOM Chair and JOI BoG Chair could attend in open session. Council further agreed that EXCOM should get approved records of the meetings. There will be a Joint Session tomorrow afternoon of EXCOM and ODP Council, with one agenda item, the international review report, and there may be some additional discussion on the issue of co-operative R&D. He said that ODP Council would have a closed session and then reconvene the joint session so that EXCOM would know what actions the Council would like to see undertaken before the formal Council meeting in June.

Briden (who had attended Council as an observer in July 95) said that Council members had expressed some concerns about operational matters. He referred EXCOM to p.67 of the agenda book and said that EXCOM should be aware of these concerns.

Admiral Watkins was welcomed to the meeting at this point.

5. MANAGEMENT REPORTS

(A) NSF

Malfait outlined the recent problems associated with the US federal government shutdown. He said that Program operations have not been affected. The budget at agency level is about the same as the previous year, but he could not make a future prediction. In terms of FY95, the Program finished with a small residual balance and JOI was given permission to spend this residue in early October 95. In FY96, the Program is presently funded through to 1 June 1996. The budget was approved at $44.9M, but there was a problem with Aus-Can consortia increasing their subscription to a full membership, so the budget was reduced to $44.4M. JOI has recently been sent a letter concerning the FY97 Program plan, saying that it will need to be completed within a budget of $44.4M. (Appendix 1).

Malfait reported that audits of 1992 and 1993 were completed, and NSF was disallowed only $9,580 during an expenditure of over $80M. Texas A&M have requested an administrative fee increase. NSF have been working with JOI to resolve where any problems may lie with the MOU’s and with the sub-contracts. He said that Sandy Shor will remain with NSF through 1996.

Heinrichs said that it has been an interesting time in the US with the budget problems, they have 5/12ths of their budget for 6/12ths of the year. This does cause problems with the lead times required for marine research. He said that the ODP group have borrowed money from other parts of NSF to fulfil their forward spend commitments. He said that he encouraged the international partners to provide their funding contributions in a timely manner. Kappel said that JOI wish to thank the NSF personnel for their help in ensuring the Program could operate during the federal government difficulties.

EXCOM accepted the NSF report.

(B) JOI

Falvey referred EXCOM to p.71 of the agenda book. He summarised the financial situation for FY95, and said the apparent increase in funds was due to carry-over. He said that uncommitted carry-forward has been significantly reduced this year. For FY96, he outlined how the budget reduction of $500K would be shared, but emphasised that this was not yet finalised. In FY97, NSF would be paying for 62.4% of the Program (Appendix 2).

Internationalisation Initiative

A formal submission has been prepared in Brazil. Petrobras does have the resources, and, if directed by the Brazilian government, will provide sufficient resources for a 1/3 membership.

Russia is very enthusiastic about returning to ODP, and would like to be at least a 1/3 partner, but this may depend on the Russian elections. China has the most encouraging news. There is a verbal commitment, and they will shortly begin negotiating a 1/6 membership with NSF. He said that Taiwan now appears to be backing off. Korea is also encouraging. They have given a verbal commitment that they wish to join the Aus-Can consortium by 1997. Mexico has re-established contact and it is recommended that JOI personnel visit. Funding would come from the state oil
company. The Commonwealth Secretariat has been contacted, but this is not a high priority, and the IOC has a proposal to look at associate membership on behalf of developing countries.

Co-operative Technology

Discussions have continued between JOI and NSF, and so far JOI has had responses from Lamont and TAMRF in favour, of the idea, on a case-by-case basis. JOI's preference is to open this up as widely as possible, but this may affect the MOU's. He said that ODP could identify specific tools that they would bring to a joint venture.

Project Management

Funds for training were included in the FY96 Program plan and this will begin in February 1996. He said that the concept of using Legs as individual projects has been discussed and presented to PCOM. It should be fully implemented by Phase III.

Public Communications

This has been put on hold due to the budget difficulties. He said that PEC III, PEC IV and the Greve report have all said that communications, especially with the public, should be improved. This needs funding commitment for FY97.

Co-operation with other Programs

A meeting is scheduled for May 1996 with NAD to write a Program implementation plan.

PEC IV Progress Report

He said that many issues have already been dealt with, or are currently being addressed, but there are still a number of issues that require action or response from EXCOM rather than from JOI (Appendix 3.1 - 3.2). Falvey referred EXCOM to the agenda papers for the key issues that have now been addressed. He commented that PEC IV said that JOI should look at past reviews (PEC III) and see what progress has been made with those recommendations.

PEC III Recommendations

Falvey reviewed these and progress on implementation (Appendix 3.3 - 3.4):

- Publications have been dealt with by action at PCOM.
- Public Awareness can be dealt with, if funding is made available.
- Overcrowding on the JOIDES Resolution will be part of the refit in 1998.
- Review of JOIDES Planning and Advisory Structure took place in 1992 and was accepted in 1993, and a new structure is identified for Phase IV in the LRP.
- Thematic Panel Program Formulation - J Austin, then PCOM Chair, felt this was already occurring.
- Stress and morale at ODP-TAMU came up again in PEC IV. Fox is dealing with this and it will require monitoring.

Database Steering Committee

Falvey outlined the role of the steering committee (Appendix 4). The committee has met once since the last report. Some deliverables had not been met and action was taken to bring the project back into line. The December meeting was postponed until March 96 to allow Tracor and ODP-TAMU to concentrate on user groups. Falvey then outlined future plans of the steering committee (Appendix 5).

Discussion

Briden thanked Falvey and opened the JOI report for discussion. Mutter asked when China may join. Falvey said that they will talk to NSF in the very near future, and then it will go to the US State Department who will then probably consult a number of other US agencies. Beiersdorf asked if this was related to the International Geological Congress. Falvey said that the contractors have activities planned for the IGC in Beijing. Fratta asked if the National Academy of China were involved. Falvey said they were on the periphery, and had been consulted. Leinen asked if the plan was for the partial memberships to stay separate from Aus-Can. Falvey confirmed this was so.
Leinen asked if there had been discussion about potential partial memberships forming full membership consortia. Falvey said that they would not form natural consortia. It would be up to them as partial members in conjunction with NSF to resolve that issue. Leinen said that if they join for the three year associate membership then thought will have to be given to bring them together as full consortia members. Briden said that he hoped EXCOM would applaud the efforts being made, although success was slow in coming. Briden asked if the follow-up actions were ready. Falvey said that it was now up to the Chinese to contact NSF. Heinrichs said that NSF have not been contacted yet.

Briden asked about the co-operative R&D initiative which he believed EXCOM should pursue, even though it is currently hypothetical. He asked if it is legitimate for commingled funds to purchase products just for the use of that product and not having any other rights to it. He asked if this would not impinge on the MOU’s. Falvey said that he has discussed this with Malfait and they are looking to find a form of words that will avoid the Intellectual Property Rights issue as contained in the MOU’s. Briden said that this is an important issue to resolve as developments for the riser ship will probably require co-operation with the oil industry.

Briden asked if EXCOM is fully supportive of the Director of Communications post. There was no negative reaction from EXCOM. Falvey said that JOI had a very good short-list of candidates when it was first advertised. Orcutt said that EXCOM has to decide how high a priority this was. He said that it was given high priority at the last BCOM and was stopped due to the $500K budget cut. Falvey said that it was a management issue, and that it was delayed due to uncertainty with the $500K cut. Mutter said that the only new thing here was a recommendation from the review committee, but he did not understand where the “global” strategy was. Falvey said that he presented a strategy to EXCOM in July 95. He said that he expects the person appointed to complete and fully develop a strategy. Kappel said that even though EXCOM endorsed the idea last July, there was no money in the Program plan. It could be done this year as JOI has some uncommitted funds available, but, she said, JOI will be holding off until BCOM. She said that there must be some long-term commitment when hiring people. Kappel said that the science plan is full, and that there may be a case for balancing the importance of this appointment of an individual against the science plan. Kidd said that if it was a BCOM member he knows that difficult decisions will have to be made. He said that this will be a long term commitment, and EXCOM must make a decision and tell BCOM whether or not it is a priority, otherwise it will be an ‘easy’ thing for BCOM to cut. Detrick asked about the costs, and Falvey said it would cost about $150K per annum, including travel. Briden said that EXCOM would have to return to this when it makes its resolutions. He said that if anything, EXCOM should support this more strongly, and that it has already been placed in the hands of management.

Referring to NAD, Briden commented that PCOM had some suggestions for dealing with other Programs. Lancelot said that NAD thought there should be formal links between ODP and NAD. He said that there is a NAD workshop in Reykjavik in May 1996, and there is a plan to get some holes drilled in the Laptev Sea. He said that maybe PCOM or panel members should attend this workshop. Falvey said that in July, EXCOM accepted a plan to co-operate with NAD once they became an operational Program. Taylor reminded EXCOM of the PCOM motions on association with other Programs. He said that NAD is just one of several, and the PCOM motions are quite specific. He asked whether EXCOM was going to respond? Kidd said that he was going to bring up this item in his report. He said it was a discussion document for EXCOM, for it to consider the PCOM motions and respond.

Mayer said that EXCOM should address this before the NAD meeting in May 1996. Taylor said that the PCOM motions were to avoid the setting up of an Arctic Regional Panel. Falvey said that EXCOM decided it should be a regional DPG. Briden said that this issue will have to be laid to rest for the time being and called the meeting to adjourn for lunch.

Lunch ........................................................................................................ 12:30 - 13:35

Fox said he wanted to respond to the issue of the shipboard technical staff. He had spoken to the group involved and to the co-chiefs from recent legs, and said that ODP-TAMU had excellent reports from the latter. He said that the stress was due to rotation of staff over bi-monthly legs, and he was attempting to involve the staff more in the decision making process.

Kidd returned to one of the PEC III items, viz. the thematic panels becoming more proactive. He said that since Austin was PCOM Chair many things had happened. He said that there was a notion that because ODP is proposal driven then the panels are not proactive, and that this was
completely untrue. He cited the North Atlantic Arctic Gateways (NAAG) and North Atlantic Rifted Margins (NARM) programs that had been the result of proactive panel input. He said that both the thematic panels and PCOM have become much more proactive. The panels were already being proactive at the time of PEC III, though, he conceded, it may not have been obvious to the review panel. Mayer said that ODP is actually a proposal responsive program, and not proposal-driven.

Duce commented on PEC IV recommendation 7, concerning cost-effectiveness. Falvey said that he had begun this review process by looking at the results of PEC III, to firstly look at how ODP responded to the review, and the cost-effectiveness can be looked at in the future, though, he said it may take so much time and resources to carry out that it may not be efficient. Briden asked if Falvey could report in future with an evaluation of the effect of the change that has been made, for example in increased scientific output, and not necessarily in terms of dollars. Falvey said that he wants to come back to the next EXCOM with a final response to PEC IV, though some issues need to be addressed by EXCOM, as they are not management issues.

Mayer asked for clarification on recommendation 42, the logging services. Kappel said that JOI is carrying out this review.

Leinen said that PEC made a recommendation about the Scientific Results volume and that EXCOM agreed that it would return to this issue. Briden said it would be discussed at Item 6a, the PCOM report.

Eldholm asked about the post-cruise evaluations of legs. He said that he thought the legs should be evaluated by someone other than the co-chiefs. Kidd commented that at least one co-chief has to report to PCOM after each leg, and PCOM asks co-chiefs to refer specifically to the objectives of the leg prior to sailing and to whether and why they had changed. He said that since PCOM began sending templates requiring co-chiefs to address certain items the reports had improved. Briden asked what EXCOM wished to hear in terms of performance against targets. Kidd said that he had reported the science and performance since he became PCOM Chair. Mutter asked how EXCOM would know this performance reporting had occurred. Kidd said that the discussion after the co-chief presentations was where the evaluations actually took place, including questions such as "where do we go from here". Kidd said that he tried to cover this in his report to EXCOM. Lancelot said that it was an issue that EXCOM should try and keep informal. He said that EXCOM should not want to see an assessment that stated that each leg was a success, or half-success etc. He said that the Program must be able to explain why some objectives were not reached, but it must not be in a prescriptive manner. Falvey said that he felt that this was what was meant by the PEC IV recommendations. Eldholm said that it was a PCOM issue, but EXCOM should ask PCOM to have a mechanism in place that could then be used a planning tool for future legs. He suggested an annual report from the PCOM Chair assessing the 6 legs. Briden said that Kidd could respond to that in his report.

(C) ODP-TAMU

Fox referred EXCOM to the papers beginning on p.81 of the agenda books.

Improved Service/Programmatic Initiatives

Fox reported that laboratory working groups have been in place for a few years. These task the personnel to ensure that ODP-TAMU is providing the correct environment on the JOIDES Resolution in which visiting scientists can work. If major changes are required ODP-TAMU ask the SMP for advice on how to proceed.

He said ODP-TAMU has initiated a bi-annual report to communicate with the user community. There was a need to deliver a concise, consistent message to the user community. This document will give a rolling assessment of what has happened over the last 6 months and on future plans. He said that it will be available on the WWW and in hard copy for the EXCOM meetings, and the information will be continually updated and will also be provided to the JOIDES panels to show them what is being done at ODP-TAMU. Fox reported that ODP-TAMU is working with staff scientists to enhance liaison with the panels and to respond to the needs of those panels. He asked that the panels try to meet at College Station once a year to further enhance liaison between ODP-TAMU and the panel members.

Fox reported that there is also a 10 year compilation of science results being undertaken, which aims to produce a codified summary of each of the legs. This will allow easy access to results for the user community. It will be made available on CD-ROM, and possibly as paper copies.
Horizontal Project Teams

Fox reported that ODP-TAMU is trying to link talents among departments to ensure that efficient solutions to problems can be developed. He said this works well with shipboard operations and engineering, and commented that these changes will largely be transparent to the community.

Fox also said that programmatic functions are being reviewed and goals for FY97 being defined. He said that project budgeting is also being implemented.

Increased Accessibility of the Director

Fox announced that he intended to maintain contact with the ODP scientific community by attending PCOM meetings, and will attempt to meet with other panels and also attend some national and international meetings.

Public Relations

Fox reported that close to 1000 people per call have visited the ship at recent port-calls, and there have also been numerous newspaper articles. He said this is a step to making the Program more visible. Fox said that TV networks have also covered the port-calls; some filming has been done during Leg 164 and more is planned for Leg 165. He said that Aaron Woods has been working to set up a permanent ODP display in the EPCOT center in Disneyland, and a proposal is being submitted to the Disney Board of Directors later this year.

SEDCO/FOREX

Fox said that relations have been very good, and insurance rates fell yet again, indicative of safe operations. A total of 6 days had been gained for science by leaving port calls early. He said that there is still room for improvement and scheduled monthly meetings are now in place to ensure smooth communications. He said that SEDCO are being brought in to discuss highly ranked proposals as soon as possible so that information can also be fed back to PCOM. Fox then announced that Frank Williford (SEDCO) is retiring soon and he does not know his replacement, but it someone who has not worked with the ship before.

Staffing

The Publications Manager has been appointed (Anne Klaus), the Engineering Manager post is still unfilled, two candidates were offered the post and neither accepted. He said that the preferred solution was to find an outside candidate, and so a head-hunting company has been used and three candidates identified. He is confident that a solution will be found. Fox said that if the post is not filled, he will find an internal solution. He said that there are now 8 staff scientists (7 is the optimum).

Leg 163 Operations

Fox reviewed the sequence of events on Leg 163 (Appendix 6), and the causes and sequence of events that led to the pipe failure (Appendix 7), and how to resolve the problems for the future. He reviewed the shallow water drilling limitations that are now in place (Appendix 8), and said the 75 m limit is a firm guideline, above which ODL will not operate unless there are very well-defined extenuating circumstances, such as the 71 m site in the New Jersey Transect proposal. There were three pipe failures last year and ODP-TAMU and SEDCO will have to implement this policy together.

Fox then outlined the weather problems encountered on the Leg (Appendix 9.1 - 9.2), and the changes in procedure that have now been put in place to try to avoid similar problems in the future. He said that there needs to be more effective pre-cruise planning for the ice problems. He finished this part of the report with a review of the estimated costs incurred due to the damage (Appendix 10). He said the financial cost will not be significant to ODP, but the real cost was the loss of 27 science days.

JANUS

Fox reviewed the purpose of the JANUS system and its long term goal, including follow-on requirements. He said that working groups are community driven and showed the nationality of the WG members. He said that there have been delays, and that at the moment some data modules are being tested on Leg 165. He said that it is not clear that the modules will be completed at the end of this fiscal year (when the project is scheduled to end), and there may be a wrap-up period required. Fox then outlined a flow diagram showing how old ODP data can be moved into the JANUS database (Appendix 11). He said that many required files (for JANUS) do not exist in the historical data. He
estimated that it would cost about $3.6M to put all the old data into the database, i.e. $840K per year over 3 years, or $450K per year over 6 years.

Engineering Projects

DCS is presently in Phase II of controller design and development. There was a recent meeting of the TEDCOM DCS sub-committee in Salt Lake City to determine if the heave could be removed by secondary heave compensation (to maintain ±500lbs weight on bit from a natural variation of ±5000lbs). The sub-committee have identified a number of controllers that could reduce weight on bit and TEDCOM will meet in March or April to make a final recommendation. He said that there is every indication that the dynamic challenge could be solved. He warned EXCOM that there are no funds allocated in FY96 to carry out DCS Phase III.

Fox then reviewed the other engineering activities at ODP-TAMU (Appendix 12): CORK, Hammer Drill, Pressure Core Sampler, Formation Fluid Sampler, Hole Instrumentation - Strain Meter.

Science Operations

Fox outlined an overview of leg staffing through Leg 165 (Appendix 13).

Discussion

Briden thanked Fox and asked EXCOM for discussion. Detrick asked to whom the bi-annual report will be distributed. Fox said all the panel members, and it will be available on the WWW so that any interested party can see what ODP-TAMU has been doing.

Beiersdorf said that EXCOM should applaud ODP-TAMU in enhancing the communications to the outside world. He said the Program got a great deal of publicity in Germany and asked if the Leg-by-Leg publications release could be revived. Fox said that the policy is still "active", but that EOS is backing off from publishing, although Geotimes is interested. Fox said that the problem is finding the right vehicle. Beiersdorf said that information should be available immediately the ship reaches port. The media do not like information that is months old. Kidd commented that the onus for press releases used to be on the co-chief scientists. Kappel said that she has discussed this with Aaron Woods and the new person at JOI would do this by interacting with the co-chiefs. Kidd said that the co-chiefs used to produce something that could then be worked on. Fox said that ODP-TAMU requests this from the co-chiefs and that it would be better if PCOM mandated them to do it. Briden said he thought that EXCOM should support the re-instatement of the requirement for co-chiefs to supply press releases. There was general consent around the table.

Taylor asked about the new shallow water drilling guidelines, and Fox said that they involved real-time assessment of the sea state, and that back-up objectives should be available. Briden said that EXCOM should be comfortable that the 'system' responded properly to the events of Leg 163, including the identification of things to rectify, so as to ensure that these events should not happen again. Fox said that it would help if EXCOM acknowledges the shipboard staff for getting the vessel through that terrible period.

Shipley said that during the JANUS discussions at PCOM, it was commented that some high priority issues may not get completed and may require additional funding. He asked if progress had been made. Fox said that groups 4b and 5 met in January and defined the path they wish to follow. He said that it was much more sophisticated than originally envisioned and Tracor are evaluating what will be required to implement the wishes of those groups. Taylor said that groups 4, 5 and 6 are about describing the sediment, rock and structure. Detrick asked about the costs of incorporating the old data into the database, and he asked if there was a budget identified to cover this. Fox said that it was a two step process, firstly moving the data into an Oracle database, and he said the data can be made available on the WWW, but the next step, of moving the data into a relational database would be very difficult, and if digital images are used, then it may not be possible at all. Kidd commented that Taylor has highlighted a concern of PCOM, that the digital input of core description data will require the purchase of expensive scanners. He said that ODP-TAMU cannot complete JANUS without these extra items and so the point about cost overrun is very important.

Taylor asked if the next DCS review will be after the BCOM meeting? He said that BCOM need to know if they are to make a 'reservation' of funds for DCS Phase III. Orcutt said that he was unclear whether PCOM placed a high priority on this item. Kidd said that PCOM is planning to look at the DCS question in April, and so it will be too late for FY97. Mutter said that the Program seems to have passed decision dates several times, and yet nothing has been done. Fox said that the feasibility study
was designed to recommend going forward or not. He said that after TEDCOM make their recommendation, then PCOM will have to make a decision. He said that ODP-TAMU estimates are $275K to build the system, $400K for the land test, and $400K for the sea test. Briden suggested that ODP-TAMU could forward these estimates to BCOM. Fox said that has already been done.

EXCOM accepted the Science Operator report.

Coffee

(D) ODP-LDEO

Goldberg referred EXCOM to the papers in the agenda book p.99. He then outlined recent logging operations beginning on Leg 162 (Appendix 14), and displayed some magnetic susceptibility log data from Site 984 to illustrate its very high resolution and quality (Appendix 15). He said that on Leg 163 there was no logging, but the Wireline Heave Controller was successfully tested. On Leg 164, 3 holes were logged with the quad, FMS, and Geochemical tool. Two third party tools were used, a VSP and shear-wave tool. He showed an example of a gas hydrate logged sequence from Site 994 (Appendix 16), and said the high resistivities reflected the layers of hydrate ice.

Goldberg then outlined the future logging plans up to Leg 169 (Appendix 17), and reported that there is a new tool to be tested on Leg 166. He reported that NSF has just funded a multi-sensor combinable gamma-ray tool development program.

Goldberg then gave an update on the ship-shore data link (Appendix 18) being developed at ODP-Lamont in conjunction with Schlumberger. He said that the test system is now being operated. A satellite system will be installed for Leg 166 to enable ship-shore data transmission. He said this will have implications for when the ship is deployed for long periods on one site.

Goldberg reported that there was a session at the December AGU and a Geophysical Research Letters Special Section is in review with 15 articles. He also reported that data CD ROM’s for the Initial Reports for Legs 140-160 have been completed, and an updated CLIP software will be installed during Leg 166. Development of SLIP - a synthetic seismograph integration package which is to correlate logs to seismic records has begun. He said it is basically a synthetic seismogram tool for the low frequency end of the spectrum.

In terms of log databases, work has begun with user group 6 on how to incorporate FMS and speciality tool data into the database. He announced that the logging data base now has an on-line catalogue and it will be able to be downloaded in the near future. He said that discussions will continue on linking with the ODP-TAMU Tracor database.

He said that ODP-LDEO have sent in an Expression of Interest for post 1998, and ODP-LDEO is in the process of developing its FY97 Program plan.

He finished by saying there have been some personnel changes at ODP-LDEO, and he showed the organisational structure of the WLS, saying there have been new logging scientists taken on at Leicester and Marseilles.

Discussion

Briden thanked Goldberg and opened the report for discussion. There was unanimous acceptance of the WLS report.

(E) JOIDES OFFICE

This was presented in the agenda papers and EXCOM accepted this report without comment.

6. COUNTRY/CONSORTIUM MEMBER REPORTS

CANADA - AUSTRALIA

Mayer reported that efforts had been focused on finding additional partners. Loutit said that Taiwan still maintains that the decision will be forthcoming in March/April, depending upon their budget cycle. ODP will be told the result this year. Mayer said the situation with Korea is much more positive and a proposal to the Korean government will be submitted in March for a 1/6 membership which may begin in October 1996. Mayer said that in reality they may only have a 1/12 membership and Aus-Can would accept this with the condition that it become 1/6 within two years. In Canada some undergraduates are being funded for summer work and an ODP speakers tour has begun. He said that newspaper coverage has been good in Canada and that all legs since 163 have been reported.
The NSERC mid-term review confirmed Canada’s commitment to ODP until at least 1998. Mayer then outlined personnel changes in Canada. He finished with an outline of the environmental assessments for Legs 168S and 169.

Mayer said that Canada is adopting the Oceans Act, which means that it has stewardship over its marginal oceans, and the Canadian government is currently evaluating mechanisms for maintaining commitment to international science programs such as ODP.

Maronde asked how long Korea would join for. Mayer said membership would start in 1997, written initially until 1998, and after 2 years their membership level must increase to a 1/6 membership. Briden asked about the situation with Taiwan. Loutit said that it could be many things, from internal politics, external politics or financial reasons.

ECOD

Eldholm reported that the activity level is high and the consortium is operating smoothly. He said that in a few weeks there will be an ECOD white paper and an accomplishments paper that will form the basis for a review and post-1998 membership. They are preparing for the European JOIDES forum to be held in Oldenburg, Germany in February. He said that the next ECOD meeting is in Greenland, and non-ECOD members would be welcome to attend.

FRANCE

Lancelot said that there was a successful operation with the Nautil and the CORK in the Barbados area. He said there are still problems with future participation and referred EXCOM to his report on p.223-224 of the agenda book. He said that some of these comments are his own opinion. He said that there was a recent Nature article that mentioned the first French evaluation only, which was not at all encouraging. He said that the recommendations of that first review were based on long-time complaints from France, but there were other complaints, such as the linkages with other Programs. He said that in France many in the community view the JOIDES Resolution as a tool and not as part of a Program. The French review committee recommended that France terminate membership of ODP in 1998, beginning with a reduction of activity in 1996. He said that did not necessarily mean that France would not participate in the future, but, he said, the Program must change for continued French participation.

He said the community in France reacted against this recommendation to leave ODP, and there was a second set of meetings with various French science committees which look after geosciences in France. The CNRS Earth Science committee endorsed the Courtillot Report but with a way of keeping the door ajar. Another committee, chaired by le Pichon (p224) will probably form “the charter” for future French participation in the Program. He said some recommendations are simple whereas others are not.

Lancelot said that problems at the national level will be dealt with internally in France, whereas the international level points will need to be addressed at this level. He said that the problem of the Scientific Results volume is one of the strongest points, and the present change in the policy still falls short of what the French authorities would like to see. They would also like to see the establishment of a high-level steering committee, not connected to JOIDES, to establish what science should be promoted. The French community believes that this “tool” should be driven by Programs and that is not happening at the moment. Lancelot said that the last two points are important for the European colleagues, and that some sort of European ties must be established to strengthen the European front. He said that this is beginning to happen, the French want the European partners to put forward “Programs” in a very strong manner. He said the French will not withdraw without very close collaboration and discussion with the other European partners. He said that any changes in ODP will be monitored in France on an annual basis. He said that if changes do not happen, then problems will recur. He said that strategies, platforms etc. should remain open. He said that he felt there was a better chance of France staying in now than a year ago, but it will be a very difficult two years.

Taira said that the figures in the Nature article were very large, possibly two to three times what is spent in Japan. Lancelot said that the figures included the salaries, and that the science money was not so great. Mayer said that numbers such as those quoted in Nature can do a lot of damage. Taylor said that he was concerned with substance vs. appearance. He said that the most recent efforts of the publications sub-committee should answer the French concerns in this area. Lancelot said that it does not. He said that some French scientists wish to see all articles published in internationally reviewed journals. Taylor then said that the question of tool vs. program, evolved from COSOD II, and again he
is concerned with substance vs. appearance. Lancelot said he understood Taylor’s point, and he said that the view of the French committees may be wrong, but they are making the decisions and it is their perceptions that have to be taken into account.

GERMANY

Beiersdorf reported that a European colloquium will be held in Oldenburg 28/2 - 1/3/96, with about 250 participants. There will be 30 talks on three major themes as well as some other miscellaneous talks and a large poster session(80 posters). There will be a meeting of EXCOM and PCOM members to discuss various matters, including those mentioned earlier by Lancelot. Beiersdorf said it should strengthen the European involvement and ODP as a whole.

As far as a mid-term review is concerned, he has prepared a response to the DFG. It contains arguments for Germany to remain in ODP until 2003 and has a lot of annexes dealing with publications etc. that German scientists authored or co-authored (over 500). He said the commission, unlike France re-iterated its very positive view and commitment to ODP. Perhaps national committees should swap documents and use each others arguments to enhance the case for continued membership. He reported that there are two site surveys being undertaken by German vessels. He said that there was a very successful conference in Kiel on Coring for Global Change in 1995, and there will be a publication from that meeting soon. Bremen University has expanded the core repository by another 250 m$^2$, and this should alleviate their storage problem.

Lancelot said there is a German-French-British program to do long coring in the Angola Basin from the Marion Dufresne, another encouraging sign of European collaboration.

JAPAN

Taira referred EXCOM to the report in the agenda book on p.227. He said that for the future, discussions are continuing on the future planning for OD21 in terms of science planning. He said that Japan has also been discussing internally the involvement of developing countries in ODP. He said that there has to be a co-operation plan set up between Monbusho and STA/JAMSTEC for operation of OD21. Taira then said that in order for Japan to renew membership, the budget has to be proposed by June 1997 so that it can be formally presented to the Geodetic Council in January 1998. He said that some preliminary meetings with the Geodetic Council have already taken place, and that he did not see many problems with Japan remaining as members.

UNITED KINGDOM

Briden reported the main meeting of the UK review committee took place a couple of weeks ago, and coincided with the Nature article. He said that the author of that article is Paris-based, and he had contacted people in France and the UK. The material was rather old, largely background briefing material that was also mis-reported. He said the UK review report is being written now; the committee was chaired by Chris Hawkesworth. Briden said that Falvey made a presentation to the meeting, and Briden said that he was impressed with the fairness and positive attitude of the committee. He said that he wanted to give some background in terms of national policy and finance. The funding situation in the UK is severe, and budget restrictions are politically driven. In the UK science needs to demonstrate both excellence and relevance. The NERC will be very tight for funds over the next couple of years, and he cited that the NERC research fleet, apart from the Antarctic vessels, only has funds for two of three vessels. He said that each of the NERC institutes are undergoing a review exercise on which the initial presumption is that it is either not necessary, or not necessary from public funds. He said that essentially the UK Government is looking at privatisation of research institutes except the Antarctic survey.

He said the UK review will be evaluated by a Science and Technology Board, and then by NERC Council in terms of its relevance. A lot of work has been put into the review, and if the continuance is not forthcoming it will not be for lack of trying.

Heinrichs asked about the meetings mentioned in the Nature article. Lancelot said that he knows nothing about this. Beiersdorf said that he was called by the DFG and they were surprised - no-one seems to know what the plans are. Kidd said that he was informed that the meeting between Krebs and David was going to happen. He said that for Phase IV, people at this level have to get together to figure out how things will move forward.
UNITED STATES

Malfait reported on the US Science Support Program. He said projected rates are based on 1995 levels (ca. $10M). He said that USSSP should be slightly above 1995 levels, and the Program 1997-99 will be reviewed this coming summer. He then referred EXCOM to his mailed report, covering field programs, including support for the Nautile programs and instrumentation development programs.

Kappel then continued the US report, referring EXCOM to the JOI report in the agenda book. She updated EXCOM on USSSP-funded site augmentation proposals, workshops, and JOI/USSAC Ocean Drilling Fellows. Kappel also updated EXCOM on progress with the interactive CD-ROM project, which, she said, will probably go to press in the next couple of weeks. She finished by listing the scientists involved in the distinguished lecture series.

Briden thanked everyone for their reports.

Briden then outlined what EXCOM must consider in terms of Scientific and Operational planning for Phases II/III and Phase IV, and asked EXCOM to consider this overnight. Taylor said that EXCOM has to realise that they have an LRP to implement, and he has not as yet heard any indication of how the additional resources required would be sought. He said that EXCOM has to make some very important decisions now. Briden said that this should also be considered overnight.

Adjourn

17:30

Tuesday, 30 January 1996

Briden opened the meeting by welcoming Otis Brown. He said that by the end of the morning EXCOM should be aware of any resolutions that need to be made.

7 SCIENTIFIC ADVICE

(A) PCOM REPORTS

Kidd pointed out that the PCOM Minutes were in the agenda book and he would flag the highlights for EXCOM. He also asked to take discussion during, rather than at the end of his report.

He began with a report of the August PCOM meeting. The main issues were the selection of proposals for the FY97 prospectus, a document that was then sent to the thematic panels who added another three proposals for scheduling consideration in December. The LRP was also discussed after a presentation by Mutter to explain the rationale of the changes that were made. PCOM appreciated the need for the LRP to become more focused. The third main item of business was a PCOM suggestion for closer co-operation with other Programs, and referred EXCOM to p.118 of the agenda book. He said he would return to this later.

Kidd then reviewed the December 1996 meeting at which reports had been received from all advisory panels and responses prepared to the recommendations from the panels. PCOM had prepared the schedule for the JOIDES Resolution for FY97. PCOM had also received leg reports. Falvey had reported to PCOM how the implementation of project management would affect ODP. The key item here would be that costing by leg would become available. PCOM budget discussions had included engineering and JANUS. Action was taken on the reports of two sub-committees, namely publications and multi-leg/multi-platform projects; these would be discussed later in the context of implementation of the LRP (Appendix 19).

Leg Reports (Appendix 20)

Legs 160 and 161. A report on the tectonic aspects was received at an earlier PCOM meeting, and was enhanced by a report from Robertson (TECP Chair and Leg 160 co-chief). The emphasis of the report at the December meeting was on the sapropels in the Mediterranean. Kay Emeis gave an overview of results from both legs. Kidd reviewed the objectives and results of Legs 160 and 161. He said that the causes of sapropels were thought to be either changes in surface circulation or anoxia. He said that sapropels were encountered throughout the Mediterranean (with organic carbon content of up to 30%), though many layers burn out through later oxidation at the sea floor.

Leg 162. A report had been presented by Raymo for the second of the North Atlantic Arctic Gateways (NAAG) legs, an experiment that was originally planned some time ago. Kidd reviewed the objectives and results of the leg. This area had been characterised as one of the "lungs" of the
global ocean circulation system, and that much excitement was generated by the very high resolution stratigraphy gained from the drift sites. The records were comparable to ice cores.

**Leg 163.** Duncan had presented an operational report on this leg, from a scientist’s viewpoint. Kidd said that Hans-Christian Larson will be attending the next PCOM to present what had been accomplished in this second leg of the volcanic rifted margins experiment. Kidd reviewed the objectives and results that were obtained, despite the operational problems. He said that this leg was planned to build on the success of the previous leg in that area. The experiment was not completed, but PCOM await the report from Larson. Kidd said that Duncan reported that the petrologic results were very useful in looking at the history of the Iceland plume.

Kidd asked for discussion or comments. Fox added that on Leg 163 recovery of basalts was excellent at about 65%.

Kidd then reported on Legs 164 and 165, which had yet to be formally reported to PCOM (Appendix 21). Leg 164 was investigating Gas Hydrates on the Carolina margin. He reviewed the objectives and results of Leg 164, saying that there are resource implications from the results of this leg. There may also be a feedback mechanism involved with the release of Methane into the atmosphere from sea-level fall. The results so far indicate that Gas Hydrates were recovered from areas without a BSR, they extend much deeper than expected, and the estimates of methane in margins will have to be revised upwards. Falvey said that before the leg the resource estimates were 6,000 km² of gas hydrates with a depth of several 10’s of metres, but after the leg the estimates are 24,000 km² with a 250 m thickness.

Kidd said that Leg 165 was to look at the K/T boundary and the mechanisms and environmental consequences of the bolide impact. It is an observation that can only be done through ocean drilling. Of the results so far, the first site did not penetrate the K/T boundary as the shipboard party lost stratigraphic control in a volcaniclastic sequence and pulled out of the hole due to time constraints; PCOM were a little disappointed with this. The second hole penetrated about 10 m into the Cretaceous, and all Neogene and Palaeogene objectives are being met. Site S-6 has been prepared as a legacy site (cased for re-entry to pursue long term experiments). This particular site went through the K/T boundary and was due to reach basement, but once again time constraints precluded this. The leg is continuing and should produce a transect that will allow investigation of both the ocean history and the bolide event. The exciting science of the last two legs has generated considerable media interest.

Fratta asked if ESF scientists involved in impact work had been involved in the leg. Kidd said that he was unsure, and that the staffing list could be checked.

**PCOM Decisions**

Kidd then moved on to flag some recent PCOM decisions (Appendix 22). PCOM had endorsed two days of drilling in Saanich Inlet in FY96. The proposal came up as an item that SGPP put as their highest global ranking in Spring 1996. It would give very high resolution environmental records, and PCOM agreed to schedule it depending upon PPSP, environmental impact, and clearance. PCOM also recognised that only two or three of the New Jersey sites could now be tackled with the JOIDES Resolution. New Jersey was a key proposal that PCOM expected to see drilled in FY97. PCOM has a strong commitment to this transect as it is "the" place to study sea-level changes. PCOM had agreed that as many sites as possible should be done and that an alternative platform will be required to complete this (which is part of the LRP). Contact has been made with the US MARGINS Program, and the transect may be completed jointly with this Program, but it may have to wait for completion until Phase III. Kidd said that SEDCO has agreed that a 71m site can be drilled and it has been scheduled in the optimal weather window. After the experience of Leg 163, PCOM realised that it should only schedule one leg of high latitude drilling per year, and that in the optimal weather window.

**Engineering Development**

In terms of engineering development, PCOM received a report from ODP-TAMU on how to utilise engineering time at sea. PCOM was very positive about supporting development of a hammer drill-in casing system, and so a part-leg of engineering was scheduled. A decision on DCS development will be delayed until the April meeting when the feasibility of the control system will be determined. However there are no funds for DCS Phase III development.
Publications

Kidd then reported that PCOM endorsed a new policy on publications, that will both increase visibility and bring cost savings, recommended by a sub-committee chaired by Henry Dick. The major items of the new policy are:

- the *Initial Reports* would be desk-top published from the ship
- relaxation of restriction on outside publications within 12 months - outside publication is now allowed! (he said the general community still want the *Scientific Results* retained)
- a price rise for the volumes

The details of the new publications policy are in the December PCOM minutes. In discussion Dalrymple asked if it will require asking for copyright relaxation. Kidd said that there will be a request for abstracts, but the volumes are not intended to be collected reprints volumes; there was recognition that permission to reproduce abstracts might be refused, but it was unlikely. Eldholm asked about the high-latitude leg scheduling, saying that he felt PCOM were being overly pessimistic. Kidd confirmed that this was not formally presented in a PCOM resolution, as PCOM preferred to remain flexible in its approach. Taylor asked if TEDCOM had evaluated the engineering leg. Kidd said that TEDCOM was supportive of the concept of the hammer drill-in system.

Lancelot commented on science planning. He said that the last leg to the New Jersey margin was either the third or fourth leg to that region, and he asked how many legs are required. Is the experiment based on learning from each leg and then planning others, or will there be a finite number of legs planned? Lancelot said that he had been asked this question many times. Kidd said that PCOM usually has a series of proposals that will be combined to form an overall plan, and for example the North Atlantic Arctic Gateways (NAAG) questions were answered in two legs. He said that for New Jersey, there are different technological requirements and that a detailed transect is required to answer the questions posed. He said that the present New Jersey proposal was developed following Leg 163, and was a single proposal. Combining proposals by DPG's would be the way PCOM would act more and more. Mayer said that New Jersey had been identified as a critical theme from COSOD I and II. Kidd said that New Jersey is only one of a series of transects, and his comments earlier were specific to that proposal. Mayer said that the drilling experiment was part of a concept developed over many years.

FY97 Science Plan

Kidd then moved on to the FY97 Science Plan, and referred EXCOM to the *JOIDES Resolution* schedule on p.4 of the agenda book, saying that the FY97 program was made up of a number of full and combined part-legs. He then reviewed the basic objectives of each leg (Appendix 23). The NW Atlantic Sediment Drifts proposal had been in the system for some time and PCOM became very enthusiastic after the presentation by Raymo on the NAAG experiment and the potential that the NW Atlantic proposal held. The schedule ensures that FY98 can begin with a Southern Ocean leg. Kidd then reported to EXCOM the enthusiasm of PCOM to try and pursue drilling in the Red Sea, despite clearance problems.

Briden opened this for discussion. Beiersdorf asked if the mini-legs will be staffed by the same personnel. Fox replied that it depended upon the individual leg and the length of the leg; there are implications for increased port-call costs with staff changes and mini-legs.

Briden said there are two PCOM motions from August, related to other Programs, and one in the December meeting that need addressing, and requested that these should be discussed later. EXCOM agreed to this.

(B) IMPLEMENTATION OF THE LONG RANGE PLAN

i) PCOM aspects

Briden referred EXCOM to p.112-113 of the agenda book, and asked Kidd to begin the presentation. Kidd began by saying that PCOM unanimously endorsed the LRP. He said that science planning rests with PCOM and it recognised that changes will have to be made before Phase III begins. The proposal's implementation of the science planning aspects had been presented to the review committee in Frankfurt, and Kidd had presented PCOM with a report outlining issues it must
consider. One such item was how to call for multi-platform proposals, and another was how ODP would interface with other global Programs. Kidd said that PCOM has to consider how the panels will have to deal with proposals in the light of the LRP. This may involve changes to the panels and how they work, and therefore may require involvement from EXCOM. There is agreement that this Program should remain essentially proposal driven (Appendix 24), and PCOM recognised that the panels will evolve and alter their expertise to focus on aspects that are in the LRP. There was concern over the recommendation that the service panels merge into a general technology panel. PCOM thought this would not be workable. Kidd had recommended to PCOM that the thematic panels should be charged with ranking proposals in relation to the LRP. This would not be an easy task, as the text in the LRP was too brief for judging proposals, but at the same time proposals could not be judged against the white papers as national committees and other Programs had input to the LRP that was not in the white papers.

PCOM had considered linkages with other programs in detail, and Kidd asked EXCOM to respond to its recommendations. PCOM’s existing liaison arrangements are largely at PCOM level; there are liaisons to each of the major Programs and PCOM members attend the meetings of other Programs and report back to PCOM. Kidd said that this should be extended to the thematic panels. PCOM also endorsed the international workshop approach for inter-Program co-operation and PCOM expect multi-leg proposals to come from these. Kidd said that there was a recommendation made in December for a call for multi-platform proposals, and the wording is being finalised with JOI. PCOM are now actively looking for and expecting these kind of proposals. These will be mainly for Phase III, but they may also involve proposals for Phase IV. Kidd said that PCOM DPG’s could be a suitable mechanism for implementing such drilling programs, and DPG membership would include membership from other global Programs; this would be discussed again at PCOM in April, and PCOM is expecting EXCOM to be thinking along these lines also.

Briden said that EXCOM has to consider what role it wishes to take and what should it should leave to PCOM. Briden said that EXCOM had approved the LRP by delegating responsibility to the sub-committee (Mayer, Mutter, Detrick and Briden). He said that it may be appropriate for EXCOM to confirm its endorsement.

**EXCOM Motion 96-1-3**

EXCOM confirms its endorsement of the ODP Long Range Plan.

Proposed: Orcutt, Seconded: Leinen

Unanimous

Coffee 10:00-10:25

Briden said the principal message is that EXCOM must come to grips with how to focus the Program, and look at issues of multi-leg proposals and co-operation with other Programs. He asked if EXCOM members had any initial feelings on how to achieve the focus. Mutter said that Kidd talked about how panels would assess proposals, and he said that Kidd indicated that they may well need an "in between" document, but that he didn't think that we needed another planning document. Kidd said that he felt that something is needed to focus the thematic panels on to the items of the Long Range Plan that are more than just the printed text. He said that each section was reduced substantially from previous PCOM documents that tried to focus on what PCOM felt the ODP needed to do. Kidd said that PCOM do not want the panels to continue using the white papers. He said there were "key questions" in one draft version of the LRP and he asked PCOM whether those key questions should be given to the panels to judge the proposals against. Mutter said that his view was that the LRP should be an adequate document against which to judge proposals, and another document would not help as it may just encourage "pet projects" to be put back in. Orcutt said that judging by its minutes PCOM had discussed this in depth, and they felt that the LRP did have all that was required, even though the LRP did not fully incorporate all the contents of the white papers. Falvey quoted from the LRP "priority will be given either to proposals that directly address issues raised in this Long Range Plan, many of which require multi-leg and multi-year programs, or to outstanding science not envisaged at the time this plan was written." He said that statement was put in to guide the advisory structure on what they should be judging. Briden said that this was a question of where top-down and bottom-up planning meet. Briden said that the LRP is the template for the future, supported by a review group, and hopefully will be supported by the ODP Council. He said that EXCOM should be happy that every part of the organisation has endorsed the plan, and it is now for the advisory structure (PCOM and downwards) to implement the LRP. He said that for him, the white papers are now obsolete documents. He said that when PCOM returns to stimulate proposals in particular areas, they can
always call on the white papers to recall the "key questions". He said that EXCOM should look at how it puts a mechanism in place to ensure that the template of the LRP is adhered to.

Detrick said that he was pleased that PCOM has already looked at how it should implement the LRP, and that Kidd should report more specific plans at the next EXCOM. He said that EXCOM could then look at the proposed implementation strategy and decide if it was adequate. He said that he liked the idea that panels rank proposals against the LRP, and he said that maybe there should be an annual report that puts all the proposals in the context of the LRP. Loutit said that he would like to see a graphic representation of the wishes of EXCOM, i.e. the timing of when EXCOM expect certain initiatives or developments might begin and end, when inter-Program links will start, when technological developments will come on line, what NSF needs to do in terms of setting up the funding, and, most importantly, when EXCOM expect a commitment from the partners for funding. He said that this could be an attachment to the LRP. Briden said that was a useful foretaste of this afternoon, and he said that EXCOM could also indicate the volume of anticipated activity within each of those activities. Briden said that EXCOM cannot afford to side-step these issues.

Kidd said that the signal he is trying to put out is that there will be some resistance at panel level that they just take the LRP and do as they are told. He commented that was why he said there may be a requirement for action from EXCOM, as there may be a resistance to change. He then said that a lot of what Loutit asked for was put together in a previous version, but this created all sorts of problems at thematic panel level. Loutit commented that if expectation is not in the open, then debate will not occur within the panels. Taira said that on the issue of pro-active vs. reactive PCOM action, he saw that as ODP moves forward through Phases III and IV, then he saw that PCOM would have to become more proactive and EXCOM should give PCOM a guide or message to change its style of planning. Falvey said that there was indeed a time-line diagram in an early version of the LRP, with deliverables, though it did stop short of showing platforms, money, partnerships etc. He then said that if EXCOM wanted to see this kind of template, against which it could monitor implementation, then it should show all the inter-relationships. Briden said that this may be a defining moment in the decision making. He said that, this afternoon, he is asked what JOIDES will do to ensure the implementation of the plan, he was at the moment unsure as to what he should say. He said that EXCOM has to grasp this issue in the knowledge that any flow charts set up will prove to be wrong in the fullness of time. All that can be done is to depict the implications of what will happen at particular times, with modifications as priorities change over time.

Beiersdorf said that when he read the LRP he missed an emphasis on pre-drilling studies and this implied that a lot of money would need to be spent, and he said that maybe these costs should go into any sort of future planning matrix. He said that funding agencies should be aware of these costs. Kappel said that the chart that was in earlier versions of the LRP was replaced by the section on p.68, with the idea that these are guidelines. She said that they can only be guidelines as ODP is proposal-responsive. She said that PCOM should spell out the guidelines and it is then for the community to respond.

ii) JOI aspects, including Report of Panel on Provision of Services 1999-2003

Briden referred EXCOM to p.207 in the agenda book. He said that at its last meeting, EXCOM decided to "test the water" by calling for expressions of interest on what science services member institutions wanted to bid for. He said that JOI has carried out this operation and the report of the review panel that evaluated these expressions is a recommendation for EXCOM (on p.213 in the agenda book). He said that JOI is seeking EXCOM advice on this and he would like to convey this advice with a clear message without a formal vote. He asked individual members to exercise restraint, e.g. Wireline Logging Services, Site Survey Data Bank etc. and said the present holders of the sub-contracts could be said to have an interest in preserving the status quo. He asked the holders and those who have expressed interest to refrain from discussion of those items. He asked EXCOM if it is content to proceed on this basis, and there was no dissent.

Falvey presented this report beginning with a review of the background, and said that there were seven expressions of interest received. Borehole Utilisation was a service that was not currently available. He then announced the areas of multiple expressions of interest, and then summarised the debate of the review group. He said the outcome of that debate led to two options, with a marginal preference for competing Option 1 (to proceed to RFP's for WLS and SSDB only). He presented a suggested timetable, noting that it meant a requirement for JOIDES members to commit to membership of the Program for Phase III, to 2003, by 30 May 1997. This issue must be finalised today.
Mutter said that he was surprised to see the suggestion for Borehole Utilisation dismissed in the way that it was. He said that the LRP suggested the use of boreholes for a variety of purposes and he did not think that it should just be dropped. Briden said that he wanted to re-visit this issue at a later time and that EXCOM should concentrate on WLS and SSDB at this moment. Briden asked individual members if they had any further comments.

Briden then moved to the next issue, whether to compete provision of Information Handling. Falvey mentioned some doubts in the review group about this (see agenda book report p.207-214). Mayer said that he was concerned about excluding any group that expressed a serious interest, and he proposed that it be put out to bid, informing the parties of the concerns and thus allowing them to comment upon those concerns. Kappel said that JOI are worried about the amount of work that subcontractors have to do and that in re-bidding this she wanted EXCOM to be sure of the extensive amount of time that the sub-contractors will have to put into this. Taylor said that one issue was how operations would dovetail if moved to separate locations. Falvey said that was an area of concern, and agreed that if it if it was opened up for bid then it would allow this problem to be addressed. Dalrymple said that the interfaces between science delivery sub-contractors should be an important part of the bid process. Kidd said that PCOM has a concern about JANUS development, and especially and after the present stage. He said that currently it will not allow the historical data to be input, and one opportunity could be to treat these expressions of interest in terms of what they could do for the historical database. Nowell asked the sub-committee why it said that JANUS must be fully operational. Dalrymple said that it was a deliberate wording, and that JANUS development should not be disrupted in mid-stream. That might result in increased costs and might disrupt science delivery. Briden asked Falvey if a switch on 1/10/98 would risk disruption. Falvey said that the present JANUS project should be completed by that time. Mayer said that perhaps an RFP may precipitate a "son of JANUS" project.

Briden said that EXCOM must consider the risk of disruption against the advantage to be gained by competition. He asked if it would be realistic to separate JANUS from "son of JANUS". Fox said that Information Handling is far more than JANUS. Taylor asked exactly what the German bid entailed. Falvey said that the area to be competed would be the part that appears in the sub-contract of ODP-TAMU under the heading of Information Handling. Mayer said that in the call for expressions of interest EXCOM had allowed the prospective bidders to define their own bounds. He asked that if the service is put out for bid, would it require ODP-TAMU to re-bid. Kappel said she assumed that ODP-TAMU would have to re-bid. She said that the RFP would have to be very precisely worded and that all parties involved would have to bid. Falvey said that the RFP would be defined by the Program, and not by an expression of interest. Kidd said that there was PCOM concern about what happens to the database once it gets as far as publication at ODP-TAMU. He said there has to be a mechanism to get a "son of JANUS". Leinen said that she is concerned that EXCOM asked for expressions of interest that allowed institutions to define their own fields. She said that was not in the spirit of the original call for expressions of interest. Taylor said that he would be happy to comment on whether or not this should be done, but he would like to know what the range of services to be RFP'd actually are. Dalrymple said the review panel are aware that Information Handling was not just JANUS, and he said that this was just an exercise to see the level of interest amongst the membership. Lancelot said that if too much is prescribed, then it may kill innovation in terms of how to produce the deliverables. Falvey said that it would be a management decision as to what was requested in the RFP. Briden then called for summary round-table comments.

Nowell: Said he supported the recommendation of the sub-committee and EXCOM should stick with Option 1.

Leinen: Commented that she did not have enough information about what JOI would actually do to take Option 2, so EXCOM should go with Option 1.

Mutter: Reported that he was reluctant to accept this, that he doesn't know enough about what EXCOM is voting on. He said that there is wisdom in opening this area up, but JOI should not yet move to an RFP.

Taira: Indicated a preference for Option 1, but said that there is not enough information for an RFP. He said that he thinks EXCOM should re-consider enhancement of Information Handling.
Shipley: Said that he does not support the separation of Information Handling from Science Operations as at present.

Detrick: Said he has a reservation about separating Information Handling from Science Operations, and favours Option 1. He said that the capture of historical data may be a good choice for the RFP exercise.

Brown: Commented that he supports Option 1, and that Option 2 has too many unknowns.

Taylor: Said that he favours Option 1.

Mayer: Expressed concern about Information Handling and Science Operations separation, he supports Option 1, but said that EXCOM will have to return to the historical data aspects. He said that he thinks that EXCOM may have misled the community with the original call.

Dalrymple: Is supportive of Option 1.

Lancelot: Commented that he is not concerned about separation from Science Operations, he said that this had been said about the WLS contract when it was separated at the start of ODP. He said that a bidding process would be good, providing it was possible to compare what is available currently and what is proposed.

Orcutt: Said that the problem is how to deal with historical data. He said that “outsiders” may prove beneficial in this. He is supportive of Option 1.

Eldholm: Stated that he is concerned about the signal being sent to the community because the call for expressions of interest was open and now that has been changed.

Briden summarised the sense of the meeting by saying that it is too risky to disrupt the current operations, but there are areas within Information Handling that are not currently done, e.g. the historical data, and the prime contractor could put out an RFP for that or any other area. Fox said that ODP-TAMU sent a statement to Germany that they would encourage them to look at the historical data incorporation into JANUS, and they would provide assistance.

Mutter asked if EXCOM had accepted Option 1, and Briden confirmed this. Mutter then asked about the schedule for the timing of the RFP. He said that EXCOM should recognise that the creation of the RFP is the key, and this could, if worded carefully, give large cost savings. He said that when WLS is re-bid ODP must be careful to be prescriptive in terms of looking for costs savings, but not so prescriptive as to stifle innovation. Heinrichs said that presumably in summer 1997 he will be looking for commitments for 1998 and beyond, and with Falvey’s timetable that may mean that the summer 1997 meeting will have to be moved forward to May 1997.

Beiersdorf commented that the decision for option 1 implies to him that Information Handling will never be separated from Science Operations, and asked how EXCOM will deal with that in the future.

Falvey commented on the timing by saying that for example, non-US members making proposals would simply have to make the statement that they will commit to post-1997 at the EXCOM next summer. He said that is the point to begin planning for a transitional year (for service provision) it becomes necessary.

Briden then asked if EXCOM needs to give further advice to JOI on moving toward implementation of the LRP. He said that so far, the unresolved issues were Borehole Utilisation and enhancement to Information Handling, which will need to be addressed in the future. Dalrymple said that the panel thought borehole proposal was interesting but it was a new proposal and was not really what the committee was set up to look at. It was a new service that was not actually invited by EXCOM. He said there was no intent to prevent these kinds of proposal. Briden said that the prime contractor could advise EXCOM what new services are required to implement the LRP. Falvey said this goes back to Loutit’s comments, and that we need to have explicit project-style planning statements as to how the LRP will be implemented. He felt it appropriate that the prime contractor starts to prepare this kind of project-planning timeline statement and bring it back to EXCOM for consideration of the implications. Taylor concurred with this view and said that it is likely that the required budget for all of the projects envisioned will not be available. In answer to Taylor, Briden said that he was recommending that in the course of reviewing what the LRP needs to be
implemented, that JOI identify what items, such as Borehole Utilisation and Information Handling, will need to be addressed. Brown asked about the time scale. He said that for implementation around the year 2000, EXCOM needs to have definite projects decided upon within the next twelve months. Taira said that on the riser development, international input is required, but it has yet to be addressed just how that input will take place.

iii) Joint Session with STA/JAMSTEC

Kurihara began the presentation with an explanation of the OD21 project, saying that it was now among the highest priority projects in Japan. He said the budget for 1996 clearly reflects this with a budget increase of 10%. He said the budget of JAMSTEC is drastically increasing (it is currently about $200M) and the rate of increase is about 20% per year. He said that a large oceanographic vessel is scheduled to be completed by August next year. He said that a plan has been presented to the Japanese Prime Minister, and studies of the OD21 project have been undertaken over a number of years. He said that the budget for OD21 in 1995 was $2.3M, and for 1996 it will be about $5.3M. He reported to EXCOM that STA has a target of operating the ship at the start of ODP Phase IV in order to avoid a gap in ocean drilling activities. He said that STA/JAMSTEC will try to maintain that goal, and that Japan can make a significant contribution to global earth science research with this vessel. He said that scientific research is being encouraged in Japan by adequate government funding.

Kinoshita then continued the presentation. He said that there are some scientific objectives in mind and that they still needed to look at hardware studies; workshop-type conferences were a great help in this. He referred EXCOM to p.55 of the agenda book and reviewed the timetable presented there. He said that the large devastating earthquakes in Japan had helped to focus the requirement for a deep drilling vessel that could then help in earthquake studies. He then referred EXCOM to p.70 of the LRP. He said the most important program that can be achieved by the new vessel will be to look at the structure of the interior of the earth for earth dynamics studies, and for sampling through the Moho boundary, possibly in the western Pacific. He said that scientific objectives were not restricted to these, and also included palaeoenvironmental studies and plate boundary studies (collisional tectonics).

He then referred EXCOM to the tabled papers outlining the interim report of OD21. Completion of a 4 km riser system will be re-considered after development of the 2 km system. He said that all development projects for OD21 should be discussed with ODP representatives. Kinoshita then outlined plans for the meeting in Hayama on 22-23 February 1996. He reported that there will probably be another meeting on deep ocean drilling late in 1996 once they have budget allocations (which usually happen in late summer).

Briden thanked both speakers and opened the report for discussion. Orcutt questioned whether the riser is 2500 m or 2000 m as is presented on the tabled papers. Kinoshita confirmed that it would be 2500 m. Briden asked if ODP should maintain close contact on the seven "hardware studies" identified in the tabled report. He said that perhaps there should be a permanent liaison group. Kinoshita said there are three main areas for planning liaisons, one is the ship itself, the other is the riser, and the third is the shore-based and administrative systems. He said that making a long riser should not be a problem with their close oil-industry based collaboration. He said that no matter what system (4 km full-size or slim line) is used they must have detailed discussions with ODP personnel. He said that he has papers with him concerning their fears of a slim line riser system.

Kidd said that he got the impression that the Japanese would not want to have development of a slim line riser. Kinoshita said they would not have a suitable BOP system. Kidd said that for some targets a BOP would not be required, and he asked if other groups could develop a slim-line riser
system and use that on the drilling vessel. Kinoshita said that this should be possible but there would need to be very close collaboration.

Briden then turned to building joint scientific goals for OD21. He said that there is a lot of common ground between OD21 and the ODP LRP, and said there will be general discussion on this next month in Japan, and that maybe detail could come from the COSOD-type workshop proposed for 1997. Kidd said that PCOM held a very useful workshop in Japan in April 1996, and that maybe there should be another joint session with PCOM within the next 12 months to tie the scientific objectives of the Programs. Kidd said that a working session with PCOM would be very useful, possibly more so than a presentational meeting. Briden said that future COSOD-type meetings would need a clear purpose, and he said that he did not think it would be an ideal way of developing priorities. He agreed that the best method was probably in workshop-type meetings. Orcutt said that this question has been under discussion for some time, and he agreed that workshops are probably a very good way to make scientific connections. Taira said that STA/JAMSTEC have justification for the riser-type drilling in the LRP, but they need further EXCOM statements of support and there also needs to be continuous workshop-type meetings to define the scientific operations, not only for drilling but also for site surveys etc. Kidd commented that on the working side, PCOM could reserve time for a joint session in the August PCOM in Australia. Loutit said that thematic panels could also be encouraged to meet in Japan in late 1996 and 1997.

Briden said that on the questions of hardware facilities and management aspects, the key is establishing joint contacts and these issues were not only for EXCOM and JOI, but also for NSF consideration as Chair of ODPC. He said that there has been useful discussion on scientific objectives at this meeting. He said that EXCOM must take its time to formulate how that support should be expressed, but there are three pieces of evidence of EXCOM support for OD21 so far: previous EXCOM statements, the prominence of riser drilling in the LRP, and the comments in the Greve Report.

**Lunch ................................. 12:45 - 13:50**

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**THIS SESSION IS EXECUTIVE SESSION OF MEMBERS AND OFFICIAL LIAISONS ONLY.**

### Focusing

Briden said that ODP has a LRP and EXCOM must be committed to implementing it. He posed the question, what does EXCOM need to do to enable PCOM and the advisory panels to proceed? Orcutt suggested that PCOM report at the next meeting what steps it wishes to take and its actions to that date. Mayer said that EXCOM should agree that future proposals will be evaluated with the LRP as a template. Detrick suggested that EXCOM direct PCOM to present an implementation plan of what changes (to panels for example) will be required. Kidd said that this what he would like to see EXCOM do, but asked how explicit the judging criteria can be at PCOM level. Kidd said that to get this through will require actions or statements from EXCOM. Mutter said that the narrative that goes with presentation of the ship's schedule must explain how each leg relates to the LRP. Leinen said that there was not much in the white papers that wasn't in the LRP, but the LRP appeared more prescriptive.

### Timelines

Briden said that by later today EXCOM will probably be told to specify timelines. Falvey suggested that once PCOM has focused on the science that will be delivered under the LRP it would be appropriate to put timelines in place to highlight critical threshold points. He suggested that this could be begin immediately after the April PCOM meeting. Falvey said that the Program may already be past some of the threshold points and he cited DCS for use in 1999. Brown said that EXCOM must be careful not to give PCOM the impression it is being micro-managed, it should be told that it is part of a process. Briden said that the timelines will go to PCOM before EXCOM have seen them, therefore PCOM will have some degree of consent. Taylor said that EXCOM did not have to wait for PCOM as it has the LRP to work from and there are many things that already have timelines, especially in terms of technological developments. He said that the community must see some timelines that are real. Dalrymple said that EXCOM must also include fall-back positions built into the timeline scenario. Falvey said that it could be built into the system and he felt that a truly integrated project plan will be available within a year. Falvey said that he would work with the PCOM Chair on this, as the science is the starting element.
Funding

Briden said that effectively EXCOM is going to be asking for more funds this afternoon, and other questions have to be addressed, such as if there is a two-ship program does that mean there are two viable one-ship programs. He said EXCOM has to address the ramping up to Phase IV. Brown said that it will be very hard to get increased funding. Mayer said that if ODP doesn’t ask for more it won’t get it. He said that EXCOM needs to show a number of funding options. Brown said that EXCOM should also show how severe financial problems are, at the present time, such that it may already alter the plans of the present Program. Falvey said that the graph implies that if alternate platforms or technology development are required, they can be directly related back to the LRP, and that if those increases are not forthcoming then the plan will not be fulfilled. Detrick said that it may be good to provide the ODP Council with the detail behind the funding graph in the LRP, and ask the Council to provide feedback. Leinen said that she thought some information on the detail should be included to demonstrate the rationale for additional funding. She said if the ultimate fallback was that the Program may not get any extra funds, EXCOM has to show that what comes out of the plan will not be just “business as usual”. Taylor said that premise was totally reliant on other Program co-operation, and he asserted that ODP has consistently failed to deliver on its promises. Leinen said ODP has to consider what “business as usual” it is prepared to give up in order to advance. Brown then asked if there are extreme things that can be done that will allow the re-programming of money. Kidd said that BCOM has been doing that for the last two years. Briden said that alternative profiles were asked for at the last ODP Council meeting, but the review committee explicitly recommended that they be dropped. Taylor said that it is not just the sums, it is the science programs that require those sums that must be propounded. Watkins said that there is no fight for this budget, and that the scientists must fight for what they think is right and that increments must be set up for priorities. He said that ODP must present a cost-benefit analysis to show what the return for the extra funds will be. He said that ODP must pound on the funding agents to start increments, and these will likely be relatively small increments over time. He said the LRP now gives ODP relevance and we should show its relevance by asking for the funds to support it. He said that this does not happen, then ODP will be seen as a dying Program.

OD21

Taira suggested that EXCOM should make a motion to state strong support of OD21 in the context of the LRP, and also state the need for the engineering development on an international basis to proceed. Briden said that EXCOM should also look toward implementation. Leinen said that may not be enough, and that EXCOM still didn’t have any ideas of the cost. She said that without some realistic figures EXCOM cannot make an informed statement, and it is unlikely that EXCOM will get ODP Council support until the numbers appear. She said that EXCOM should ask for this (support from ODP Council and figures from Japan), and EXCOM must let OD21 know that ODP cannot commit until it gets some figures. Briden asked Taira the right time to ask the question. Taira said that it depended upon what was wanted, if EXCOM was only asking for the ship operational costs. Mutter said that EXCOM need to know the costs that partners are likely to be asked to contribute. Taira said that EXCOM should ask that question in about one year from now; before that there will not be a clear answer. Falvey said that Japan will not commit itself until the beginning of their fiscal year in FY97. Brown commented that for EXCOM to have a clear vision it needs to know the financial aspects and EXCOM also needs FCOM to look at the science goals. He said that he thinks Japan has put another iteration on the table with the science goals, and he thinks they want ODP to comment on those science plans. He said that iteration has to converge toward ODP as does information on the budgets before ODP can move forward. He said that any help we can give to Japan is in our best interest. Briden said that EXCOM can give expressions of hope and intent. Taira said that on the funding issue, Japan would like to hear what size of contribution the international partners would give, for example would it be the same percentage as now? He said that Japan is trying to keep as many options open as possible. Leinen said that EXCOM ought to identify a timeline for degrees of support that would end in total approval, signalling to both ODP and Japan what information is necessary at what point. She said that it may be that before Japan goes further, they need some indication that with the right science goals, the partners may be willing to put in more money. She said that EXCOM might then say that it must agree on the science goals before it can ask for more money. Beiersdorf said that we are dealing with a chicken/egg syndrome and EXCOM must find some way of bringing this together. He said that things may be better developed after the meeting in Japan in February. Taylor said that EXCOM could say both the LRP and international review
committee encourage the development of the riser drilling platform by the Japanese, and say that ODP is working toward that as the ultimate shared goal.

Coffee ................................................................. 14:35 - 15:00

INTERNATIONAL REVIEW REPORT TO ODP COUNCIL

Heinrichs took the chair and welcomed all to the Joint Session. He said that in 1991, one of the items in the MOU negotiations was provision for a mid-term review of the Program. He said that review has now been completed, and he is pleased to announce that Dr. Gordon Greve, who chaired the international review committee, is present and will outline for this meeting the review process and conclusions. Heinrichs then formally introduced Greve and asked for his report.

Greve referred EXCOM and ODP Council members to his written report, and commented that he would be happy to clarify any points and take general questions. He was very pleased to present the report at this meeting and he outlined the committee’s terms of reference (Appendix 25). The accomplishments of the Program over the past 5 years were examined and he thanked Kappel for her efforts in compiling those. Greve then reported the international review committee membership (Appendix 26). The group had met on three occasions to gather information, and the report was compiled during the last meeting. Greve reviewed the agendas for the meetings, and said the accomplishments and draft LRP took up a lot of time for the review group at the Lamont meeting. The discussions on the draft LRP were interactive and the review committee felt they had a lot of input. The second meeting took place in Frankfurt, and here again the LRP took up a lot of time, as did the other program and national reports. The committee had also looked at riser drilling, even though that was outside the time frame of the review committee, because things have to happen within that time frame of the review for riser drilling to become a reality. The third meeting worked on putting the report together.

On the accomplishments, Greve said that was an extensive list in his written report and he would only mention a few items at this time. Overall the Program to date is viewed as a success. It provides the only method for studying a number of scientific and environmental problems and noted the facilities have generally been adequate to the task. The non-scientific benefits have also been very substantial; the synergism generated by bringing international scientists together on the JOIDES Resolution, within the Program in general were notable, and they extend beyond the Program itself. The review committee asked for, and received, input from other Programs and countries (e.g. Appendix 27.1 - 27.2). All the other international marine geoscience Programs such as InterRidge, LIPs, OSN, etc. were very supportive of ODP.

Greve then reviewed the major conclusions (Appendix 28). The committee strongly endorsed the Long Range Plan and felt it was very worthy of support. ODP should remain focused in deep water, though not necessarily exclusively. ODP should be strongly supportive of, and work collaboratively with other scientific drilling Programs. These two recommendations go hand-in-hand, and he cited as an example a Program that has drilled carbonate reefs in the South Pacific for palaeoclimate studies. Focusing on major objectives that may require long-term drilling will help ensure future success, and this means that multi-disciplinary objectives should not be given higher priority than well focused objectives. It was the review panel's view that ODP should utilise a Japanese riser ship and the JOIDES Resolution after 2003, and not just one ship. The committee felt there was enough work to continue utilising the JOIDES Resolution after 2003; the review committee felt that planning for Phase IV should begin immediately as it will be a major, and very complex challenge. The thoughts behind this conclusion of strengthening the scientific leadership were that many Programs that required vision may not be as well supported as they might be. Some Programs are 'popular' Programs and some are 'visionary' Programs, and there is a need for scientific leadership to sort out which visionary Programs will be done. It is important for broadening the support base with the general public. Post-2003, ODP will require major financial commitments and therefore needed very broad support.

Greve then commented on the ODP accomplishments, and said that the review committee were very impressed with accomplishments to date; accomplishments usually take time to fully develop and that even more accomplishments from the Program to date will appear with time. The review committee endorsed the LRP, but did feel that a process of scientific prioritisation needs to be
developed, even though it is a proposal driven Program. The committee did not think that Program facilities were a problem, but for the next Phase there needs to be a technical discussion on how the deep drilling system will become a reality. Large amounts of funding will be required for using two ships beyond 2003, and this will only be possible if the Japanese take a major role in the funding and operation of that vessel. However, it cannot be that Japan has one system and the US has another; there will be a requirement for increased subscription, which in turn means it will require great support from universities and research centres around the world. The plan for the future is a bold step and that it must be pursued with enthusiasm.

Greve said that organisationally, the structure appears byzantine, but appears to work very well in ODP due to the commitment and dedication of the people involved. However, things are changing rapidly, and EXCOM and ODP Council must monitor these changes to see how well the organisation works in the future. There had been two previous reviews on the management organisation of ODP recently and so his committee did not delve into that too deeply. Moving to the issue of scientific leadership, some Programs have large scientific merit but remain 'unpopular', and these are the Programs that need advocates and support. There is no chief scientist in ODP, but the committee did not think that it was their charge to say how the leadership should be provided, they just offered some suggestions, such as looking at the PCOM Chair's term of office. Maybe there should be a Chair-elect, and the suggestions in the report were to help continuity.

Greve said image and outreach are a necessary areas of concern because of the large sums that will be spent in the future. The Program needs to have both broad scientific and popular support. The committee felt that it will require, up to 2003, a 2-3% increase in funding, on top of inflation, to get the scientific and engineering work moving. In an international context, ODP is a basic scientific research Program, but it also has national and international significance, and the scientists must communicate with the funding institutions and convince them that it is a worthwhile program, and they must also communicate with the public. In terms of societal benefit, ODP does meet the objective of obtaining sufficient knowledge and understanding to enable us to manage the human impact so as to maintain the Earth as a sustainable, and diverse ecosystem.

Heinrichs thanked Greve for his report, its recommendations, and his insights. He opened the meeting for questions. Briden also thanked Greve and his committee on behalf of EXCOM for the report, and for the effort and insight devoted to it, and the extra patina that he has put onto the report with his presentation today. Briden said that JOIDES' definitive response to the report will be developed over the next few months. Nevertheless he would respond to straight way. Briden welcomed the review committee's endorsement of the Program, and he said that EXCOM had coupled the first and fourth recommendations together because in proposing the new LRP to the committee, the ODP were claiming for funding support for the future based upon the vision of the program that it wishes to carry out, rather than resting on its past record, even though the achievements of the past bring credibility to the future plans. Briden then said that secondly, EXCOM welcomed the stress the review committee put on getting to the big science objectives, and the recommendation on Program outreach and communication. Briden said that more immediately, the stress placed on issues such as the transition from the Program from now to a multi-vessel Program post-2003, and the matter of scientific leadership, have been very useful and were probably best gained from the review committee's perspective outside the Program. Briden said that at this meeting, EXCOM has grasped those issues and are putting in place a response to them. He said once again that he welcomed the very succinct report as submitted. Briden said that the clarification of the recommendation that ODP should focus on deep water was very welcome. He then said that the degree of certainty expressed in the report about the vessels available for ODP beyond 2003 may need to be slightly clarified. He said the question may arise as to what may be the best complementary vessel to the proposed Japanese ship.

Heinrichs then reviewed the process that will be followed over the next day or so in terms of discussion of the review report and interactions between EXCOM and ODP Council. He then opened the floor for comments and clarification's. Greve said that the brevity of the report may require some clarification of certain points. He said that the review committee did not have long discussions about what vessel should be alongside the Japanese vessel.

Riddihough commented to Greve on the brevity of the report, he said that he was struck by some of the overheads used for the presentation, especially that one that said the strong record of past achievements should justify continuance and enhancement of ODP. He said that there were some points on the overheads that he would have liked to have seen in the body of the report, and he asked
if Greve could make the overheads available. Greve said that should be no problem, and that they could be added to the review report as an appendix.

Greve said that he was prompted to mention, as Riddihough was from Canada, that the Continental Drilling Program and the ODP could have more closely-coupled results, although the Continental Program was not as mature as ODP. Madelain said that the review committee discussed the riser question, in terms of trying to identify what was the best solution, a slim-line or full-size system, yet it didn't appear in the report. Greve said the committee felt unqualified to give an answer to that question, though they did recognise that the problems were there, and that is why the committee recommended that these technical issues be addressed immediately.

Drewry congratulated Greve on the report and said its clarity would enable early responses. However, he said the he felt one point was missing and that was that he saw no suggestion of charging ODP with a continuing search for cost reductions and enhanced value for money. He said that he would have thought that was essential, given the requirement for a 2-3% above inflation rise. Greve said the committee did not address those issues directly; the presentations the review committee received from Fox and Goldberg showed that this was an ongoing exercise anyway, and that the operators were tackling those problems. Greve said that the prime contractor should always be looking for cost efficiencies as a duty, and re-iterated that the committee was impressed by the major sub-contractors.

Detrick asked Greve to amplify on the need for scientific leadership. Greve said there was a lot of discussion of this issue. He said that first and foremost the committee acknowledged that it was reviewing a scientific endeavour that was completely focused on the science, and yet they could see no-one specifically charged with worrying about the science, and the committee saw that as a gap in the organisational profile. He said he knew there were the panels but the committee were concerned about things falling through the cracks between one panel and another. Also the review committee thought that with the public relations aspect being so important, it would require someone to act as a spokesperson for the science of the Program. The final thing was that there is a requirement for someone to have the vision for long term projects. He said that was not to say that there were not visionary people involved now, but someone needs to be charged with looking at an overview of the Program with a vision of the future. Detrick said that PCOM feels they fill that role now. Greve said that the PCOM chair only serves for two years, and that more continuity was needed. He said that the review committee suggested some ideas, but did not want to be too prescriptive. Greve said that one suggestion was to change the length of the term of office of the PCOM chair, and identify and involve early a chair-elect.

Maronde said that Germany was very content with the review, especially the clarity. He said they were very interested in the statement concerning ODP and Continental Drilling. He would like to know if they had any advice how co-operation should be achieved. Greve said that the review committee had no specific suggestions, but inter-Program co-operation was an area that should be looked at. Greve said that the committee noted there was collaboration with other Programs in the LRP.

Loutit asked for the background on the "drilling in deep water" recommendation. Greve said the JOIDES Resolution has capabilities that are unique, and that other vessels could drill in shallow water. The unique capabilities of the JOIDES Resolution should be exploited at all times, especially when there are other platforms that may be more suited to shallow water drilling. He reminded the joint session that the committee had said that ODP's focus should be in deep water, and it was not that ODP should not be involved in shallow water drilling. He said the review committee used the continental shelf as an "easy" term to redefine deep. Loutit asked if the committee had any thoughts on funding sources for shallow water continental shelf drilling. Greve said the committee did not address this issue. Mayer said that one of the problems that ODP had with that statement was that it equated ODP with the JOIDES Resolution at a time when ODP is expanding to try and use other platforms. Greve said the committee discussed the bounds of ODP, and decided that it was primarily a deep water drilling program, as the equipment the Program has is the JOIDES Resolution. Greve said that with additional resources the Program may be different and additional endeavours could be undertaken. He said that beyond 2003 it will tax the funding sources of the ODP, but if the additional funding could be found the committee were all supportive, he said that the Program must think "big". Heinrichs commented that part of the committee's discussion identified a major continental margin effort in Phase IV, and the review report was only to cover the Program to the end of Phase III.
Briden said that some years ago ODP had its own definition of what the Ocean Drilling Program should be, which was "ocean drilling that has to be done internationally" as there was no other practical way to do the science. Briden said that if the JOIDES Resolution hadn't drilled the Great Barrier Reef then it probably wouldn't have been done to date. Greve said that the key word was focus, and that firstly the ship should be used to solve important international science problems in deep water, and only after that should it be used for other programs in shallow water. He said that another vessel was required for shallow water. Heinrichs commented that there was a definition of "deep" water on p.76 of the LRP, and the review committee picked up on that, saying that there are other facilities that can do the shallow work. Louttit said that it was important point to have clarified from the funding agencies' point of view. Falvey said that in the last 11 years, 99.7% of ODP holes have been in deep water, and he said reef drilling off Australia (Ed. note: i.e. following ODP Leg 133) was separate from ODP though associated with it, funded by the UK, Australia, and Switzerland.

Nowell asked about recommendation 5 (utilisation of the proposed Japanese riser vessel) and what the planning, management, and funding structures of ODP could do to anticipate this proposed step in 2003. Greve said that first the engineering problems need discussion and solving immediately. He said that closely following or even in parallel with this are the financial problems, how the money will be raised. He said ODP have to decide how it will approach this problem and determine strategies as soon as possible, but his committee did not offer suggestions. He said that the reason they said the engineering should be looked at first was because that was probably the area that would dictate how much additional funding would be required. Fratta asked about the conclusion advising that ODP look at large scientific problems that might need longer times to achieve, and said it has large implications for ODP in developing such proactive Programs. Greve said there is a balance between a several-leg program and single leg program and he said that the committee felt that maybe the scales have tipped a little too far toward doing multi-objective single-leg cruises. He said that was up to PCOM to address this issue. Mutter said that he was pleased that he responded to Nowell's question, and then said that there is a tremendous amount of work that needs to be done, especially in finding the finances. He said that the oil industry has never really supported this Program, and he asked if Greve thought the oil industry could become involved with ODP in the future. Greve said that the oil industry is very self centred. He said that he felt it would be very difficult, but not impossible, to get oil company support. He cited the results of the Gas Hydrate leg as a possible trigger that could be used. Mutter said he was thinking about more about joint ventures and technology development than funding, and he said that a deep water riser would be required in the future. Greve agreed that was probably the right approach to take. Leinen said that it could be helpful to have a partnership in selling the Program, possibly in terms of ODP taking on some types of scientific and technical development that would help the oil, or more probably the oil service industry. She asked if Greve could see a partnership in this form? Greve said that it was a possibility that should also be explored, but from his perspective there were some internal industry problems concerning government "interference" in developments in this field. Mayer asked whether the ODP accomplishments and the Program's potential contributions are widely known in the oil industry. Greve said that there should be much wider communication with the oil industry, he said that he learnt more about ocean drilling in Brazil than he did in the USA. He said that maybe the PCOM chair or a scientific leader should look at this. Heinrichs thanked Greve and his committee on behalf of the ODP Council, especially for the work done whilst the US government was shut down.

Heinrichs again opened the discussion for general comments, saying that the ODP Council needs to look at the international review in the light of the LRP, but for now this meeting should look at any reactions as to where the Program currently is and where it is going in terms of the report and the LRP.

Orcutt asked Greve about publication policy, and said the committee specifically mentioned that they encouraged early publication of key results, reducing the length of the moratorium on publishing the Scientific Results volume, and strongly supported continuing publication of the Initial Results volumes. Orcutt asked if the committee were specifically dealing with the Initial Results or was it was actually referring to both volumes. Greve said that the committee was referring to the reports that were largely produced on the ship, and he said that the committee knew that a lot of work had been done on publications, and that the review committee were encouraging a more progressive publication policy. Greve said that the review committee was pushing the liberalisation of the publications policy, and he said that it has been happening over the past few years. He said the second thing it was pushing was a publications policy that was good not only for the ocean drilling community, but that was also good for the rest of the scientific community and the general public.
Greve said that in parallel to the publications issue was the scientific leadership issue. He said that the scientific leadership to date has been good, and he said one only has to look at the accomplishments to see that but, it can be better and more effective.

Drewry said that he would like to raise a philosophical question. He said that listening to the verbal report and on reading it, it struck him that with regard to the LRP, there was a clear endorsement of the major thrusts in the LRP, but he wanted the opportunity to pick up some of the areas in the LRP that are not as crisply defined; some areas still, in his view, had questions outstanding. He said that he understood the need to take the plan as a single document and say that the 'flavour' of it was very exciting. There was good science, and it formed the platform for the future, but he did think it important that if there are shaky areas, they should be identified and strengthened now, and not left as traps and pitfalls for the future. Heinrichs said that with respect to the review committee, their job is done, and said that Drewry is raising a very important point that should be addressed by the JOIDES advisory structure. He said that it must be remembered that the LRP is not totally prescriptive, it is a template.

Heinrichs suggested that the report could be finalised (a) by adding Greve's viewgraphs as an appendix, and (b) by amplifying the summary recommendations. Greve said this could be done fairly easily and the committee would be amenable to both suggestions.

Briden said that EXCOM is looking for some overall feedback of the ODP Council perspective of review, and also in terms of how ODP Council would advise EXCOM to approach the funding challenge. He asked the ODP Council if the LRP presentation was adequate for all funding agencies or whether something more needs to be done? Briden said that ODP must demonstrate that it is concentrating and focusing on the best science, and EXCOM needs ODP Council guidance as to the best way of doing this. EXCOM also needs advice on how it can usefully audit the system.

Heinrichs then outlined the meeting schedule for the next day. He said that there will be a desire for an ODP Council statement, and that some issues will have to be developed over the next month. He said that at the end of the Council session, from the Council perspective, the members must say what information they would like to see developed and presented before the next ODP Council meeting in Oslo. Heinrichs said that EXCOM must look particularly for what the ODP Council wishes to see developed for post 1998.

Adjourn .................................................................................................................. 16:55

ODP COUNCIL ADVICE TO EXCOM FOLLOWING THE INTERNATIONAL REVIEW

Heinrichs said that there was a single agenda item for the Council meeting, discussion of the review report and its relationship to the LRP. The ODP Council had identified that there are a number of areas that need addressing over both long and short time-frames. ODP Council welcomed the report and noted that the review committee had also highlighted in their report a number of issues that needed addressing. ODP Council also welcomed the EXCOM statement that it would review all aspects of the report, and the Council was aware that some actions had already begun. Heinrichs said the key item that needs to be done in the short term will be that EXCOM will need to plan in detail how to implement the development of the Program as envisioned in a prioritised long-range science plan, against a funding profile that is likely to remain close to constant in real terms. He said the implementation plan should address the science priorities, the technical requirements, the funding needs, and include Program linkages, scientific leadership issues and communications.

Heinrichs said that a further priority is for EXCOM to review recommendation 6, that the transition between the current Program and that beyond 2003 will be complex and planning for the transition must begin immediately. The ODP Council will depend upon JOIDES' ability to demonstrate, and clearly define, the focusing on major objectives. To meet the financial targets EXCOM must pursue a financial strategy to reach the goals.

Heinrichs said that the ODP Council will submit its comments in a formal letter to EXCOM. He said that in a parallel action, ODP Council expects a progress report by the June Council meeting. He said that also in parallel, to stress the urgency of the timing of getting plans developed and examining issues in depth, the overall time frame, looking at LRP and continuation of the Program is, 1998. He said that a central agenda item for the Council meeting (in addition to the LRP) in June 1996 will be a
review of their present status of national views of the Program overall, and a report will be required on progress on all the issues raised by the international review. He said that by the summer of 1997, there will be a requirement that there be commitments to the post-1998 Program to maintain activity and impetus, and he finished by saying that all those involved must become active and proactive.

Briden thanked Heinrichs for his response. He said the immediate response to Heinrichs' report that he would now deliver as EXCOM Chair, was that the questions he presented from the ODP Council had already been discussed informally this morning. He said that there was an appreciation of the way the ODP Council has responded to this. Briden said the LRP is ambitious and clearly could only be carried out by a well-structured, and tightly run organisation, and the issues addressed included decision making, implementation, definition, and clarification of responsibilities and accountabilities.

Briden then referred to the key items identified by the ODP Council, namely, how to implement a prioritised plan and the transition from here to a different kind of Program in 2003/4. Discussion on implementation has already begun. He stressed that the discussions were not simply a reaction to the international review report, but occurred as part of the LRP process. Although different funding profiles did not appear in the LRP they have been defined in a first-order approach. The actions required will be commenced by feeding PCOM a management interpretation of what the LRP means in terms of actions and balance of activities. EXCOM will then ask PCOM look to what structures it requires implement the plan. Briden said this will begin with the April PCOM. He said that EXCOM members are realists, understand planning at constant dollars, and a motion will be presented to address that very issue. He said that EXCOM is convinced of the value of the Program and recognises that it can and must make the case to all funding organisations to demonstrate that the ocean drilling enterprise can properly seek enhanced funding, for example at the rates alluded to by Greve. EXCOM does not expect to be rewarded without making the case for increased funding, not only on the intrinsic merits of the Program, but also against other areas of science. Briden said that plans are in hand to look to planning for Phase IV for the vessel itself, and management and planning of the Program. He also said that he recognised some concern that if ODP only achieve constant dollar funding through Phase III, then it will not be a likely springboard to Phase IV. EXCOM expect to be making a case that the transition should not entail a step jump in funding. Briden said that EXCOM members can flesh out particular aspects to the ODP Council if required. He said it was right to call for a report at the next meeting and EXCOM will be receiving their own reports of progress. He also thanked ODP Council for its signals on schedules and timelines.

Heinrichs said that for increases in funding there must be a clearly demonstrated case made, and the benefits of the Program must be clearly articulated and demonstrated.

8. FUTURE MEETINGS AND OTHER BUSINESS

Briden said that the January meetings have been in the US and the summer meeting (the normal ODP Council session) is outside the US. The implication is that the annual Council meeting will therefore not normally be in the US, and out of courtesy he wished to check that ODP Council are content with this. There was no dissent.

The dates of the next meeting are 25 June - 28 June 1996.

Heinrichs closed the joint session and announced that EXCOM will reconvene after lunch at 1:00 pm.

Lunch.......................................................... 12:00 - 13:05

Wednesday, 31 January 1996 14:00

9. EXCOM DECISIONS AND CONSENSUS

AGENDA AND MINUTES

These had been approved earlier.

MATTERS ARISING

Matters arising include Conflict of Interest, with a re-wording of the JOI Policy Manual. This was presented by Falvey, who said it was simply to prevent employees of the Program getting a double salary. Falvey presented a re-wording and there was no further discussion.
EXCOM Consensus 96-1-4
EXCOM endorses a wording change to the JOI ODP Policy manual so that the Conflict of Interest section 11.03 will read as follows:

11.03 When participating in the Ocean Drilling Program as part of the shipboard scientific party, a full-time Ocean Drilling Program employee will not receive additional salary compensation. A full-time Ocean Drilling Program employee, working as part of the shipboard scientific party on activities unrelated to his/her terms of employment in the Ocean Drilling Program will be required to take leave without pay.

Briden said the other conflict of interest issue was to look at changing the present conflict rules, consider more carefully the choice of PCOM members and/or re-define the quorum rules. Briden said the matter of choice of PCOM members will have to be addressed anyway by the JOI BoG in relation to the speciality subject balance of PCOM. He said that the PCOM Chair had indicated that it may be helpful if the prospective PCOM appointee was discussed with the PCOM Chair. Briden said that this could be used to effectively make the problem disappear. Also, the definition of a quorum could be changed to be a majority of non-conflicted members rather than total membership. Briden asked if EXCOM should have one further circuit of PCOM or whether they wish to close this issue now? Detrick proposed that EXCOM wait until June because PCOM will be forwarding proposals on this after their April meeting, and Orcutt said that he was supportive of this. Dalrymple seconded Detrick’s motion to table the issue.

EXCOM Motion 96-1-5
EXCOM tables discussion of conflict of interest issues until the June 1996 meeting.

Proposed: Detrick, Seconded: Dalrymple 13 For, 1 Against, 2 Abstentions

Briden asked that EXCOM agree that this item should be finally resolved at the next meeting. No adverse comments were made to this suggestion.

ODP COUNCIL, COUNTRY, AND ODP MANAGEMENT REPORTS
The ODP Council report had been noted and no further action was required. The same was also true for the country reports.

EXCOM Consensus 96-1-6
EXCOM accepts the Management Reports as presented at this meeting.

Briden said that EXCOM should formally acknowledge the outstanding performance of the people involved in Leg 163, and Mayer proposed a motion that was seconded by Dalrymple.

EXCOM Consensus 96-1-7
Facing extreme hurricane conditions, 60 to 70 foot seas, and damage to critical navigation and manoeuvring systems while in iceberg-laden waters off Greenland, the crew of the JOIDES Resolution extracted the vessel from danger and brought her safely to Halifax. The Executive Committee recognises the courage, skill and fortitude displayed by the participants of Leg 163 and expresses its most sincere thanks to the crew, staff and scientists, who even in the most trying of circumstances epitomised the character and spirit of research, exploration and the pursuit of excellence.

PCOM REPORTS
Briden asked that EXCOM now move to action on agenda item 6a, the PCOM Reports. There was no further discussion on issues raised during this item.

EXCOM Consensus 96-1-8
EXCOM accepts the Planning Committee Reports as presented at this meeting.

Briden said that an item raised in the informal session regarding the use of multiple platforms did not require any EXCOM action, and the issue of ODP collaboration with other Programs would be returned to later.

Briden commented that there was unease reported with some PCOM business at its December meeting, and he would be checking with the prime contractor to check that no bylaws had been
broken and business was done in proper fashion. He said it did not require EXCOM involvement at this stage.

LONG RANGE PLAN - SCIENCE PLANNING

Briden then moved to Item 6b, Scientific Planning in Phase III. He said this section had four sub-headings: leadership; endorsement of the LRP; evolution of the advisory structure; and definition of the target Program. Detrick proposed a motion, and was seconded by Orcutt (96-1-10 below). Briden said that the motions is in the context of the Greve report. Taylor asked that there be a preamble statement, proposed by Leinen and seconded by Taylor. Briden asked for any discussion of the presented statement. Mutter said that he supported this statement. He said that achieving the goals of the LRP will require that the Program will need to re-invent itself and this statement will ensure this. Orcutt said that he too wished to offer support for this statement. Detrick said that it was a suitable preamble to his proposed motion and will set that motion in context.

EXCOM Consensus 96-1-9

EXCOM has endorsed the Long Range Plan and shares the enthusiasm of the Planning Committee and the Mid-term Review Committee for the new focus of ODP and the exciting science it will make possible. We are committed to the implementation of this plan and recognize that this will require significant changes in our management and planning of the program.

The technical and financial challenges that the Long Range Plan places before us are considerable and our past experience suggests that we will need to establish clear scientific, technical and administrative priorities in order to ensure that we meet these challenges. We are setting into motion planning and evaluation mechanisms that will allow us to set these priorities.

We intend that our scientific and management implementation plans will be completely linked to the goals of the Long Range Plan. This will enable us to demonstrate the accountability of our entire program - from panels through ODP Council - in terms of the Long Range Plan.

We believe these changes are essential to maintain the viability of the program and will provide the most compelling rationale for the continuation and evolution of ocean drilling in the 21st century.

EXCOM then moved on to consider the issue of scientific leadership, and Briden said that the emergence of leaders within initiatives is required, though it did not answer the problem of scientific leadership of the whole Program. Eldholm said that in view of the Greve report and ODP Council concerns, EXCOM has to address this issue. Dalrymple said that the type of structure required will affect the issue of scientific leadership and therefore it should be considered as a package to be addressed after PCOM has come up with its proposal for Program evolution. Shipley said that it was important that there be a clear signal to PCOM, and that the consensus (above) and proposed motion (below) are a good start. He said that PCOM will need a time framework of when EXCOM expects to see changes. Briden asked if would help if PCOM had some EXCOM linkages for its next meeting. Kidd said that he had considered this and thought that it may be appropriate for Briden and Detrick to attend the next PCOM meeting for the discussion on this item.

Kidd said that in terms of the role of scientific leadership, it had specific comments from the Greve report, and he said that for example, he was very surprised that he had no involvement or reporting role with ODP Council, and that EXCOM needs to deal with these issues. Kidd said that he included in this the bidding and tenure of the JOIDES Office. Mutter said that one of the Greve report comments was that there was not a defined Chief Scientist, and Mutter suggested that maybe PCOM should be asked to also discuss whether or not there should be. Briden said that the report was not prescriptive but did offer suggestions, and he agreed that EXCOM should encourage PCOM to discuss this issue as suggested by Mutter. Mayer said that EXCOM should look at the JOIDES Office mandate and asked if it was appropriate for PCOM? Briden said that PCOM may be able to comment on the tenure of the JOIDES Office as a consequence of the strengthening of the Chief Scientist position. Orcutt said the Program being proposed will take a lot of selling within the scientific community, and that he thought that scientific leaders should not necessarily be elected, the position should be held by someone who passionately believes in the Program. Eldholm said that he wanted to re-iterate the comments of Mayer, that the present rotation of the JOIDES Office is not satisfactory, it doesn't satisfy the requirement for continuity and that EXCOM must prepare some models and take action, possibly at the next meeting. Nowell supported this, and said it was in the remit of EXCOM, though any
advice from PCOM should also be heeded, especially the notion of how the Program as a whole could utilise all of its scientific advice. He said that EXCOM and PCOM may not be comfortable with the notion that a single person should be a scientific advisor. Nowell said that EXCOM needs to identify the roles that must be played. He said that if the review committee felt that the Program was lacking in scientific leadership, then it is important to identify whether the committee meant advocacy as leadership or vision, so that EXCOM can identify what components are required to fulfill the recommendation and enhance the Program. He said that he did not think that EXCOM had done that yet, and it would not be able to do it properly until it had received input from PCOM. He said that it would then be EXCOM's responsibility to then take the action it sees appropriate, and he said that he supported Eldholm's suggestion that papers could be prepared in time for the next EXCOM meeting.

Heinrichs said that the scientific committee issue must be addressed, it must not be ignored. Lancelot supported Dalrymple, and said that he would like the process of re-definition of the scientific structure to be viewed as part of a new Program. He said that he believed that a highly visible scientific committee that sat at the top of a project-oriented set of structures was the way to go forward. He said it has to be examined by PCOM to ensure everything all fits together in workable fashion. Beiersdorf asked for clarification as to who would nominate the "new" PCOM Chair, funding agencies, ODP Council, EXCOM, PCOM, or all three? Dalrymple said that if the advisory structure is organised around projects then the chairs of those projects would be advocates of them, and that the leadership would grow from within the structure rather than the other way around, and he said he thought it appropriate that PCOM be asked for suggestions as to how the Program might be re-organised, with the scientific leadership issue in mind. Taira said that at the next meeting EXCOM has to discuss this in the context of a PCOM report, the LRP, and how any changes might be implemented. Briden asked if EXCOM want him to write to PCOM telling it that EXCOM is to consider all aspects of the Greve report in the context an emerging new advisory structure and ask PCOM to respond to that? Dalrymple said that EXCOM should ask for alternative options. Detrick said that he agreed, that this should be proposed to PCOM and that there should be a group of 2 or 3 EXCOM members who could consider the input from the PCOM April meeting who could then make specific proposals to EXCOM. Leinen said that she and Taylor had been thinking along those lines and proposed a motion along those lines. Briden said that was an excellent draft, and then commented that it allowed further input from EXCOM members. He said that to take an example, he has yet to hear a coherent argument set out for (or against) a scientific committee, and that this is the time to produce one. Nowell suggested that EXCOM dispose of the motion on the table before moving on.

Briden called for any further discussion before voting. Lancelot said that he was still uneasy about the lack of detailed funding projections in the LRP, and he asked if EXCOM endorsed the LRP did it mean that EXCOM would also be endorsing that funding profile? Falvey said that the growth figure in the LRP funding profile is 4.7% and simply reflected the advice of the Greve committee, it does not say anywhere in the LRP that it is a definitive projection. Lancelot said that part of the EXCOM discussions on the LRP concerned looking at the base budget, and he said that constant-dollar budgets, and re-allocations were discussed, and yet none of that appears in the plan. Briden said that EXCOM would be endorsing a plan. Nowell reminded EXCOM that they unanimously endorsed the LRP yesterday. Minor wording modifications were suggested and accepted for Detrick's motion which was then voted upon.

**EXCOM Motion 96-1-10**

EXCOM reiterates its endorsement of the Long Range Plan of January 1996 as providing the scientific objectives and strategies for ocean drilling to the year 2003 and beyond.

Drilling proposals submitted to ODP should henceforth be evaluated in the context of this Long Range Plan and each year's Program Plan should clearly identify how each leg contributes to the goals of the Long Range Plan.

EXCOM directs PCOM to develop an implementation strategy for the LRP, including necessary changes to the scientific planning structure, which EXCOM can review at its June 1996 meeting.

Proposed: Detrick, Seconded: Orcutt 15 For, 0 Against, 1 Abstention (France)

Leinen then presented her motion regarding the establishment of an EXCOM sub-committee to look at the scientific leadership of the Program. Mutter said that this question came up from an independent group (the international review committee) and that maybe it would be useful to include
some of them in the sub-committee. Briden said that EXCOM should canvas as widely as possibly. Kidd said that some of the comments from Greve were about how research organisations were run in the commercial world, and it may be worth including such individuals. Leinen's motion was voted upon.

EXCOM Motion 96-1-11
EXCOM will establish a sub-committee to evaluate the scientific leadership of the program. The sub-committee will consider input from PCOM, from JOI, EXCOM members and from other members of the scientific community. The sub-committee will report back to EXCOM at the June 1996 meeting.

Proposed: Leinen, Seconded: Taylor

Unanimous

Detrick asked if the committee could be identified. Nowell said that the committee should be independent of the Marseilles attendees to avoid confusion as to why Briden and Detrick were attending this meeting. EXCOM agreed to discuss the membership informally over coffee, and Briden said that EXCOM should be aware of Detrick's role as EXCOM Chair-elect in committee selection.

COLLABORATION WITH OTHER PROGRAMS
Falvey presented the existing PCOM motions from August (95-2-5 and 95-2-6). Falvey said that he had consulted with some EXCOM members, and they suggested that the PCOM motions projected a "senior-junior" partnership, and that should be toned down. Eldholm then presented a draft for EXCOM consideration and said the proposed motion leaves room for negotiation with individual Programs, whereas the PCOM framework was too tightly constrained for use with all Programs. Kidd said that PCOM put a lot of work into its motions, and that these under discussion simply presented a series of options. Eldholm re-iterated that as presented, the PCOM motions may not be the best framework for all circumstances. Briden said that the name Joint Associate status did not convey the spirit of the linkages EXCOM wanted, which was a partnership. Orcutt said that he didn't feel that the PCOM JOIDES Associate Organisation was in fact a partnership, it was too far removed as it stood. Brown suggested that the motion be re-worded slightly, and the new wording was acceptable to EXCOM. Kidd asked who would do the initiation of the links, and Briden said that was for PCOM to pursue, and once links become more formalised, then JOI would do the negotiating on behalf of ODP. Taylor said that EXCOM has to be very careful with the wording, as the term "partnerships" has a special meaning in law. He said that he didn't know who ODP would be talking to, and that it would be hard to have partnerships when the proposed partners are unequal. Falvey said this issue arose from the proposal at the last EXCOM for a formal linkage with NAD. Eldholm reminded EXCOM that linkages with other Programs was a specific topic in the LRP. Dalrymple commented that partnerships do not have to be equal so long as they are tailored correctly.

EXCOM Motion 96-1-12
EXCOM strongly endorses closer ties with international groups involved in studying the Earth using drilling or coring platforms or proposing to use such platforms, including the JOIDES Resolution. Initiation and strengthening of such ties must be without prejudice to the scientific goals and legal mandates of the JOIDES enterprise.

EXCOM recommends that partnerships be initiated with other international geoscience programs. EXCOM recognizes that PCOM Motion 95-2-6 provides one framework for negotiating such formal ties.

Proposed: Eldholm, Seconded: Duce

14 For, 1 Against, 1 Abstention

Taylor said that the LRP contained most of the words of the PCOM motion, and EXCOM may need to re-visit this.

Coffee ........................................................................................................ 14:30 - 14:45

OPERATIONAL CONTRACTS - PHASE III
During a round-table discussion earlier in the meeting, EXCOM advice was given to JOI and a motion was prepared by Detrick as to how JOI should proceed to get to the stage of issuing RFP's for Phase II operation. Detrick presented his motion and said that it was written to try and use the RFP to the advantage of the Program, by looking at the cost-benefit of the services provided under these contracts, and whether any low priority services could be eliminated in preference to others. Briden
asked Falvey if this advice will serve the purpose alluded to at the end of the motion. Falvey said that it would.

**EXCOM Motion 96-1-13**

EXCOM requests JOI and PCOM to provide by June 1996 recommendations on specific services, and their related costs, that are currently provided, for Wireline Logging Services and Site Survey Data Bank Services to ODP. This information will be used by EXCOM to advise JOI on the scope of the RFPs to be issued for these services and how to encourage innovation in the bidding for these services.

*Proposed: Detrick, Seconded: Lancelot*

14 For, 1 Against (Germany), 1 Absent

Falvey said the advice he received from EXCOM was not explicit or given in a formal fashion. He said that what JOI intends to do for the RFP is start assembling the information required and seek information from PCOM as to what services are required, and bring that to EXCOM for discussion. The RFP will be issued in November/December 1996. The BCOM, in the context of the FY97 Program plan, will explore the possibility of taking elements of Information Handling that could be contracted out and ask ODP-TAMU what areas could be appropriately handed by a third party. Taylor said that he didn't know where Falvey got this message from this meeting. Falvey said that he received his advice from discussions earlier, including during the discussion after the science operator report. Falvey said that BCOM will explore many possibilities. Briden said the purpose of this is to put on record something that is actually within the main contractor's terms of reference, following the discussion in EXCOM yesterday. Briden said that present contractual arrangements stand, but that JOI, in consultation with members and operators, will indicate innovative ways in which a particular issue of concern to members can be dealt with. Beiersdorf said that he wanted EXCOM to recognise that he believed it went against the intent of its Motion 95-2-9 when it decided to exclude Information Handling from the RFP process.

**TAMU CORE REPOSITORY**

Briden said that this relates to possible sub-contracts from 1998 onward, and the prime contractor has no intent of re-competing the science operator contracts, which will be the subject of direct re-negotiations between Texas A&M University and JOI. He said Texas A&M indicated that if they were to be the science operators for this period they would increase the space available for the ODP-TAMU core repository. Briden said that he would ask Duce what EXCOM now needs to do to move this forward. Duce said that Briden had summarised the situation well. He said the estimated cost was $3.2M, and a letter from either JOI or Briden indicating that Texas A&M will continue to be the science operator will enable Texas A&M to begin the planning process for the extension as soon as possible. Briden said that as yet, it is unknown if there will be a Program after 1998, and he said that will take advice from JOI and NSF about this matter. Duce said that the President of Texas A&M is aware of this. Falvey said that it was a contractual matter and correspondence should go from JOI. Taylor said that he wanted to remind EXCOM, and also BCOM members and JOI, that the curatorial services in the core repository are a part of the Information Services Group at ODP-TAMU. Mutter asked if the commitment from Texas A&M presumes the current science operator will provide the current range of services. Briden said that was for the prime contractor to determine. Falvey said that there is no preclusion on the out-sourcing of various parts of the contract.

**FUNDING**

Briden said there is a draft motion relating to Phases II, III, and IV of the Program. Leinen pointed out that this was the second of a set of motions by EXCOM that relates to its changing view of the scientific planning and management of the Program in the future. She said the first motion was Detrick's motion endorsing the LRP and EXCOM's commitment to evaluate the scientific, administrative and technical planning in terms of the LRP. She said that Nowell would present the second piece of this new commitment to management that reflects the goals, initiatives and the new way of working as stated in the LRP. Detrick suggested the juxtaposition of the relevant motions on the reformation of the Program in the minutes. Nowell then presented his motion (96-1-14, below).

Taira said that some sort of mechanism for increased funding must be found within the transition phase. Leinen said that there was a feeling that this was a strong step to take and it shows that EXCOM is prepared to examine what the Program is already doing and evaluate that closely. Briden told Heinrichs that this is in line with the message passed from ODP Council in the joint session. He said that EXCOM knew that it had to have more than just an irrefutable case for funding
increases, especially when the step function comes in at 2003. He said that the securing of any increase will require very close cooperation with funding agencies around the world and asked Heinrichs if, in that context, it was a helpful motion. Heinrichs said that part three of the motion was indeed appropriate for the ODP Council. Briden asked if this would present any difficulties for any agency present? Taylor said that he wanted to reflect that EXCOM felt it very important that it be recognised, that having had the advisory structure, over a long time, produce a LRP, the science that plan now envisages is a Program built in response to a very large community, and that community wants to see things done. He said that this motion is EXCOM's attempt to further that, commenting that this is also EXCOM's response to further the science that the LRP envisages, and, he said, that it was incumbent upon EXCOM to make this statement in the strongest possible terms. Briden said that EXCOM has not lost sight of the fact that ODP Council has also asked what can be delivered for a constant dollar amount. Loutit said that from an Australian ODP Council view, this was exactly what he was looking for.

EXCOM Motion 96-1-14
EXCOM, having endorsed unanimously the scientific directions for the program embodied in the LRP, recognizes the need for immediate and concerted actions to secure the necessary funds. The International Review embraced the LRP and recommended that to achieve its short-term goals (pre-2003) would require real growth in the budget of about 2 1/2% a year.

EXCOM requests the following actions be taken:
1. JOI, in consultation with PCOM & BCOM, examines the important new innovations in the program (Borehole Utilization, Legacy Holes, inter alia) and detail their costs. PCOM & BCOM should advise JOI on what existing components (publications, logging, indeed all components) might be dropped or reduced to accommodate these new initiatives and clearly label the costs, benefits and losses. This step is fundamental to addressing concerns from funders that all cost cutting measures have been examined prior to requesting additional funds. Action by June 1996.

2. JOI, with appropriate consultation, should develop full financial projections for the LRP with the goals of presenting EXCOM, before June 1996, with the information to allow all EXCOM members to advocate increases in contributions with their respective funding agencies at possibly the 2 1/2% a year real growth level (98-03).

3. EXCOM at the 1994 Kyoto meeting recognized the necessity for a leadership role by one or more nations if the program is to engage in riser drilling as advocated by the LRP. EXCOM requests all partners on ODP Council, start immediately to consider possibly new mechanisms and partnerships to build the new financial structure to support the needed 2-ship Program.

Proposed: Nowell, Seconded: Taira Unanimous

PHASE IV

Briden explained that EXCOM focused on the LRP rather than just OD21 in the informal session earlier in the day. Leinen presented her motion. She said the first part recognised the report from Japan, and the second part regards how ODP should move forward and plan for the transition to Phase IV. She thanked Taira for his help in the drafting of this motion. Briden asked if this motion met the need, and covered the aspects in the Greve report referred to as "the highly complex transition". Detrick said that it was a very well crafted motion, it supports the Japanese OD21 effort, gets the ODP science planning efforts integrated with engineering development, which is especially important for OD21, and he said that it also integrates the OD21 planning much more closely with the ODP planning process.

EXCOM Motion 96-1-15
EXCOM, after reviewing the Japanese proposal for new drilling vessel construction:

i) highlighted that the ODP LRP identifies the need for two drilling platforms, one with deep water well control (riser) capabilities, as central to the achievement of Phase IV;

ii) noted that riser capability is the only possible means to drill the areas of the ocean floor excluded from current JOIDES Resolution drilling by safety consideration and is necessary to achieve our Phase IV scientific objectives;
Heinrichs said that ODP Council have asked for a report, but the form of that report should be discussed. Dalrymple said that there is adequate record that EXCOM fully intend to respond positively, to both the Greve report and ODP Council's reaction to it. He said that EXCOM has already taken such steps, and that it may be appropriate to report back to ODP Council every six months on what EXCOM has accomplished or the actions it has taken. Briden said that was a good idea, but that ODP also needs to inform the broader science community.

Detrick asked the intended distribution of the Greve report. Heinrichs said that it will be publicly available, but he only planned to distribute it to Council members, others could receive it as desired. Detrick asked if there would be a problem with the present (tabbed) version being distributed and Heinrichs replied that he would prefer that NSF have some time to distribute the final report. Briden asked that it not be promulgated to members in the present form, that it be done after Greve had completed his re-draft, and he asked if NSF can finalise the report and that it be distributed before 14 February so that it is available for the meeting in Japan. Heinrichs said that he hoped to circulate the report before then.

Nowell presented a consensus acknowledging the work that had gone into the LRP. The consensus was reached by acclamation.

**EXCOM Consensus 96-1-16**

EXCOM expresses its gratitude to the ODP Program Director, Dave Falvey, and to Ellen Kappel and Rob Kidd for their cooperative dedication and unselfish leadership in completing the task of the LRP under most trying circumstances and time pressures.
SCIENTIFIC LEADERSHIP

Briden said that EXCOM discussed liaising with PCOM by Detrick and Briden attending the next PCOM to discuss the consequences of the Greve report, the ODP Council responses, and EXCOM decisions taken at this meeting. He said that by this he meant the focusing of the plan and the need to re-organise the Program in order to implement that focused plan. He said that EXCOM should try and avoid sending the signal that it is "lecturing" PCOM on scientific leadership. What was needed was a fresh, uninhibited, broad perspective to examine what the scientific leadership issue really was. He said that EXCOM needed input from many sources, including PCOM. He said that he believed it would be unwise for himself and the EXCOM Chair-elect to be formally involved in this exercise, and that after the coffee-break discussion there was support for a one-man committee to compile a think-piece on this issue. Briden said that it had been done by EXCOM successfully before, and he said that this was the proposition he now put before EXCOM. EXCOM did not dissent. Briden said that he had asked Brown to do this on EXCOM's behalf, saying that all members have been very impressed with Brown's contribution to this, his first EXCOM, and that his "freshness" may prove very useful in this respect. There was unanimous support for this idea.

EXCOM Consensus 96-1-17
EXCOM will at its June 1996 meeting consider a report from Otis Brown on the issue of Scientific Leadership of the Program as alluded to in the Greve Report.

FUTURE MEETINGS AND ANY OTHER BUSINESS

FUTURE MEETINGS


Eldholm said that the location is in the outskirts of Oslo in a specialist conference centre not far from the airport. He said that breakfast and lunch will be included in the fee for the hotel, but not dinner. An official dinner will take place on the evening of Wednesday 26th June.

January 1997

This will be in the US. The venue has to be decided.

June 1997

This should be in France. Lancelot said that he anticipates hosting this meeting.

ANY OTHER BUSINESS

None was presented.

Briden then thanked all members, liaisons and ODP Council observers and members. He also thanked the local hosts (JOI), and gave a special thanks to Johanna Pasquier for her help and efficiency.

Adjourn.............................................................. 15:45
APPENDICES
Appendix 1 NSF FY 97 Target Budget and Assumptions ........................................... 54
Appendix 2 JOI Budget Report (FY95-97) ................................................................. 55
Appendix 3.1 PEC IV Updates .................................................................................. 56
Appendix 3.2 PEC IV Updates .................................................................................. 57
Appendix 3.3 PEC III Updates .................................................................................. 58
Appendix 3.4 PEC III Updates .................................................................................. 59
Appendix 4 JANUS Steering Committee Mandate and Membership ......................... 60
Appendix 5 JANUS Steering Committee Highlights and Future Plans ....................... 61
Appendix 6 Leg 163 - Sequence of Events .................................................................. 62
Appendix 7 Leg 163 - Pipe Failure, Causes and Problem Resolution ......................... 63
Appendix 8 Revised Shallow Water Drilling Limitations .......................................... 64
Appendix 9.1 Leg 163 Operations - Weather ............................................................. 65
Appendix 9.2 Leg 163 Operation - Ice ........................................................................ 66
Appendix 10 Leg 163 Financial Implications ............................................................. 67
Appendix 11 Historical Data Movement to JANUS .................................................. 68
Appendix 12 Engineering Activities at ODP-TAMU .................................................. 69
Appendix 13 Participation on Legs, by Country (Legs 101 - 165) ......................... 70
Appendix 14 ODP-LDEO Recent Logging Operations (Legs 162 - 165) ............. 71
Appendix 15 Magnetic Susceptibility Logs for Core and Log Data - Site 984 .......... 72
Appendix 16 Logs Through Gas Hydrate Layer - Site 994 ........................................ 73
Appendix 17 ODP-LDEO Upcoming Logging Operations ......................................... 74
Appendix 18 ODP-LDEO Ship - Shore Data Link Project ......................................... 75
Appendix 19 PCOM August and December 1995 Meeting Highlights .................... 76
Appendix 20 PCOM Leg Reports, Legs 160 - 163 (Objectives and Results) .......... 77
Appendix 21 Leg Reports, Legs 164 and Leg 165 ....................................................... 78
Appendix 22 Recent PCOM Decisions ....................................................................... 79
Appendix 23 FY97 Science Plan and Objectives ....................................................... 80
Appendix 24 Implementation of the LRP - PCOM Aspects ....................................... 81
Appendix 25 Mid-Term Program Review - Terms of Reference ............................ 82
Appendix 26 Mid-Term Program Review - Committee membership ...................... 83
Appendix 27.1 Mid-Term Program Review - Comments from Other Programs (1) .... 84
Appendix 27.2 Mid-Term Program Review - Comments from Other Programs (2) .... 85
Appendix 28 Mid-Term Program Review - Major Conclusions ............................... 86
Appendix 1

FY 1997 TARGET BUDGET

CONSTANT WITH 1996 AT $44.4 MILLION

ASSUMES:

The contribution level for each full international partner will remain at $2,950,000.

In addition to the U.S., six full international partners are anticipated.

NSF will provide at least 51 percent of joint program costs.

The target budget includes a 4% allowance for Special Operating Expenses.

JOI will continue to examine and control growth in administrative and management costs at JOI and its subcontractors.
5 (b): EXCOM - JOI LIAISON REPORT: BUDGET REPORT

1. FY 95 OUTCOME

- Program Plan Budget $44,000,000
- FY 94 Committed Carry Forward $4,569,638
- FY 94 Uncommitted Carry Forward $1,055,000
- Additional Funds from NSF $745,000
  FINAL OPERATING BUDGET $50,369,638

- FY 95 Expenditure $43,165,772
- FY 96 Committed Carry Forward $6,555,256
- FY 96 Uncommitted Carry Forward $648,612

2. FY 96 PROGRAM PLAN CHANGES

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3. FY 97 PROGRAM PLAN - INDICATIVE BUDGET

- NSF Target Budget for FY 97 Program Plan is NOW $44.4 M (62.4% US FUNDS)
5 (b): EXCOM - JOI LIAISON REPORT: PERFORMANCE EVALUATION COMMITTEE (PEC-IV) IMPLEMENTATION UPDATE

KEY ISSUES

GENERAL

1. PEC IV notes that the future success of ODP will depend on its ability to improve and renew:

   The new Long Range Plan is now final and the new management initiatives presented by JOI to the last EXCOM are now underway.

JOINT OCEANOGRAPHIC INSTITUTIONS, INC.

6. PEC IV urges JOI and JOIDES members to investigate ways to make the results of ODP more widely known and appreciated; and for all to consider the reinstitution of funding multi-leg syntheses:

   JOI's new Communications Strategy, agreed to at the July, 1995 EXCOM, addressed the first of these issue. However, the appointment of a Director of Public Information at JOI needs funding commitment for FY 97.

7. PEC IV suggests that JOI evaluate previous ODP reviews in an effort to determine review cost effectiveness:

   JOI has reviewed PEC - III responses and will report.
PEC-IV: IMPLEMENTATION UPDATE

JOIDES STRUCTURE AND JOIDES OFFICE

9. PEC IV notes that JOIDES must continue to strive for a culture that emphasises panel member integrity to avoid using member’s “insider position” as a vehicle for advancing mainly their own objectives:

JOI has reviewed section 11, updated it and added recent PCOM decisions on panel procedures. These revisions to the Policy Manual are now in place and have been made known to all panels. The addition of more detailed “operating guidelines” is under consideration.

ODP SCIENCE OPERATIONS - TEXAS A&M UNIV.

27. PEC IV strongly recommends that JOI and ODP-TAMU should closely monitor the Database (“JANUS”) Project budget, schedule and progress:

The JOI Steering Committee is working with ODP-TAMU project staff and TRACOR to keep the project on track. Communications now working well. JOI has asked ODP-TAMU to formalise the project documentation, focusing on forward planning.

38. PEC IV recommends that ODP-TAMU management should give a high priority to filling the position of Manager, Drilling Operations and Development Engineering:

ODP-TAMU pursuing appointment as a matter of urgency.
PEC III - Principal Recommendations

Response by Joint Oceanographic Institutions, Inc.

Strongly Recommended:

1. Publications policy should emphasise thematic rather than site-specific research. PEC III favors continuation of IR volume, and prompt publication in scientific journals to replace present SR volume.

   New publications policy now in place. The 1995 PCOM Subcommittee on Publications provided the basis for the new policy. Leg specific SR volumes will continue. Increased emphasis on the rapid publication of significant scientific results in the general scientific literature.

2. The public is not aware that ocean drilling is contributing enormously to knowledge of earth dynamics, and discovering unsuspected phenomena, both beneficial and hazardous. ODP needs a professional, energetic public information program to highlight its accomplishments.

   A 1993 JOI Public Information Strategy endorsed by EXCOM, but BCOM took no action. Recent JOI Communications Strategy approved subject to funding. JOI currently interviewing for Director of Public Information. Needs funding approval for FY96 and FY97.

3. ODP should begin discussions to relieve the serious overcrowding of shipboard facilities for the scientific party.

   Current action item for the JR's refit in 1998.
PEC III - Principal Recommendations

4. Fundamental changes in ODP are inevitable. PEC III strongly recommends a comprehensive review and evaluation of the JOIDES planning and advisory structure.

Advisory Structure Review Committee appointed July 1992. June 1993 EXCOM accepted the Committee Report, which covered improved processing of proposals for drilling and long-range planning. New ODP LRP identifies a program planning structure for Phases III and IV.

5. Achievement of COSOD thematic objectives needs long range planning. Thematic panels should be given increased responsibility for active program formulation, rather than simply reacting to proposals.

The then PCOM Chair, J Austin, considered this already occurring within the scientific advisory structure of ODP.

Recommended

1. ODP-TAMU should address the problems of stress and low morale among technicians.

The then ODP-TAMU Director (P Rabinowitz) reported some steps taken to improve technician morale, including "changes in middle management."

This issue came up again in PEC IV and once again TAMU needs to address the continuing problem.
Appendix 4

EXCOM - JOI LIAISON REPORT:
DATABASE STEERING COMMITTEE REPORT

PROGRESS REPORT OF THE JOI STEERING COMMITTEE ON
THE "JANUS" PROJECT AT ODP-TAMU

STEERING COMMITTEE ROLE

- PROVIDE GUIDANCE & PROJECT REVIEW
- DOCUMENT END-USER REQUIREMENTS
- ENSURE USER COMMUNITY INPUT TO TAMU
- GIVE JOI (AND THUS PCOM) QUARTERLY PROGRESS REPORTS
- COMMUNICATE INFORMATION AND PROGRESS TO THE USER COMMUNITY

STEERING COMMITTEE PERSONNEL

- CURRENT SC MEMBERSHIP:
  TIM AHERN (IRIS, US)    TERRI KING (CHAIR, URI, US)
  CARLA MOORE (NOAA, US)  KATE MORAN (BIO, CANADA)
  PHIL WEAVER (NERC, UK)   NICK PISIAS (OSU, US)
  ANN KERR (SCRIPPS, US)  JOHN FARRELL (JOI)

- LIAISONS:
  TRACOR ("SUBCONTRACTOR")
  ODP-TAMU, INCLUDING RUSS MERRILL (PROJECT MANAGER)
  LDEO-WLS, DEBORAH BARNES
DATABASE STEERING COMMITTEE REPORT

HIGHLIGHTS OF S/C ACTIVITIES SINCE JUNE, 1995

- 14-15 September: S/C meets in Austin, TX
  - Demonstration of current database system
  - 15 Sept. deliverable of Group 1 applications (corelog/sample/leg,site,hole/drilling) not met.
    » explanations discussed
    » corrective actions taken
    » S/C endorses project continuation; weekly e-mail updates

- 28 October: S/C decides to postpone Dec. meeting until March
  - Tracor & TAMU to concentrate on User Working Groups
  - Tracor focus on 19 Dec delivery of JANUS system to ship

- Nov. to Jan: SC advice and guidance via e-mail and phone

FUTURE PLANS

- 3-4 March: SC meeting in College Station, TX
  - evaluate preliminary results of shipboard testing Leg 165
    (Current reports from ship indicate excellent progress)
  - assess results from User Working Groups 1, 2, and 3
  - discuss needs & plans for Groups 4, 5, and 6 & define project completion
  - plan for system testing opportunity during Leg 166 transit
LEG 163

SEPTEMBER 7

SHIP DEPARTED REYKJAVIK

SEPTEMBER 10

HOLE 988A

DRILL STRING PARTED DUE TO TENSILE OVERLOAD. WATER DEPTH 273 M, PIPE STUCK AT 27 MBSF.

SEPTEMBER 11-14

SHIP IN REYKJAVIK FOR REPAIRS

SEPTEMBER 17

HOLE 989A

SHIP OFFSET 800 M ASTERN WITH DRILL STRING STILL IN HOLE TO AVOID ICEBERG. PIPE DRAGGED OUT OF HOLE. NO DAMAGE. WATER DEPTH 460 M, DRILL STRING 486 M.

SEPTEMBER 22

HOLE 990A

(LEG 152-915)

SHIP OFFSET 26 M TO STARBOARD TO AVOID BERGY BIT. AT 0320 HIT GROWLER ON PORT BOW. NO DAMAGE. WATER DEPTH 541 M. OFFSET 5%.

SEPTEMBER 24

HOLE 990A

1415-2400 WAITING ON WEATHER, FORCE 10. CREW MEMBER INJURED. MEDIVAC SEPTEMBER 25.

SEPTEMBER 29-

OCTOBER 1

HURRICANE. SUSTAINED WINDS 75-80 KT, GUSTS EXCEEDED 100 KT. SEAS 60 FT+ (20 M). SHIP DAMAGED. LEG ABANDONED.

OCTOBER 7

SHIP ARRIVED HALIFAX.
SHALLOW WATER DRILLING

PIPE FAILURE CAUSES: COMBINATION OF EVENTS

- SHORT STIFF DRILL STRING
- DE-ACTIVATION OF HEAVE COMPENSATION SYSTEM
- ERRORS IN CALCULATION OF ALLOWABLE OVERPULL
- REPEATEDLY EXCEEDING ALLOWABLE OVERPULL
- USE OF DRILL PIPE WITH LOWER STRENGTH
- FAILURE OF RIG OPERATIONS TO APPRECIATE DYNAMICS OF SHORT STIFF DRILL STRING
- FAILURE TO NOTIFY SENIOR DRILLING OPERATIONS STAFF

OVER-ARCHING CONTRIBUTING CAUSE

- POOR COMMUNICATIONS PRE-CRUISE (TAMU; TAMU-ODL) AND CRUISE (OPERATIONS)

PROBLEM RESOLUTION

- ENHANCED SCRUTINY OF HIGHLY RANKED PROPOSALS PRIOR TO SCHEDULING (FLAG OPERATIONAL CHALLENGES: RISK ASSESSMENT AND COSTS) WITHIN TAMU, TAMU/ODL AND TAMU/JOI-JOIDES
- AFTER SCHEDULING HIGH RISK LEGS UNDERGO REVIEW TO IDENTIFY THAT APPROPRIATE OPERATIONAL PROCEDURES ARE IN PLACE (I.E. TRIGGER SHALLOW WATER GUIDELINES)
- SHALLOW WATER GUIDELINES
  - WATER DEPTH
  - WILL BORE CONDITIONS
  - ENVIRONMENTAL FACTORS
  - EQUIPMENT LIMITATIONS
# REVISED WATER DEPTH LIMITATIONS

<table>
<thead>
<tr>
<th>Water Depth</th>
<th>Well Bore Conditions</th>
<th>Environmental Factors</th>
<th>Equipment Limitations</th>
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</thead>
<tbody>
<tr>
<td>0 - 75 m</td>
<td>Zone of Complete Exclusion for Well Bore Operations</td>
<td>5,6,7</td>
<td>8,9</td>
</tr>
<tr>
<td>76 - 300 m</td>
<td>1,2,3,4</td>
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<td>8,9</td>
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<tr>
<td>301 - 650 m</td>
<td>2,3,4,</td>
<td>6,7</td>
<td>8,9</td>
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<tr>
<td>651 - 1000 m</td>
<td>4</td>
<td>7</td>
<td>8,9</td>
</tr>
<tr>
<td>1001 - 8700 m</td>
<td>-</td>
<td>7</td>
<td>8,9</td>
</tr>
</tbody>
</table>

1. Increased awareness of shallow gas potential, possibly triggering HAZOPs Analysis.
2. Immediate hole conditioning required when drag encountered.
3. Prepare for rapid disconnect.*
4. Special procedures if stuck in the hole.**
5. Well bore operations cease @ 1.5 m heave.
6. Well bore operations cease @ 40 kt wind.
7. Well bore operations cease if floating ice present in area.
8. Overpull limitation calculated daily.
9. Maximum allowable stress on drill string posted at drill floor.

**Notes:**
* Special hardware to be developed. Two systems are envisioned. One is a surface mounted hydraulically actuated shear ram. The second system is a subsurface, indrillstring shear joint which can be commanded from the surface.
** More conservative stuck pipe procedures employed. Procedures being developed. Such procedures will limit overpull, and shorten the duration of stuck pipe operations before severing is initiated (explosive or remote release).
HIGH LATITUDE OPERATIONS

WEATHER

• INCIDENT

INTENSE LOW PRESSURE SYSTEM; WINDS IN EXCESS OF 80 KTS; SEAS OF 20 M; PERIODS OF 8 SECONDS; PITCHED 14° IN STEEP SEAS

LARGE WAVE BROKE THROUGH ON BRIDGE AND WATER PENETRATED DYNAMIC POSITIONING ROOM; IN ADDITION WATER PENETRATED ELSEWHERE (AFT THYRIG ROOM) DURING STORM; FORWARD THRUSTER, ESSENTIAL FOR HEADING, FAILED AS STORM WANED.

STORM SEVERE TEST OF SHIP’S CAPABILITY; TIME TESTED HANDS AND TEAMWORK WERE KEY FACTORS FOR SUCCESS

• CAUSE

- ANONYMOUSLY EARLY INTENSE STORM
- WORST AND EARLIEST WINTER ON RECORD
- HISTORICAL DATA INDICATED SEPTEMBER TO MID-OCTOBER OKAY

• CHANGES

- ENHANCED ENVIRONMENTAL ANALYSIS
- 2 LEGS (4 MONTHS OF OPERATIONS) MAY NOT BE FEASIBLE IN MANY HIGH LATITUDE AREAS
- REVIEW OF SHIPBOARD SYSTEM INTEGRITY
- IMPROVED COMMUNICATIONS AND RISK ASSESSMENT
HIGH LATITUDE OPERATIONS
(CONT.)

ICE

• INCIDENT

NEAR MISS AND DRIVE-OFF OF HOLE WHILE DEPLOYING FREE-FALL FUNNEL

• CAUSE

- DRIFTING ICE AND ICE BOAT INTERVENTION

• CHANGES

- IMPROVED COMMUNICATIONS, RISK ASSESSMENT AND OPERATIONAL GUIDELINES
## LEG 163

### FINANCIAL IMPLICATIONS (ESTIMATE)

#### DEBIT

<table>
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<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Drill String Failure Damage</td>
<td>64</td>
</tr>
<tr>
<td>Hull and Ancillary Storm Damage</td>
<td>252</td>
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<tr>
<td></td>
<td>$316K</td>
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- REVIEW OF RESPONSIBILITY IN PROGRESS
- OTHER LOSSES ON ODL'S ACCOUNT

#### CREDIT

<table>
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<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Day Rate</td>
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<tr>
<td>Fuel</td>
<td>140</td>
</tr>
<tr>
<td>Catering</td>
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<td>Communications</td>
<td>10</td>
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<tr>
<td>Ice Boat</td>
<td>47</td>
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<td></td>
<td>$272K</td>
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LESS EXTENDED HALIFAX PORT CALL 20K

$252K

#### CONCLUSIONS

- FINANCIAL COST TO ODP WILL NOT BE SIGNIFICANT.
- REAL COST TO ODP WAS LOSS OF 27 DAYS TIME ON SITE.
Appendix 11

Migration of Old ODP Data Into Janus

Old ODP Prime Data

S1032 files

Text files

4D files

Excel, VCD, etc. files

Intermediate Oracle Tables

Intermediate Oracle Tables

Intermediate Oracle Tables

Intermediate Oracle Tables

Janus Oracle Database

Tasks:
Convert old data from diverse formats to Oracle,
Migrate to the Janus database.

Resources:
JOIDES Advisory Group
DBA/Programmers (Computer Science)
Data Analysts (Earth Sciences)
ENGINEERING ACTIVITIES

- CORK INITIATIVE
  DESIGNED SPECIAL TOOLS FOR REMOVING CORK DATA LOGGER USING A SUBMERSIBLE IN SHALLOW WATER.
  DESIGNED SPECIAL PLUG THAT REPLACES CORK DATA LOGGER THUS MAINTAINING A BOREHOLE SEAL.
  PARTICIPATED IN ALVIN & NAUTILUS DIVES AND INTERROGATED DATA LOGGERS IN CORKS OFF OREGON AND BARBADOS.

- HAMMER DRILL
  VISITED AUSTRALIAN HAMMER DRILL MANUFACTURER AND WITNESSED DEMONSTRATION OF THEIR FLUID POWERED HAMMER DRILL.
  CREATED A PLAN FOR THE DEVELOPMENT OF A SPECIAL FLUID POWERED HAMMER DRILL FOR ODP USE IN DRILLING-IN CASING IN HARD ROCK.

- PRESSURE CORE SAMPLER
  EXTENSIVELY MODIFIED PCS TO IMPROVE CORE RECOVERY AND PRESSURE RETENTION RELIABILITY.
  DEPLOYED PRESSURE CORE SAMPLER ON LEG 164 WITH GREATLY IMPROVED RESULTS.

- FORMATION FLUID SAMPLER
  DEVELOPED PROTOTYPE FLUID SAMPLER WHICH TAKES A FLUID SAMPLE WITH MINIMAL PRESSURE DROP APPLIED TO THE SAMPLE.
  DEPLOYED PROTOTYPE FLUID SAMPLER 4 TIMES ON LEG 164 WITH MIXED RESULTS.

- HOLE INSTRUMENTATION: STRAIN METER
  MET WITH SELWYN SACKS, DALE EVERTSON, LEE DICKERSON, FOR DETAILED DISCUSSION OF DEPLOYING A BOREHOLE STRAIN METER IN AN ODP BOREHOLE OFF JAPAN.
SHIPBOARD PARTICIPANT TALLY

LEG 101 - LEG 165

<table>
<thead>
<tr>
<th>Country</th>
<th>Participants</th>
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<tr>
<td>USA</td>
<td>696</td>
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<tr>
<td>Canada/Austral</td>
<td>123</td>
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<tr>
<td>France</td>
<td>131</td>
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<td>UK</td>
<td>131</td>
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<td>USSR/Russia</td>
<td>17</td>
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<td>Other</td>
<td>15</td>
</tr>
<tr>
<td>ESF</td>
<td>117</td>
</tr>
<tr>
<td>Non-ODP</td>
<td>44</td>
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</table>

Total: 1529 Participants

Plot does not include Staff Scientists and LDEO Logging Scientists
RECENT LOGGING OPERATIONS

Leg 162:  *N. Atlantic Arctic Gateway*
4 holes logged with Quad, FMS, Geochem, GHMT tools
Wireline Heave Controller and Cylinder upgraded
CLIP 'Splicer' software package deployed
*S Higgins (LDEO)*

Leg 163:  *E. Greenland margin*
No logging
Wireline Heave Controller testing
*H Cambray (IMT)*

Leg 164:  *Gas Hydrates*
3 hole logged with Quad, FMS, Geochem (C/O),
VSP (WHOI) and Shear-Wave tools (LDEO)
Wireline Heave Compensator tested
*J Ladd (LDEO), A Meltzer (LDEO)*

Leg 165:  *Carribbean*
2 holes logged with Quad, FMS, Geochem, GHMT
GHMT processing software tested
*V Louvel (IMT), G Myers (LDEO)*
Figure 1: Comparison of Magnetic Susceptibility signal from core and log data.
Appendix 16
UPCOMING LOGGING OPERATIONS

Leg 166: Bahamas
Standard and GHMT tools scheduled (new IPL available)
VSP (check shot) planned
  C Pirmez (LDEO), T Williams (LUBR)

Leg 167: California
Standard and GHMT tools scheduled
CLIP 2nd module deployed
  P deMenocal (LDEO)

Leg 168: Juan de Fuca
Standard tools scheduled
  L Ewert (LUBR), Y Sun (LDEO)

Leg 169: Sedimented Ridges
Standard tools scheduled
  G Guerin (LDEO), G Iturrino (LDEO)

NEW TOOL DEVELOPMENT - NSF

Multisensor Combinable Gamma-Ray tool
  C Pirmez (LDEO), D Goldberg (LDEO)
ODP Ship-to-shore data link

- Invited poster at AGU session O21C “High Speed Data Communications” (Tues. AM)
- Capability for log processing in near real-time (e.g., geochemical and magnetic field data)
- Capabilities for continuous internet access, voice/fax, and email, etc.
- Control communications costs: favorable flat rates and provision of space segment by Schlumberger
- Proposal by OMNES through SEDCO/Schlumberger to ODP
Appendix 19

PCOM's August and December Meetings

PCOM's August meeting in Portland, Oregon:
Main issues considered included:
• Selection of proposals to make up the FY97 Prospectus,
• Presentation by J. Mutter of modified post-EXCOM Long Range Plan.
• Suggestions for closer co-operation with other international geoscience programs

PCOM's December Annual Meeting in La Jolla, California:
Main issues considered included:
• Annual reports of ALL of the advisory panels; and responses to recommendations from the panels:
• Determined the schedule of operations for JOIDES Resolution for FY97.

Some other items at La Jolla included:
reports from co-chief scientists on:
Legs 160 & 161 (Mediterranean, Emeis/Robertson),
Leg 162 (Atlantic-Arctic Gateways II, Raymo), and
Leg 163 (SE Greenland Margin II, Duncan);
• Report from ODP Director Falvey on the implications of project management within ODP;
• Budget discussions, including reviews of engineering development (DCS and others) and computer enhancement (JANUS) programs;
• Action on reports from PCOM subcommittees (publications*, future multi-leg/multi-platform operations).
**RECENT LEG SUMMARY**

**Legs 160 & 161 (Mediterranean Sapropels - Emeis)**

**Objectives:**
- To try to infer the cause, distribution and earliest age of sapropel layers
- To see if they occur across the entire Mediterranean basin
- If so, can they be correlated

**Results:**
- Extension of the sapropels occurrence throughout the Mediterranean and well beyond the Plio-Pliocene
- Some beds occur throughout the region but many complications are caused by collisional tectonics and "burn-out"/oxygenation of some layers
- One hypothesis requiring anoxia of basins seems confirmed for some of the layers

**Leg 162 (Atlantic-Arctic Gateways II - Raymo)**

**Objectives:**
- To investigate the importance of the NAAG region in the global climate system
- To look at the Cenozoic evolution and orbital forcing of climate change
- To look at millennial-scale climate changes

**Results:**
- Completion of North Atlantic Gateways experiment
- Documented the history of development of Atlantic-Arctic circulation and climate change
- High resolution stratigraphy matches ice cores and can be extended to longer time scales.

**Leg 163 (SE Greenland Margin II, Duncan)**

**Objectives:**
- To investigate the origins and emplacement history of asthenospheric material beneath the margin during breakup
- To look at deformation of the lithosphere in response to rifting
- To look at the interaction between lithosphere and asthenosphere during rifting

**Results:**
- Abandoned leg - attempt to complete N. Atlantic Volcanic Rifted Margins experiment
- Useful petrologic results linking Greenland margin to Iceland Plume
- Unsuccessful in attempt to recover pre-rift sequence below dipping reflector sequence
Latest Legs (not yet reported to PCOM)

Leg 164 (Gas Hydrates, Carolina Slope)

Objectives:
- Understanding the relationship between gas hydrates and a BSR
- Investigating the lateral variability and thickness, and \textit{in situ} fabric of gas hydrate deposits
- Assessing the amounts of gas trapped in extensively hydrated sediments

Results:
- Gas hydrates recovered in areas where no BSR exists
- Gas hydrate occurrence extends deeper than previously thought
- Estimates of the volumes of methane locked up in continental margins probably have to be revised upwards

Leg 165 (Caribbean Ocean History)

Objectives:
- To investigate the K/T boundary impact event and mechanisms of ejecta dispersal
- To investigate the environmental consequences from aerosols and fallout of ejecta
- To look at the influence of tropical seas on global ocean history and climate evolution

Results:
- first site nearest Yukatan did not penetrate K/T boundary
- second site in transect (S6) penetrated only 10 meters into the Cretaceous
- Neogene and Paleogene objectives all being met
- Site S6 prepared as "legacy site" (re-entry cone, casing, fully logged) but did not reach basement
Recent PCOM Decisions

Operations
• Endorsed the inclusion of 2-days of drilling in Saanich Inlet in the FY'96 science program.

• Recognised that only two to three of the New Jersey outer shelf sites could now be tackled with JOIDES Resolution and an alternative platform will be needed at some time in the future to complete that sea level transect.

• Agreed that experience from Leg 163 indicated that only one high latitude drilling leg should be scheduled in any one year science program, and that in the optimum weather window.

Engineering Development
• Agreed that a part-leg of engineering testing was warranted in the FY'97 schedule, primarily to test a hammer-in casing system for oceanic crustal drilling.

• Decided to delay a decision on the continuance of the DCS development project into Phase III (land testing) until after a short extension of a few months to the present Phase II (feasibility proving).

Publications
• Endorsed a new policy* for future ODP publications aimed at increased visibility and cost savings. Included are:
  a new format for the IR Volumes, largely desk-top publishing direct from the ship;
  relaxation of restrictions on outside journal publication by individuals in the shipboard party within the 12 months following the leg;
  a recommended price rise for the Volumes.

Conflict of Interest
• PCOM deferred to its April meeting further discussion of the Conflict of Interest issue.
Appendix 23

FY’97 SCIENCE PLAN - Summary

Full legs:
* Return to deep crustal drilling on the SW Indian Ridge (Hole735B) - deep penetration of the MOHO
* Investigation of the history of the Benguela Current - initiation of bipolar circulation in the Atlantic and upwelling cell
* Completion of the Atlantic non-volcanic margin transect off Iberia
* Studies of the NW Atlantic sediment drifts off the Eastern USA - potential to extend highest resolution circulation and climate change results from the Arctic Gateways to the mid-latitude N. Atlantic

Part legs:
174A • To complete as much of the New Jersey Sea Level Transect as is possible with JOIDES Resolution - test of Vail hypothesis
171C • To use an innovative program of triple XCB coring to investigate shallowly buried Cretaceous-Paleogene sections in the Blake region - high resolution early history of the Atlantic
171B • To follow up on the highly successful first logging-while-drilling (LWD) operations off Barbados - extends results of Leg 156 - part of long-term program on convergent margins
174B • To CORK Hole 395B on the mid-Atlantic Ridge, along with the engineering testing of hammer-in casing

Future:
* Ensures that FY’98 can begin with a Southern Ocean leg and possibly one more in slightly lower latitudes
* PCOM has alerted Red Sea proponents of its keenness to pursue drilling there in FY’98 should their proposal remain sufficiently highly ranked for its science and clearance problems can be overcome
* Current 4-year track takes JOIDES Resolution towards the Western Pacific
Implementation of the Long Range Plan - PCOM aspects

Final LRP
• PCOM discussed the final pre-publication version of the LRP and discussed some minor changes to it that were subsequently sent on and incorporated at JOI.

○ PCOM unanimously endorsed this version of the LRP.

Implementation of the Plan:
• consensus that the Program should remain essentially proposal driven.

• recognised that the advisory panels would naturally evolve their expertise to focus on aspects that are emphasised in the LRP.

• PANCH'95 meeting there were concerns expressed over a PEC IV recommendation that the Service Panels become merged under a single panel for technological issues; PCOM consensus also against.

• PCOM Chair recommended to PCOM that the thematic panels should be charged with ranking future proposals in relation to the long range plan as well as their white papers. New mandates? Discussion ongoing but no consensus yet.

• PCOM considered linkages with other programs that will be increasingly necessary, particularly in Phase III where additional platforms might be jointly funded.

○ August PCOM developed a series of recommendations* for EXCOM on the nature of JOIDES associate programmes and the inherent responsibilities that they would necessarily take on.

• PCOM's existing liaison arrangements with other programmes should be further developed - before 1998. PCOM will identify liaisons on thematic panels where they exist or where they may be needed.

• PCOM endorsed the international workshop approach (eg. the jointly-sponsored ODP/INTERIDGE workshop to be held at Woods Hole). From these workshops we expect proposals to be developed for multi-leg programmes.

○ PCOM at its August meeting set up a sub-committee to examine the whole question of multi-leg or multi-platform proposals. Its recommendations to PCOM at the December meeting resulted in an initiative to by PCOM to work with JOI Inc. in publishing a call for proposals for multi-leg and multi-platform activity during Phase III.

○ PCOM felt that its existing system of detailed planning groups (DPGs) could be modified to implement such programmes. Membership of these DPGs would involve scientists from the other global programmes.
ODP Council Meeting
June 1994

Mid-term review for 1999-2003

- Terms of reference
  - Review and evaluate
    - Scientific and technological accomplishments and future goals
    - Current and projected facilities required or proposed for ODP
    - Organizational and management structure
    - Resource requirements for ODP and related requirements

- Context
  - Marine geoscience research, in general, and specific contributions of ODP
  - Updated JOIDES Long Range Plan
  - JOIDES Resolution through 1998; options in future

- Issues
  - Scientific timeliness, relevance and quality
  - Facilities program requirements and science goals
  - Current management and international requirements
  - Resource and scientific goal match
  - Benefits and added value for international collaboration

- Report by January 1996
# COMMITTEE ORGANIZATION

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>Gordon M. Greve, Chair</td>
<td>USA</td>
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<tr>
<td>Jan Backman</td>
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<td>Eric Barron</td>
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<td>USA</td>
</tr>
<tr>
<td>Seiya Uyeda</td>
<td>Japan</td>
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ADDITIONAL COMMENTS FROM OTHERS

CONTINENTAL DRILLING (US and International Program)

QDP viewed as a model for managing a drilling program
US Drilling Program and ODP have cooperated on Tertiary Sequence Stratigraphy
Project on US East Coast
Continental Paleoenvironment Studies will need to be integrated with ocean section
and climate studies
Other areas of potential cooperative studies:
- Deformation of Plate Boundaries
- Studies of Sedimentary Basins
- Role of convergent and Passive margins
- Tectonics and circulation in the crust
- Origin of mineral deposits
- Scientific questions and communities
- Difference is in type of facilities required
ADDITIONAL COMMENTS

INTERRIDGE -- (Studies of ocean ridges/crust)

Ocean drilling will be a vital component of program
Need for Sample recovery, logging, experiments and long-term
Access to lower crust/upper mantle is vital
Zero-age drilling remains a high priority

View (Commission on Large Volume Basaltic Provinces)

...most important and required component of Research
...accurate and precise data on timing, petrology, geochemistry, and volume of
...to make significant progress without ocean Drilling
...more opportunity for less developed countries

Presentation at Lamont and is part of network of seismic stations to increase frequency and lower noise
Major Conclusions

- Strong record of achievement by ODP justifies continuation and enhancement of the program
- ODP should remain focused on drilling in deep water, i.e. generally beyond the continental shelves
- ODP should be strongly supportive of and collaborative with other scientific drilling programs
- Future success will depend upon the ability to focus on major scientific objectives many of which require longer term drilling
- The program after 2003 should anticipate utilizing both a Japanese 'riser' equipped drill ship and the JOIDES Resolution
- Transition from the present program to the program after 2003 is complex and planning must begin immediately
- ODP should strengthen its scientific leadership
- ODP should enhance communication and broaden its support base with the general public
JOIDES interim response to the ODP Mid-term Review Committee Report: 4 June 1996

JOIDES welcomes the report of the International Review Committee, and thanks the Chairman and members for the effort and insight that they brought to the review. JOIDES welcomes not only the strong overall endorsement of the Program conveyed in the Report, but also the criticisms and the issues for future attention that are identified. JOIDES is working, and will continue to work, with all those involved in the Program to address these issues and further enhance ODP and its performance.

In this interim response, we address each of the principal recommendations of the Report, and then (in an Annexe) give further details on the actions taken and planned on each of the main issues.

The major conclusions reached by the Review Committee are reproduced here in italics, and dealt with in turn:

1. The strong record of achievement by the ODP coupled with the 1996 Long Range Plan, which accurately describes an important and vital future role for scientific ocean drilling into the next century, justifies the continuation and enhancement of the program.

JOIDES welcomes this assessment of achievement (for which there is a wealth of documented evidence), the endorsement of the new Long Range Plan, and especially the emphatic prognosis of the critical role of scientific drilling in addressing truly important scientific issues.

2. The ODP should remain focused on drilling in deeper waters using the JOIDES Resolution, and a second vessel from 2003, to provide the samples and data needed to meet the goals of the 1996 Long Range Plan.

This recommendation is in full accord with JOIDES plans, which focus on deeper water without excluding occasional operations in shallower water that require the capabilities of the Resolution.

3. The ODP should be strongly supportive of and collaborative with other scientific drilling programs, and develop cooperative approaches for use of specialized shallow water, limited penetration and high latitude platforms to be operated by those programs.

JOIDES welcomes the emphasis placed on this matter by the Review Committee. Liaisons have long been established with other key programs. Measures to strengthen such linkages are in hand, and new procedures are under consideration to facilitate the flow of drilling proposals between Programs.

4. Future success will depend upon the ability to focus on major scientific objectives many of which require longer term drilling.

The Long Range Plan constitutes a firm commitment to focus the Program. Changes to the scientific advisory structure are being considered, in order to guarantee that the focus is properly directed at the major objectives that ODP is best placed to address.

5. The program after 2003 should anticipate utilizing both a Japanese 'riser' equipped drill ship and the JOIDES Resolution.

JOIDES planning is concentrated on this basis, with contingency alternatives being borne in mind.
6. The transition from the current program to the program after 2003 is complex and planning for the transition must begin immediately. The initial steps have been taken.

7. The ODP should strengthen its scientific leadership.

JOIDES EXCOM has commissioned a review of this issue which it will consider in the context of possible changes in structure mentioned above (Item 4).

8. The ODP should enhance communication and broaden its support base with the general public.

JOI has appointed a Communications Director with a mandate approved by JOIDES in 1995; JOIDES will receive reports, monitor progress and advise on future actions, on a regular basis.
Agenda Item 3: Phase III Planning

This is the major item for Monday morning, continuing into the early afternoon, and will be addressed in five parts. Following the advice from ODP Council after its Special Meeting to consider the mid-term review report of the International Review Committee, JOIDES and JOI set in motion the development of an Implementation Plan for Phase III, including the necessary planning for Transition to Phase IV.

(a) The PCOM Chair conducted a wide-ranging discussion (involving PCOM, panels, JOI and operators) on how best to identify and implement the top science priorities and to determine the consequent technological requirements. The outcome of this discussion is encapsulated in PCOM Consensus 96-1-16:

PCOM Consensus 96-1-16

The Planning Committee recommends to EXCOM the following three-tiered structure to carry out scientific planning and implementation in the period 1998-2003:

1) Establishment of an ODP Science Committee (SciCom), concerned with proposal ranking, long-term scientific planning, and implementation of the ODP Long Range Plan. An ODP Operations Committee (OpCom), chaired by the SciCom chair, will be responsible for the annual program plan, budgetary matters, panel recommendations, and issues concerning the operators. OpCom would also be responsible for monitoring technical developments needed to meet long-term phased scientific objectives as identified by SciCom and the LRP. It is charged with monitoring these developments so that they are properly budgeted and meet time lines for inclusion in the multi-year science program.

2) Two review panels, dedicated to the themes of Earth's Environment and Earth's Interior, which will work both with proponents and working groups to handle proposal evaluation, and external peer review.

3) Working groups created by SciCom, possibly in conjunction with international geoscience initiatives, and individual proponents, will prepare proposals for drilling or other experiments using drilling platforms. Mature proposals would be passed from the working groups to the relevant review panel.

PCOM will prepare a summary statement of its deliberations on these issues, explaining the rationale for the changes, panel mandates (including those of the service panels which are not addressed here), and the manner in which these panels and committees would work together, with the JOIDES Office, the operators, and with JOI. PCOM recommends that the new structure be in place by January 1, 1997.

The full PCOM debate on these matter is at items J and K of the draft minutes of the April 1996 PCOM. The Summary Statement referred to in PCOM Consensus 96-1-16 is attached here as Paper 3(a). Professor Kidd will present the issues and conclusions to EXCOM.

EXCOM is also asked to approve the PCOM proposals for a new JOIDES advisory structure as in PCOM Consensus 96-1-16.

EXCOM is also asked:

to approve the proposed mandates (Section 8) in principle, and ask the JOIDES Office to consult JOI and NSF, thence to the JOI Board for finalisation.

to approve the membership structures for committees, panels and working groups proposed in Section 12. NB It has been suggested elsewhere that optimal
working of the proposed Science Committee is predicated on US JOIDES members waiving their right to institutional representation, as they have already done for Panels. Also it is proposed that the Operations Committee should not follow the "16 JOIDES member" formula - a precedent already set for BCOM. The proposals for the future Panels and Working Groups are in accord with established precedents that waive the rights that are formally established in the MoU's.

to call on national (and consortium member) committees to nominate qualified persons to serve on the new Science Committee, Review Panels and Measurements Panel from 1 January 1997, consulting with the PCOM Chair to ensure balance of expertise.

to decide whether to move to ensure the progress of Phase IV planning by the nomination of a senior scientist and engineer as liaisons to the Science Committee, as proposed in the paper, or by other means.

to advise PCOM on the principles that should govern the establishment and operation of JOIDES Working Groups and also the relationship between non-JOIDES Working Groups and JOIDES

to consider whether a policy should be developed on the ODP resources that might be made available in joint operations with other global programs, and set up the appropriate mechanism if required.

(b) Innovations and economies (Paper 3(b)). Dr Falvey has addressed the requirements of EXCOM Motion 96-1-14 and will present the issues involved. EXCOM is asked to decide the policies for optimising innovation and economies in the Program

(c) Financial Projections (Paper 3(c)). Dr Falvey has set out a useful suite of financial projections for Phase III, with two and one ship models for Phase IV. It should be emphasised that all the figures are ASSUMPTIONS. (In particular, none is authorised by any present or future funding agency!) Nor, conversely, should the figures be construed as a JOIDES' view of how much any partner SHOULD pay.

JOIDES Mandate extends only to MAKING THE CASE to agencies world-wide to subscribe the requested funds. JOIDES has no mandate to NEGOTIATE the standard international partner subscription, nor the US contribution, and certainly not the Japanese provision for Phase IV. EXCOM is advised to propose to ODP Council that an international negotiating forum is needed to determine the funding structure and total budget of ODP. Two models are offered for consideration:

i. That the Council itself be the negotiating forum; but it would not have STA/JAMSTEC membership and non-US consortia would be over-represented.

ii. A body with membership reflecting the assumptions in Dr Falvey's "two ship" Phase IV projection, i.e. about one-third US, one-third Japan and one-third other. It should have permanent JOI/JOIDES representatives as liaisons or non-voting members. This body must interact with JOIDES-STA/JAMSTEC planning of Phase IV Science & Technology (see Agenda item 6).

(d) Scientific leadership. EXCOM Motion 96-1-12 and consensus 96-1-17 invited Dr Otis Brown to evaluate the Scientific Leadership of ODP. This was an issue raise by the International Review. Dr Brown will speak on his report (Paper 3(d)), focusing EXCOM on the issues and actions that may be appropriate. EXCOM should consider Dr Brown's report in the light of the new JOIDES Advisory Structure (Item 3(a)); it is
also relevant to the RFP for the JOIDES Office. EXCOM is invited to accept Dr Brown's report and decide the actions needed to fully address the issue of Scientific Leadership in ODP.

(e) 1998-2003 RFP's. In response to EXCOM Motion 96-1-13 Dr Falvey will present his proposals (Paper 3(e)). EXCOM is asked to advise JOI on the scope and specification of RFP's for the operation of the Program through Phase III. In particular EXCOM should advise on the RFP for future JOIDES Office's.
JOIDES Executive Committee, at its January 1996 meeting, endorsed the ODP Long Range Plan and requested PCOM to develop a draft science implementation plan for consideration at its next meeting in June 1996 (EXCOM Motion 96-1-10). This draft aims to chart progress on a range of issues and to highlight others for further consideration by both EXCOM and PCOM. A major part of this document is devoted to proposed changes to the JOIDES Advisory structure. EXCOM members are referred to Section 16 to where items under consideration that require specific input from EXCOM are listed.

1. SCIENTIFIC LEADERSHIP
Currently scientific leadership in JOIDES rests with Planning Committee and the PCOM Chair, who receive advice from the Thematic and Service Panels. The PCOM Chair heads the JOIDES Office, which coordinates advice, science planning and has oversight of drilling results. As described in detail in this document, PCOM’s recommendations for reorganisation of the Advisory Structure recognises the scientific leadership role of the Head of the JOIDES Office. (Another response to EXCOM Motion 96-1-9 on science leadership may be individual input to the Brown Report by individual PCOM members.)

2. SCIENCE DELIVERY
In order to accomplish the ambitious objectives of the Long Range Plan, proposals for drilling will have to focus on the areas defined by the LRP and science planning will need to be rigorous in pursuit of these goals. A recent PCOM initiative has been to issue a Call for Proposals for multi-leg, multi-platform projects linked to the LRP. ODP expects this to stimulate involvement of other global community programs as well as to demonstrate the Program’s commitment to long-term projects that are accorded highest science priority.

The overall implementation plan envisages regeneration of the Program through two further phases:

**Phase III (1998 to 2002)** - continuing to utilise JOIDES Resolution but with an emphasis on collaborative initiatives in science and technology planning with other interdisciplinary geoscience programs. These should result in joint operations with JOIDES Resolution and other platforms.

**Phase IV (2003 onwards)** - a 2-ship operation involving a Resolution-type vessel in continuing world-wide operations, but with a second platform bringing the facility to drill deep holes in both continental margins and oceanic crust. This second platform is the facility for the OD-21 Program as proposed by our Japanese colleagues.

3. PARTNERSHIPS WITH OTHER GLOBAL PROGRAMS
As well as the formal links that have been discussed at EXCOM with Programs such as NAD, and other potential associate Programs, PCOM has taken further initiatives to encourage other existing global community programs to submit proposals for drilling with JOIDES Resolution and/or with additional platforms.
4. WORKSHOPS

A series of international workshops, sponsored jointly by JOIDES and global geoscience programs, have been planned:

- InterRidge-IAVCEI-JOIDES, May '96
- US MARGINS/JOI, Sept. '96
- International Gas Hydrates, Sept. '96
- RIDGE/USSAC Ocean Magnetisation Conference, Oct. '96
- MARGINS/CORSAIRES/JOIDES, Spring '97
- MESH/IMAGES, July '97

5. OTHER PLATFORMS

During Phase III the LRP recognises a need for joint platform operations in regions inaccessible to JOIDES Resolution. An example is the multi-leg initiative JOIDES has taken to understand sea-level evolution on the New Jersey margin. Here, by mid-1997, we will have done as much of the project as is possible with JR, and a shallow water platform will be necessary to drill key holes (probable collaboration with the US MARGINS program). A second example is JOIDES' multi-leg program to investigate the history of Arctic climate and circulation, which now requires carrying forward with platforms capable of drilling in continually ice-prone regions. (Probable collaboration with NAD, but also there is also potential in a Swedish initiative to use a drilling platform on a regular icebreaker. Note that problems have already arisen in finding the resources to involve ODP-TAMU engineers - Appendix 1). A Danish initiative aims to extend the results of two ODP legs on the East Greenland margin, utilising a shelf drilling vessel. CORSAIRES is a European program aimed at drilling transects of holes in Eastern Atlantic and Mediterranean shelves and upper slopes, which through collaboration will offer opportunities to develop objectives of the LRP relating to gas hydrates and the effects of sea level change. JOIDES can offer services to new collaborative ventures of this type in terms of help with shipboard technology, sample curation, data handling, site survey and safety reviews, but will certainly insist on its existing policies on international access to data and samples. EXCOM, JOIDES and JOI will need to consider in detail what JOIDES resources can be applied to these initiatives through JOI.

6. SCIENCE ADVICE AND COORDINATION

PCOM wishes to preserve access to the ODP for individual proponents to undertake exciting new science while recognizing the increased benefits with the involvement of JOIDES and global program working groups to nurture proposals. Having created the LRP over a two-year period PCOM considers that truly focused attention should be given to science coordination and planning during Phases III and IV.

For optimum science delivery the organisation will continue to require a committee at PCOM level: (a) to be the "custodians" of the LRP science objectives, to identify the top priority science projects for scheduling; (b) to monitor progress on multi-leg projects; (c) to ensure that technical developments move forward so that Phase III objectives can be carried out, and preparation for Phase IV completed; (d) to regularly report on progress to EXCOM and ODP Council (EXCOM Motion 96-1-10). In order to provide this focus, PCOM recognises the need to relinquish many of the operational functions to a new Operations Committee. Some policy considerations could also be handled by EXCOM.

7. NEW ADVISORY STRUCTURE

Background: In February the PCOM Chair initiated an e-mail debate between PCOM members on the evolution of the science advisory structure in response to the LRP (response to EXCOM Motion 96-1-10) as preparation for discussions at the Spring PCOM meeting (Aix, 22-25 April, 1996). In addition, Thematic Panels were asked to comment on an initial outline of potential changes prepared by the PCOM Chair. Thematic Panel Chairs were invited to take part in the discussions at Aix. Between February and April a model evolved for a new JOIDES Advisory Structure, that included a Senior Science Committee to deal with science proposal review and ranking. This committee would
be entrusted to identify and promote the highest priority science that could be addressed by ODP drilling, and to plan over a longer time period than has commonly been the case, whilst ensuring that technical innovation and development moves forward in concert. An issue discussed was whether this Science Committee should be independent of PCOM or whether it could evolve from it.

At the end of that first session PCOM had a majority view on the following:

- **Working Groups should be established** to nurture and promote proposals that address the objectives of the LRP. These working groups could develop from the workshop series that JOIDES is jointly sponsoring, could be established by the planning structure to address specific initiatives of the Plan, or could be developed from the other global geoscience programs.

- A scientifically-balanced **Science Committee (SCICOM) should be established** to serve as the senior science advisory panel charged with taking forward the objectives of the LRP. Membership of this committee would require ODP partner representation as on the present Thematic Panels (see PCOM Motion 96-1-26).

- We should aim for fewer, rather than more panels in the system, while at the same time making greater use of working groups that evolve from JOIDES initiatives or from other global community programs. **Two panels for science review** linked to the themes of the LRP were favoured.

- **There should be only one proposal round per year**. Flexibility should remain, however, for the Science Committee to identify and promote innovative proposals that address exciting science themes that are relevant to ODP but not explicitly included in the LRP. SCICOM would consider science planning over a 3 to 5 year period rather than simply on the annual time scale.

- **Ranking of proposals would take place at SCICOM level** rather than with the Science Review Panels.

- The weekly conference calls now established between the PCOM Chair, JOI-ODP Program Director, and the Directors of ODP-TAMU and WLS-LDEO (PEC IV Recommendation, 1995) would continue to provide sufficient oversight of operational issues to allow **PCOM to divest some areas of its business**.

- **The changes to the advisory structure would be in place for the beginning of the 1998 round of proposal reviews**. (EXCOM final endorsement, January '97.)

Major unresolved items included the operational aspects of scheduling ODP legs, the role of the service panels, and whether external peer review of proposals was required.

Following initial discussion of a new JOIDES Advisory Structure, PCOM debated the merits of two proposed models. It was ultimately decided that two committees were necessary at the present PCOM level: a Science Committee (SCICOM), and Operations Committee (OPCOM). Considerable debate was devoted to the role of OPCOM and its linkages and accountability within the system. There was also discussion on the need for a science review level between the Working Groups and the SCICOM; such that a vote resulted in the following motion:

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<th>PCOM Motion 96-1-15</th>
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<td>PCOM (or its successor, ODP Science Committee, SCICOM) will establish two science review panels in line with the two major themes of the Long Range Plan. These panels will be generally tasked with the review of ODP proposals for scientific quality and potential feasibility (potential feasibility may require development of new capabilities and technologies). These panels will meet at the same time and place so that they can discuss divergent issues separately, and common issues together.</td>
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*Proposed: Larson, Seconded: Natland*  
12 For, 1 Against, 1 Abstain, 2 Absent

Further discussion led to the following consensus:
The Planning Committee recommends to EXCOM the following three-tiered structure to carry out scientific planning and implementation in the period 1996-2003:

1) Establishment of an ODP Science Committee (SCICOM), concerned with proposal ranking, long-term scientific planning, and implementation of the ODP Long Range Plan. An ODP Operations Committee (OPCOM), chaired by the SCICOM chair, will be responsible for the annual program plan, budgetary matters, panel recommendations, and issues concerning the operators. OPCOM would also be responsible for monitoring technical developments needed to meet long-term phased scientific objectives as identified by SCICOM and the LRP. It is charged with monitoring these developments so that they are properly budgeted and meet time lines for inclusion in the multi-year science program.

2) Two review panels, dedicated to the themes of Earth's Environment and Earth's Interior, which will work both with proponents and working groups to handle proposal evaluation, and external peer review.

3) Working groups created by SCICOM, possibly in conjunction with international geoscience initiatives, and individual proponents, will prepare proposals for drilling or other experiments using drilling platforms. Mature proposals would be passed from the working groups to the relevant review panel.

PCOM will prepare a summary statement of its deliberations on these issues, explaining the rationale for the changes, panel mandates (including those of the service panels which are not addressed here), and the manner in which these panels and committees would work together with the JOIDES Office, the operators, and with JOI. PCOM recommends that the new structure be in place by January 1, 1997.

It has been pointed out that JOIDES WGs cannot prepare proposals. PCOM will be asked to consider at the AUGUST PCOM Meeting whether these two words should be replaced by encourage proposal generation.

Benefits of the proposed model:
- Enfranchises a wider community.
- Delivers science leadership and independence to SCICOM.
- Ensures separation science and implementation/operations/budgeting, so as to ensure the best operational advice, project management and fiscal efficiency.
- Streamlines the number of formal JOIDES panels and committees.
- Is competitive for proposals at three levels, but removes current inter-thematic competition and perception of panel entitlement to at least one leg per year.
- Provides accountability.
- Allows for continual program renewal within context of the LRP.
- Provides mature proposals to SCICOM.
- Allows for external peer review of proposals.

8. NEW MANDATES

The following mandates were developed for the new advisory bodies by the JOIDES Office and are recommended for discussion at EXCOM:

SCICOM. The Science Committee is the custodian of the Ocean Drilling Program's dedication to the Long Range Plan and has a commitment to a broad-based scientific approach that includes multi-leg, multi-platform drilling programs. As such, the Science Committee will report on science progress to the Executive Committee and advise JOI, and through JOI, the Science Operator and Wireline Services Operator of drilling proposals and plans that it wishes to see implemented. It will also advise on which major areas of technology require development to fulfil SCICOM's future drilling plans.
More specifically, the SCICOM will be responsible for: a) solicitation and ranking of drilling proposals that address the scientific themes and initiatives in the ODP Long Range Plan; b) long-term science planning, over at least the 5-year period of Phase III (this would include planning the 4-year track of JOIDES Resolution); c) fostering communications among and between the general community, the review panels, the Program Management at JOI, the Science Operator, and WLS Operator.

The SCICOM will be responsible for the mandates of any WG's or DPG's it creates, their membership, approval of their meetings and agendas, and it may assign special tasks to them. The Science Committee (through the JOIDES Office) will assign proposals to Science Review Panels and, if relevant, to Service Panels for review. The SCICOM will generally receive reports in writing, but it will retain flexibility to request presentation from the chairs of WG's and DPG's, and ad hoc presentations from individual proponents of particularly exciting science or new technology. SCICOM will also recommend the names of potential leg Co-Chief Scientists to the Science Operator (who will make the final selection).

OPCOM. The Operations Committee reports to EXCOM and advises JOI, and through JOI, the Science Operator and Wireline Services Operator on plans to optimize the scientific productivity and operational efficiency of the drilling program.

More specifically, the Operations Committee is responsible for: a) developing a 12 to 18 month track of the drilling vessel based upon the ranked proposals that SCICOM wants to see drilled; and b) monitoring developments and recommendations from the service panels, and ensuring those with major fiscal or program-wide implications are brought to SCICOM for consideration and advice.

NOTE: The SCICOM Chair will also Chair the OPCOM and will be Head of the JOIDES Office, so ensuring that critical communications linkages are maintained.

Science Review - Environment. The Earth's Environment Science Review Panel will be responsible for reviewing drilling proposals that address scientific problems under the theme of Dynamics of Earth's Environment as outlined in the Long Range Plan. The panel will review proposals sent to the Panel Chair by SCICOM (through the JOIDES Office) in terms of scientific excellence. The panel will interact with all proponents regardless of whether they are individual scientists, groups of individuals, international science Programs, or JOIDES Working Groups, on an iterative basis (through the JOIDES Office), until the review panel considers the proposal mature. Mature proposals will be recommended for external mail review before they are passed to SCICOM.

Science Review - Interior. The Earth's Interior Science Review Panel will be responsible for reviewing drilling proposals that address scientific problems under the theme of Dynamics of Earth's Interior as outlined in the Long Range Plan. The panel will review proposals sent to the Panel Chair by SCICOM (through the JOIDES Office) in terms of scientific excellence. The panel will interact with all proponents regardless of whether they are individual scientists, groups of individuals, international science Programs, or JOIDES Working Groups, on an iterative basis (through the JOIDES Office), until the review panel considers the proposal mature. Mature proposals will be recommended for external mail review before they are passed to SCICOM.

Service Panels. In the new advisory structure the mandates of TEDCOM, SSP and PPSP will not change significantly but a Measurements Panel (MP) will be formed from the merger of SMP, DMP and IHP. The SSP, PPSP and MP will advise SCICOM at various stages in the proposal review process, but principally they will be concerned with advice to OPCOM on the scheduling of legs. MP and TEDCOM will both advise OPCOM on near-term equipment development, and TEDCOM will also advise SCICOM on major long-term technical development. MP and TEDCOM, with approval from the SCICOM/OPCOM Chair, will advise JOI directly on operational equipment purchasing and development. SCICOM/OPCOM may convene WGs with a concentrated expertise to address specific issues and may recommend that JOI establish WGs to take forward specific innovations in services.

9. PROCEDURES FOR SETTING UP WORKING GROUPS & DETAILED PLANNING GROUPS

JOIDES Working Groups will be convened by SCICOM in response to a requirement to develop drilling strategies for major scientific objectives that are not sufficiently covered by available drilling proposals or strategies (e.g. the ODP LRP initiatives). WGs will be expected to establish and prioritise scientific objectives and drilling strategies for a certain scientific theme or themes. WGs are envisioned to have a finite life-time (3 years), but can be extended if desired by SCICOM. JOIDES will not support more than five WGs at any one time.
In particular, Working Groups will be tasked with ensuring that drilling proposals are crafted broadly to address fundamental science questions and are vigorously linked to international science initiatives, since it is likely that a drilling leg will be a component of a much larger scientific initiative, both in terms of other scientific experiments as well as multi-leg drilling programs. We wish to emphasize this new and enhanced role for working groups.

To this end, SCICOM will encourage formation of WGs from other global programs or from international workshops. Such a group could request formal recognition from SCICOM and seek JOIDES representation for advice and guidance.

JOIDES Detailed Planning Groups (DPGs) will be short-lived planning groups created by SCICOM as required for specific tasks, in response to requests from the JOIDES WGs, Science Review Panels and SCICOM itself. The purpose of a DPG will be to generate concrete drilling prospectuses from groups of highly ranked proposals united by a common theme or themes. Mandates, guidelines, and duration of operation will be specified by SCICOM. DPGs will provide written documents to SCICOM and will be disbanded by SCICOM when their function is complete.

10. LINKAGES IN THE NEW SYSTEM

As with the current JOIDES advisory structure, the linkages between the various bodies are best seen by considering separate functional "wiring diagrams", rather than by trying to trace the progress of science and operational advice, proposal flow, leg implementation and reporting on a single diagram. The following are the proposed linkages of the new model as researched following PCOM by the JOIDES Office:

(a) Science Advice (Diagram 1). The JOIDES Science Committee (SCICOM) will advise on all long-term science planning related to the objectives of the LRP and its technical requirements (over the 5 years of Phase III and beyond). Flow of science advice begins with review panel comment on proposals submitted. Working Groups serve an important function in that they nurture proposals guided by the advice of review panels. Science review panels advise SCICOM on proposals they consider mature. These proposals are peer reviewed and this advice is also passed on to SCICOM. SCICOM recommends to OPCOM highly ranked proposals for potential scheduling, and communicates with science review panels, JOIDES working groups, and proponents on those proposals not scientifically mature or which do not meet SCICOM criteria. SCICOM receives advice from TEDCOM on long-term major technical developments. SCICOM advises EXCOM on its current Science Plan and on progress in achieving the objectives of the LRP. Once the ODP Program Plan has been endorsed by EXCOM and approved by NSF, JOI will implement the Program Plan.

SCICOM is considered the custodian of the Program's dedication to the LRP, and it is SCICOM that will reflect the Program's commitment to the multi-leg and broad-based scientific approach.

(b) Operational Advice (Diagram 2). The JOIDES Operations Committee (OPCOM) will focus on short-term science planning and implementation, using advice from TEDCOM, SSP, PPSP and the MP. The primary task of this panel will be the scheduling of science proposals selected by SCICOM as ODP drilling legs. The science drilling program developed by OPCOM will be reported to EXCOM. The approved plan will be passed to JOI for implementation. Both EXCOM and JOI will receive advice from BCOM before that year's Program Plan is finalized. JOI will direct the Science Operator and WLS Operator to implement the finalized drilling program. With the approval of the Joint OPCOM/SCICOM Chair, the MP will also advise JOI directly on new equipment or services to be purchased or developed.

(c) Proposal Flow (Diagram 3). Proposals and letters of intent (LOIs) may be submitted to the JOIDES Office by individual proponents, JOIDES working groups, and global initiative groups. Proposals received by the JOIDES Office will be forwarded to the SSDB, the Science Operator and the WLS Operator for information only. A copy of each proposal will be archived at JOI. The JOIDES Office will then send proposals to the two Science Review Panels for scientific review. Comments returned to the JOIDES Office by the Review Panels will be sent to proponents and WGs.

The JOIDES Office will solicit advice on those proposals considered scientifically mature by the Review panels from SSP and the MP, and request information on costing and logistics from the WLS Operator and the Science Operator. A scientifically mature proposal is one containing:

- clearly expressed scientific objectives that are linked to the goals of the ODP Long Range Plan;
• a well-defined drilling strategy to achieve the stated objectives; and
• sufficient supporting data to guarantee a high probability of achieving the scientific objectives.

A proposal that meets these criteria may be passed by the the Scientific Review Panels to SCICOM for further consideration. Many proposals considered for the first time by the Scientific Review Panels will not be scientifically mature. Those containing ideas that are relevant to the goals of ODP’s Long Range Plan, or that promise to yield innovative and exciting scientific results, will be returned to proponents and WGs with detailed comments and advice from the Scientific Review Panels. It is expected that WGs, with the benefit of reviews from the Scientific Review Panels, will serve a vital role in nurturing drilling proposals to scientific maturity. The existing Proposal Review Criteria will require revision by the Scientific Review Panels once their mandate has been clearly established.

In addition, the JOIDES Office will arrange external mail review** for scientifically mature proposals, as advised by the review panels who will recommend names of unconflicted reviewers. Advice, requested information, and external reviews will be assembled as a Science Prospectus by the JOIDES Office and presented to SCICOM. This Prospectus will also contain proponent responses (as proposal addenda) to the comments of the science review and service panels.

SCICOM will evaluate and rank the mature proposals in accordance with the themes and initiatives of the 1996 ODP Long Range Plan. Highly ranked scientifically mature proposals with adequate supporting site survey data will be recommended for OPCOM evaluation by SCICOM. This selection, and information about these proposals, will be conveyed to OPCOM through the JOIDES Office in an Operations Booklet. The booklet will contain detailed advice on these proposals from SSP, PPSP, TEDCOM, MP, WLS Operator and Science Operator. OPCOM will schedule as drilling legs those proposals that meet the criteria of evaluation. The JOIDES Office will then draft a science drilling plan, which will be presented by the joint OPCOM/SCICOM Chair to EXCOM for endorsement. Using this as a basis, JOI will prepare the ODP Program Plan, which will be implemented following approval by NSF.

Mature proposals that are NOT considered to be a SCICOM priority will be returned to proponents and working groups through the JOIDES Office, with written comments indicating recommended actions. SCICOM priority proposals that remain unscheduled by OPCOM in any one year may be considered in subsequent years.

(d) Leg Implementation (Diagram 4). Mature proposals and corresponding preliminary site survey and budgetary information will be evaluated by SCICOM. Highly ranked proposals selected by SCICOM will be evaluated by OPCOM on the basis of site survey readiness, safety, operational factors, the ship’s track, technological requirements, and cost. The ODP/JOIDES reporting structure is fairly straightforward, as shown in Diagram 5. It is important to note, however, that the JOIDES working groups are accountable to SCICOM. This accountability will be measured in terms of the quality of proposals that flow through the JOIDES system and are ultimately evaluated by SCICOM.

(e) Reporting (Diagram 5). Formal reporting in the science advisory structure will begin with the Review Panels and TEDCOM to SCICOM. SCICOM will report on the Science Plan and progress with the LRP through the Joint SCICOM/OPCOM Chair to EXCOM and ODP Council. OPCOM will receive reports from all of the service panels and report on operational matters and leg scheduling through the Joint Chair to EXCOM and SCICOM.

mail review** - JOI and NSF have suggested that the external mail review process should be managed by JOI.

11. ANNUAL MEETINGS SCHEDULE

One proposal round per year is envisioned as the WGs are expected to develop more focused drilling proposals. SCICOM and OPCOM should meet in total no more frequently than the current PCOM schedule, with SCICOM and OPCOM each meeting twice per year. The proposed April meeting of SCICOM will immediately precede OPCOM and will take place at ODP-TAMU. Drafts of potential agendas for these meetings serve to illustrate how responsibilities divide and the rationale for this proposed frequency (Appendix 2). The flow of meetings is graphically shown in Appendix 3. The second SCICOM meeting is proposed to take place in a partner country and will be devoted primarily to science review and ranking.
Review panels will meet annually while WGs will meet as required to develop proposals efficiently. SSP should reduce to meeting twice per year, providing initial advice to SCICOM once mature proposals are identified and then to OPCOM when a subset are selected for scheduling. TEDCOM also provides long-term oversight to SCICOM and reports to OPCOM on development projects currently underway, and thus will need to meet twice per year. MP will meet once to provide initial advice on proposal logistics to OPCOM, and subsequently to advise JOI on near-term, small-scale purchases and developments related to Program facilities. PPSP will provide safety advice on proposals identified for scheduling and will need to meet as required.

Should EXCOM favour this streamlined schedule, PCOM will also recommend reducing the number of meetings at EXCOM/ODP Council level to one per year.

12. MEMBERSHIPS AND LIAISONS

For the proposed new advisory structure, only voting memberships and formal liaisons have been considered below. Inter-panel liaison and liaison to other programs will need to be considered later.

SCICOM will comprise 16 members, as in the case of the current PCOM, to reflect the membership of the different ODP partners. Each partner would be asked by EXCOM to review its representation in order to achieve a scientific balance by the first SCICOM meeting. The Chair of SCICOM will be the Head of the JOIDES Office and also the Chair of the Operations Committee (OPCOM). The Chair of TEDCOM, or his representative, will be a permanent liaison. Two additional non-voting SCICOM liaisons should be appointed to oversee the long-term development of science and engineering for Phase IV (see below). Non-voting liaisons from NSF, JOI, the Science Operator, and the WLS Operator will be represented.

OPCOM will be chaired by the Head of the JOIDES Office, who is also the Chair of the SCICOM. In addition, the panel will comprise at least 5 SCICOM members, the Chairs of TEDCOM, SSP, PPSP, and the proposed MP, and liaisons from NSF, JOI, and the Science and WLS Operators. The SCICOM members of OPCOM should reflect the expertise required for the evaluation of highly-ranked proposals under consideration by OPCOM for scheduling. SCICOM members will therefore rotate through OPCOM on an "as needed" basis with a decision on attendees made at the August SCICOM meeting.

Science Review Panels. Each review panel comprise 16 members representing the ODP member nations maintaining appropriate expertise and balance. Additional scientists may be invited by ODP to serve on the panels on an ad hoc basis if additional scientific expertise is deemed desirable by SCICOM.

Working Groups. Membership of the JOIDES Working Groups and their respective Chairs will be recommended by the Science Review Panels and by SCICOM, and will be appointed by SCICOM. The size of WGs should be commensurate with the charge of the group. SCICOM will choose JOIDES WG members for their expertise with respect to assigned topics. Liaisons to the WGs from the Science Operator, WLS Operator, JOIDES Office, SSP, PPSP may be requested by the WGs on an ad hoc basis or by SCICOM.

Detailed Planning Groups. Membership of the JOIDES Detailed Planning Groups and their respective Chairs will be recommended by the Science Review Panels and by SCICOM, and will be appointed by SCICOM. The size of DPGs should be commensurate with the charge of the group. SCICOM will choose JOIDES DPG members for their expertise with respect to assigned topics. Liaisons to the DPGs from the Science Operator, WLS Operator, JOIDES Office, SSP, PPSP may be requested by the DPGs on an ad hoc basis or by SCICOM.

If EXCOM accepts this advisory structure model and associated membership recommendations, PCOM will request that partner national committees propose representatives to the SCICOM and Science Review Panels, with an aim of ensuring scientific balance in their expertise. Partner representation on OPCOM will be assured by the SCICOM representatives. Service Panel memberships can be reviewed and modified at a later date (TEDCOM, SSP, PPSP), although some loss of representation is certain with the merger to produce the MP (PEC IV and Greve Report recommendations)
13. JOIDES OFFICE CHANGES

Adoption of the new Advisory Structure outlined above will require EXCOM consideration of restructuring of the JOIDES Office. A paper addressing this will be tabled at the June meeting.

14. LINKS TO OD-21 AND PLANNING FOR PHASE IV

The series of initial joint meetings between JOIDES Panels and OD-21 planners are proving very productive in assessing planning for post-2003. It is suggested that EXCOM act on the recommendation in the Greve Committee Report that a senior scientist and a senior engineer be identified to become permanent liaisons to SCICOM, OPCOM and TEDCOM throughout Phase III in order to provide the link with OD-21.

15. SERVICES AND TECHNICAL INNOVATION (EXCOM Motion 96-1-13)

In addition to the major development of a deep drilling capability (riser or riserless), the LRP details areas of coring technology in which advances will be required for Phase III. Downhole and shipboard facility developments should be undertaken in the short-term, with advice from TEDCOM and MP. Progress towards realisation of the LRP initiatives on in-situ monitoring in boreholes and the exploration of the biosphere, will require new service groups and associated facilities aboard ship.

Current services have been examined for modification and/or savings. (Response to EXCOM Motion 96-1-13; JOI will amplify.)

Database development. The JANUS project has been a major feature of Phase II. There is a need to continue this development to incorporate the historical data from DSDP and the early years of ODP. EXCOM should consider asking for Expressions of Interest for this service.

Publications. PCOM agreed a revised recommendation on Publications Policy (PCOM Motion 96-1-13). Aspects of implementation are currently being pursued by JOI Inc, the Chair of the PCOM Publications Sub-committee, and with ODP-TAMU staff. They are also drafting a response to a Report from the NSF Inspector General’s Office. JOI ODP Director will present progress with this item at EXCOM in June. The Program Director at JOI will present

Wireline Services. PCOM requested input from DMP on the scope of work for the next contract period of WLS, which will be issued as an RFP by JOI (JOI/PCOM input requested in EXCOM Motion 96-1-13). No major changes were recommended for Phase III; minor recommendations include a change in the routine tools deployed. The RFP should be worded so that Schlumberger are not identified as the only potential service provider.

Site Survey Databank. PCOM requested input from SSP on the scope of work for the next contract period of SSDB which will be issued as an RFP by EXCOM (JOI/PCOM input requested in EXCOM Motion 96-1-13). No major changes were recommended for Phase III other than a move to data holding within a GIS system.

16. IMPLEMENTATION STRATEGY: DRAFT SUMMARY

This draft Science Implementation Strategy for the ODP Long Range Plan provides an update and further detail on areas identified in the LRP for change in the Program from 1998 onwards. A major proposal contained within it is a reorganisation and streamlining of the JOIDES Advisory Structure.

EXCOM is requested to take forward some of the items and initiatives, and to endorse in principle the changes to the Advisory Structure such that PCOM may progress these at their August meeting. In order to put the new committee/panel structure in place for the round of proposals relating to 1998, progress must be rapid such that, for example, SCICOM, OPCOM and Science Review panel memberships can begin to change by Spring 1997. PCOM recognises that during 1997 the committee and panel memberships may be in transition. Not all WG’s will be in place, but proposals in hand by 1 January, 1997 can be reviewed and dealt with operationally by the new structure.
EXCOM is requested to consider specifically:

- What specific ODP resources can be made available through JOI in joint operations with other global programs, and what are their long-term financial implications for ODP. (Sections 3 & 5)
- Whether ODP National Committees can provide endorsement of either full or partial review of their representation on JOIDES’ panels and committees by the Spring round of meetings (by January ’97, or July ’97 EXCOM). (Section 7)
- Whether the draft Mandates for the new committees/panels are acceptable to EXCOM. (Section 8)
- What could be the formal relationship of WGs set up for specific LRP initiatives versus those of the other global programs and how would the costs of meetings be divided. (Section 9)
- What are EXCOM’s views on whether the external mail review process should be managed by JOI or the JOIDES office? (Section 10)
- Whether the science leadership role of the Joint SCICOM/OPCOM Chair implied in this reorganisation, and the function of the JOIDES Office, can be clarified and endorsed at this time. (Section 1 & 13)
- What is the EXCOM view on identification of a senior scientist and senior engineer within the structure to be concerned specifically with Phase IV planning. (Section 14)
- Endorsement of the proposed new JOIDES Advisory Structure. (Section 16)
Appendix 1

ODP engineering and the Arctic Ocean challenge

Dear Dr. Kidd,

We would like to bring to the attention of the Planning Committee a matter which relates to an unfortunate effect of program cut-backs in engineering on future program benefits.

We refer to an invitation from the Swedish Polar Research Secretariat of March 19, 1996 for an ODP/TAMU engineer to take part in an attempt for shallow drilling from icebreaker ODEN on the Lomonosov Ridge, central Arctic Ocean this summer, and response from ODP/TAMU Drilling Services Department (Brian Jonasson) of May 13, 1996. In view of the available resources and scheduled ODP work load April-December 1996 it appears impossible to free up an engineer to take part in a 5 week (July 17-Aug. 21) cruise to observe the environment and the constraints on drilling technology.

There is a general consensus about the key role of the Arctic in the climate history of the earth. The strong OHP interest has generated the two recent Arctic gateway legs, and the Nansen Arctic Drilling (NAD) initiative has for almost a decade promoted scientific drilling in the ice covered part of the Arctic Ocean. In spite of all this we have not been able to penetrate the glacial section north of Spitsbergen, and from the deep Arctic Ocean there is not a single sample available in the entire stratigraphic interval from Eocene to well into the Pliocene.

The NAD progress so far has admittedly been next to nothing, because all the experts tell us it is only possible to drill at an astronomical cost. In 1991 we broke the first mental barrier on this issue by demonstrating that there are vessels available that single handed can keep position within a 50 m radius in 2.5 m thick solid sea ice moving at several hundred meters per hour. As the next step we want to try if we can do shallow diamond drilling in 1000 m water depth and sample part of the accessible Eocene to Recent stratigraphy by shallow offset holes drilled to 50 m depth. Earlier this year, we drilled successfully on the Antarctic continental shelf in 200 m water depth using light equipment.

All ODP program cut-backs have a spectrum of negative effects, which effect is worst is in most cases a matter of viewing angle. Engineering is an investment in the future capability and vitality of the program, but is often suffering in competition with other short term gains.

Any attempt of scientific drilling in the Arctic Ocean has to be a phased approach to be able to meet the challenge to operational strategy and drilling technology. In view of the recent POCOM motion to implement a formal relationship between ODP and NAD and views expressed in the LRP under "Alternate Platforms", we find it most unfortunate that this benefit to ODP is passed over due to engineering resource limitations. The ODEN cruise presents a rare occasion where a capable ship and the best seamanship in ice we have seen in the west are 100% geared towards meeting any of our special requirements for the drilling operation.

Jan Backman
Coordinator geol/geoophs
programs Arctic Ocean '96

cc: Dr. Paul Fox, director, Ocean Drilling Program
Dr. Ole Melander, Swedish Polar Research Secretariat
Appendix 2  
DRAFT  
JOIDES Science Committee  
Proposed New Meeting Schedule  
NOTE: CURRENT examples of discussion/report items are italicised  

SCICOM 1 March-April 2 Days  

DAY 1  
Welcome and Introduction  
Reports of Contractor Liaisons (inc. Long Term Plans)  
1) NSF  
2) JOI  
3) Science Operator  
4) Wireline Logging Services  

Written Reports on National Long Term Marine Geoscience Programs  
1) Aus-Can, 2) ESF, 3) France, 4) Germany, 5) Japan, 6) United Kingdom, 7) United States (USSAC)  

Global Geoscience Program * Liaison Reports  
1) InterRidge, 2) NAD, 3) ION, 4) IMAGES, 5) ANTOSTRAT, 6) LIPS, 7) MARGINS, 8) DOLCUM, 9) SUBCON, 10) Continental Drilling, 11) IDEAL  

Note: Guest presenters to be invited as required.  
* These will change and evolve with time.  

Inter-Program Recommendations, Comments and Responses  
JOIDES Liaison Reports  
1) EXCOM  
2) BCOM  
3) OPCOM  

DAY 2  
Program Science Delivery (Long Term Science Requirements and Prioritisation)  
1) Platforms  
2) Engineering e.g. Riser(less) drilling  
3) Dissemination of Program Results and Data  
4) Downhole Technology - Borehole Utilisation  

Long Range Plan Implementation  
1) Progress Toward Targets  
2) Status of Initiatives  
3) Status of Partnership Development  

SCICOM Business (Recommendations, Consensuses, and Responses)  
1) Recommendations to EXCOM and JOI  
2) SCICOM Correspondence  
3) Future Meetings (SCICOM and WG's)  
4) Science Review Panel and WG Membership
5) SCICOM Membership and Liaisons

Any Other Business

SCICOM 2 August 2 1/2 Days

DAY 1
Science Program
1) Recommended Proposals from the JOIDES Science Review Panels

DAY 2
1) Recommended Proposals from the JOIDES Science Review Panels (cont.)
2) Proposals of Opportunity (excellent and innovative science, not in the LRP)
3) Ranking of Proposals

DAY 3
4) Area of ODP Operations for FY+2 - FY+5

Long Range Plan Implementation
1) Required to Achieve Targets
2) Required Actions to Fulfil Initiatives
3) Required Partnerships to be Developed

SCICOM Business (Recommendations, Consensuses, and Responses)
1) Recommendations to EXCOM and JOI
2) SciCom Correspondence
3) Future Meetings (SCICOM and WG's)
4) Science Review Panel and WG Membership
5) SCICOM Membership and Liaisons
6) OPCOM Membership
7) Co-Chief Recommendations for FY+1

Any Other Business

JOIDES Operations Committee

Proposed New Meeting Schedule

NOTE: CURRENT examples of discussion/report items are italicised.

OPCOM 1 March-April 1 1/2 Days

DAY 1
Welcome and Introduction

Reports of Operator Liaisons (Future Plans, Long and Short Term)
1) NSF
2) JOI e.g. JANUS
3) Science Operator e.g. Publications
4) Wireline Logging Services e.g. Ship-shore data transmission

Reports of JOIDES Panels
1) Measurements Panel e.g. Core-Log integration, publications, 3rd party tools
2) TEDCOM e.g. hammer drill-in casing, DCS
3) SSP
4) PPSP

**DAY 2**

OPCOM Business (Recommendations, Consensuses, and Responses)
1) Recommendations to SCICOM and JOI
2) OPCOM Correspondence
3) Future Meetings (OPCOM, Measurements Panel, SSP and PPSP)
4) OPCOM Liaisons

Any Other Business

**OPCOM 2** November-December 2 1/2 Days

**DAY 1**

Welcome and Introduction

Reports of Operator Liaisons (Future Plans, Long and Short Term)
1) NSF
2) JOI e.g. JANUS
3) Science Operator e.g. Publications
4) Wireline Logging Services e.g. Ship-shore data transmission

Reports of JOIDES Panels
1) Measurements Panel e.g. Core-Log integration, publications, 3rd party tools
2) TEDCOM e.g. hammer drill-in casing, DCS

SCICOM Drilling Targets
1) FY Rankings
2) Site Survey (Readiness) Report
3) PPSP Report

**DAY 2**

Operational Considerations
1) Requirements of Each Prospective Leg (Ports, weather windows, equipment etc.)
2) Technology Availability

Formulation of Drilling Schedule
1) Targets Excluded for Operational Reasons (reported back to SCICOM)
2) Targets for Scheduling in FY+2
3) Targets for Scheduling in >FY+2

**DAY 3**

OPCOM Business (Recommendations, Consensuses, and Responses)
1) Recommendations to SCICOM and JOI.
2) OPCOM Correspondence
3) Future Meetings (OPCOM, Measurements Panel, SSP and PPSP)
4) OPCOM Liaisons

Any Other Business
Appendix 3

Proposal Deadline

EXCOM 1

BCOM

OPCOM 1

SCICOM 1

EXCOM 2

SSDB and Addenda Deadline

SCICOM 2

Note: PPSP meet as required, all site must be reviewed before December OPCOM

TEDCOM meet twice per annum, one meeting prepares long term view for SCICOM
1: FLOW OF SCIENCE ADVICE
2: OPERATIONAL ADVICE
A. Not SCICOM priority
B. Not logistically feasible in the near-term

In special cases, certain proposals already considered at least once by SCICOM may circumvent the Science Review Panel Process

3: PROPOSAL FLOW
4: ODP DRILLING LEG IMPLEMENTATION

Includes budgetary and site survey information.
5: JOIDES REPORTING FLOW
6: JOIDES ACCOUNTABILITY
Item 3 (b) Innovations and Economies

1. Shipboard Biological Lab

Implementation of the "Earth's Deep Biosphere" pilot project, outlined in the Long Range Plan, will require establishing a biological laboratory on board the drillship. Neither SMP, SGGP, nor the Science Operator have addressed this requirement in any depth. Estimates of indicative cost involve a one-off capital investment of about $126 000 for equipment. There is no estimate of running costs.

2. Borehole Utilisation - Engineering Development

This proposed Program innovation arose as a result of the Expressions of Interest process that was initiated by EXCOM in July, 1995; the outcome of which was reported to EXCOM by JOI in January, 1996. Scripps Institution of Oceanography proposed establishment of an ODP facility aimed at developing technology to better exploit drill holes in the ocean sediments and crust after well completion (ie engineering development for improved borehole utilisation). While JOI will not be proceeding to issue an RFP to cover provision of such services to the Program, at this time, it was discussed as a possible Program innovation which might be considered for inclusion in Phases III and IV.

The authors of the proposal saw two types of activities:

- support functions and services required to install complex equipment in boreholes; and
- development of borehole instrumentation, in collaboration with individual scientists or groups.

Proposals for specific instrumental developments and/or installations would be reviewed by the JOIDES Advisory Structure and form an integral part of the annual Program Plan. Some suggested new systems included:

- A system for reopening a partially collapsed hole;
- A new family of CORKS that could be installed and serviced without using the drill ship; and
- A winch system that could be placed in a reentry cone, powered and operated from a tending ship, to provide for such experiments as cross hole tomography.

Cooperation with other JOIDES institutions, other international research programs, and industry was seen as essential to the success of this proposed service. The annual cost of the service was estimated by the Scripps team to be:

- Engineering developments - $700 000
- Operational Support Services - $200 000
- Liaison and management - $100 000

Background/Need

In December, 1994, PCOM formed a “Publications Subcommittee” under Henry Dick, to review the scope and cost of ODP publications, particularly the Initial Reports (IR) and Scientific Results (SR) volumes. The key recommendations of this group, particularly those that recommended changes to contents, but retention of both the IR and SR, were variously considered by both PCOM and EXCOM through 1995. Not all of those recommendations (eg, format changes) were implemented by JOI, due to lack of significant cost savings and lack of unanimous support in the community.

In early 1996, the Publications Subcommittee revisited the issue of retaining both the IR and SR volumes. In April 1996, PCOM accepted a new subcommittee recommendation to combine the IR and SR into a single volume to be published 4 years post cruise, in a format similar to that of Initial Reports of the DSDP. The scientific party would be free to submit individually authored papers to the open literature after 12 months post cruise. This last recommendation was implemented by JOI in early May 1996. Changes to the IR/SR format have not been implemented at this time, again because of apparent lack of cost savings.

On 12 April, 1996 the Director of NSF’s Division of Ocean Sciences wrote to the Director of ODP at JOI, delivering a copy of an “unsolicited” report to him from the Inspector General of the National Science Foundation. That report, entitled “Review of Publication Costs in the Ocean Drilling Program”, makes two key recommendations:

- Cease publication of the Scientific Results volumes as soon as practicable, and
- Retain and expand electronic publication of the Initial Reports volumes on CD-ROM and the Internet, but cease publication of the printed version as soon as practicable.

The Inspector General has estimated a net saving of $1.1 million per year out of a current publications budget of just over $2 million per year. However, it must be noted that ODP-TAMU does not agree with these estimates. The Director of NSF’s Division of Ocean Sciences asked both JOI and the JOIDES Advisory Structure to consider the report. PCOM asked JOI to prepare a draft response to the Inspector General’s report for consideration by EXCOM at its June, 1996 meeting.

The need to review the scope and cost of ODP publications and databases also arises at this time as a result of an EXCOM Motion at its January, 1996 meeting. EXCOM Motion 96-1-14 stated that:

"EXCOM, having endorsed unanimously the scientific directions for the program embodied in the Long Range Plan recognizes the need for immediate and concerted actions to secure the necessary funds. The International Review embraced the LRP and recommended that to achieve its short-term goals (pre-2003) would require real growth in the budget of about 2½% a year."
EXCOM requests the following actions be taken:

1. JOI, in consultation with PCOM & BCOM, examines the important new innovations in the program (Borehole Utilization, Legacy Holes, inter alia) and detail their costs. PCOM & BCOM should advise JOI on what existing components (publications, logging, indeed all components) might be dropped or reduced to accommodate these new initiatives and clearly label the costs, benefits and losses. This step is fundamental to addressing concerns from funders that all cost cutting measures have been examined prior to requesting additional funds. Action by June 1996."

Clearly, cost savings of the magnitude indicated in the Inspector General’s report, if correct, cannot be ignored when seen against the need to fund a wide range of innovations viewed as central to the implementation of the 1996 Long Range Plan. Similarly, the advance of technology and the increasing use of the Internet as a medium of communication and information availability suggests a serious look at the broad model outlined in that report. While the immediate advice from PCOM is that hard copy publications of initial and scientific results should be retained for the foreseeable future, the implications of a longer term, say at least 4- to-5 year strategy for the implementation of full electronic publication at least needs to be explored.

This strategic discussion paper represents a management review of such a long term publication policy option. It also forms the basis of a suggested JOI/JOIDES response to the Inspector General’s report.

A New ODP Publication Strategy

To make the full range of basic ODP shipboard core and sample descriptions, measurements, downhole measurements data, shore-based analyses and their integration and interpretation available to a broad, multi-national community of earth scientists in an efficient, functionally useful and cost-effective format, principally on both compact disc and the Internet, supported by a hard copy version as long as needed.

To introduce changes, beginning in FY1997, to achieve these strategic objectives by the start of FY 2001.

ODP Publications beyond 2000 - a Vision for the Future

In consultation with the Director of Science Operations and the Manager of Publications at ODP-TAMU, and a PCOM subgroup consisting of Henry Dick and Will Sager, JOI has developed the following draft of a new “ODP publications strategy” for consideration by EXCOM and advice to NSF. This publication strategy addresses a new approach to the rapid and cost-effective provision of ODP drill site data and resultant scientific analyses and interpretations to the world wide scientific community via CD-ROM and the Internet, with complete replacement of the current hard copy publications, within 5 years. It also encompasses the integration of these electronic publications with the soon-to-be-available JANUS database. The advantages of this style of information publication include availability, accessibility, adaptability, and cost savings. The current three key ODP “information products” are:

- **Initial Reports volume** - involves publication of a leg operational report, shipboard core and sample descriptions, measurements, wireline logging information, and limited shore-based analyses from each leg.
• **Scientific Results volume** - involves a more complete documentation of shore-based, leg related analyses and their integration and interpretation.

• **Non-relational, VAX-based Database 1032** - hosts part of the shipboard measurement data to date.

Our vision for the future of ODP "publications" involves essentially full, downloadable, digital availability of all Program information and data on CD-ROM and on the Internet, at least in test mode, by the beginning of 2001 at the latest. It is envisaged that the new "publication products" will be:

• **JANUS Database** - will involve World Wide Web access to the vast majority of shipboard measurement and core descriptions through an ORACLE relational database host at ODP/TAMU. JANUS will be available in a restricted version from Leg 170 in December, 1996, and unrestricted in December, 1997. Migration of digital data from previous legs is planned to begin in FY1997. At this stage in its development JANUS is not intended to include any data generated post cruise.

• **Electronic Initial Reports** - The contents of the current, hard copy Initial Reports volume will be published on a CD-ROM. Public release of the CD will be 12 months post leg completion. The published data is envisaged to include the basic site information and site survey data, core photos, digital core descriptions, processed wireline logging data and any other high volume data sets. The CD-ROM would be packaged with a booklet containing a description of the leg, basic site information, and instructions on use of the CD. Publication of all IR material on a CD would ensure earliest availability of the basic results of each leg to all scientists in all member countries and worldwide. At the same time as release of the Electronic Initial Reports CD, all the digital and analog information on that CD would also be released on the World Wide Web. This duplication would ensure rapid and universal availability to all scientists, educators and students. Because access time to the Web is inherently slower than access to a CD, it is still expected that most users will use the CD where available. Even in the longer term, users with access to the CD will continue to use that medium to access some "static", large volume information, while other information would most commonly be accessed from the Internet. "Static" information includes site survey data, core photos, digital core descriptions and processed wireline logging data. Information on the CD and the Web could be accessed together, as well as separately. Other expanding data sets would be accessed from the Web.

• **Electronic Scientific Results** - The contents of the Electronic Scientific Results (ESR) will focus on peer reviewed synthesis papers, data reports, and technical notes. (See justification for SR in Appendix A--below.) Electronic preprints of accepted papers will be available on the Web as soon after acceptance as possible. The CD will be published 4 years post leg completion. Subsequent papers, based on analyses of ODP core material will be accepted for review and publication in the Web version of the ESR. A new and important feature of the Web version of the ESR would be the inbuilt provision of various "hot links" to the JANUS Database, in the first instance to basic data in the specific site, but through a number of preprogramed menus to anywhere else in JANUS. An important ramification of the proposed ESR-JANUS link would be the future enhancement of JANUS with post leg completion data and shore-based analyses. Scientists working on ODP core material post cruise will be required to submit a data report to the ESR, and
through the ESR, to JANUS. The JANUS Database would still be accessible through the World Wide Web independent of the ESR.

### Constraints and Response Strategies

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<thead>
<tr>
<th>CONSTRAINT</th>
<th>RESPONSE STRATEGY</th>
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<tbody>
<tr>
<td>Scientists and publishers are not yet committed to electronic publication of scientific papers.</td>
<td>None. CD and Internet publication is already common in other professional fields, which suggests its inevitability.</td>
</tr>
<tr>
<td>Scientists are concerned that citation in the electronic literature will not be given the same weight for tenure purposes as the current system.</td>
<td>A 5 year strategy, with checks, should allow sufficient time for widespread professional acceptance &amp; adaptation to a new publication citation system.</td>
</tr>
<tr>
<td>Scientists are also concerned that electronic journals will not replace paper journals</td>
<td>ODP is not attempting to lead this change. Implementation will follow the trend of major geoscience journals</td>
</tr>
<tr>
<td>ODP should not abandon book publication until electronic publication is universally accepted.</td>
<td>Volume publication is a 4 year process To facilitate anticipated change, planning must begin now.</td>
</tr>
<tr>
<td>There is no defined connection between ODP publications and the soon-to-be-released JANUS database system.</td>
<td>Full electronic publication should be directly linked to the JANUS database, as well as other related electronic databases and resources.</td>
</tr>
<tr>
<td>Some US and non-US partners in ODP do not have ready access to the Internet.</td>
<td>Increasing rate of access suggests full international availability in 3 to 4 years.</td>
</tr>
<tr>
<td>Internet access is slow, particularly across the Atlantic, and for graphic material globally.</td>
<td>Growth of demand for a high speed access to the Internet is likely to drive change. ODP is investigating the establishment of a European mirror site</td>
</tr>
<tr>
<td>Authors free to publish in the “open literature” will be less likely to submit quality papers to an ODP electronic ‘SR’ volume.</td>
<td>Linking ESR papers to background data should be a strong attraction for users, and thus a strong incentive to authors.</td>
</tr>
<tr>
<td>There is some duplication between the JANUS database and the proposed electronic IR “volume”.</td>
<td>The EIR is an entry point to JANUS and contains supporting information and other data not in JANUS.</td>
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Electronic Publication - an Implementation Strategy

Current Status

Whilst the current publication of the IR and SR volumes is on archive quality paper, in hard covers, a modest foundation already exists for the implementation of a new system of Ocean Drilling Program electronic publication and information availability:

- The JANUS Database is expected to start to become publicly available on the World Wide Web in December, 1997.
- Processed wireline logging data is already available on CD.
- The Scientific Results volume for Leg 146, parts 1 & 2 (Santa Barbara Basin) and others have already been published as both hard copy and CD.
- Digital scanning of core photos in black and white began with Leg 151. Color scanning will begin with Leg 169.
- A start to development of a system for digital core descriptions should begin FY1997. Funds for data migration are also available in FY 97.
- Initial Reports volume for Leg 163 will be tested on the Web, as well as being published in hard copy and on CD in FY1997.

Transition Strategy

1. Leg 168 should be the last of the current hard copy IR volumes. Leg 169 should be the first Electronic Initial Report to be published solely on CD-ROM, for simultaneous release on the World Wide Web in October, 1997. It may not be possible to immediately hot link the Web version of the Leg 169 EIR to JANUS. An earlier start is not recommended because of the need for detailed forward planning, the projected state of JANUS Phase II development, and commitments already made to shipboard participants on publication formats.

2. Publication will be open to the outside literature 12 months post cruise from Leg 161. Publication in the outside literature or the ESR remains a requirement.

3. Abstract and citation lists will be posted on the Web for all leg-related publication from the outside literature beginning with Leg 161.

4. SR volumes 161 through 175 will be produced in book and CD (viewable volume) format. Beginning with Leg 176, all SR volumes will only be published on CD. If there is strong community support, this change over may be brought forward.

5. Web publication of SR manuscripts will begin by Leg 169. Papers will be posted as "in press" on the Web after acceptance and until publication of the SR volume.

6. By FY1998, the EIR will be linked to the JANUS Database.

7. By FY1999, ESR on the Web will be linked to the JANUS Database.

8. Subject to EXCOM endorsement of this strategy, JOI will establish a 3-year steering committee to monitor progress and community acceptance of this plan. JOI will report the findings of the steering committee at all future EXCOM and PCOM meetings. It is envisaged that the staged implementation of this scheme
should allow progressive acceptance by the scientific communities in all member countries. Serious problems in that acceptance should be sufficient grounds for redefining the implementation schedule.


**Target Implementation Schedule**

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<th>160</th>
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**Indicative Savings on Publications and Information Services Budgets**

This strategy has not been costed out in detail. However, approximately 40% of the current publications budget is expected to be saved when fully implemented.

**Resource/Responsibility Assignments**

Once a decision is made to implement a form of electronic publication, overall project coordination should be the responsibility of the Manager of Publications at ODP/TAMU.

**Reporting Structure**

Manager of Publications to Director, Science Operations, ODP/TAMU; JOI Steering Committee to Program Director to EXCOM.

(Prepared by David Falvey, Ann Klaus and Henry Dick)

4. **3-D Seismic for Site Surveys**

This is not seen as a direct cost to the Program. Under existing MOU's, Article 6 notes that site surveys may be contributed by each member country as its scientific interests and available resources allow. Site surveys have always been a separate contribution to the Program and there has been no suggestion that this should change in Phase IV. However, Phase IV is likely to involve the first use of riser drilling, and this carries site survey implications that fall into the latter stages of Phase III.
It is highly likely that certain site survey requirements for riser drilling will require 3-d seismic grids over proposed site locations. This will be particularly true for sites on continental margins where there is a finite probability of intersecting a hydrocarbon column. We flag this requirement here, noting that the current full cost of 3-D seismic data acquisition is approximately US$8 000 to US$12 000 per square kilometre (vs $250 to $400 per line kilometre for 2-D acquisition). Mobilisation and demobilisation costs are extra. Processing costs are US$800 to US$1 200 per square kilometre (vs $60 to $80 per line kilometre for 2-D processing).
APPENDIX A: Justification for Continuation of a *Scientific Results* Series
A Report by the PCOM Publications Subcommittee

ODP publications provide the enduring legacy of scientific drilling in the oceans. They are the product of the Ocean Drilling Program. Each drilling leg should be considered as a separate 7 million dollar project. The *Scientific Results* volume, combined with the *Initial Results* volume, constitutes the project report and provides a full report of the data and science done both during and after the cruise. It is the one place where a scientist can immediately obtain a full overview of the results of drilling from an individual leg.

In hind sight, however, it can be seen that severely restricting publication in the outside literature prior to the closing of the *Scientific Results* volumes was a great mistake. This decision has negatively impacted the broader scientific community's perception of the Program, often hurting the careers of participating scientists by suppressing their results for a period of up to four years and by forcing initial publication in a relatively low-profile format compared to mainstream international scientific journals such as the *Journal of Geophysical Research* or *Nature*. By the time many important ODP discoveries are published, they are often old news, and by the time individual scientists are permitted to submit to the outside literature, both enthusiasm and funding have run out, and they have already turned to other, more pressing projects.

These problems have led to widespread criticism of the *Scientific Results* (SR) volume, and together with the cost of ODP publications has led to the view of a within part of the community that the SR series should be eliminated. This, however, would be potentially a catastrophic mistake, with the potential of causing enough dissension in the community as to endanger the continuation of the program. This is because there is also a view in the community that the SR volume should be retained in either its present form or in a modified DSDP form (combined SR and IR). As is often the case in the Ocean Drilling Program, the holders of these different viewpoints have very strong opinions on these issues. The controversy that will likely erupt over an abrupt decision to drop the SR could, therefore, have very negative consequences.

There are very good reasons to retain the SR. Good enough, that there is some validity to the viewpoint that the continuation of the program would not be justified if it were not retained in some form. To understand this, one only needs to realize that the value of an ODP drill hole is only equal to the data and information available for it, and that publication of enormous amounts of often routine data such as petrography, chemical analyses, physical properties measurements and the like is not possible in mainstream journals. Even were this the case, depending on outside publication alone without a final leg-related scientific report would leave a very uneven data base in the literature, with incomplete and different data sets available for different legs and holes. In addition, many high quality scientific papers such as lithostratigraphic syntheses, and detailed studies are very difficult to publish in the mainstream journals. Finally, the SR volumes serve the very important purpose of creating a completion date for the project which each drilling leg represents. Thus, there is a fixed point in time at which each individual participant is required to fulfill his scientific obligation to produce. It is inevitably the consequence of open-ended projects that they are never completed, and in this case that many scientists will fail to produce key data sets required to adequately characterize a drill hole. It is likely that without the management tool which the SR provides, the nonperformance rate of ODP leg participants would skyrocket.

The PCOM Publications Subcommittee looked at all these issues and attempted to devise a solution which addresses the different concerns and needs of the many
scientists participating in the program, as well as the requirement that there be a final and complete report for each drilling leg. It became clear after some reflection, that the principle mistake made in ODP publications was the failure to recognize what our final product really was. ODP publications are scientific monographs representing final cruise reports. Attempts to characterize them as the equivalent of a mainstream scientific publication such as JGR, has clearly hurt the program. Recognizing this, and what their real value is, makes it relatively easy to modify our publication structure to address the concerns of the community, to impact of the publications, and to reduce the cost of the publications.

Astute scientists rarely publish cutting edge results in monographs. Papers reporting major geoscience discoveries, substantive new observations, and ideas are published in *Nature, Science,* and *EPSL,* etc. The same should be the case for ODP science, and the Publications Subcommittee has recommended, and JOI has implemented lifting the moratorium on submission and publication of papers outside ODP to 12 months post cruise.

The opening of ODP scientific publication to the outside literature as created a body of opinion that this will turn the SR from gray to black literature. This opinion, however fails to recognize the strengths of a monograph format publication. Just as a monograph publication cannot substitute for journal publication, the reverse is also true. Major syntheses, detailed studies, and data reports, which are the bread and butter of the SR, are very hard to publish in journals.

Recognizing where our greatest strength is, then, we can respond to another frequent criticism which comes from the authors of the latter papers that the time permitted prior to submission is inadequate for a detailed study or mature synthesis. Thus, allowing publication of the “hot science” in the outside literature, removes the need to have overly restrictive publication deadlines, and allows extending the date for submission of syntheses and detailed papers to a more reasonable time scale, which, should greatly improve the quality of the volume contents.

It is ironic that ODP publications have comprised one of the programs greatest strengths as well as one of its greatest weaknesses. When the appropriate comparison of ODP publications is made to other monograph series, it can be seen that they are enormously successful. The “normal life” of a scientific paper is ten years. Citations peak 5 years after publication, and then fall off to near-zero at 10 years. In the case of the DSDP and ODP results volumes, however, citations peak at about the normal time, but then, often level off, rather than falling back to near zero. It is remarkable, when one considers that the character of these publications is that of a monograph, that their citation rate actually approaches that of many mainstream journals.

Further improvement of the SR can also be achieved as the scientific community moves to accepting electronic publication. While premature introduction of fully electronic publication could be disastrous, with large numbers of authors choosing to publish in the outside literature, at the appropriate time such a move will allow us to move from a book format with a 500-page limit to a hypertext format for the SR.

Retaining the SR and IR, albeit eventually in fully electronic format, has the important function of maintaining publication continuity. Changing these publications in midstream, dropping volumes, going to journal formats and the like, can only disrupt ODP publications as a clear identifiable product, which the community knows, is familiar with and knows how to find and use.

(Prepared by Henry Dick)
April 12, 1996

Dr. David Falvey  
Joint Oceanographic Inst., Inc.  
Suite 800  
1755 Massachusetts Ave. N.W.  
Washington, D.C. 20036-2102

Dear Dave,

I have received the enclosed report and transmittal memo concerning publications of the Ocean Drilling Program (ODP). The report was not solicited by the National Science Foundation, nor do the conclusions represent the position of the Division of Ocean Sciences or the National Science Foundation. The rationale for the report is discussed in the transmittal memo.

I am aware that changes in procedures and policies for ODP publications will be discussed at the upcoming Planning Committee and Executive Committee meetings. I am forwarding the enclosed for consideration by JOI and JOIDES as additional input to those discussions.

Sincerely,

G. Michael Purdy, Director  
Division of Ocean Sciences  
National Science Foundation

Enclosure
To: G. Michael Purdy  
   Director, Division of Ocean Sciences

From: Philip L. Sunshine
   Deputy Inspector General

Subject: Procedure for Reviewing Office of Inspector General Report

Enclosed is the final draft of our report from a review we conducted of the Ocean Drilling Program. The report, entitled "Review of Publication Costs in the Ocean Drilling Program," makes two recommendations for funds to be put to better use within the ODP. The Inspector General Act requires us "to provide leadership and coordination and recommend policies for activities designed to promote economy, efficiency, and effectiveness in the administration of" the National Science Foundation's programs and operations. In addition, we are required to report to the Congress twice each year on recommendations we have made and how NSF has responded to them. The Office of Inspector General is independent of NSF management: the Inspector General reports to the National Science Board, not to the Director of NSF.

Helping NSF increase the cost-effectiveness of its expenditures is a fundamental objective of our office under the Inspector General ("IG") Act. In pursuit of this objective, we review NSF programs in an effort to locate areas in which prospective changes would result in cost savings. We make recommendations for agency action to accomplish these savings so that the funds can be used to more directly achieve NSF's core scientific and educational objectives. Although we specify where we believe cost savings can and should be accomplished, we make no recommendations to the program regarding how the saved funds should be better used to further the program's core scientific and educational objectives. In our review of the Ocean Drilling Program, publications stood out as an area in which the program could achieve considerable cost savings and redirect the funds for objectives central to its scientific mission.

Under the IG Act, we have the authority to conduct reviews and make recommendations. While we have no authority to implement our recommendations, we are obligated to report to the Congress on NSF's response to our recommendations and to advise Congress whether we consider the response to be reasonable. Thus, our recommendations do not constitute decisions by NSF's Ocean Drilling Program—rather, they are the opinions of an independent office charged under the law to work with NSF to "promote economy, efficiency, and effectiveness...."
Ordinarily, we provide a copy of our draft report for the NSF program to review and provide us with written comments which are then attached to the final report. However, in this case, we are endeavoring to accommodate the fact that the Ocean Drilling Program is an international undertaking with a cooperative decisionmaking process based on recommendations from an outside advisory system. Therefore, we are providing this final draft report to you with the understanding that you will transmit it to NSF’s contractor for the ODP, Joint Oceanographic Institutions, Inc., (JOI) along with your request that it be presented to JOI’s advisory structure for consideration. In particular, we anticipate that you will recommend that it be transmitted for consideration by the Planning Committee and then the Executive Committee, which will be meeting from 22-25 April 1996 and 25-28 June 1996, respectively. It is our understanding that these committees will be considering possible changes in ODP’s publications, and that our report can contribute to the committees’ assessment of this issue.

After the Planning and Executive Committees have considered our report, and JOI has responded to their recommendations, you should be in a position to provide us with the Division of Ocean Science’s formal written response to our report. When we receive your response, which we would expect to receive before 15 August 1996, we will make any final changes to our report that we feel are appropriate, attach your response, and forward the final report to you. At this time the report, with the Division’s formal comments attached, is final.

We are reporting on our recommendations from this review in our Semiannual Report to the Congress Number 14, which is currently in production and covers the period from 1 October 1995 to 31 March 1996. In Semiannual Report Number 14 we explain that, because of the unusual nature of the ODP, the program is providing the report to JOI for consideration by the ODP advisory structure before responding formally to our recommendations. We anticipate reporting on NSF’s response to this report in our next Semiannual Report to the Congress, Number 15, which will cover the period from 1 April 1996 to 30 September 1996.

We thank you and your staff for cooperating with us during our review. If you have any questions, please feel free to call me.

cc:  Bruce Malfait, Program Director, ODP
     J. Paul Dauphin, Associate Program Director, ODP
     Donald F. Heinrichs, Section Head, Oceanographic Centers & Facilities
Office of Inspector General

REVIEW OF PUBLICATION COSTS IN THE OCEAN DRILLING PROGRAM

The National Science Foundation Office of Inspector General was created in 1989 pursuant to the Inspector General Act, which requires us "to provide leadership and coordination and recommend policies for activities designed to promote economy, efficiency, and effectiveness in the administration of" the National Science Foundation's programs and operations. The Office of Inspector General is independent of NSF management: the Inspector General reports to the National Science Board, not to the Director of NSF. We are required to report to the Congress twice each year on recommendations we have made and how NSF has responded to them.
I.

Introduction:
The Ocean Drilling Program

The Ocean Drilling Program (ODP) is an international collaboration to provide fundamental knowledge of the earth's history and geology by obtaining cores and data from the ocean floors. It is funded 60 percent by the National Science Foundation and 40 percent by six international organizations; however, all of the funds flow through NSF. The Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES), consisting of the six international organizations and ten U.S. oceanographic institutions, provides scientific direction for ODP. JOIDES operates advisory committees in many areas of ocean science, which report to the Planning Committee. The Planning Committee in turn advises the Executive Committee.

ODP is managed by Joint Oceanographic Institutions (JOI), a consortium of ten U.S. oceanographic institutions. JOI receives direction from a Board of Governors consisting of one representative from each of these institutions. The Executive Committee is the scientific advisory body for the Board of Governors. JOI is the prime contractor to NSF, but several secondary contractors execute different functions of ODP. Texas A&M University (TAMU) has the largest secondary contract, which covers operation of the drillship, implementing science plans and operations, storage of core samples and data, and productions of ODP publications.

JOI's total budget for the management and operations of the ODP is $44.9 million for FY96. This amount is identical to the amount budgeted in FY94, and less than the FY95 budget of $45.8 million. Both the FY94 and FY95 budgets were well below the FY94 and FY95 targets of $48.3 million and $50.9 million which were specified in ODP's Long Range Plan. In light of these fiscal limitations, ODP's FY95 Program Plan stated:

There already is a sense that we are beginning to limp along due to budgetary constraints imposed during the past two years. New innovation is, of course, pointless if the basic operational and service support crumbles . . . [T]he time has come to consider a more surgical and possibly radical approach to matching science needs with budgeting, based upon what is the best, affordable interests of the science.

The ODP contract continues through FY98, and the program has been approved through FY2003. In the face of the program's budgetary constraints, it is essential that ODP spend its money on those functions most essential to the program's scientific mission, and plan to eliminate unnecessary or marginal items in its future requests. For example, by eliminating expenditures that are less critical to ODP's core scientific mission, the program will have greater resources to devote to long-delayed and sorely needed technical innovations.

The bulk of JOI’s management and operations budget, $38,124,000 in FY96, funds the subcontract to TAMU. A significant portion of the TAMU subcontract, $2,105,793 in FY96, is budgeted for the ODP Publications Department at TAMU. The Publications Department at TAMU handles coordination of peer review, conversion of files into WordPerfect format, editorial review, preparation of galleys for printer, preparation of material for CD-ROM, and preparation of the index for publication. Editorial review includes checks of spelling, grammar, style, and agreement between textual citations and references listed at the end of the publication. The Publications Department has a total of 27 staff members. In FY96, the publications budget amounts to 5.5% of the subcontract to TAMU, and 4.7% of the entire JOI management and operations budget. We believe that these publication costs are unnecessarily high, and that this is an area where ODP can implement significant cost savings.

II. ODP Publications

A. Proceedings of the Ocean Drilling Program

The FY96 ODP publications budget is set out below:

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5 OCE-9544187, p. T-46.
6 Calculated as the difference between the total operational costs for Hole Summaries and Initial Reports, and the cost savings for elimination of Initial Reports. ODP Publications Cost Analysis for the ODP International Review Committee, November 1995 [hereinafter ODP Publications Cost Analysis], at 13, 16.
7 Calculated as half the cost of CD-ROM production for both Initial Reports and Scientific Results, ODP Publications Cost Analysis, p. 19.
8 Calculated as the operational cost savings for eliminating the Initial Reports, ODP Publications Cost Analysis, p. 16, minus the cost of Initial Results CD-ROM production.
Of the FY96 publications budget, 81%, approximately $1.7 million, will be spent on the preparation of hardbound volumes of the Proceedings of the Ocean Drilling Program, which present the data and scientific results of the program’s drilling operations. One volume of the Proceedings is produced for each cruise, for a total of six volumes per year. Each volume consists of two publications, the Initial Reports, costing approximately $904,000, and the Scientific Results, costing approximately $790,000. Starting this year, both publications are published on CD-ROM as well as in bound volumes.

The Initial Reports volume is published 10-12 months after the cruise ends, and contains information on materials and data obtained during the cruise, including site-survey, core photographs, and barrel sheets. Each volume of Initial Reports contains about 400 pages of text and 400 pages of photographic and tabular data.

The Scientific Results volume is published about three years after the cruise, and contains about 50 research articles by the shipboard scientists and others who obtained samples and data within 12 months after the cruise. A typical Scientific Results volume is about 800 pages long.

The Proceedings are distributed worldwide, to libraries as well as to individuals and groups affiliated with the ODP. A total of 1,800 copies of each volume are printed. Nominally, each volume of Initial Reports or Scientific Results costs $45.00 to purchase. However, approximately 1,540 copies of each volume are distributed free of charge and 260 are retained, of which only about 50 are actually sold. The gratis copies go to non-U.S. JOIDES members (100 copies for each of the 6 members), U.S. JOIDES institutions (10 copies for each of the 10 institutions), other ODP-affiliated institutions and individuals, and approximately 430 libraries in the United States and other countries.

The Proceedings of the Ocean Drilling Program are an unusual system of publication of scientific research. They are designed to present in two volumes essentially the entire scientific output of the cruise. The Initial Reports, which contain the basic data upon which subsequent scientific analyses will be based, are almost entirely collaboratively written by the entire shipboard party. Most of the articles in the Scientific Results are analytical publications of the type that ordinarily could—if of sufficiently high quality—be published in independent scientific journals open for submissions from the entire scientific community. However,
scientists affiliated with the cruise are obligated to publish in the *Scientific Results*. According to the Publication Policy of the ODP:

> All shipboard and shore-based cruise participants who receive samples and/or data prior to 12 months post-cruise are required to submit a substantive report to the volume. . . . After the participant’s promised contribution to the SR volume has been accepted by ODP, authors may publish at will in the open literature.\(^4\)

If a scientist doesn’t submit a publication to the *Scientific Results*, any other manuscripts he or she is planning to submit elsewhere must be delayed:

> Authors who fail to contribute an acceptable manuscript to the *Proceedings* may not publish in any other medium until the SR volume has been published.\(^5\)

The only outside publications stemming from the cruise that are permitted before the science post-cruise meeting, which occurs about 10-12 months after the cruise, are those that are either authored by the entire shipboard party and approved by the co-chief scientists for that cruise, or those that are specifically approved by a consensus of the scientific party before the end of the cruise. Thus, there is a moratorium on most publishing in the outside literature during the first year after the cruise.

**B. ODP Efforts to Reduce Publication Costs**

With the constraints on the ODP budget that have developed since 1994, the publications budget has come under increased scrutiny, and there have been attempts to reduce its amount. In July 1994 the participation of the Canadian-Australian Consortium in ODP was uncertain, and NSF reduced the FY95 ODP budget by $900,000, from $44.9 million to $44.0 million. JOI recommended that $240,000 of this reduction come from the publications budget, by delaying publication of four volumes of the *Scientific Results* at a savings of $60,000 per volume. However, the FY95 ODP budget was subsequently increased to $45.8 million,\(^6\) the reduction in the publications portion was canceled, and the volumes have continued to be published on schedule.

Various JOI/ODP/JOIDES committees have considered cuts in the publications budget, but none has taken definitive action. In April 1995 the Planning Committee recommended procedural efficiencies and reductions in the size of the *Proceedings* volumes that it hoped would reduce the budget by $600,000, to be phased in over a three year period.\(^7\) In July 1995, the Executive Committee voted on the Planning Committee’s recommendations and a proposal to terminate the *Scientific Results* at the time of program

\(^4\) ODP Publication Policy, part B.

\(^5\) ODP Publication Policy, part B.

\(^6\) The increase was from the Australia/Canada consortium and uncommitted carryforward funds from FY94.

Oslo, Norway Inspector General’s report on Publications

renewal in 1998. Although the vote was 9 in favor and 6 against, with one abstention, the motion did not pass because it required a two-thirds majority.¹⁸ In September 1995, the Information Handling Panel, a subcommittee that reports to the Planning Committee, endorsed changes in the Proceedings volumes similar to those previously recommended by the Planning Committee to produce cost savings. With few exceptions these were approved by the Planning Committee in December 1995.¹⁹ In the meantime, in November 1995, ODP/TAMU prepared for the ODP International Review Committee a publications cost analysis, which considered various means by which cost savings could be achieved.²⁰ Although there appears to be a general movement among these committees to adopt some cost savings measures, the Executive Committee remained undecided at its January 1996 meeting as to any changes in the Proceedings. Thus, JOI has received no definitive recommendation from its committees regarding cost savings from the publications.

TAMU-ODP nominally reduced the publications budget from $2.3 million in FY95 to $2.1 million in FY96.²¹ The reduction was primarily due to the initiation of in-house composition and typesetting, as a result of which the printing subcontract decreased from $882,000 in FY95²² to $593,000 in FY96.²³ However, a further look at TAMU’s plans indicates that increases in the internal operating costs of the Publications Department are likely to prevent further cost savings and may even eliminate savings from the reduction in the printing contract. TAMU’s proposed FY97 Program Plan contains an increase in its publications budget from $2,105,793 in FY96 to $2,144,580. This reflects a $46,409 increase in the publications payroll and increases in equipment and maintenance costs that appear to be related to the increased reliance on in-house preparation of the Proceedings. Thus, it appears that its in-house costs will increase in tandem with the reduction in subcontract costs brought about by bringing composition in-house.

III.
Changes in the Publication of the Proceedings
Can Cut Publication Costs While Increasing Scientific Impact

We believe there should be substantial change in the Proceedings of the Ocean Drilling Program. We recommend that NSF take action to ensure that substantial cost savings are achieved in two areas, as explained below.

¹⁸ Executive Committee Revised Draft Minutes, July 1995. The motion also did not pass because only one non-U.S. member voted in favor of it. Id. Executive committee motions require a two-thirds majority, including the vote of at least three non-U.S. members, for passage. Terms of Reference for the JOIDES Executive Committee for the Ocean Drilling Program, 20 JOIDES J., June 1994, at 10.
¹⁹ Draft Planning Committee Minutes, December 1995.
²⁰ ODP Publications Cost Analysis.
²¹ OCE-9544187, p. T-46.
²² This amount includes the $542,000 subcontract in the FY95 plan (OCE-9444452, p. T-48) plus the $240,000 which was restored when the ODP budget was increased to $45.8 million.
A. Scientific Results

The Scientific Results has been a source of controversy since it was initiated. Many scientists who participate in ODP prefer to publish in the general literature rather than publish in Scientific Results. Sentiment in favor of publishing in other journals is so strong that two ODP committees have recommended that the requirement of publishing in Scientific Results be eliminated. The primary impetus for this recommendation is that many scientists believe that publications in Scientific Results do not carry the prestige of publications in the outside literature. Even though Scientific Results manuscripts are peer reviewed, the rejection rate is low because of the necessity of publishing in it. There is a perception among many ODP participants that the better quality manuscripts are submitted elsewhere, to journals that are more effective in enhancing a scientist’s reputation and career. Thus, publications in Scientific Results are seen by many as “gray literature” with lower visibility and less cachet than standard journal publications. If the committees’ recommendations to eliminate the requirement of publishing in Scientific Results are adopted, the quality of the publications in Scientific Results is likely to decline further, making it an even less desirable forum in which to publish.

The program views the Scientific Results as a legacy, presenting the results of each cruise in a single volume, in a single language (English). Some also believe that Scientific Results makes it easy to determine which scientists make productive use of their cruise experience, and which are unproductive. It is argued that publication in the outside literature would obscure this, by making it harder to view the results of a cruise as a whole.

However, every other NSF program relies on the usual methods—progress and final reports, publication in independent refereed journals, presentations at scientific meetings, and the like—for supported researchers to demonstrate the quality of the work accomplished under their awards. Every NSF grantee is required by the Grant General Conditions to provide copies of such publications to NSF, and every applicant for new NSF funding is required to provide detailed information on results obtained from prior NSF support—including publications resulting therefrom. There is nothing unique about the ODP that requires NSF-funded publication and distribution of all of the scientific data and analyses from its operations, at a cost of nearly a million dollars a year—especially since all of the program’s raw data will continue to be available in the Initial Reports.

In our view, the loss of the Scientific Results as a unified format for presentation of each cruise’s publications would be compensated by the higher visibility afforded by unrestricted publication in the outside literature. Since the bulk of the Proceedings are distributed to organizations and individuals affiliated with the ODP, the visibility outside ODP is restricted to the small number of libraries that carry Scientific Results. Publication in the outside literature would broaden ODP’s audience, and increase the number of libraries that would

24 Planning Committee draft policy change, in minutes of August, 1995; IHP minutes of Sept. 18-25, 1995.
25 See discussion in Planning Committee Minutes, August 1995.
26 GC-1 ¶ 20.c.
27 Grant Proposal Guide at 5-6.
receive ODP’s articles. It appears that many ODP scientists also would prefer to discontinue the Scientific Results and adopt publishing practices more in line with those in other scientific disciplines. Indeed, as noted above, a substantial majority of the Executive Committee members were in favor of discontinuing the Scientific Results at the time of program renewal in 1998.28

Considering the extremely high cost of publishing the Scientific Results, we recommend that NSF stop funding it as soon as is practicable. This would result in a total annual savings of $788,322,29 based on the FY96 budget. This amount includes savings in both the printing subcontract and operating costs. However, we recognize that articles have been prepared and submitted already for Scientific Results volumes that have yet to be published, and that effort should not be wasted. Therefore, we suggest that publication of Scientific Results be continued for approximately 18 months, so that volumes will be published for those cruises for which manuscripts have already been submitted. Participants in cruises that have not yet reached the submission deadline should be informed that they need only prepare manuscripts that they desire to submit for publication in the outside literature. Thus, operational cost savings should begin in mid-FY96 and be complete by FY98; subcontract costs savings would begin in FY98.30 We estimate this could result in FY97 savings of approximately $205,000.31

Beginning in FY98, we estimate savings of both the operational cost and subcontract costs, for a total annual savings of $788,322.32

Under the Government Performance and Results Act,33 starting in FY97 NSF must submit a strategic plan for all program activities covering a period of at least five years. We estimate the cost savings from implementing our recommendation over a five year planning period beginning in FY97 would total approximately $3.36 million. However, the current program has been approved through FY2003, and plans are underway for an additional ten year period. Thus, the full annual cost savings would be maintained for at least 16 years.

B. Initial Reports

Since the Initial Reports present the basic raw data from each cruise, we recognize that they must be retained in some form. However, since the Initial Reports exist only to provide data for use by technically sophisticated scientists, we recommend that ODP abandon bound volumes in favor of CD-ROMs and Internet availability.

29 $788,322 is the cost of producing Scientific Results, but the cost savings will be $712,000 according to the ODP Publications Cost Analysis.
30 In FY98, the savings may be somewhat less than the full subcontract costs because the current publishing subcontract extends through these years. ODP/TAMU should cancel the contract under the most favorable terms it can obtain.
31 Calculated as half the Scientific Results operational costs (based on the FY96 budget).
Multimedia computers equipped with CD-ROM drives and high-speed modems are now ubiquitous and inexpensive, as are low-cost Internet service providers, and the users of the data contained in the Initial Reports can be reasonably presumed to have access to a computer with one or the other (that is, a CD-ROM drive or a modem). In addition, the Initial Reports can be substantially more useful in electronic format because the text and tables can be searched and cut-and-pasted. In addition, the core pictures, which are currently printed in black and white, can be reproduced electronically in color without substantially increasing the cost. Also, it is very difficult to perceive details in the core pictures in the printed volumes, where the pictures of the approximately 6-centimeter diameter cores are less than a centimeter wide—for CD-ROM and Internet purposes, however, the pictures can be rendered as higher resolution graphic images, which can be enlarged on the computer screen to reveal more detail. Another useful feature that could be incorporated into an electronic version of the Initial Reports available on the Internet is hyperlinks, allowing the user to easily have access to other parts of the volume, previous volumes, or documents on other Internet sites.

In addition, the low cost of CD-ROMs and accessibility of the Initial Reports over the Internet would greatly improve the availability of ODP data worldwide. Internationally, a very rapidly growing number of libraries, organizations, and individuals have access to the Internet. Thus, accessibility to the electronic version would be far greater than the 430 libraries which currently carry the Initial Reports. One can also anticipate that individuals or laboratories that currently receive the costly and bulky printed volumes would especially appreciate the space saving aspect of the CD-ROMs.

We estimate that ceasing publication of the printed version of the Initial Reports would result in a total annual savings of $221,500. The estimated savings are based on the elimination of the $290,000 cost of the present printing and distribution contract for the Initial Reports, and TAMU’s estimated cost of $68,500 for preparation, manufacture, and distribution of CD-ROMs. We have not included an estimate for cost savings from forgoing typesetting, because we estimated that that undertaking is comparable to preparing the reports for Internet access.

We propose that the move to CD-ROM and Internet versions of the Initial Reports should begin as soon as is practicable. We presume that the cost savings from this change will phase in beginning no later than the end of FY96. The value of the savings over a five year planning period beginning in FY97 totals approximately $1.1 million. However, the current program has been approved through FY2003, and plans are underway for an additional ten year period. Thus, we estimate the annual cost savings would be maintained for at least 17 years.

14 The resolution of the core photographs on the Initial Reports volume that we examined seemed notably inferior to the photographs in the printed volumes, but this will no doubt be remedied in future volumes.

15 ODP Publications Cost Analysis, pages 16 and 19 (cost of CD-ROMs was estimated as half the cost of producing both Scientific Results and Initial Reports as CD-ROMs).

16 In FY97 and FY98, the savings may be somewhat less because the current publishing subcontract extends through these years. ODP/TAMU should cancel the contract under the most favorable terms it can obtain.
C. Total Cost Savings from Publications

The total cost savings over a five year period from stopping publication of the Scientific Results volumes and stopping publication of the printed version of the Initial Reports comes to about $4.46 million. These funds can be applied by ODP to other purposes that will directly further the program's scientific objectives. Indeed, this view was set forth in ODP's 1996 Program Plan, which stated:

It is widely recognized that we must change the way we do business to continue to meet the scientific goals of JOIDES within this budgetary constraint. To that end, the [Planning Committee] Subcommittee on Publications . . . recommended changes in the way ODP handles publication of the Proceedings of the Ocean Drilling Program to effect significant cost savings . . . .

We appreciate that the ODP is a cooperative international undertaking, with an elaborate—and somewhat protracted—decisionmaking process. However, we believe that there have been strong signals from within ODP that in this era of fiscal constraints it must agree upon cost savings measures, and that the publications budget is a prime area for such action. We therefore recommend that ODP adopt the following recommendations for changes in its publication policy.

IV. Recommendations

We recommend the following steps to achieve cost savings in the Ocean Drilling Program:

1. Cease publication of the Scientific Results volumes as soon as is practicable.

2. Retain and expand electronic publication of the Initial Reports on CD-ROM and the Internet, but cease publication of the printed version as soon as is practicable.

37 OCE-9544187, p. PP-88.
The January EXCOM meeting recognised the need for immediate and concerted action to secure the necessary funds to carry out the scientific program embodied in the LRP (EXCOM Motion 96-1-14). The International Review recommended that achievement of the short-term Program goals (pre-2003) would require real growth in the budget of about 2 1/2% a year. EXCOM requested JOI, with appropriate consultation, to develop full financial projections for the LRP for presentation to EXCOM at this meeting. The following tables and explanatory notes formed the basis of the gross financial projections presented in the LRP for both the two ship option (the JOIDES Resolution plus the OD-21 riser drilling vessel), and the fallback one ship option (the "stretched" JOIDES Resolution).

### ODP Funding Requirements Projection - Two Ship Option

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Table Notes - Two Ship Option

(a) The base program cost for ODP is set at the FY 96 level of $44.4 million.
(b) The estimate for inflation is a net zero for FY 97. It is assumed that the effects of inflation are cancelled out by efficiency gains made through the introduction of project based management. From FY 98 to FY 08, the provision for inflation is 2% compound.
(c) The provision for innovations plus additional technology development is $1.2 million in FY 97. This is not included in the Draft Program Plan being presented to EXCOM at this meeting. It is contingent on the finalisation of MOU's with national funding agencies currently expressing interest in taking up associate membership in the program, or joining the AusCan Consortium. From FY 98 to FY 03, the provision for innovations plus additional technology development is approximately 2% compound.
(d) Provision for additional platforms, to provide for drilling in the Arctic, Antarctic and shallow water, starts at $4 million in FY 99 and rises to $8 million per year at the end of Phase III. At the beginning of Phase IV, it is envisaged that provision for only Arctic and Antarctic would be needed, estimated at $3 million per year, plus inflation. This assumes that the OD-21 vessel is not constructed with full ice breaking capabilities.
(e) The cost of the OD-21 program is conservatively estimated to be 20% to 25% higher than the current ODP, not including the cost of innovations, additional technology development and additional platforms. The cost of this component of the combined program is estimated to rise at 3.5% per year through Phase IV, as the ship operates further from Japan. The capital cost of construction is not included in these estimates.
(f) NSF’s contribution to the program will remain at $27.7 million through FY 97. The overall increase suggested to the end of Phase III averages 3% per year. The increase projected at the start of Phase IV is 30%, followed by a further 3% per year to the end of FY 08. NSF’s contribution to total program costs falls to 60% or just below from FY 98 to the end of Phase III (not including the contributions of other programs to the cost of additional platforms).
(g) For the purpose of this discussion, STA/JAMSTEC’s contribution to the combined program, beginning in Phase IV, is assumed to be the same as that of NSF.
(h) The contribution of the five existing, fully subscribed non-US members (ESF, France, Germany, Japan-ORI and UK) is assumed to remain at $2.95 million per year, each, through FY 97. The jump in contribution at the beginning of Phase IV is the same 30% as that of NSF, followed by a similar 21/2% per year to the end of FY 08.
The AusCan Consortium is assumed to become fully subscribed in two steps by FY 98.

The number of associate members at the one-sixth contribution level is assumed to rise linearly from one in FY 97 (China) to six by FY 02. This could include one or more associates contributing at higher than the one-sixth level in out years.

From the beginning of Phase III, other international research programs are assumed to be contributing between 70% and 90% of the cost of additional drilling platforms.

Table Notes - One Ship Option

(a) The basic program cost, plus the estimates for inflation, innovations and additional technology development are the same under the one ship option. The estimate for additional platforms is the same through the end of Phase III, after which it rises significantly, as the need to augment the capabilities of the "stretched" JOIDES Resolution, equipped with some form of riser or other well control capability, increases. The capital cost of drill ship conversion is not included in these estimates.

(b) The additional cost of operating the JOIDES Resolution with well control capability is assumed to be $30 000 per day. The drill ship is assumed to operate in this mode for 50% of FY 04, rising to 75% of FY 08, with inflation escalating costs by 2% per year.

(c) The contributions of NSF and all non-US partners to direct program costs, as well as the contributions of other international research programs to additional platforms, are assumed to be the same as under the two ship option through to the end of Phase III.

(d) The estimated increase in both US and non-US contributions required to meet the cost of operating the "stretched" JOIDES Resolution at the beginning of Phase IV is about 12 %. NSF's contribution to total program costs remains at or just under 60% from FY 98 to the end of Phase IV (not including the contributions of other programs to the cost of additional platforms).
Leadership in ODP

Otis B. Brown

June, 1996

The following report is a result of being tasked by the EXCOM Chair to provide a talking paper on the topic of leadership in ODP. Specifically Dr. Briden noted that the International Review Committee stated:

The Review Committee has a strong perception that the program would benefit from more clearly defined scientific leadership, in particular to provide advocacy of the program within the broader scientific community, with the wider public and with funding agencies of the member nations and to provide an overall vision of the science implicit in the Ocean Drilling Program. Scientific leadership may also be necessary to provide a modest and sufficient amount of direction to fulfill the objectives of the 1996 Long Range Plan. The roles of management and leadership need to be carefully distinguished. The Review Committee was satisfied that the scientific management of the ODP through the Joint Oceanographic Institutions (JOI) office is of high caliber, but their role does not fulfill the scientific leadership role. Responsibilities for leadership and management are currently spread between the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES) Planning Committee (PCOM), Texas A & M University, JOIDES Executive Committee and JOI. The Review Committee was not convinced the very democratic structure and dispersion of leadership and senior management across a rather flat organizational structure were commensurate with developing the necessary scientific leadership. The fact that no senior scientist represents the ODP at ODP Council meetings is an example where there is a major need for an enhanced leadership role in the Program.

The view of the Review Committee is not one of proposing new structures or positions, but rather to ask the ODP to systematically review ways to enhance communication and strengthen the scientific leadership. The Review Committee considers the role of the PCOM chairperson is appropriately one of key scientific leadership and recommends the selection of the PCOM chairperson, term of office, and continuity of role e.g. use of chairperson elect and chairperson be reviewed. There may be a role for a Nominating Committee in seeking the scientific leadership and function for this position.

First, my biases and personal history with ODP should be understood. I am a new member of the JOIDES/EXCOM, so my first hand knowledge of ODP history is minimal relative to many of the EXCOM and ODP participants. On the other hand, members of the ODP family and the Rosenstiel faculty have shared their perspectives on the issue with me. Coupled with these interactions, I have been a participant in non-geology/geophysics global programs, e.g. TOGA and JGOFS, so I have a familiarity with global science programs. Parenthetically, I must state that, in my opinion, the ODP has blazed a path for all of the geo-sciences in exploring international scientific programs and has been one of the most successful international collaborations.

The question I asked myself is “Why is leadership an issue in ODP?”. After research, discussion and some thought, it appears that “leadership” maybe a euphemism, rather than a completely accurate way to describe the current situation.
The issue, to my mind, is one of direction for a successful, mature program which finds itself in situation with changed support, participation, and scientific circumstances. It is somewhat analogous to a mid-life crisis...

ODP started out as a centrally directed, national program in the US called DSDP. Over the years it evolved into an international effort (ODP), but still with strong central, top-down direction. Historically the Planning Committee (PCOM) provided synthesis of scientific and logistical needs for the program and communicated these to the operator. In the last decade EXCOM and the various national sponsors jointly decided to broaden scientific participation and guidance in ODP. In response two significant changes occurred: ODP became more of a facility, and, there was a much stronger bottom-up component of the scientific guidance for ODP. Management and advisory structures and relationships were changed somewhat to accommodate these modifications in role, e.g. changes in the PCOM panel structure. These changes empowered the PCOM science panels, and to a large extent relegated PCOM to the role of synthesizing the logistical aspects of the program. That is, the previous arena for addressing overall scientific synthesis for ODP, PCOM, has found itself preoccupied with logistical planning. Most recently these tensions were seen in the curious process for the finalization of the latest five year ODP proposal. EXCOM, PCOM and the various panels all provided scientific input to the plan, but synthesis of the input was a protracted, and not very quickly convergent process. It was a combination of national support issues for the ODP and this "process" which focused EXCOM attention on the "leadership" issue. From this brief, and superficial history, it seems apparent that the structural and advisory changes in the last decade were not sufficient to provide strong scientific synthesis for ODP, and this is what is probably meant by the euphemism "leadership".

From first principles, we could say that scientific leadership for ODP probably embodies the following aspects (my thanks to Olav Eldholm for this list):

- Responsibility for short and long-term scientific planning.
- Responsibility for evaluating scientific performance and results.
- Ability to develop and maintain a planning structure which allows for efficient coordination of planning and evaluation of achievements.
- Maintenance of a high visibility profile both to the scientific community and to the public-at-large (decision makers, media, industry, educational institutions, etc.).
- Development and maintenance of links to other main earth science programs.

As the recent proposal preparation process indicates, this responsibility is currently diffused across JOIDES. EXCOM, PCOM, PCOM panels, JOI, and the Operator all provide input, and many of them are participants in the synthesis. While there will never be clear and absolute delineations in roles for the various parts of a multi-faceted organization, such as ODP, it is apparent that ODP needs to have one group with the mandated responsibility for scientific leadership. Historically this has been PCOM. As you will see, I believe it should remain PCOM's remit...

Is ODP totally devoid of scientific leadership? No! Our problem is clearly articulating responsibilities for the various aspects of scientific leadership to the various parts of ODP. The principal issue to be addressed is providing medium to long-term leadership, that is, the strategic and longer term aspects of the ODP which
receive least attention at present. The current PCOM and PCOM panels do not have the time nor possibly the correct relationships to address strategic and longer term problems. This is not due to lack of interest but rather the press of current planning and logistics, and, to some extent, the inability of the current planning structure to achieve consensus across the discipline panels.

So, what might be the solution(s) to this issue?

PCOM has made a number of suggestions for change in the current structure and responsibilities. Among them is the idea that one PCOM meeting per annum be devoted to longer range planning. Others have suggested that the two-year term limitation on the JOIDES Office and EXCOM/PCOM chair terms should be changed to longer terms (3-4 years?), and that the provision binding the two chairs to the same institution be dropped. It has also been suggested that the committee structure, as currently constituted, is just not an effective way to approach this problem. Still others have suggested that the developing international science programs such as InterRIDGE, MESH, etc. should be relied on to provide scientific leadership and ODP should be more of a facility.

My recommendations to address current "leadership" matters with ODP are the following:

- Greatly reduce the "logistics" coordination function of PCOM. This is an implementation issue, not a planning matter.
- Find the best PCOM chair that is available within all the ODP institutions.
- Lengthen the appointment for the PCOM chair in order to facilitate longer term consistency.
- Provide the PCOM chair with a clear long-range planning role for EXCOM (this would include annual reports on the subject).
- Direct PCOM to focus on mid-term and strategic planning issues.
- Direct PCOM to develop a more coherent use of resources, i.e., legs should be scheduled based on scientific ranking and minimization of expense, not on some sort of panel rotation scheme.
- Establish a "logistics" coordination function in ODP. This could be a joint responsibility of PCOM and the Operator.
- Give the Operator a stronger voice in logistics' decisions.
- Establish a deputy for the PCOM chair whose remit is to do logistics' coordination with the Operator based on PCOM and panel input.

While several of my recommendations are consistent with recent PCOM recommendations on this subject, it should be stressed that these recommendations were arrived at from discussions with EXCOM and community members, and are not an attempt to rewrite or revise their recommendations, i.e., the two sets of recommendations should be viewed as independently derived.
Item 3(e) RFP’s

Technical statements of work (draft) for the Wireline Logging RFP and Site Survey Data Bank RFP have been prepared by JOI, and will be finalised after the June EXCOM meeting. It is expected that the RFPs could be issued as early as August.

1. Wireline Logging Services

Based on JOIDES input, there will be no major changes in the technical scope of work for the next contract period. There will be some minor changes as to which tools are considered "routine" or "specialty." As in the last WLS RFP, there will be no language identifying Schlumberger as the only potential service provider.

2. Site Survey Data Bank

Based on JOIDES input, there will be no major changes in the technical scope of work for the next contract period. JOIDES recommended a move to a GIS system at the Data Bank. However, JOI will simply encourage innovative use of electronic media (data storage and accessibility), leaving the decision about what kind of system is most appropriate (and cost-effective) to the bidder.
Agenda Item 4: Current Issues

This item replaces the traditional agenda item of Management Reports. As requested by EXCOM at its last meeting, the Reports (Papers 4(a) - (d)) will be taken as read. Presenters will speak ONLY on major issues that demand oral explanation and require response from EXCOM, except that presenters will also respond to any queries raised about the written papers, that are notified to the Chair before the meeting.

(a) NSF report (Paper 4(a)). Dr Heinrichs will present (10 mins) EXCOM should particularly note the point about FY1998-2003 Program planning, and the progress of discussions with the Peoples Republic of China. The NSF Inspector General’s report on ODP Publication costs is dealt with at item 3(b) of this meeting, and the report is attached as appendix 2 of paper 3(b).

(b) Following EXCOM advice at and after the last meeting, the reports of JOI, Science Operator and Wireline Services Operator are here presented to EXCOM together. The JOI report is attached as Paper 4(b i). The Science Operator Report is Paper 4(b ii) and the Wireline Services Operator Report is attached as Paper 4(b iii). Dr Falvey will identify the issues in these reports that require EXCOM response and will call on Ms Baker-Masson, Dr Fox and Dr Goldberg for items within their responsibility.

(c) PCOM Report. The report of the April 1996 Planning Committee is attached as paper 4c. Most of the major issues are dealt with elsewhere on this agenda: Long Range Plan implementation is at item 3(a) FY97 Program Plan is item 5 Publications Policy is item 3(b). PCOM reconvened its Publications subcommittee at the April 1996 meeting following responses from the Science Operators on the savings that would result from the changes already suggested. The subcommittee advocated a return to the DSDP model: Initial Core Descriptions published 3-months post cruise, plus full Scientific Results published 4 years post-cruise. PCOM motion 96-1-13 makes detailed recommendations on this model. JOI Program Director and the subcommittee chair, Henry Dick, had further discussions at ODP-TAMU, and the result is the report in Item 3(b) which recommends further extension of electronic publication.

Science highlights will, for the first time, be presented direct to Council by the PCOM Chair on Wednesday. In this item, therefore, the PCOM chair will focus on two issues: Diamond Coring System (DCS): members are asked to note that PCOM considered reports on the progress of the DCS development and agreed that this project should proceed as advised by TEDCOM at $551K in FY97. (PCOM motion 96-1-4). Conflict of Interest: PCOM had convened a subcommittee to reconsider this issue; it received the report of this subcommittee and passed the Motion 96-1-19, and also considered its voting procedures in detail (PCOM motion 96-1-5). JOI Program Director has incorporated these conclusions in revisions to the ODP Policy Manual. These are appended as paper 4(c ii) on which Dr Falvey will speak. EXCOM is asked to APPROVE the proposed revisions to the policy manual.
Item 4(a): NSF MANAGEMENT REPORT

FY 1996 BUDGET AND FUNDING

The ODP program plan budget has been increased from $44,400,000 (in effect at the time of the Chantilly meeting) to $45,048,610. The increase of $648,610 is attributable to uncommitted FY 1995 funds which have been carried forward into FY 1996. Funding of FY 1996 operations is approximately 85% complete with remaining funding dependent on timely receipt of international contributions.

FY 1997 BUDGET AND PROGRAM PLAN

As reported in Chantilly, the FY 1997 target budget for ODP operations is $44,400,000 and assumes that there will be six full international partners in addition to the NSF. The full member contribution level will remain at $2,950,000 for fiscal year 1997.

NSF has completed an administrative review of the draft program plan and provided written comments to JOI. The primary concern expressed to JOI is ensuring adequate oversight on provision of basic services and contractual requirements while implementing the budgeting strategy recommended by BCOM.

FY 1998-2003 PROGRAM PLANNING

Existing NSF programmatic approval for the Ocean Drilling Program extends through 2003, while funding approval extends through FY 1998. NSF has requested that JOI prepare a provisional five year plan for submission and review in the Spring of 1997. NSF will use the results of this review to extend funding authority for the program.

With the exception of Japan, the present memoranda of understanding are structured in two parts, 1994-1998 and 1999-2003. NSF has requested notification at the ODP Council meeting in summer 1997 of partner commitments for the 1999-2003 period.

The present contract for operation of the JOIDES Resolution can be extended at favorable day rates for 1999-2003, if a reasonable level of refits/upgrades are undertaken to the vessel during drydocking in late 1998 or early 1999. Since funds for these upgrades will likely be included in both the FY 1998 and '99 budgets, a decision on the funding and degree of work to be done will need to be made at the beginning of FY 1998.

The attached diagram summarizes the relative timing of these decisions.

NEW MEMBER INITIATIVE

At the ODP Council meeting in Edinburgh, NSF and the Council agreed to allow for participation by candidate members who could not initially afford full membership status. Initial duration of such participation is to be limited to three years and would
provide for restricted shipboard and JOIDES participation in proportion to the candidate member’s contribution to Program costs.

In April, NSF met with a delegation from the People’s Republic of China (PRC) which was headed by Dr. Wang Zhixiong of the Marine High Technology Bureau of the State Science and Technology Commission. Dr. Wang was highly supportive of the PRC joining the program as a candidate member at a one-sixth level (approximately $500,000 per year). Subsequent to the discussions, NSF has begun the process to secure U.S. government approval to conclude an ODP MOU with the State Science and Technology Bureau.

REVIEWS AND AUDITS

The primary activity has been completion of audits related to close-out of the contract that supported ODP operations from 1984 to 1993. NSF and JOI are presently involved in the final steps required to terminate the contract. It is expected that residual funds remaining on the contract will be returned to the NSF Ocean Drilling Program.

The Inspector General’s Office of the National Science Foundation has completed an unsolicited report on ODP publication costs. Although the report does not represent the position of the National Science Foundation or the Division of Ocean Sciences it has been forwarded to JOI and JOIDES as input to the present discussions on future publication policy in the Program. The report recommends that ODP cease publication of the Scientific Results volume as soon as is practicable and that it expand publication of the Initial Results on CD-ROM and the internet, but cease publication of the printed volume as soon as is practicable.
MOU'S
Council Meeting
Council Meeting
Council Meeting
Japanese MOU

Partner Decisions to Continue 1999-2003

Existing NSB Funding Approval

NSB Approval 1999-2002

Planning for Mid-Life

Mid-Life on ship

Extension of Prime/Subs/

NSF/NSB
Council Review
U.S. Review

New NSB Funding Approval

2002


MOU'S and PARTNER COMMITMENTS

NSF/NSB REVIEW

CONTRACT and SHIP MID-LIFE

Refit/upgrades

Decision on Mid-life

Contract Notification to JOI

Ship Contract
Item 4 (b i) JOI Program Management Report

1. FY 96 Budget

No changes have been made in the allocations to JOI and subcontractors previously presented to EXCOM.

2. “Internationalisation” Initiative

(a) Brazil
No activity since January, 1996. No update was provided by Dr Luiz Gamboa (Petrobras) by the time this report was compiled.

(b) Russia
No activity since January, 1996. Prof Nikita Bogdanov (Institute of the Lithosphere) reports that a proposal for drilling in the Russian Arctic has been submitted to the JOIDES Office by the 1 July deadline.

(c) China
A delegation led by Mr WANG Zhixong, Deputy Director and Head of the Natural Resources Section, State Science and Technology Commission, visited Washington, DC, 8 to 11 April, for discussions with JOI and NSF on China joining ODP as an associate membership at the one-sixth level. Negotiations on an MOU are now underway with NSF. Problems over the status of Taiwan, should such institutions join ODP, form part of those discussions.

(d) Taiwan
The situation in Taiwan remains illdefined. The possibility of the National Science Council in Taipei signing an MOU with the Australian and Canadian Geological Surveys in order to join the AUS/CAN Consortium, appears as uncertain as reported in January.

(e) Korea
The Korean Institute of Geology, Mining and Materials (KIGAM) remains commited to joining ODP via the AUS/CAN Consortium by FY97. This was confirmed in a letter from the President of KIGAM to the Assistant Deputy Minister of the Canadian Geological Survey. The ODP Director made a presentation on ODP as a vehicle for international cooperation in science to a US-Korea Forum on Science and Technology, held in Washington, DC, 14 June.

(f) Mexico
No activity since January, 1996.

(g) Commonwealth Secretariat
No activity since January, 1996.

(h) Intergovernmental Oceanographic Commission (IOC)
The ODP Director met with John Withrow, Senior Technical Secretary, IOC, on 1 May in Washington, DC, to renew discussions on an IOC associate membership on behalf of developing coastal states. A follow-up information package was sent to IOC in late May.
3. Cooperative Technology R&D Initiative

Discussions are continuing with NSF on formats for Cooperative Technology R&D agreements that might serve ODP. NSF are still considering the ramifications vis-a-vis the MOU's with non-US members. The Science Operator and the Wireline Logging Operator have provided JOI, and JOI has provided NSF, with the following institutional policies on cooperative R & D activities:

(a) Texas A & M University Policy on CRADA’s

"Rick McPherson and I have reviewed the University’s policy on CRADAs and we can offer the following. TAMU looks very favorably on research collaborations with industrial partners and treats each collaborative project on a case-by-case basis. Each agreement is structured to meet the specific needs and constraints imposed by each research and development agreement with the interests of TAMU and the industrial partner being respected. History indicates that each agreement has unique elements and no single model can be defined. A generalization that can be made is that agreements are written so that the industrial partner has a preferred position with respect to the intellectual property rights that are a product of the research program in question. It would take about 30 to 40 days for the University to review a given request.

(signed) Paul J. Fox"

(b) Columbia University Policy on CRADA’s

"I have had the opportunity to review your draft statement regarding Cooperative R&D Agreements, which are being proposed for the Ocean Drilling Program. Columbia University is committed to encouraging research collaborations with industry, and the CRADA is an important vehicle for fostering such collaborations. We structure our interactions with industry on a case-by-case basis within certain guidelines. However, we always provide that the industrial research sponsor will have a preferred position with regard to any intellectual property that is generated. Columbia, through its Columbia Innovations Enterprise, is currently managing about 50 research and 150 active license agreements with industry. We are confident that we will be able promptly to work out specific features of any CRADA.

(signed) Fred H. Kant, Director, Physical Sciences Technology"

(c) Suggested Model for a Cooperative Technology R & D Agreement

This suggested pro forma is based on the model "Cooperative Research and Development Agreement" (CRADA) formerly used by the US Bureau of Mines (US BoM) for cooperative research programs. It may need further development to ensure its acceptability to JOI, TAMRF and Columbia University.

1. Participating Organisations/Joint Venture Operator

TAMRF (for the Science Operator) and/or Columbia University (for the Wireline Logging Operator); and another party, or parties agree to cooperate as stated in this agreement. One of the cooperating parties (Participating Organisations) is designated the "Joint Venture Operator".

2. Definitions

As Article 1, US BoM model, amended as necessary.
3. Joint Program / Project Objectives
As agreed between the parties. A simplified example of a joint project objective might be something like: "The Participating Organisations agree to cooperate in the development of an advanced pressure core sampler."

4. Scope of Work
As Article 1, US BoM model, amended as necessary. Engineering details of the specifications of what the Participating Organisations envisage and agree as being the characteristics of a successful end product would be put in an appendix.

5. Joint Program / Project Management Structure
Designation of internal project management mechanisms agreed to by the Participating Organisations, including project leadership and team structure. For example, the "Joint Venture Operator" will designate an overall project leader/manager; the other parties will each designate project supervisors; a project management committee will be formed, with membership from each of the Participating Organisations, and the powers and authority of the project management committee will be specified.

6. Joint Program / Project Staff Resource Contributions
Designation of joint project staff resource contributions agreed to by the Participating Organisations, including administrative mechanisms. For example: the "Joint Venture Operator" will designate its project staff contributions, as will the other parties.

7. Joint Program / Project Financial Obligations
Designation of joint project funding contributions agreed to by the Participating Organisations, including payment mechanisms and timetables. For example, the "Joint Venture Operator" agrees to contribute $500,000 in non-staff resources; and, say TAMU agrees to contribute $500,000 in non-staff resources, in 4 payments over, say 2 years; each payment at a specified milestone in the project.

8. Agents, Sub-Contractors and Additional Participants
Agreement between the Participating Organisations on the admission, roles, responsibilities and rights of and conditions governing any additional participants that may be required for the implementation of designated joint projects; for example, sub contractors to the "Joint Venture Operator".

This section of the US BoM model requires careful adaption to ODP circumstances. It is intended to cover the intellectual property rights of the Participating Organisations. For example, the "Joint Venture Operator" may be granted the patent rights of the final product and the right to exploit the product commercially; TAMU might be granted the right to freely access all of the design details. This section might also cover individual rights of employees of the Participating Organisations, the procedures for filing of Patent Applications and the conditions governing the assignment and recovery of patent rights. It might also include the sharing of any recovered costs of the R & D by the Participating Organisations.

10. Exclusive Licence
Guarantees the required exclusive licences for ODP and, where appropriate, ODP participating organisations, for research purposes. At a minimum, TAMU, say, would have the right to utilise the design to construct products for research purposes, and to further develop the design as considered necessary.
11. Data Confidentiality and Publication
Adapted from US BoM model agreement, Article 5, to suit ODP circumstances. TAMU and JOI may be required to keep the design confidential.

12. Liability and Indemnity
Adapted from US BoM model agreement, Article 8, to suit ODP circumstances. This section is designed to protect the Operator and the ODP participating organisations.

13. Termination
Right of either party to terminate the agreement on, say, 30/60 days notice. If the Operator, say, withdraws, then payments made by ODP may be partly or wholly refunded under certain conditions and joint benefits are retained by ODP.

14. Settlement of Disputes
Agreement to mechanisms for dispute settlement, including arbitration and continuation of work.

15. Legal Status, Jurisdiction and Binding Obligation
Designation of legal jurisdiction, and status in contract and, if applicable, international law.

16. Miscellaneous
This section covers such issues as amendments, third party assignments, notices, independent sub-contractors and the use of names and endorsements.

17. Duration
Duration of this agreement, extensions and effective starting date.

SIGNATURE BLOCKS, PLACE AND DATE

ANNEX 1 - DETAILED PROJECT STATEMENT OF WORK

ANNEX 2 - NON-DISCLOSURE AGREEMENT

4. Project Management Initiative
The first steps in the introduction of project-based management into ODP are well underway. ODP-TAMU are now committed to the concept of managing "legs of scientific ocean drilling" as projects and have costed such a generic project. Formal project management training has begun in ODP/TAMU for all parts of ODP.

5. Communications (Public Information) Initiative
JOI has now recruited a full time Director of Public Affairs - Ms Pamela Baker-Masson. Revisions to the policy on public information are underway and an interim outline is attached.

6. Performance Evaluation Committee (PEC-IV) Implementation Update
The following is a summary of the status of responses taken, or actions still pending on the recommendations of PEC-IV since the last report to EXCOM in January, 1996.
JOINT OCEANOGRAPHIC INSTITUTIONS, INC.

5. PEC IV recommends that JOI should conduct systematic post-cruise evaluations of JOIDES Resolution drilling legs on an annual basis:

PCOM has still not taken any explicit action on this recommendation. JOI has recommend that all future co-chief scientists address the outcomes of each leg against the original objectives.

Action: On-going; beginning with the 1997 Program Plan.
Responsibility: PCOM, JOI

JOIDES SCIENCE ADVISORY STRUCTURE AND JOIDES OFFICE

8. PEC IV suggests that consideration should be given to extending the current two year term of the PCOM Chair and the JOIDES Office, use of an internationally competitive selection process and decoupling the arrangements whereby the EXCOM and PCOM chairs come from the same institution in the US and the same country when the office is outside the US:

Issue to be addressed by JOI Board of Governors after this meeting.
Action: JOI-BoG.
Responsibility: JOI-BoG

10. PEC IV suggests that JOIDES should designate certain service panels as sub-panels, reporting through a single "Technical Services Panel" (TECHCOM):

Recommendations to implement a PCOM modified version of this recommendation are before EXCOM at this meeting.
Action: EXCOM.
Responsibility: EXCOM; JOIDES

13. PEC IV considers that the JOIDES Advisory Structure should be reviewed in the context of the new Long Range Plan:

As for 10.
Action: EXCOM.
Responsibility: EXCOM

ODP-TAMU SCIENCE SERVICES

22. PEC IV urges co-chief scientists, staff scientists and Science Services staff to work together to produce the best possible volume of scientific results in a timely manner:

JOI, PCOM and ODP-TAMU Publication Dept have undertaken a review of publication policy and are making recommendations to EXCOM at this meeting. Introduction of Project Management in ODP-TAMU, including the designation of a drilling leg as a single project, will also streamline the publication process.
Action: Underway.
Responsibility: EXCOM; JOI; ODP-TAMU

24. PEC IV suggests that an apparent overlap in the activities and responsibilities of the Technical and Logistics Support Department and Curatorial staff should be examined:
ODP/TAMU is addressing this issue in the context of Project Management.

**Action:** ODP-TAMU.

**Responsibility:** ODP-TAMU

25. PEC IV urges JOIDES panels to address the problem of increased demand for high resolution sampling, which may require some reconsideration of general sampling policy:

ODP-TAMU has now defined the cost in the context of Project Budgeting.

**Action:** Underway; on-going.

**Responsibility:** ODP-TAMU; PCOM.

**ODP-TAMU INFORMATION SERVICES**

27. PEC IV strongly recommends that JOI and ODP-TAMU should closely monitor the Database ("JANUS") Project budget, schedule and progress:

The JOI Steering Committee is working with ODP-TAMU project staff and TRACOR to keep the project on track. See separate report of the Steering Committee in this section.

**Action:** Underway; on-going.

**Responsibility:** JOI and ODP-TAMU

28. PEC IV recommends that the JOI Steering Committee should consider the need for, cost and relative priority of migrating existing ODP and DSDP data from current databases to the new database:

JOI and ODP-TAMU have defined X-base funding to start this project in FY97.

**Action:** FY97 Program Plan

**Responsibility:** JOI and ODP-TAMU

**ODP-TAMU DRILLING OPERATIONS AND DEVELOPMENT ENGINEERING**

38. PEC IV recommends that ODP-TAMU management should give a high priority to filling the position of Manager, Drilling Operations and Development Engineering:

ODP-TAMU have appointed Brian Jonasson as Manager, Drilling Operations and Development Engineering

**Action:** Complete.

**Responsibility:** ODP-TAMU

39. PEC IV considers that a feasibility study for a revised Diamond Coring System Project, with a realistic budget estimate, should be developed by ODP-TAMU, under the careful monitoring of TEDCOM:

The need for a DCS-type solution was endorsed by LITHP in March and PCOM in April, and included by JOI in the Draft Program Plan as an X-base funded project in FY 97.

**Action:** Underway; on-going.

**Responsibility:** ODP-TAMU; TEDCOM
ODP WIRELINE LOGGING SERVICES - LAMONT-DOHERTY EARTHER OBSERVATORY

42. PEC IV recommends that JOI undertake a review of funding and
downhole logging roles and responsibilities of LDEO-Wireline Logging
Services, and Leicester University (LU) and Institut Méditerranéen de
Technologies (IMT):

Consideration of this recommendation has now been overtaken by the decision by JOI to issue an RFP covering the delivery of Wireline Logging Services to the
Program for Phase III
Action: Underway.
Responsibility: JOI

7. Cooperation with Other International Programs

(a) Nansen Arctic Drilling Program
Preparation of a draft Nansen Implementation Plan is in progress. The first draft is
being written by the NAD Executive, Science, and Technology committees. The Plan
will then be circulated among interested scientists before an "Implementation Plan"
workshop. The workshop, previously scheduled for May in Iceland, will be held

(b) CORSAIRES

CORSAIRES "kick off" meeting, Ghent, Belgium, 21 March 1996
C L Jacobs, JOIDES Office

This was the inaugural meeting of the CORSAIRES project and began with a one-day presentational
session followed by a CORSAIRES Steering Group meeting (which was not attended, though an
invitation was extended). This report will mirror the agenda paper and summarise the presentations
made.

The Programme Framework
(J P Henriet, Ghent University)
This programme was formulated to address one of the defined "Grand Challenges" set by the
European Commission, namely the Deep Sea Floor as a Changing Environment. The total budget of
the Grand Challenge would be of the order of 50M ECU (1 ECU = $1 US) over 10 years. There was a
community (scientific) need for long 100-250 m cores for high resolution climate change studies, and
possibly (using directed drilling) for biological studies. It was recognised that ODP was not created for
European margin work alone, that it has a global role, therefore there was a need in Europe for
another vessel, a fact that was identified at COSOD II.

In response to an initial call for expressions of interest, 47 European laboratories contacted the
CORSAIRES convenors, with a total of 98 potential drill-sites identified. In response to a survey, the
CORSAIRES identified 9 vessels available for use from industry.

The CORSAIRES proposal was originally submitted through the MAST Training and Mobility Large
Scale Facility programme, but CORSAIRES did not own a vessel and it was subsequently learned that
to secure funding the owners of the facility had to offer it as such. No funding was secured for the
proposed legs (Rhone Fan and Iberian margin). This may have also been due to the fact that the
requirement for such a programme was seen by the MAST Programme. The next round of MAST
proposals is March 1997. The CORSAIRES steering group would like to see if the Education and
Training aspect of their proposal could be in association with ODP and NAD.

The Southern North Sea Project is viewed by CORSAIRES as a pilot for their proposal, it proves the
feasibility of such a programme.
The Marine Science Board: Implementing the Grand Challenges
(D Cadet, Institut National des Sciences de l'Univers)
This board fulfils a need for co-ordination within the European Union. It was set up to help scientific challenges that require a co-ordinated/joint approach, and to produce a European strategy to look at the "big" questions. It aims to achieve this by exposing the big projects to the heads of the national research organisations, and by doing this it can save a lot of work on the part of the individual scientists. This Board wants to address the science that needs ocean drilling from a European perspective, and it believes that this includes ODP, whilst recognising the fact that ODP is not all ocean drilling. It wants Europe to pursue a common strategy for the next decade.

Europe in ODP's Long Range Plan
(C Jacobs, JOIDES Office)

Scientific Challenges on the European Continental Margins
(J Mienert, GEOMAR)
This introduced the ENAM project (European North Atlantic Margins). This is a 3-year project that has just been approved for an extension of a further three years. It has involved the use of ~70% of the European research fleet each year. This presentation concentrated on the occurrence of gas hydrates along the European margin, and justified the project (in terms of societal relevance) in terms of methane release and free-gas as a slip-plane for large-scale landslides. The scientific priority now is to date the slides on the European margin.

Where Science meets Industry
(D Ardus, BGS)
This was a review of the British Geological Survey's continental shelf mapping programme and the phases of oil industry support that project had (increasing). Much of the industrial support was to calibrate geophysical data, and to look at the safety of platforms.

Scientific Drilling with Industrial Vessels
The Vessel Owners Perspective (T By, DNSD)
This company is largely involved with Geotechnical Drilling, Subsea Construction, and Well Maintenance. They are now 50% owners of the JOIDES Resolution (bought BP's share). This company want to work with JOIDES in shallow water (as a signal of this they have hired marine scientist). They have ice-breaker drilling vessels that can operate in up to 2.5 m of ice. The company would also offer "cheap rates" if vessels were picked up outside of their normal commercial activity windows. Their current day rates vary between $25-45K per day, but they may offer rates below $20K per day for academic research.

They were very impressed with the success of the PCS and suggested that this should be publicised as widely as possible in the oil industry as there is great interest in this field. They would be willing to provide resources for further enhancement of this tool.

The BGS Approach: Three Decades of Continuous Coring
(A Skinner, BGS)
This was a review of the BGS world-wide scientific coring operations and reviewed the many different types of platforms and drilling rigs that can be used to obtain core. There was also an overview of some Russian drilling equipment, and it was stated that they (Russia) have successfully been using techniques that ODP is only now developing or thinking about, such as a 50 m motor driven core barrel that can be deployed on a wireline and retractable drill and core-bits.

New Technology for Ocean Coring and Downhole Measurements
(H Amman, Technical University Berlin)
Review of the success of the PCS on Leg 164. He wishes to put a MAST III proposal to combine the PCS and MDCB and so avoid the problems with lateral and rotational movements. Such a development would also be beneficial to CORSAIRES.

It was suggested that offshore oil and gas technology needs adaptation for use by ODP, and that development of a full-size riser system for use in depths greater than 4 km is beyond the finance available to science, and that a slimline system must be pursued. Such a system could utilise fibre-reinforced plastic (GRP) or carbon fibre, but any connectors would need to be steel or titanium. A possible European answer could be based on the IFP (France) work. The main technical problem
would be connecting the GRP or carbon fibre to the steel connectors, and Europe could look at developing and testing these connectors in marine conditions. Other potential areas for Europe to contribute technology to ocean drilling are LWD and LWC and broad-band telemetry using fibre-optics, though it was acknowledged that this was very close to industry. Another possibility is an automatic benthic corer, with no 'drilling from the surface' at all. One way forward with this is to "sectionise" the core barrels, beginning with 2-3 sections of 2 m, and then moving up to 10 m sections.

At this point Skinner (BGS) commented that what is actually required to collect good quality core is well control - mud supply, a riser per se is not and the cost penalty of a riser is enormous. He also commented that if drilling occurs in hydrocarbon areas then an accident will happen, and that at that time all scientific drilling will cease. Amman said that a riser will be essential when, for example, drilling into the gas pockets around the European margin.

(Y Lancelot, CNRS-CEREGE, Marseille)
This was a review of downhole logging with four possibilities for the CORSAIRES programme. The "classical" Schlumberger contract (top quality, top price, with room for innovation); a "slimline" logging system with higher resolution (innovation, selective tools, high resolution images); LWD (specialised for unstable formations, high resolution, moderately expensive): raw log data with all processing done by scientists (innovation, development, selective tools, very low costs) probably using instrumented core barrels/probes.

Core Measurements: Prospective (G Auffret, IFREMER)
A general presentation on the requirements and potential pitfalls of the data required for CORSAIRES. Sampling - selective to what is required to achieve the results, e.g. logging colour. Care should be taken with sampling and logging resolution and with compatibility of results between laboratories. Dating - tuning dates to the astronomical time scale and stratigraphies can, with care, be applied to logs. the 'Tool' - split-core loggers are common to many laboratories but differences may occur due to "calibration" differences. European Future - Laboratory networks in Europe are already good, though they could be improved. It takes too long to get proposals drilled with ODP, CORSAIRES should review its own proposals and then use any available vessel.

Ocean Drilling in Marine Sciences Training and Education (J P Henriet, Ghent University)
CORSAIRES would like to explore the possibilities of using ocean drilling for education and training with other programs such as ODP.

General Debate and Comments
H Amman interested in further development of PCS for use in ODP and CORSAIRES, and possibly development of a sea-floor drilling station, possibly deployable from large general-purpose oceanographic vessels (such a development is under development in Australia). Lots of interest in developing ODP-type tools (especially FMS) for placing on long piston coring systems (e.g. the 50 m Marion Dufresne system).

8. JANUS Steering Committee Report - Update Provided by Kate Moran (a) Summary
The Janus project is progressing well. Table 1 shows a summary of the status of major components of the project. The JOI Steering Committee (SC), which has been charged with providing advice and guidance to the project, is pleased with the level of effort and with the development schedule of the contractor, Tracer Inc. SC members and representatives sailed on transit Leg 166T, in April 1996, with six of Tracer's personnel. The SC was impressed with Tracer's level of knowledge of the ODP shipboard activities. With the exceptions of visual and hard rock core description and paleomagnetics, the usergroup tasks of data model concepts and definitions are complete. In view of this status, the SC chair has elected to modify the usergroup tasks to better reflect the needs of the project. Usergroup 1 and 2a components are complete and do not require any further usergroup
input and only minor evaluation. Usergroup 2b will be complete at the end of Leg 167 and will similarly require only minimal evaluation. Usergroups 3 through 5 are in the software development phase and will require input from the usergroups for testing and evaluation. Therefore, each of these three groups will identify one person (TAMU or JOIDES) to work with Tracer during these final phases of development. It is envisioned that each of these usergroup representatives will travel to Tracer to work directly with the software developer for periods of 2 to 3 days.

The "problem areas" are: visual and hard rock core description; paleomagnetics; and thermal conductivity. During 166T, the SC representatives evaluated a software package for visual core description. It is text-based and provides the graphical output (compatible with barrel sheets) and ASCII output that can be seamlessly input to the Janus Oracle database. It requires additional evaluation for hard rock core description. The SC views this software package (ca. $1,000 US) as the best solution for Janus core descriptions for Janus Phase I. Also during the transit, the SC reviewed the paleomagnetics laboratory requirements with Tracer and the TAMU technical staff. The lab has three major instruments which will output ASCII formatted data that can readily be incorporated into the Janus Oracle database. Because of the relative simplicity of this laboratory, the SC will re-evaluate this lab's priority status with Tracer at its next meeting (July, 1996).

(b) Personal Notes
As the new chair of the SC, I feel that I have a good understanding of Tracer's activities and, over the past three months, have developed a good working relationship with them. I am very impressed with Tracer's staff; they have an excellent understanding of our "business" and are working on this project with enthusiasm and a high level of effort. I plan to do the same with TAMU over the summer months. TAMU is in the process of preparing for the acceptance of the Janus database and developing additional utilities (e.g., internet access of the database). I do not yet have a full understanding of their objectives, constraints, concerns, etc. I believe this information is essential for making balanced recommendations concerning the overall project.

Migration of pre-Janus data into the database will be a large task. It is difficult to assign this task to individuals who are unfamiliar with the data (e.g., TAMU shorebased staff or a consulting company). A working knowledge of the data that will be migrated is essential for the migration to be useful and successful. In my view, the most cost-effective way to proceed with this is to develop a project that is primarily supported in-kind by all member counties. The "experts" would be individuals who have a good historical knowledge of the ODP/DSDP data and could supervise students (funded by co-mingled funds) in the evaluation of data quality and the appropriate methods for capturing data. For example, the migration of inorganic chemistry data could be performed by supporting students at Scripps and supervised by the experts at that laboratory (if they are willing). The supervisors would request additional funding, as required, from thier member-country support (e.g., USSSP). Similarly, MST and physical property data could be migrated in Germany, the U.K. or France under a similar system. Additional funding (from co-mingled funds) would be required to support on Oracle database person for the entire project who could develop interface software, where required for specific data sets. This "grass-roots" model of data migration can only work if it is viewed as beneficial to the entire science community. Member-country suport must be confirmed through EXCOM and PCOM. These are obviously my personal comments; I am currently soliciting input from the SC and the usergroups on this issue.
Table: Status of the Janus Project.

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9. Revised Communications Strategy - Progress Report

(a) The Challenge

The overall objectives of an ODP "public affairs" strategy are:

- to communicate the basic scientific results of the Ocean Drilling Program and their socio-economic significance and relevance to a broad international community throughout the world;
- to build a constituency that will sustain a strong financial commitment to the Program as it moves towards renewal in 1998.

The success of a communications plan is dependent on the symbiotic relationship between the office of public affairs and the ODP members. The communications strategy must take into consideration multiple target audiences, beginning with our own internal ODP audience - Program management and operations. If the future direction of the Program and its successes are not communicated internally, then those staff members can't be expected to communicate a coherent message to outside audiences on the purposes, goals and accomplishments of ODP. Nonetheless, the purpose of the communications strategy is to serve the Program users, not the management and operational entities or their staff. With general consensus and support of an integrated communications network within ODP, we can lay the foundation for building a comprehensive communications strategy that will benefit everyone.

The previous EXCOM document (July, 1995), discussing the Development of a Comprehensive Communications Strategy, identified the constraints, problems and possible response strategies for the Program. The communication needs and target audiences were detailed in great length. The recommended response strategies formed an excellent starting base for a formal communications strategy to be developed. The diverse target audiences pose an interesting challenge. They are summarised as the following:

- Scientific Community- especially the scientific disciplines and scientists working on the fringes of ocean drilling

**Proposed Response:** The principal responsibility for improving the communication of the significance of ODP scientific results and their significance to the wider scientific community lies with the US Science Support Program and similar national support programs in each other participating country. USSSP
already has a successful “Distinguished Lecturer” program, which might be both strengthened and seen as a model outside the US. JOI has now published the ODP Long Range Plan, and is producer and publisher of the educational interactive CD-ROM. TAMU and LDEO have a responsibility to provide source material for US, non-US, JOI and "new partner" promotional activities.

- Funding Entities- both those who seek and those that appropriate the funds to underpin the Program

Proposed Response: To improve the communication of ODP scientific results and their significance to both the US and non-US funding entities, the principle responsibility lies with JOI, supported in each participating country by the relevant domestic science support program, or USSSP equivalent. Based on the draft material provided by the JOIDES Advisory Structure and endorsed by PDCOM and EXCOM. JOI has now published the ODP Long Range Plan, and is planning the proposed “Annual Report.” TAMU and LDEO have a responsibility to provide source material for these publications.

- The Public - whose taxes provide the ultimate source of Program funding

Proposed Response: A broadly based communications strategy must be managed from a major city with established international media outlets and agencies. The Washington Office of JOI is the only such location available to ODP. JOI has appointed a Director of Public Affairs to supervise and coordinate all aspects of the strategy, particularly the distribution of media material, maintenance of high level media contacts, coordination of promotion of TV documentaries and generation of Program-wide media opportunities. The Information Officer at ODP-TAMU will continue to be responsible for assisting with public relations and providing draft press release material on a leg-by-leg basis. These activities will need to be supported in each non-US participating country by the relevant domestic science support program or equivalent.

- Public Figures - whose public commitment to scientific ocean drilling could prove critical to maintaining public and funding agency interest and support.

Proposed Response: The principal responsibility for building public figure support lies with the directors of the management and operations of the Program and leaders of the JOIDES Advisory Structure. Additional roles exist for the Chairs of the US Science Support Program in the US and its equivalent organisation in each participating country.

- Industry - whose on-going strategic application of ODP data makes them strong potential supporters of the Program

Proposed Response: The principal responsibility for improving the communication of the significance of ODP scientific results to industry lies with the USSSP in the US and in each participating country, by the relevant domestic science support program or equivalent. To underpin these responsibilities, it has been proposed that JOI coordinate a new “International Distinguished Lecturer” program. JOI would also have the responsibility to identify and promote these lecturers to the organizers of national and international industry conferences and coordinate presentation of scientific results at such conferences in participating countries. TAMU and LDEO have a responsibility to provide source material for these promotional activities.
No single audience can be targeted without the effects rippling over to another group. Therefore, the communications strategy will cover all target audiences but have a prioritised implementation structure.

(b) Communications Concept
At the core of the communications strategy lies the principle that ODP is a multinational program and therefore no one country nor educational institution has greater significance than another. This idea of internationalism and cooperation must be thrust to the forefront in every public affairs effort.

By the very construction of the Program, the communications plan will be extremely complex and must be flexible to accommodate the different priorities of our members. That is to say that the central public affairs office will plot and follow a strategy, but simultaneously respond and assist members' individual needs. It will also be the responsibility of the public affairs office at JOI to make the appropriate and vital communication links between members.

We must have a general internal consensus that the communications strategy will be multi-faceted with defined goals and be appropriately aggressive in design to accomplish the desired results. The collective communications goals of the Program must first be identified and prioritised. One such overriding goal has been identified: To build a constituency or support base, that will help sustain financial commitment to the Program in time for renewal in 1998. Individual country goals can be integrated into an overall plan.

Fundamental to the success of a strong public affairs plan is the understanding and acceptance from all the players that everyone has a role to play in communicating the Program to internal and external audiences. Everyone should consider him or herself a "resource" of valuable information to the public affairs office. Theoretically, there will be an appropriate time and place for every individual to participate.

(c) Strategy Development
A natural and constant flow of information between members and the public affairs office is needed in order to identify priorities and create short and long-term communication goals. With sufficient input from the members, the public affairs office can identify story ideas and the appropriate mechanisms for generating publicity. The public affairs office at JOI should have the ability to capitalise on each situation and when appropriate, implement an orchestrated plan in order to realise the full potential of each public affairs effort. We want to receive the greatest amount of coverage possible.

During the next six months, the Director of Public Affairs will spend her time conducting an assessment of the existing communications infrastructure at ODP-TAMU and in member countries. This assessment period is required in order to formulate the comprehensive communications strategy by January 1997. The strategy for this interim period will be to:

- Locate resources -- individuals with communications experience, technology available, existing materials, established contacts within the target audiences
- Evaluations -- gather opinions from scientists, administrators, and executives, prioritize, and solicit evaluations
- Develop story ideas -- identify different story angles, media markets, sensitive issues, and identify spokespeople
• Identify weak spots -- image analysis, identify confusing and conflicting messages, personnel requirements

• Evaluate costs -- determine cost-effectiveness of current public affairs program and develop a working budget

The public affairs office will not be inactive during the assessment period. As communication opportunities reveal themselves, the office will respond appropriately and professionally to each situation. That is to say, that changes can and will take place immediately. A specific example of immediate action is to increase media coverage for all upcoming port calls. All target audiences will be taken into consideration and equal importance given to all until further prioritised in the communications strategy.

The final result of the assessment period will be a communications strategy document to be presented at the January 1997 EXCOM meeting. After receiving input from all participants, the communications strategy will have well defined goals and outputs laid out in a feasible implementation time frame. At the same time, the public affairs office will give a summarized report on changes made and significant results.

(d) Public Affairs - Serving the ODP Community
The public affairs office in JOI performs a service for every member in the Ocean Drilling Program. We are here to generate publicity about the scientific outcomes and to garner support for the Program. We will be effective and successful only with the participation of each member.

The benefits of a strong public affairs effort are sometimes obvious, but often intangible. Public Affairs is not a science. There are formulas for generating publicity but the margin for success is not measurable. ODP might have a very significant discovery to publicise but in the competitive media market, our discovery might be overlooked for a major political event.

One good ODP story has the potential to generate the kind of results which can lead to new public understanding of the science, awareness among decision makers, important individual and group recognition, attract new members and draw funding. In casting our communications efforts widely, we have the potential to make substantial inroads to each of the targeted audiences. A combination of traditional and progressive communication strategy will heighten the image of the Program resulting in long-term support. Good publicity can generate unforeseeable positives for this Program!
EXECUTIVE SUMMARY

During the last six months we have maintained our high standards of service in support of the Ocean Drilling Program, and we have been developing ways to function with enhanced efficiency and effectiveness. Highlights of our activities are summarized below.

MANAGEMENT

This spring we were instructed on the elements of Project Management, and we have designed an implementation plan that phases in the transition to a project-based operation over the next 2½ years. To start, all special-operation projects for FY97 are to be project managed, and the first component of leg-based management (pre-cruise activities) will be introduced this August. In addition, we are creating a five-year strategic plan that aligns the mission and goals of our service components, and their supporting activities, with the goals of the Long Range Plan. The creation of a five-year plan will identify a set of programmatic objectives that we want to achieve. These objectives will, in turn, serve as guideposts to determine the future of ODP/TAMU through the turn of the century. We anticipate that the major elements of the plan will be completed by early summer. These data will be used to help us establish whether our presently defined organizational framework is best suited to achieve the goals defined in our five-year plan. We plan to have this analysis, and any suitable changes in our organization, completed by Fall of 1997.

Our Publications Department is presently working with representatives from PCOM and JOI to craft a visionary new strategy to make the Program’s published products more effective (i.e., wider distribution, greater versatility, maintain legacy of the Program, reduce costs).

The ODP/TAMU budget that has been submitted this year in support of the ODP Program Plan consists of the following: base budget = $34,832,449; special operating expenses = $2,823,223. Although significant inflationary increases have been experienced in a number of cost centers, we have managed to retain core services and maintain innovative new projects without increasing our budget.

With a goal to better characterize for the community, and for ourselves, how much it costs to provide each of our services, we have defined the cost of a “standard leg” of science aboard the JOIDES Resolution ($5,196,132), and we have determined how much it costs to provide the range of laboratory services aboard the JOIDES Resolution on a leg basis ($277,800).

SHIP OPERATIONS

Drilling Operations aboard the JOIDES Resolution have been very successful, with Leg 165 (Caribbean Ocean History) and Leg 166 (Bahamas) achieving their stated scientific goals. A transit leg (166T) between Panama and Acapulco, Mexico provided an opportunity to test new JANUS applications installed in the shipboard laboratories. Leg 167 (California Margin) is presently ongoing and, to date, meeting their stated objectives.
SCIENCE SERVICES

A new set of operational guidelines are in the final stages to define a set of procedures that will ensure optimal safety during shallow-water operations (less than 1000 m). These guidelines will be in place for Saanich Inlet (Leg 169S) and the New Jersey Shelf (174A). In addition, we are developing with Overseas Drilling Limited, the operator of the JOIDES Resolution, a course designed to teach key personnel how to deal with stuck pipe safely.

INFORMATION HANDLING SERVICES

The JANUS Project is moving forward. Key hardware components for the JANUS system have been installed on the JOIDES Resolution. In addition, completed applications of the Oracle-based relational database have been completed and installed on the JOIDES Resolution for testing and modification. With each leg, new applications are being introduced and integrated into JANUS. Complete integration and testing of all JANUS phase 1 applications is scheduled for this fall.

Based on community-defined priorities, post-JANUS projects include a digital core imaging/description capability, as well as the migration of the historical ODP shipboard data into the JANUS database. In the proposed FY97 Program Plan, funds have been allocated to start these projects.

DRILLING OPERATIONS AND ENGINEERING DEVELOPMENT

A new Manager of Drilling Operations and Engineering Development, Brian Jonasson, has joined ODP/TAMU. Drilling aboard the JOIDES Resolution has been very successful during the last six months, and operations has provided the support to achieve the stated scientific goals. There are two departmental projects that are underway. The Diamond Coring System project, of which the goal is to increase core recovery in certain hostile lithologic settings, has completed Phase II, with successful testing of secondary heave compensation controllers on a laboratory test bed. TEDCOM and PCOM have both recommended going forward with Phase III in FY97. During Phase III, the secondary heave compensation system will be built, and the initial activities for Phase IV (land test) will be started. In addition, we are investigating a method to improve the capabilities of the primary heave compensation system. The second developmental project, the hammer drill coring system, is just beginning with development and testing scheduled for this summer. The hammer drill casing system has been very successful in mining applications penetrating through, and setting casing in, fractured rock, which is a geological environment that has historically proved difficult for the JOIDES Resolution to penetrate. The developmental challenge is to convert the pneumatic power and hammer system to the deep-water environment.
MANAGEMENT

PROJECT MANAGEMENT

The advisory structure of ODP/TAMU has stated that the Program will incorporate the principles of project management as an operational paradigm. Our incorporation of project management will be phased in over approximately 2½ years, starting this summer. We plan to start with those project elements that we can seamlessly incorporate into our operation.

The ODP/TAMU Administration Department hosted a two-day programming workshop with the assistance of consultants from the American Management Association. Attending were JOI and NSF representatives, senior management from the science operator, and administrative support personnel. The purposes of the meeting were

1. to develop an appropriate project management implementation program,
2. to define ODP/TAMU activities and how they will be grouped into projects, and
3. to develop a course of instruction related directly to the needs of ODP/TAMU employees.

At the conclusion of the workshop, legs were divided into three categories characterized as

Project “A”: Pre-cruise proposal rankings with development of operational parameters and costs.

Project “B”: Operational legs.

Project “C”: ODP leg publications.

Additional projects were identified and fixed budget services were defined. Initial efforts were made to identify project managers for the three categories of a leg, the responsibilities of each of these project managers, and the persons to whom these project managers will report.

Currently (May 1996), we have identified the Project “A” team and have held initial team meetings. The project will commence immediately following the August 1996 PCOM meeting, with a final report due for the December 1996 PCOM meeting. The project is now called “The Pre-cruise Proposal Rankings with Development of Operational Parameters and Costs Project.”

The Project “B” team should be identified by early June and project implementation will follow shortly afterward. However, an implementation strategy is still being developed.

An implementation plan for Project “C” will not be developed until current publications issues are resolved.

FIVE-YEAR STRATEGIC PLAN

To help plan for, and adapt to, future programmatic requirements, ODP/TAMU will develop a Five-Year Strategic Plan (FYSP). We have not as yet designed a FYSP developmental strategy in detail, but we anticipate doing so during the next few months.

The Long-Range Science Plan will be a keystone in deliberations about how our service elements should be configured.

REORGANIZATION AND REALIGNMENT OF RESOURCES

The creation of a five-year plan will identify a set of programmatic goals that ODP wants to achieve. These goals will, in turn, serve as guideposts that will define the course for ODP/TAMU through the turn of the century. With our priorities established, it will then be incumbent on ODP/TAMU to determine whether our presently defined organizational framework best addresses the demands outlined in our five-year plan.

FAMIS

At the beginning of the 1995–96 fiscal year, ODP’s Administration Department switched accounting systems from IMS, used since the beginning of the program, to FAMIS (Financial Accounting Management Information System), a software program that consists of several independent modules. The final move to FAMIS, which was instigated over three years ago, was made in conjunction with similar changes at the main branch of the Texas A&M Research Foundation.
The Administration Department is now using the Payroll, Financial Reference System, Accounts Payable, and Purchasing modules. The FAMIS system links all financial accounting transactions, from budget implementation to procurement to payment of final invoices. By using these links, ODP personnel will gain easier, more comprehensive access to historical data for budget preparation and general information purposes.

To enhance information retrieval beyond current on-line capabilities or from standardized reports, the Administration Department is in the process of developing databases into which all FAMIS transactions can be downloaded. Currently, all branches within the Administration Department are also developing inter- and intradepartmental policies and procedures for the new system.

**Publications**

In December 1994, PCOM formed a Publications Subcommittee, chaired by Henry Dick, to review the scope and cost of the ODP Initial Reports (IR) and Scientific Results (SR) volumes. The key recommendations of this group included retention of both the IR and SR volumes, but changes to their formats. The Subcommittee's proposal, to begin with IR 165 and SR 161, was considered by both PCOM and EXCOM during 1995. Though ODP/TAMU spent a great deal of time planning out the details of the recommended plan, it was not implemented by JOI, due to the lack of significant cost savings and lack of unanimous support in the community.

In December 1995, PCOM recommended further changes to the Scientific Results volumes, the most significant of which was to open publication to the outside literature at one year post-cruise.

In early 1996, the Publications Subcommittee revisited the issue of retaining both the IR and the SR. In April 1996, PCOM accepted a new subcommittee recommendation to combine the IR and SR into a single volume to be published four years post-cruise, in a format similar to the DSDP Initial Reports volume. The recommended changes to the IR and SR format have not been implemented by JOI, again because of apparent lack of cost savings. However, in May 1996, JOI implemented the recommendation to allow members of the scientific party to publish papers to the open literature 12 months post-cruise beginning with Leg 161.

On 12 April 1996, the Director of the National Science Foundation's Division of Ocean Sciences wrote to the Director of ODP at JOI, delivering a copy of an "unsolicited" report from the Inspector General of the National Science Foundation. That report, entitled "Review of Publication Costs in the Ocean Drilling Program," made two key recommendations:

- Cease publication of the SR volumes as soon as practicable.
- Retain and expand electronic publication of the IR volumes on CD-ROM and the Internet, but cease publication of the printed version as soon as possible.

The Director of NSF's Division of Ocean Sciences asked both JOI and the JOIDES advisory structure to consider the report. PCOM asked JOI to prepare a draft response to the Inspector General's report for consideration by EXCOM at its June 1996 meeting.

On 30-31 May 1996, members of JOI, the PCOM Publications Subcommittee, and ODP/TAMU Publications and Science Operations Departments held a meeting to develop a new publication strategy. In preparation for this meeting, ODP/TAMU proposed a new publication strategy based on the requirements outlined in the ODP Long-Range Plan, recommendations made by the NSF Inspector General, directives received from JOI and the JOIDES advisory structure, and the need to reduce the Publications Department's budget.

**Public Information Office at ODP/TAMU and Public Affairs Office at JOI**

The Ocean Drilling Program has historically maintained a Public Information Office with the Science Operator, dating back to DSDP. This office maintained its presence in the Science Operations Department when it moved to Texas A&M University in 1983 and is responsible for all media relations, public affairs, and promotional materials.

It is critical to have an effective communications program to publicize the contributions of the program to fundamental science and to garner support for ODP research from funding agencies, the scientific community, government officials, business leaders, and news media. To accomplish this enormous task, JOI has hired a Director of Public Affairs to work jointly with the Public Information Coordinator at ODP/TAMU. These two offices will be responsible for managing the ongoing communications efforts.
B U D G E T

F Y 9 7 B U D G E T O U T L I N E : G E N E R A L O V E R V I E W

TAMU/ODP’s budget outline involves a base budget of $34,832,449 and identification of special operating expenses (SOE) amounting to $2,823,223. The base involves a decrease of 1.76% from FY96. This decrease over the FY96 approved budget involves risks. For example, although full economy fares are authorized, ODP has budgeted travel at 60% to 65% of full economy based on historically negotiated lower fares and is forecasting no increase in industry prices. Except for the requirement to reimburse ODL at the subcontract rate on the Hull and machinery policy deductible, versus last year’s rate, there is no programmed increase in insurance. In fact, ODP/TAMU assumes that either the same rates as in FY96 will be in effect or a decrease will result from safe operations. Equipment that would normally be replaced is being maintained, while maintenance/repair of selected items is being deferred. These actions involve risks, but are required to provide the basic services required in the FY97 Science Plan. The SOE total supports continuing development of the diamond coring system (DCS), development of the hammer drill system, formalization of the World Wide Web (WWW), a science operator’s semiannual report, underway lab upgrade to Solaris 2.x, installation of indium antimonide XRF crystals, purchase of a split-core MST, expansion of JANUS, and sampling parties. These projects are discussed in more detail in the following pages and at the applicable cost center display. ODP/TAMU has experienced a significant reduction in graduate and undergraduate support to TAMU/ODP. The effects of these reductions will be felt in the elimination of the additional services these students provided above baseline services to the Program.

1801 Headquarters/Administration: The base for this cost center has decreased over 5% from FY96. The principal reductions have come in travel, supplies, training, shipping, and equipment. The challenge is to maintain training at a level that supports enhancements to the Program and keeps critical equipment functional until adequate funds are available to replace equipment items that enable optimum support to ODP/TAMU. Reduction in undergraduate support accounts for additional cost reductions.

1801-2000 Public Information: Returning to a previous reporting style, Public Information has been separated from the Headquarters/Administration request. There is an approximate 3% reduction from FY96 expenses identified with Public Information. The funds identified within this cost center support one employee, production of general ODP brochures, and other associated costs necessary to support the Program.

1802 Publications: The base reduction in this cost center totals 3.68% and was achieved by a combination of reductions begun in FY96 as a result of the PCOM mandate and by eliminating/reducing functional support activities (e.g., training, supplies, maintenance, etc.).

1803 Engineering and Drilling Operations: To get a clearer picture of fiscal year budget comparisons, it is necessary to compare the aggregate of the FY96 base and SOE with FY97 base and SOE requests. In FY97, unlike previous reports, specific salary support has been associated with specific SOE items. This results in an 8.49% (rounded) decrease in the total request. A combination of the base and SOE supports the development of innovative engineering projects, special hardware requirements for FY97 cruises, and general support to the Program. Some reductions were achieved by combining various expense categories into a single, existing cost center (e.g., “Drilling and Engineering - Office” now contains, monitors, and controls all travel funds for the department).

1804 Technical and Logistics: There is an approximate 7.1% reduction from FY96 in this cost center. As pointed out in the opening paragraph, risks are being taken in the area of maintenance and repair. In FY97 there has been a reduction of $160,000 in shipboard maintenance and repair. Because of port call locations, minimum additional savings occur in shipping costs; however, if shipping industry costs rise, this savings will quickly evaporate. Efforts continue to encourage seagoing technicians to take advantage of the alternate sea pay program, thus saving the Program money while not requiring the technician to return to College Station after each cruise.

1805 Science Operations: There has been a 3.2% increase in this cost center for FY97. This year, funds are identified in the base for purchase of equipment. In past years, equipment was not specifically identified and was purchased only when cost savings or purchase deferrals in other areas permitted reprogramming of funds for the purchase of equipment. Port call travel has also increased, but is offset by a reduction in the purchase of supplies. A significant reduction in this cost center was the elimination of graduate and undergraduate student assistance cited in the opening paragraph.

EXCOM—June 1996
1806 Ship Operations: The fuel budget for FY97 represents refueling amounts required to maintain the minimum safety levels, whereas in past years full-capacity fuel purchases were made. Along with reduced amounts of fuel, ODP assumes there will be no increase in fuel cost. The risk is that there is no margin for error in the calculations and any significant increase in requirements or costs would have a significant impact on available resources. Two additional PPI increases, along with an unexpected FY96 PPI increase, are contained in this forecast. Travel has been budgeted at less than the full economy fare authorized by the subcontract and is dependent on a close working relationship with ODL. For the first time, the cost of observer participation is displayed in this cost center. Prior to the FY97 budget submission, observer costs were reprogrammed from base budget funds in the particular fiscal year the expense occurred.

1809 Information Services and Curation: The increases in payroll, travel, training, port call travel, and communications can be attributed to two actions taken within TAMU/ODP. First, the marine computer specialists (6) were moved from 1804 to this cost center. This action triggered an increase in salaries, training, and travel, both domestic and to port call. Second, initiation of the completed JANUS Project and the data migration effort carries with it attendant increases in software and training. The increase in communications in this and other cost centers is attributable to a change (increase) in international billing rates. Overall, the base in this cost center has increased by 3.2%.

Salary and Fringe: An increase of only 2% is contained in this request. If the state mandates a higher level, either additional external funds or reprogramming within the approved budget will be required, with attendant reductions in services. Every 1% represents approximately $79,500. The overall payroll was reduced an additional $253,000 in order to meet the assigned target in the base budget. A review of structure will be undertaken prior to the beginning of FY97 in an attempt to identify any potential reductions. This sum will need to be added back to the FY98 budget if that effort is unsuccessful.

Summary of Special Operating Expenses

Diamond Coring System (DCS): ($551,590) The FY97 scope includes Phase III (Controller Implementation Phase-subcontract costs for Stress/PARVUS) and the initial portion of Phase IV (land testing-subcontract costs for a drilling contractor, ancillary services, travel [ODP] and subsistence, rental equipment, miscellaneous purchases, and services and shipping for DCS). There are no funds included for the Stress/PARVUS subcontract for Phase IV. Funds necessary for this activity and the balance of the land test funds would have to come in FY98. Activity and costs associated with this project assume a DCS leg in FY99.

Leg 173 Non Standard Leg Costs: ($148,267) These funds are to provide the reentry hardware (two sets of surface casing, reentry cones [2], and associated hangers) for Leg 173. The cost involves the purchase of these supply items for the project. Activity on this project would begin in October 1996, delivery of the supplies would be completed mid-February 1997, and the items shipped to the JOIDES Resolution in late February 1997.

Hammer Drill System: ($301,086) This development project is aimed at adapting existing percussion drilling technology to the ODP scientific requirements of establishing reentry structure on sloped, bare hard-rock formations. The program consists of developing a 16-in Hammer Drill, development of a reentry cone and casing hanger system, development of running tools, and sea trial preparation of the Hammer Drill System (HDS).

Leg 174B CORK/Hole 395A: ($66,074) This project involves the design and procurement of a CORK to fit a DSDP reentry cone and casing hanger system for Hole 395A and the development of associated running procedures.
Table 1: Budget Comparison

<table>
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<tr>
<th></th>
<th>FY95 Actual Expenditures</th>
<th>FY96 Program Plan Budget</th>
<th>FY97 Program Plan Base Budget</th>
<th>FY97 Special Op. Expenses</th>
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* subsequently reduced
Leg 176 Reentry Hardware/Engineering Support: ($116,040) This leg is scheduled for the beginning of FY98, but the long lead time associated with designing and procuring a reentry cone and 16-in casing hanger to fit and install into a hard-rock guide base dictates that it be initiated in FY97. The project involves ordering casing, a reentry cone, cementing shoes, a hard-rock guide base, associated hangers, and engineering support. Work on the project would begin in October 1996 for a shipping date of September 1997.

JANUS Phase I: ($661,702) Funds are budgeted to complete the JANUS database management system replacement project Phase I, as defined by the JANUS Steering Committee during their March 1996 meeting. Budgeted funds support the Tracor subcontract, as well as the JANUS-dedicated staff, travel associated with the Steering Committee and User Group input, communications, shipping, and other services for an additional five months.

JANUS Phase II: ($150,000) This project involves the refinement of user requirements for the core description application that will replace the current VCD application with a digital-image-based core description system. Budgeted funds support travel associated with JOIDES advisory group travel, as well as consultant time required to test alternative approaches, to demonstrate feasibility, and to develop a final application design in preparation for software development work to be performed in FY98.

Core Image Capture System - Part 1: ($111,233) The purpose of this project is to prepare and issue an RFP to procure the core digital image capture system specified during the 28–29 March 1996 JANUS core description workshop. If no satisfactory bid is received, the system will be developed at ODP/TAMU. Funds budgeted will support hardware and software procurement during FY97, which will see the system substantially completed. Hardware spares procurement and deployment expenses will be FY98 costs included in Part 2 of this project.

Sampling Parties - Legs 167, 171C, and 172: ($29,400) Budgeted funds will support costs of supplies, shipping, and local labor to support basic sampling parties for these three legs. Any expenses for services beyond those of a basic sampling party must be covered by the leg science participants.

Data Migration: ($300,000) This project entails refining user requirements and preparing and issuing an RFP for migrating pre-JANUS ODP data into the JANUS database management system. Presuming that a successful bidder is found, we will negotiate a subcontract and initiate data migration. Funds are budgeted to support JOIDES advisory group travel, consultant time and travel, travel by prospective subcontractor personnel to inspect database materials, contract negotiation expenses, project-dedicated ODP/TAMU staff to prepare prime data and related materials for use by the data migration subcontractor, communications, shipping, and subcontract expenses.

WWW Publication: ($100,358) This project is designed to provide the ODP scientific community with electronic access to ODP publications, databases, Program information, and public relations materials via the World Wide Web (WWW). The tasks involved include the investigation of new technologies for publishing existing and new ODP/TAMU information on the WWW (informal publications, database information, ODP Proceedings, leg-related reports and articles, general resource information about ODP, public relations material, and links to ODP-related pages [JOIDES Panel WWW pages, LDEO, JOI, JOIDES office, etc.]); the creation of a standard style for all ODP Web material; the implementation of standard procedures for the creation and editorial review of WWW material; and the development of a standard maintenance program for the ODP WWW site.

Semiannual Report of the Science Operator: ($8,000) This activity is intended to provide concise information on all aspects of ODP/TAMU to the JOIDES community, thereby increasing the awareness of the depth and scope of ODP/TAMU operations as well as documenting actions taken in response to community requests and needs. The report will inform the public at large about ODP/TAMU operations and provide a platform for dissemination of critical ODP/TAMU events and decisions within the ODP/TAMU organization. Monthly updates will be generated and posted on the WWW.

Underway Lab Upgrade to Solaris 2.x: ($8,100) This project will upgrade the Sun workstations in the ship’s Underway Lab to the Solaris 2.x operating system from the Solaris 1.x (SunOS 4.1.x) operating system, while maintaining current data acquisition, display, processing, output, and archiving functions. The JANUS Project Steering Committee has determined that the operating system to be supported on shipboard Sun workstations will be Solaris 2.x (SunOS 4.1.x). Upgrading the OS of the Sun workstations is desirable for compatibility to keep computer support requirements at a minimum and for JANUS system utility functions.

Indium Antimonide XRF Crystal Installation: ($6,000) This project entails replacement of the two XRF PET crystals currently used to analyze SiO₂ in rock samples with ones made of indium antimonide (InSb) is proposed. The
PET crystals are thermally sensitive, and are therefore susceptible to thermal drift, a problem in the shipboard environment. SiO$_2$ is the primary constituent of the igneous rocks and most sedimentary rocks cored by ODP, and the absolute error in the XRF SiO$_2$ analysis is the largest of any element. We expect to reduce the analytical error by a factor of two to three using the InSb crystals.

**Split-Core MST Purchase:** ($190,373) Purchase of this system will provide the means to analyze split cores by magnetic susceptibility, GRAPE, natural gamma radiation, and color image scanning of the core surface. The Geotek, Ltd., automated split-core multisensor track will be tested aboard the *JOIDES Resolution* during Leg 169 and at the Gulf Coast Repository at ODP/TAMU. Installation of the Geotek, Ltd., automated split-core multisensor track aboard the ship will take place during the Leg 174 port call.

**EXCOM Motion 96-1-14: Component Costs:** In the spirit of trying to understand the costs of the component services provided by the Program, and as a consequence of project management, ODP/TAMU has taken the first step and defined how much it costs (payroll and nonpayroll) to implement a "standard leg." A "standard leg" is a minimalist definition of leg costs and, as such, creates a financial base to which the additional costs for more sophisticated operations can be added. In addition, the costs associated with providing the full range of laboratory services have also been broken down into their component parts. As we complete our transition to project management, these numbers are likely to be adjusted as we obtain a better understanding of how our resources are utilized.

EXCOM—June 1996
The following table shows standard leg costs based on 2500 m of recovery of unconsolidated sediment and sedimentary rock; no operational embellishments.

<table>
<thead>
<tr>
<th>STAND LEG COSTS</th>
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<td>Grand Total</td>
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<td>Grand Total less Ship Expenses</td>
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The following table shows standard costs per Laboratory based on five year historical average and current salary projections.

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* Standard man month, based on 22.5 eight hour days.

Co-Chiefs: Mark Leckie, Haraldur Sigurdsson / Staff Scientist: Gary Acton / Ops. Superintendent: Mike Storms

Leg 165 investigated a wide array of scientific problems through drilling at five sites that spanned the Caribbean Ocean from the Cayman Rise (Site 998), which lies to the southeast of the Yucatan Peninsula, to the Cariaco Basin (Site 1002), just north of Venezuela. Drilling was highlighted by the recovery of K/T boundary clays and ejecta deposits at Sites 999 and 1001; recovery of igneous basement from the Caribbean Oceanic Plateau at Site 1001; and recovery of a 200,000-year-long, ultra-high-resolution sedimentary record of tropical climate change at Site 1002 in the Cariaco Basin.

Beyond any of the pre-cruise goals or expectations, a spectacular record of Eocene and Miocene explosive volcanism, unmatched in its magnitude and chronostratigraphic resolution, was discovered at Sites 998, 999, 1000, and 1001. This includes the first documentation of arc volcanism along the Cayman Ridge. The temporal distribution of the megascopic ash layers recovered, over 2000 layers in all, include particularly vigorous volcanic episodes in the mid- to late Eocene and in the early to mid-Miocene, with eruption frequencies on the order of 40 events/m.y. Also recorded above the excellently preserved basement/sediment contact in the two holes at Site 1001 is a mid-Campanian volcanic episode, probably the waning stages in the formation of the basaltic plateau that is the foundation of the Caribbean Plate.

LEG OBJECTIVES AND CONCLUSIONS

Objective: To recover the K/T boundary impact event at locations proximal and distal to the proposed Chicxulub meteorite impact site in order to ascertain the mechanisms of ejecta dispersal and the environmental consequences from aerosols and fallout of ejecta

Conclusion: The K/T boundary interval was recovered in three holes (999B, 1001A, and 1001B), though it was not reached at Site 998, the site most proximal to Chicxulub, because of time constraints and a thicker than expected Tertiary sedimentary section.

Objective: To study catastrophic extinction events and biotic recovery.

Conclusion: Two major extinction events were recovered: the K/T boundary event (described above) and the “late Paleocene thermal maximum” (LPTM) event. The LPTM was recovered in Holes 999B, 1001A, and 1001B, where it is characterized by a faintly laminated claystone unit, less than one meter thick, with significantly lower carbonate content than surrounding chalks and limestones.

Objective: To analyze the nature of climate forcing in the pre-Neogene world and to test climate models with boundary conditions very different from those of today.

Conclusion: Magnetic susceptibility, geochemical data, and downhole logs from Site 999 and 1001, in addition to shore-based isotopic and rock magnetic analyses, are being used to examine the nature of orbital forcing during the Maastrichtian and Paleocene. The relationship between these variations, ocean temperatures, Milanovitch cycles, and paleoceanographic conditions will be the subject of several post-cruise studies.

Objective: To study the paleoceanographic and paleoclimatic conditions in the Caribbean region, including (1) the conditions during several episodes of moderate to extreme climatic warmth, (2) the evolution of tropical sea-surface temperatures and changes in meridional temperature gradients, (3) the changes in oceanic circulation and in sources of deep- and intermediate-water masses through Late Cretaceous and Cenozoic time, (4) the opening of a major intra-Caribbean gateway during the middle to late Miocene and the closing of the Central American Seaway during the late Miocene and Pliocene, and (5) the role of tectonics in the opening and closing of seaways.

Conclusion: These studies required successful recovery of sedimentary sections deposited in fairly continuous, undisturbed conditions over long time intervals. Several such Neogene sections, particularly those in the Pedro Channel (Site 1000) and the Colombian Basin (Site 999), provide not only continuous depositional sequences, but also sample a range of water depths from less than 1 km to over 3 km. Thus, these sequences offer an opportunity to
study Neogene water-mass history and circulation across the basin. Most of these studies are being conducted post-cruise, although several interesting results were obtained during Leg 165.

5. Objective: To determine the tropical climate variability during the late Quaternary and the environmental conditions of anoxic basin development.

Conclusion: The multiple piston cores recovered at Site 1002 in the Cariaco Basin, the world’s second largest anoxic basin, provide an unprecedented opportunity to study (1) large and abrupt climate changes in a unique tropical locality that is the counterpart to high-latitude ice cores, and (2) redox chemistry at extremely high temporal resolution. In May, all cores will be split for high-resolution sampling, and detailed studies of this ultra-high-resolution climate record will begin.

6. Objective: To determine the nature and origin of Caribbean crust.

Conclusion: The age, physical characteristics, and geochemistry of the basalts recovered at Site 1001 will bear importantly on the tectonic history of the Caribbean. Findings are consistent with the idea that this crustal plate was originally formed in the Pacific and that it has subsequently drifted northeastward to its current position between North and South America.

LEG 166—BAHAMAS (Cruise Dates: 23 February–11 April 1996)

The primary objective of Leg 166 was to address fundamental questions regarding sea level. To attain this objective, five sites in the Straits of Florida were drilled during Leg 166, completing a transect through prograding carbonate sequences formed in response to sea-level fluctuations along the western margin of the Great Bahama Bank. Two boreholes drilled previously on the western Great Bahama Bank as part of the Bahamas Drilling Project represented the shallow-water sites of the transect. The primary goal of the transect was to document the platform-margin record of the Neogene–Holocene sea-level changes by determining the ages of the major unconformities and comparing the timing of these unconformities with ages predicted from the oxygen isotopic record of glacioeustasy. Core borings along the complete transect document the facies variations associated with oscillations of sea level and, thus, the sedimentary response of the carbonate environment to sea-level changes. The correlation between the two independent records of sea-level changes—sequence stratigraphy and oxygen isotope proxy—has the potential to evaluate rate and amplitude of eustatic vs. relative sea-level changes and to establish a causal link between glacioeustasy and the stratigraphic pattern.

LEG OBJECTIVES AND CONCLUSIONS

1. Objective: The main objective of the proposed drilling transect along the western margin of the Great Bahama Bank was to study the record of Neogene–Quaternary sea-level fluctuations in the prograding sequences. Within this sea-level objective were the following goals:

- Determine the timing of the sequence boundaries and relative sea-level fluctuations to acquire the necessary database for the possible global synchrony of these fluctuations.

Conclusion: Calcareous nannofossils and planktonic foraminiferal biostratigraphic datums were used to establish an age-depth relationship for each of the sites drilled as part of the Bahamas Transect (Sites 1003–1007) on the leeward slope of GBB. Many biohorizons from both groups were identified, establishing a framework inter-site correlation, which was transferred into time using the Geomagnetic Polarity Time Scale. This framework gives the opportunity to date the lithologic changes and seismic sequences identified along the transect.

Sequence analysis was performed on the seismic data prior to drilling. The reflections identified as sequence boundaries were traced to the slope and basinal areas of the Bahamas Transect Leg 166 sites. We identified 17 sequences in the Neogene section.

The time/depth conversion obtained from vertical seismic profile experiments allowed us to correlate the sequence boundaries to the cores. All sequence boundaries coincide, within a seismic resolution of about 10 m, with a facies change indicative of a sea-level change. The sequence boundaries showed consistent ages along the seismic reflections. This result is exciting as it confirms one of the major assumptions of sequence stratigraphy that seismic reflections are time lines.

EXCOM—June 1996
The ages of the sea-level changes in the Neogene were estimated from the ages of the sequence boundaries. The ages indicate that the seismic sequences along the Bahamas Transect record most of the known major (third-order) sea-level changes in the Neogene.

- Determine the stratigraphic response of carbonates to sea-level changes of variable frequency by analyzing the facies of the stacked depositional sequences. Special emphasis was placed on documenting the amount and nature of lowstand deposits in carbonates and the hierarchical stacking of high-frequency cycles into seismic sequences.

Conclusion: Overall core recovery was sufficient (55.3%) to document the facies successions throughout the cores. The facies successions contain indications of sea-level changes on two different scales. First, there are high-frequency alternations of layers containing more platform-derived material with layers consisting of more pelagic sediments. A repetitive pattern of facies succession on the order of tens to hundreds of meters yields a sedimentary record of longer term sea-level changes. These larger scale patterns are imaged in the seismic sequences.

- Retrieve the low-latitude isotopic signals of the Ice House World in the Neogene and Quaternary and compare them with the stratigraphic record, potentially to document a causal link between eustasy and sequence stratigraphic pattern.

Conclusion: To compare the sedimentary record of the sea-level changes with the oxygen isotope proxy, a basinal hole (Site 1006) was drilled. The core far exceeded expectations, thus, all the prerequisites are in hand to establish an oxygen isotopic record of the sea-level changes in the same transect. The correlation of the sedimentary and the isotopic record will enable us to assess the causal relationship between sea-level changes and the sequence stratigraphic pattern, thereby fulfilling the third objective within the sea-level theme.

- Estimate the magnitude and rate of sea-level changes using age and recovered facies for a precise subsidence analysis.

Conclusion: Estimating the rate and magnitude of sea-level changes will require shore-based analyses, including further refinement of the age model (detailed biostratigraphic analysis and paleomagnetic, O and Sr-isotopic analyses) and detailed facies analyses of core samples and logs and log–seismic correlation.

2. Objective: The goal was to assess the processes responsible for fluid circulation in platforms by sampling slope sediments and analyzing their pore-water chemistry.

Conclusion:

Based on the evidence from the seven sites drilled during Leg 166, there is clear evidence that a mechanism exists that produces active exchange between the upper 40 m of sediments and the bottom waters. At the present time we do not know the precise mechanism involved in the flushing mechanism, only that it exists. The observations are consistent, however, with water being drawn into the platform by the mechanism known as Kohout convection. In this mechanism the temperature difference between the platform interior and the adjacent seaways causes underpressure to be developed within the platform, drawing water through the flanks of the platform.

3. Objective (secondary): Since the middle Cretaceous, several major changes occurred in the Earth’s climate, fauna, and ocean circulation. The sediments in the seaways of the Bahamian archipelago potentially record most of these events, many of which are important global problems (for example, the onset of the Gulf Stream Current, the record of the Paleogene “Doubthouse” Earth, the influence of the Cuban collision, the K/T boundary, and the mid-Cretaceous drowning of the megabank).

Conclusion: Although operational time constraints precluded recovery of extensive Paleogene and older sediments, an excellent Neogene sedimentary section was recovered that will allow many of the paleoceanographic objectives to be pursued in post-cruise studies. In particular, the sedimentary section at Site 1006 consists of mixed pelagic and bank-derived carbonates, with varying amounts of clay material thought to have been derived from Cuba and Hispaniola.

The expanded Pliocene and upper Miocene sequence combined with excellent preservation will allow this site to become a classic site for upper Neogene paleoceanography in the low-latitude Atlantic. In addition, changes in the composition of the sediments are postulated to vary in conjunction with variations in the strength of the Florida Current. These variations would be able to be correlated with changes in sea level as recorded by the prograding and regressive sequences at platform sites and the oxygen isotopic signature of the foraminifers.
Leg 166T was considered to be extremely important to the success of the JANUS project. For more details see the JANUS section.

Leg 167—CALIFORNIA MARGIN (Cruise Dates: 21 April–16 June 1996)

Co-Chiefs: Itaru Koizumi and Mitchell Lyle / Staff Scientist: Carl Richter / Ops. Superintendent: Scott McGrath

Leg 167 will investigate the evolution of oceanographic conditions in the northern Pacific Ocean and will document changes in the flow of the California Current system and associated changes in coastal upwelling. These data will be used to reconstruct northern Pacific climate conditions through the Neogene, concentrating upon the time period since the advent of Northern Hemisphere glaciation (~2.5 Ma to the present). Approximately one-third of the proposed drill sites will also sample lower and middle Miocene sediments to reconstruct a Neogene history of the California Current. The results of Leg 167 drilling will also be used to better understand the links between the climates of the northern Pacific Ocean and western North America, particularly in terms of temperature change and changes in precipitation.

Thirteen proposed sites and five alternates are organized into three transects across the California Current (Baja Transect, ~30°N; Conception Transect, ~35°N; and Gorda Transect, ~40°N) and one coastal transect extending from northern Baja California to the California/Oregon border (30° to 42°N). Each of the three transects across the California Current will compare deep-water sites near the core of the California Current to coastal upwelling sites near shore. The coastal transect will examine variations in upwelling and productivity along the California margin as well as intermediate-water properties in many of the basins of the California Continental Borderland.

LEG OBJECTIVES
1. To understand how a major eastern boundary current system and associated upwelling centers respond to growth of Northern Hemisphere glaciers.
2. To assess feedbacks between continental and oceanic climates in the northern Pacific Ocean and North America.
3. To obtain depth transects suitable for the study of variations in northern Pacific Ocean deep-water properties and carbonate deposition.
4. To understand variations in the production, preservation, and burial of organic carbon in a well-studied, highly productive continental margin setting.
5. To sample gas hydrates.

SECONDARY OBJECTIVES
6. To study tectonic development of the active continental margin of western North America.
7. To investigate the deformation of the Gorda Plate.
8. To test the response of continental margin sedimentation to Cordilleran uplift.
9. To acquire samples of Franciscan and Gorda Plate basement where possible without compromising primary sedimentary objectives.

Tectonic objectives, although of secondary importance, are also necessary for paleoceanographic reconstruction because many of the sites have moved hundreds of kilometers in relation to North America during the Neogene. The continental basement underneath Site CA-2, for example, is now located just south of the Mendocino Triple Junction, but it may have been separated at one time from the rest of North America as far south as northern Baja California.

Although the highest priority on Leg 167 will be given to the sampling of upper Neogene sediments (Pliocene and younger), five of the proposed drill sites will sample middle and lower Miocene sediments. The older sedimentary sections will be instrumental to understanding the Neogene paleoceanographic evolution of the northern Pacific climate.

EXCOM—June 1996
**OPERATIONS**

A decision was reached during the PPSP meeting that SEDCO/BP 471 will not drill the Santa Barbara Basin site during Leg 167 for safety reasons.

**SCIENCE SERVICES**

**SPLIT-CORE MST**

The current MST aboard the *JOIDES Resolution* has been successful for applying core-core integration to ensure near-complete recovery of the geological record. It has provided GRAPE, PWL, magnetic susceptibility, and natural gamma measurements. Integration of these data has been pivotal in contributing substantially to current models of recent Earth System processes. Development of a split-core multitrack (SCT) system would allow additional data sets such as color spectrum, vane shear, or digitized information to be made available.

A recent “digital core imaging and future core description” workshop, wrapping up ideas and proposals from various JANUS user groups and JOIDES panels, has indirectly addressed the issue of an SCT. The group’s consensus was that digital imaging should happen in an SCT framework. Whatever the color-imaging system will be (an RFP with detailed specifications, in preparation), such a track would also offer the opportunity to add proven and relatively inexpensive devices, such as a magnetic susceptibility point sensor and a gamma-ray densiometer.

**SHALLOW-WATER DRILLING**

ODP/TAMU and Sedco Forex are currently developing procedures that will enable shallow-water operations at the Saanich Inlet (Leg 169S) and the New Jersey Shelf (Leg 174A) to proceed. Under discussion is a course designed to deal with safety issues related to stuck pipe, as well as a set of guidelines that are in effect when operating in shallow water. PPSP has determined that revised operational procedures are the appropriate way to proceed and that additional hardware such as shear rams or a drill-string release sub are not required. These shallow-water operations may also require modifications (currently under discussion) to the contract between ODP/TAMU and Sedco Forex.

**NEW JERSEY HAZARD**

Except for the collection of swath-mapping data to identify seafloor hazards, all hazard survey requirements have been met for New Jersey Leg 174A. Larry Mayer and John Goff will lead an ONR-funded (STRATOFORM Project) cruise on the *R/V Creed* (30 April–24 May) to collect Simrad (EM1000) swath-mapping bathymetry and imagery over the shallow-water New Jersey drill sites.

**STAFFING**

Legs up to and including Leg 170 have been fully staffed. Staffing for Leg 171 A and B is currently underway. Co-chief scientists have been identified through Leg 175, as shown in the table below.

**Co-Chief List for Legs 165–175:**

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<th>Caribbean Ocean History, Leg 165</th>
<th>Gary Acton, Staff Scientist</th>
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<tr>
<td>Dr. R. Mark Leckie</td>
<td>Dr. Haraldur Sigurdsson</td>
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<td>Dr. Gregor Eberli</td>
<td>Dr. Peter K. Swart</td>
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*EXCOM—June 1996*
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<tr>
<td>Dr. Marie-Odile Beslier</td>
<td>Dr. Nicholas Christie-Blick</td>
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<td>Laboratoire Geodynamique Sous-Marine-CNRS Universite Pierre et Marie Cune</td>
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EXCOM—June 1996
**INFORMAL PUBLICATIONS**

Leg Prospectus are available in printed version and on the WWW (Beginning Leg 164). Preliminary Reports are available in printed version and on the WWW (Beginning Leg 159).

Two Semiannual Reports have now been produced, and again, are available electronically and in hardcopy. The latest version on the WWW is in a viewable HTML format, as are the regular updates.

### Proposed Distribution Dates of ODP Volumes—Fiscal Year 1996

#### Initial Reports Volumes

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#### Scientific Results Volumes

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<th>Date to printer/indexer</th>
<th>Date distributed</th>
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<td>June</td>
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Goal for IR volumes: 12 months post-cruise.
Goal for SR volumes: 36 months post-cruise.

(Date) indicates originally scheduled date.
Gray box indicates two separate volumes in one cover.
###/### indicates two legs combined in one volume.
Miami Port Call

Installation of the key hardware components for the JANUS Project was completed on schedule during the 2½-day Leg 165 port call in Miami. The DIGITAL UNIX operating system, DECSAFE failover software, and ORACLE client/server environment that had been installed previously (configured and tested during the weeks before Leg 165) were verified to be functional in the shipboard network environment.

Installation of the JANUS hardware components was a combined effort by ODP/TAMU and Tracor personnel. Because of the short length of the port call, the DEC Alpha servers had to be up and running again by the second day in port (December 20) to verify that the hardware components had survived the trip from College Station.

After assembly, the Alpha servers (hudson and byrd) were booted up and testing began. A Pentium PC and a PowerMac were installed in the library conference room, designated as the “JANUS development” area for the duration of the testing phase. A second PC (a 486) was installed in the core entry area for eventual testing of the new corelog and sample data entry applications.

Two Tracor representatives sailed during Leg 165 to help with software testing.

April Status

User Group 4A (Chemistry) Meeting - Tracor, 29-30 April 1996

The objective of this meeting was to discuss the overall status of the JANUS chemistry effort, including the analysis and development activities that took place on board the JOIDES Resolution during Leg 166 and the current state of the data model. The group had a chance to review the prototype screens that had been developed in support of the application.

April Development Activities

Six Tracor people sailed on the transit from Panama to Acapulco. Our primary objectives for the transit included analysis of the Physical Properties and Chemistry Labs, as we had a rare opportunity to work with the instruments in those labs and the ODP personnel responsible for them. The data associated with each instrument were reviewed with the personnel on board.

During the course of developing some of the required reports for various functional areas of the application, it became clear that report generation using the low-level drawing tools of Neuron Data required a considerable amount of development and debugging time. To overcome this problem, we brought a multiplatform, SQL database query and reporting tool called Business Objects on board during this transit. This tool was purchased for the Program as a result of an evaluation performed by ODP/TAMU. Our purpose was to become familiar with the setup, administration, and use of the product within the JANUS environment, as well as demonstrate it to others on board during the transit.

The results of our initial evaluation have been very encouraging. We were able to generate some test reports and charts for Operations, Curation, and defect tracking. Our short-term plans include continued development of reports, as well as investigating integration options for this product with the JANUS application, for example, launching Business Objects and performing a predefined (or user-defined) query/report. Using such a tool will allow more data collection and database application development, and will support development of a larger number of reports. An added benefit is that query results can be directly exported into Excel, Word, WordPerfect, Lotus, ASCII, etc.

Paul Albright, who is the primary developer for the Paleontology application, is sailing on Leg 167. He has been working on integrating the Paleontology application with the new database and source tree that were left on board. He has also been supporting the Operations application which is currently being used on board.

The set of screens that support the entry and management of samples and scientists were developed and reviewed with technical staff on board during the transit. The content is now defined and the screens are complete, leaving only some minor GUI changes and reports that need to be done to support Curation activities.
At the digital core description workshop, a program called AppleCore was demonstrated. This program met with favorable response from the workshop participants, as it provided a good deal of the desired function. Because AppleCore received a very favorable evaluation during the Leg 166T transit, we have been asked by the Steering Committee to continue investigating the technical aspects of the program, particularly the possibilities for saving core description data to the database. The Committee expressed a strong desire to use this application for core description work, both sediment and hard rock. An evaluation copy will be provided to Tracor.

Functional specification and developer unit testing continued throughout the month of April.

**May Objectives**

Tracor has entered a phase during which we intend to complete and deliver User Group 1, 2A (MST, Logging Data), and 2B. To that end, unless we are directed otherwise by ODP these User Groups are considered frozen.

Chemistry development, including data model and application screens, continued through this period. We believe this area represents a sizable effort which will require a directed effort to complete now that there is agreement as to direction and content.

**JANUS PHASE 2**

This proposed project is under development. The goal is to devise a system that facilitates the work of scientists who describe cores onboard the JOIDES Resolution, incorporates the results of their work into the JANUS database, and generates a publishable “barrel-sheet” equivalent. The software development work, if funds are available, could begin as early as FY97.

**CORE IMAGE CAPTURE SYSTEM**

Color is a readily observable physical property, and one which has long been used by geologists to correlate beds visible in outcrops. Unfortunately, the colors of most fresh marine sediments are too ephemeral, and color differences between layers typically are too subtle and too abundant for quantitative work to be accomplished reliably by human inspection. Overcoming these problems with a digital imaging system would allow scientists (1) to collect high-resolution images of the cores while they are fresh for later scientific study, and (2) to study color variation with depth as an indicator of geologic processes (time-series analysis) in a fashion similar to the MST-track measurements.

During 28–29 March 1996, the JANUS core description workshop met to define its specification for a core digital-image capture system. In doing so, it considered the requirements of the ODP core description workshop, IHP, SMP, JANUS, and ODP/TAMU. Based on presentations from and discussions with these groups, a summary of the minimum requirements for such a system has been developed:

1. A minimum resolution of 3 pixels per mm;
2. Image capture at a maximum time of 1 hr per core;
3. Color spectral data capture using a standard color system (e.g., CIE); and
4. Robustness (i.e., can withstand repeated and continuous use rates typical of those seen on high-recovery paleoceanographic cruises).

The group agreed that the most likely image-capture configuration is a medium-resolution camera, capturing images on a split-core track that moves the core past the camera at user-defined intervals.

Funds budgeted for this project will support hardware and software procurement during FY97, when the system will be substantially completed.

**DATA MIGRATION**

The goal of this project is to migrate the ODP legacy data from current databases into the new Oracle database, provided with the JANUS project. Software in development as part of the DBINFO project will be used to assist with this migration.

Currently, project analysis work is being conducted by Database Group personnel. An RFP will be prepared later in 1996 that will outline the work necessary to complete the project. Based on a review of responses, a suitable subcontractor will be identified. ODP/TAMU staff will prepare the prime data and related materials for use by the data migration subcontractor.
UPGRADE TO SOLARIS 2.x

ODP/TAMU intends to obtain, install, test, and implement shipboard Underway Laboratory data acquisition, processing, and display software running under Solaris 2.x on the present Sun workstations. To implement this upgrade, a project plan has been created for FY97. The JANUS Project Steering Committee has determined that the operating system supported on shipboard Sun workstations will be Solaris 2.x and that the currently installed underway computer operating system (SunOS 4.1.x) will not be supported. Upgrading the operating system of the Sun workstations in the Underway Laboratory is desirable to enhance compatibility, to keep computer support requirements at a minimum, to support JANUS system utility functions, and to maintain our ability to implement new software. In addition to a relatively straightforward operating system upgrade, this project includes

1. Writing a new driver for the data acquisition a/d board (none presently exists under Solaris 2.x), and
2. Installing and testing numerous software upgrades of packages essential to Underway Laboratory and Core Laboratory services (e.g., seismic processing and display, map/ship track plotting and display).

All of these changes must be extensively tested and proved before being installed on board the JOIDES Resolution.

TECHNICAL AND LOGISTICAL SUPPORT

Leg 165

The Leg 165 port call was conducted in Miami and overseen by Joe Pelosi the Assistant Manager of Technical and Logistics Support. The ship arrived as scheduled on 19 December. The ship and Leg 164 crew/passengers were cleared by U.S. Customs and Immigration services. Leg 164 technical staff remained on board to participate in a mandatory radiation safety lecture, along with the oncoming Leg 165 technical staff. In addition to the regular Leg 165 staff, an observer from Colombia was required to sail with the ship during drilling in Colombian territorial waters. The observer arrived as scheduled on 20 December.

A major public relations effort was conducted during the port call. This involved private and public tours as well as visits and interviews by the news media.

The ship departed Miami to begin Leg 165 at 2015 hr on 21 December about 10 hr ahead of schedule.

Upon the completion of operations within Colombian waters, the vessel prepared to exchange the Colombian observer with the representatives from Honduras and Jamaica via small boat. In the meantime, one of the ship's shaft propulsion motors became inoperative. SEDCO sent a replacement propulsion motor, along with armatures, to Jamaica. Because of the heavy weight of the propulsion motor, combined with the supplies/spares shipment and a resupply of fresh fruit/vegetables, it was decided to bring the ship into port to perform a safe transfer.

Joe Pelosi arrived in Kingston, Jamaica, on 22 January. An unexpected personal emergency on the part of one of the Honduran observers resulted in only one observer (instead of two) arriving in Jamaica to join the ship. Officials in Jamaica opted not to send any official observers. However, a JOIDES representative from the Cardiff office arrived in Kingston on 25 January and sailed as an observer representing JOIDES. The ship arrived as scheduled around 0730 hr on 26 January. The Colombian observer disembarked. A Leg 165 science participant also disembarked at this time for personal reasons. The ship departed Kingston at 1330 hr on 26 January to begin transit to the next site.

Leg 166

The ship arrived in San Juan at 1500 hr on 17 February, 1996. Customs and immigration clearances for Leg 165 personnel were completed by 1200 hr on 18 February, 1996. ODP personnel/ODL crew transfers and crossovers were completed later that afternoon. Also that afternoon, arriving air freight shipments were loaded on board. Leg 166 ocean freight was received and loaded on board on 19 February. A small group of students toured the ship during the port call. There was some delay in receiving Schlumberger Well Services ocean freight due to shipment being consolidated with other freight. It was not received on board until 20 February. In addition, a position indicator for the LDEO-BRG wireline heave compensator did not arrive in San Juan as scheduled. Cores (421 boxes) from Leg 165 were offloaded and dispatched via ocean freight to the BCR. Leg 165 samples and data were dispatched via air

EXCOM—June 1996
freight to Leg 165 science participants. A refrigerated van was also sent to ODP/TAMU in which special Leg 165 cores, along with regular equipment/supplies were returned for repair, storage, or surplus.

The ship sailed from San Juan at 1715 hr on 20 February towards Leg 166 Site BT-2/F-2. During Leg 166, RSMAS (University of Miami) chartered a helicopter out of Miami to fly to the ship on 26 February. The purpose of the trip was to enable certain faculty members and a film crew to tour the ship while on Site. This helicopter trip provided an opportunity for LDEO-BRG to send a technician and the position indicator out to the ship for installation. Some spare parts and supplies were also sent out for shipboard laboratories.

The JOIDES Resolution arrived in Balboa Harbor, Panama on 10 April 1996. Supplies were loaded and transit personnel boarded the ship. The last line was ashore by 1836 hr on 13 April and the transit to Acapulco (Leg 166T) was underway.

Leg 167

The JOIDES Resolution arrived in Acapulco, Mexico on 19 April 1996. The first line was ashore at 0900 hr, signifying the end of Leg 166T, and the beginning of Leg 167. Port call in Acapulco went smoothly. Oncoming crew and scientists, including Mexican scientists Dra. Maria Luisa Machain Castillo (UNAM) and Gloria A. Rozo Vera (CICTUS), embarked in readiness for the leg. Unfortunately, Armando Granados from the Secretary of the Navy, failed to establish contact with the ship's agent in Acapulco, and consequently the ship sailed without him.

At 1400 hr on 20 April the JOIDES Resolution left Acapulco and set sail for proposed Site CA-14A (later designated Site 1010).

Low transit times coupled with relatively shallow-water drilling combine to ensure that this will be a record core recovery leg. An estimated 7.2 km of core will be recovered, easily surpassing the previous record of 6730.74 m on Leg 162. As a result, the ship pulled into San Diego to offload cores on 7 May. Approximately 1500 m of core was unloaded in port. The Mexican observer left the ship, and Paula Weiss boarded for the remainder of the leg. The JOIDES Resolution cleared U.S. Customs and Immigrations in San Diego harbor and will therefore not need to clear in San Francisco. By 1500 hr 7 May port activities were complete and the ship began the transit to proposed Site CA-15A.

The San Francisco port call is expected to be extremely busy with public relations activities. The cryogenic magnetometer will be replaced, microscope maintenance/training will be conducted, and possible XRF maintenance will take place during this port call.

DRILLING OPERATIONS AND ENGINEERING DEVELOPMENT

HAMMER DRILL-IN CASING

Hammer-drill systems, which use pneumatic power and hammer-type bits to pound casing through rock, have been successfully used for initiating holes in young, fractured hard rock in land drilling applications. The challenge is to convert such a system to offshore use, the major obstacle being the switch from pneumatic (impractical at ODP water depths) to hydraulic power.

ODP/TAMU has begun to investigate such a system. The 16-in Hammer Drill-In Casing System project will be initiated by conducting a drill-in casing feasibility test. The feasibility test will use an existing 4.8-in water hammer drill and 7-in casing. Assuming positive results are obtained from the feasibility test, the 7-in system will be upscaled to a 16-in system. Sea trials of the 16-in system have been scheduled for Leg 174B in July/August 1997. Contract negotiation started in March, with a letter of intent with sent to SDS Digger Tools Inc. on 22 April, 1996. An executable contract is to be mailed to SDS before the end of May. Field testing (on land) of the small version of the Hammer Drill-In Casing System is planned for 22-26 July, in Australia.

MOTOR DRIVEN CORE BARREL

The Motor Driven Core Barrel (MDCB) is a prototype coring system that uses mining industry diamond coring technology to obtain core in difficult formations. It is compatible with the APC/XCB coring systems. ODP/TAMU is currently developing core barrel extension rods for the MDCB. These rods will improve the efficiency of the MDCB
by allowing multiple MDCB cores to be cut without having to ream down with the BHA between cores. The new rods should be ready for deployment this summer. Also, a spare downhole mud motor has been built, tested, and shipped to the JOIDES Resolution for Leg 167.

**DIAMOND CORING SYSTEM**

**DCS Secondary Heave Compensation System**

The Phase II effort was continued by PARVUS, including low-level and mid-level controller development, and initiated work on high-level control Man-Machine Interface (MMI) description in preparation for Phase III.

ODP/TAMU and TEDCOM made presentations on the status of the DCS at the annual PCOM meeting during the first week of December. The DCS outlook is positive.

Report planning has begun and a definition of the final test suite is underway. Improvements in the performance of several of the candidate controllers have been made since the late November progress meeting. At least one non-velocity-based controller is now functional and meets specifications for all but the 4500-m test case. Development of low-level controllers is nearly complete.

A Creare consultant was under contract to PARVUS and is working on development of yet another controller scheme using a Least Mean Squares noise reduction algorithm. Repairs were made to the test stand position sensors by PARVUS to remove significant noise that was present in the sensors (noisy pots). The pump was replaced on the heave input hydraulic unit due to wear.

ODP/TAMU and Stress Engineering visited PARVUS for a status review on January 24 and 25. PARVUS has made substantial progress since the TEDCOM/PCOM/ODP/TAMU meeting at PARVUS at the end of November. Strategies for implementing an Internal Model Control (IMC) scheme were discussed, based on using the model of the API drill string.

Amendment 3 to the SES contract was finalized and mailed in January. The amendment covers added costs for the Creare consultant to PARVUS, PARVUS software changes to parvNet since August 1994, changes to the work scope for Phase II, and the revised Phase II completion date (now March 4, effectively adding one month to Phase II as decided at the late November meeting at PARVUS).

**Passive Heave Compensator Seal Tests**

SES completed seal testing in November 1995 and issued their report in late December. In summary, the alternate seal that was tested exhibits much less friction, and has equivalent longevity compared to the existing UTEX packing ring seal design. Proper cylinder finish is crucial, however, to the life of the low-friction seal (32 rms was used on the test cylinders). Westech Gear’s specification for the primary heave compensator cylinder finish was also 32 rms, and this formed the basis for the finish specification chosen for the test cylinders. Nevertheless, if any alternate seal is installed on the vessel, a measurement of the existing surface finish on the cylinders is required. This will require disassembly and measurements at a port call, and the outcome of the inspection will dictate whether the original seal design should be reinstalled as is, or whether one of two alternate seals should be substituted. The two alternates are the low-friction CDI lip seal/carrier and a modified (lower friction) packing design as a compromise. ODP/TAMU is presently investigating measurement tools and costs.

SES’s final report has been internally reviewed at ODP/TAMU, and copies are on their way to TEDCOM DCS Subcommittee members.

**Primary Heave Compensator Instrumentation**

Installation of the instrumentation and data recording system was an item discussed at the late November status meeting at PARVUS. The subcommittee made a similar recommendation to what had been previously discussed by the design team, that is, to install the DCS sensor system now (instead of waiting until the DCS is fielded) in order to accurately measure the parameters needed for control. This is an intermediate test, the success of which will greatly increase confidence in the performance of the final system.

ODP/TAMU had planned to install instrumentation on the heave compensator previously, but for a different reason: to better quantify the actual seal friction levels both before and after seal change, if any. Because this would
have required fielding an equivalent sensor/recording system than the one now envisioned for the DCS Controller Design work, it was decided that the two measurement efforts would be combined, saving funds and effort.

This effort will begin as soon as possible after the start of Phase III. Planning is already underway because convenient opportunities have presented themselves in the transit legs scheduled for April and August.

**Pressure Core Sampler**

The PCS was deployed 46 times during Leg 164, in each case using the new externally operated ball valve. Three deployments were for borehole water samples only. The PCS recovered 75% or more hydrostatic pressure on 70% of the deployments and exceeded 90% on 56% of the deployments. Average core recovery for the 43 coring runs was 0.30 m (30%). Recovery of soft sediments was clearly enhanced by the "push-in" cutting shoe, which was successfully deployed as deep as 501.8 mbsf (997B-15P, 93% hydrostatic pressure, 0.30 m core), well past the last APC core (166.9 mbsf).

Pressure retention was generally successful, although not perfect. Core recovery varied considerably. Gas sampling was highly successful. One core yielded over 8 liters of gas, mostly methane. Many cores yielded gas in quantities several times the volume of the core recovered. Nearly all this gas emerged only after the pressure was reduced to roughly 500 PSI. For this reason, near-perfect pressure retention turned out to be desirable but unnecessary. Three times, the PCS was run specifically to recover water from the bottom of the borehole and each time very little gas, almost entirely air, came off the manifold. This supports the assertion that nearly all of the gas drawn into the manifold evolved from the core rather than from the water contained in the PCS. Coring runs on which we had zero recovery yielded similar results.

**Fisseler Water Sampler Tool**

The Fisseler Water Sampler tool development was initiated to overcome some limitations of the present WSTP. The primary new features are intended (1) to reduce the pressure differential while sampling formation fluids, (2) to improve the probe tip geometry to reduce formation cracking when the tool is inserted, and (3) to create a modular design to facilitate tool operations.

The FWS was deployed five times during Leg 164, and functioned very well mechanically. Unfortunately, the FWS failed to collect a useful water sample, presumably because of formation conditions. The WSTP was deployed with similar results, although the WSTP did manage to recover a few good samples.

Several ideas have been suggested for further development of the tool, but at present no development effort is planned because of restricted manpower and funding levels.

The tool will probably be run again on Leg 169 in virtually the same form as on Leg 164. Some minor electronic tweaking has been done and some operational changes will be made.

**Davis/Villinger Temperature Probe**

This has been a very successful third-party development project so far. The prototype temperature tool, known as the DVTP, ran four times during Leg 164. Aside from some wiring problems early on, the tool ran very well. It recorded good data with minimal handling requirements and without major mechanical problems. The tool ran in the Collet Delivery System using the 64-in spacer barrel made for it with a female quick release.

As it stands, the DVTP has proven to be a very robust tool that can take heat-flow measurements from the mudline to very stiff clays that are out of reach for the APC/Adara. Like the WSTP and FWS, it requires a dedicated run.
# Operations

## Leg 165 Operations Summary

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EXCOM—June 1996
### Leg 166 Operations Summary

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EXECUTIVE SUMMARY

LDEO-BRG submitted the draft FY 97 ODP Logging Services budget outline to JOI prior to the Budget Committee (BCOM) meeting. The budget totaled $5,035,102. In response to BCOM guidance, a revised budget was submitted with the draft FY 97 Program Plan requesting total funds of $4,890,860. In response to recent input from PCOM, changes to this budget have been identified, and a revised FY 97 Program Plan will be submitted to JOI prior to the August due date.

During Leg 165 (Caribbean Ocean History), the K/T boundary, consisting of massive limestone bounded by clay rich intervals, was clearly displayed on FMS images as a distinct high resistivity band approximately 23 cm thick bounded by thin low resistivity layers. The sequence observed on the FMS data was critical for evaluating the completeness of the K/T recovery.

Preliminary analysis of log data from Hole 1003D (Leg 166, Bahamas Transect) revealed several interesting correlations between uranium, calcium, silica and aluminum content. The chlorinity indicator also revealed marked changes downhole that are associated with different fluid reservoirs present with the margin sediments. Further analysis of these data will help achieve an understanding of fluid flow and associated diagenesis in the Bahamas margin.

High sedimentation rates at the first site logged during Leg 167 (California Margin) provide an opportunity to examine the core and log resolution of orbital and millennial-scale bedding cycles. Comparison of the FMS record with the digital video brightness (L*) channel data suggests that periodic variability in carbonate composition at the 20-30 cm scale (equivalent to 2-3 k.y.) can be reliably resolved in the log data.

The new neutron porosity-lithology tool (IPLT) was tested during Leg 166. This Schlumberger toolstring allowed for the acquisition of much higher resolution geophysical log data. Following this successful test, the standard toolstrings were reconfigured. The first run will now be the Geophysical toolstring consisting of the IPLT and the resistivity tool. The second run will be a combined FMS and Sonic toolstring. These new configurations position both strings properly in the borehole (IPLT is eccentricized and the FMS/sonic is centralized) and increases the weight of the FMS toolstring thus improving data quality.

A comprehensive plan has been developed to migrate historic log data to the Oracle log database currently under development. A key feature of this plan is the reprocessing of historic log data by LDEO-BRG and LUBR. The plan was presented to DMP, IHP and the Database Steering Committee and it was enthusiastically supported.

LDEO-BRG personnel have been in close contact with Tracor representatives with regard to the development of the data file formats for processed log data. The design work is essentially completed with only minor modifications expected in June. These file formats will be tested by LDEO-BRG prior to the planned start-up of the shipboard Janus database during Leg 170.

A test of satellite transmission of log data from the Resolution to the shore and back was successfully completed during Leg 166. The shipboard scientists were able to utilize the processed data to generate more accurate site summary reports and conduct analyses of higher accuracy. Following this successful test, log data is now being routinely transmitted to LDEO-BRG for processing, then returned to the JOIDES Resolution, usually within seven days of logging a hole.
I. MANAGEMENT

Program Management at LDEO

LDEO-BRG submitted the draft FY 97 ODP Logging Services budget outline to JOI prior to the Budget Committee (BCOM) meeting. The budget totaled $5,035,102. In response to BCOM guidance, a revised budget was submitted with the draft FY 97 Program Plan requesting total funds of $4,890,860. In response to recent input from PCOM, changes to this budget have been identified and a revised FY 97 Program Plan will be submitted to JOI prior to the August due date.

LDEO-BRG liaisons attended JOIDES panel meetings (EXCOM, BCOM, PCOM, LITHP, IHP, and DMP), the Database Steering committee meeting, and the Leg 169, 170, and 171 pre-cruise meetings.

Continuing the implementation of project management in ODP, a project management training session has been scheduled for July 22-23 at LDEO for the BRG, Databank, and ODP Core Repository employees.

LDEO-BRG and TAMU are conducting ongoing discussions regarding the future of high-speed satellite communications in ODP.

LDEO-BRG scientists served as Logging Scientists on Leg 166 (Bahamas) and Leg 167 (California Margin).

Gerardo Iturrino, formerly of RSMAS, was hired as a Logging Scientist at LDEO-BRG.

Amal Chakrabortry was hired as a part-time Log Analyst at LDEO-BRG.

Elizabeth Pratson resigned as Senior Log Analyst at LDEO-BRG in April.

UK and France Subcontracts

Lee Ewert resigned her post as Logging Scientist/Processor with LUBR in February.

Trevor Williams and Adrian Newton were hired as Logging Scientists at LUBR.

LUBR provided a Logging scientist trainee for Leg 166.

Dave Goldberg asked Mike Lovell (LUBR), Philippe Pezard (IMT), and Veronique Louvel (IMT) to attend the April PCOM meeting. Louvel gave a presentation on the GHMT results.

II. STANDARD LOGGING OPERATIONS

Leg 165: Caribbean Ocean History

Leg 165 focused on three separate aspects of Caribbean paleoceanography: 1) late Mesozoic-early Cenozoic climate variability of tropical oceans; 2) ejecta dispersal and biotic consequences associated with the K/T boundary impact, and 3) high-resolution variability of Quaternary tropical oceans and climate. Log data were acquired at sites 998B, 1000B and 1001A including the K/T boundary sequence in two holes.

Five distinct logging units were identified on the Cayman Rise (Hole 998B) based on log response and analysis of recovered core. The extreme variability and general trends in logging responses appear to correlate with the presence of abundant and distinct “fresh” volcanic ash fall layers within nanofossil chalk. The logging data indicate the greatest interval of volcanic ash, and the relative concentrations versus the Th/U ratio were used to discriminate ash layers from non-volcanogenic clays. A general trend in the logging data indicates a consistent
decrease in carbonate concentration, increased lithification, and a uniformly low ash component with depth until the transition from chalk to limestone was encountered.

FMS data proved to be useful in providing in situ thickness of ash layers where core recovery was low. Several small, very abrupt changes coincide exactly with boundaries between claystones, thickly bedded limestones, and thin clay or ash layers. The K/T boundary, consisting of massive limestone bounded by clay rich intervals, is clearly displayed on FMS images as a distinct high resistivity band approximately 23 cm thick bounded by thin low resistivity layers. The sequence observed on the FMS data was critical for evaluating the completeness of the K/T recovery.

One of the objectives of operations at the Nicaraguan Rise (Hole 1000B) was to determine the middle/late Miocene carbonate and clay content. A decrease in carbonate as well as ash layers can clearly be identified in the logs and indicates an increase in relative clay content at this time. The FMS record, as well as density and resistivity log signatures on the Nicaraguan Rise (Hole 1001A) clearly reveal the K/T boundary. The log data was critical for evaluating the completeness of K/T recovery.

Leg 166 Bahamas Transect

Scientific drilling during Leg 166 addressed two important geologic themes: 1) causes and effects of eustatic sea-level fluctuations and 2) fluid-flow processes in the margins of carbonate platforms. Log data were acquired at three sites using new high-energy neutron porosity and high-resolution natural gamma ray tools, as well as a single component VSP and the FMS tool. The new Schlumberger tool combinations worked extremely well and provided excellent data for the cruise objectives.

Site 1003 was the first of five sites drilled by Leg 166 along the Bahamas Transect. It is located on the middle slope about four km from the western platform edge of Great Bahamas Bank. Preliminary analysis of log data from Hole 1003D revealed several interesting correlations between uranium, calcium, silica and aluminum content that will be important in the analysis of the diagenetic history of these sediments. The chlorinity indicator also revealed marked changes downhole that are associated with different fluid reservoirs present within the margin sediments. Further analysis of these data will help achieve an understanding of fluid flow and associated diagenesis in the Bahamas margin. FMS data yielded several sections of excellent quality. The log data have proven useful in determining sedimentation patterns, sequence boundaries and cyclicity, particularly in the Miocene and Pliocene intervals. Figure 1 shows the data gathered by the new tools in Hole 1003D correlated with core data.

Velocity/resistivity/gamma ray tool data acquired from Hole 1005A (the most proximal of the five sites) indicate well-defined cycles. Gamma peaks correspond to condensed intervals consisting of more resistive layers. Nearly all natural radioactivity measured by the spectral gamma ray tool is generated by uranium. Additionally, very good porosity data was acquired when considering the size and condition of the borehole. The neutron tool suggests a porosity range between 40-70%. Nine VSP stations were shot in this hole which yielded useful velocity data. In reviewing the gamma-ray data from the core, the top 16 meters of core has nearly zero counts with a major shift towards higher gamma below. Other cyclic shifts in gamma ray can be seen in the core that correlate to subtle shifts in the gamma ray measured in pipe. Log data acquired in Hole 1005C also show some well-defined cycles which will most certainly be useful in understanding sedimentation patterns and correlation across transect.

In Hole 1006C (most distal of the five sites), logging was successfully completed through a pronounced hard layer that was not recovered in the cores. FMS images are of high quality and they display numerous, thin resistive beds, apparently associated with increases in current intensity. All 14 VSP stations worked well, although the shallower stations are consistently noisier, which is likely due to the proximity to the drill pipe. The Schlumberger VSP (single vertical geophone) system has provided crucial information to tie the core to the seismic data. Using the shipboard-computed Depth-Travel time curve, it was possible to calculate the exact vertical position of lithologic features in the borehole.
Leg 167 California Margin

This leg focuses on the Neogene paleoceanographic history of the California margin. The main scientific objectives are to investigate the Neogene variability of the California Current and coastal upwelling, and to assess their responses to changes in climate and tectonic boundary conditions. A detailed understanding of the carbon cycle and organic carbon preservation (including the formation of methane hydrates) in this coastal environment also is a key component of the scientific objectives.

Site 1014 is located in Tanner Basin, within the outer band of the California Borderland basins. The primary objective was to sample a high resolution section from the late Miocene to Quaternary to study the evolution of the California Current system and to study oceanographic processes in intermediate waters as northern hemisphere glaciations expanded. Hole conditions were generally excellent with few washouts. The log physical property data closely matched the measured core density and porosity over the core-log data overlap. The log gamma ray values exhibit very high values predominantly due to variations in uranium content, which is strongly correlated to measured variations in sediment organic carbon content. The uranium-organic carbon linkage appears to reflect authigenic uranium fixation in these strongly reduced sediments. High sedimentation rates at this site provide an opportunity to examine the core and log resolution of orbital and millennial-scale bedding cycles. Comparison of the FMS record with the digital video brightness (L*) channel data suggests that periodic variability in carbonate composition at the 20-30 cm scale (equivalent to 2-3 k.y.) can be reliably resolved in the log data.
**Caliper (LCAL) | Pa (PEFL)**

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**Figure 1**

**Hole 1003 D - Geophysical Logs**

**ODP Logging Services Report to EXCOM**

**June 1996**

**Oslo, Norway**

Wireline Logging Services Report 199

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III. SPECIALTY AND THIRD-PARTY LOGGING OPERATIONS

Wireline Heave Compensator (WHC)

The Wireline Heave Compensator (WHC) encountered intermittent position input errors on several occasions during Leg 165. A Lamont engineer was flown to the Resolution via a helicopter charted by ODP-TAMU to transport a film crew. The unit was successfully replaced and tested during the brief rendezvous and was functioning properly at the time of helicopter departure.

IPLT (Integrated Porosity-Lithology Tool)

The new neutron porosity-lithology tool (IPLT), consisting of an APS (Accelerated Porosity Sonde), HLDS (Hostile Environment LithoDensity Sonde), HNGS (Hostile Natural Gamma-ray Sonde), and other ancillary telemetry cartridges, was tested during Leg 166. This Schlumberger toolstring allowed for the acquisition of much higher resolution geophysical log data. The IPLT string is eccentricized to make constant contact with the borehole wall and therefore improve the tool’s nuclear statistics. The IPLT will be run as part of the standard logging package beginning with Leg 167.

New Toolstring Configurations

Following the successful test of the IPLT during Leg 166, the standard toolstrings were reconfigured (Figure 2). The first run will now be the Geophysical toolstring (also called the Triple Combo) consisting of the IPLT and the resistivity tool. The second run will be a combined FMS and Sonic toolstring. These new configurations position both strings properly in the borehole (IPLT is eccentricized and the FMS/sonic is centralized) and increases the weight of the FMS toolstring thus improving data quality. These configurations were successfully tested during Leg 167.

Geologic High-Resolution Magnetometer Tool (GHMT)

Problems were encountered during Leg 167 operations with the total magnetic field measurements from the GHMT. The problem will be addressed by Schlumberger following Leg 167. Susceptibility measurements from this tool continue to be successfully made and are anticipated to be extremely useful to achieving Leg 167 objectives.
OSLO, NORWAY
Wireline Logging Services Report

ODP Logging Services Report to EXCOM
June 1996

Figure 2

New ODP Tool String Configurations

Header Image

Figure 2

7
IV. DATA SERVICES

The ODP Wireline Log Database now comprises data up to Leg 166, including Schlumberger original and processed data (geophysical, geochemical, and FMS), specialty tools (borehole televiewer, multichannel sonic, and temperature), borehole images and sonic waveforms. In addition, processed well log data are available in ASCII format on Mac/MSDOS diskette for Legs 102, 103 and 104 (partial), 109 (partial), 111, 112, 113, 114 (partial), 116, 118, 119 (partial), 121 (partial), 126, 127, 128 (partial) and 129 through 162.

The following Borehole Televiewer (BHTV) data are currently undergoing digitization by Geophysical Associates. A software package is also under development to enhance the display of these data.

- 504B (Leg 111)
- 735B (Leg 118)
- 758A (Leg 121)
- 768C (Leg 124)
- 770C (Leg 124)
- 786B (Leg 125)
- 796B (Leg 127)
- 797C (Leg 127)
- 829A (Leg 134)
- 831B (Leg 134)
- 834B (Leg 135)
- 839B (Leg 135)
- 843B (Leg 136)
- 504B (Leg 140)

Schlumberger-GeoQuest completed the translation of existing VSP seismic (WST) data into SEG-Y format. All future WST data collected by ODP will be available in both ASCII and SEG-Y format.

In preparation for upcoming changes to the Initial Results volumes, LDEO-BRG is currently in the process of redesigning the log data CD-ROM to provide users with an enhanced interface enabling them to quickly locate and display desired data.

On-line Database Development Project

The on-line catalog of ODP log data was revised in February to include temperature tool data and a refined and automated version of the data request system. Additionally, a basic geographic search mechanism which utilizes a Java compiler is currently under development.

A comprehensive plan has been developed to migrate historic log data to the Oracle log database. A key feature of this plan is the reprocessing of historic log data by LDEO-BRG and LUBR. The plan was presented to DMP, IHP and the Database Steering Committee and it was enthusiastically supported.

LDEO-BRG has developed a plan in conjunction with TAMU and Tracor to insure the compatibility of core and log data. This plan was approved by the Database Steering Committee and DMP. LDEO-BRG personnel have been in close contact with Tracor representatives with regard to the development of the data file formats for processed log data. The design work is essentially completed with only minor modifications expected in June. These file formats will be tested by LDEO-BRG prior to the planned start-up of the shipboard Janus database during Leg 170.
Log Analysis

ODP Geophysical and Geochemical Data

Leg 128: Hole 799A processed by LDEO-BRG to fulfill a data request.
Leg 164: Holes 994C and 994D processed by LDEO-BRG.
Leg 164: Holes 995B and 997B processed at LUBR and reviewed by LDEO-BRG.
Leg 165: Holes 998B, 999B, 1000B, and 1001A processed by LDEO-BRG.
Leg 166: Holes 1003D, 1005A, 1005C, 1006A, and 1007C processed by LDEO-BRG.

Schlumberger-Doll completed the processing of a Leg 164 geochemical tool data set with Carbon-Oxygen recorded in inelastic mode. The results of the processing are currently under review by the Leg 164 logging scientists who will determine the scientific usefulness before processing the remaining holes for Leg 164.

GHMT data from Leg 165 (Holes 998B, 1000B, and 1001A) are currently being processed by Schlumberger.

FMS Processing

Leg 162: Holes 982B, 984B, 986C, and 987E processed by IMT and reviewed by LDEO-BRG.
Leg 164: Holes 995B and 997B processed by IMT and reviewed by LDEO-BRG.
Leg 165: Holes 998B, 999B, 1000B, and 1001A processed by IMT and reviewed by LDEO-BRG.
Leg 166: Holes 1003D, 1005A, 1005C, and 1006A currently being processed by IMT.

Satellite Data Transmission

A test of satellite transmission of log data from the Resolution to the shore and back was successfully completed during Leg 166. Data was successfully transmitted to Lamont for processing then retransmitted back to the ship. The shipboard scientists were then able to utilize the processed data to generate more accurate site summary reports and conduct analyses of higher accuracy. Following this successful test, log data is now being routinely transmitted to LDEO-BRG for processing, then returned to the JOIDES Resolution, usually within seven days of logging a hole.

Software Development/Upgrade

The GeoFrame processing software has been upgraded to operate under the Solaris operating system.

The Splicer processing software was used on the drillship during Leg 167 (California Margin) to generate composite sections and complete spliced records of GRAPE density, magnetic susceptibility, natural gamma activity, and color reflectance. A test version of the core-log integration software, Sagan, was installed. This program has been used to establish a series of stratigraphic ties between core and log density and natural gamma data.

V. EDUCATION, PUBLICATIONS, AND PRESENTATIONS

Trevor Williams (LUBR) received pre-cruise training at LDEO-BRG in preparation for his participation as a trainee on Leg 166. Carlos Goncalves (LUBR) will visit LDEO-BRG for additional training prior to sailing as a logging scientist on Leg 168.

Sanestu Saito began a visiting appointment at LDEO-BRG as a logging scientist. He is from the Ocean Research Institute (ORI) in Japan and will be conducting research with Dave Goldberg using Leg 156 log data. He will also sail as a logging scientist on Leg 170.
The LDEO-BRG World Wide Web home page was redesigned and a new interface went online on April 2. The redesigned page includes many new features which will allow users to easily navigate through the site to areas of interest. The on-line database section has been improved through the addition of a geographical search tool and enhancements to the automated data request system. Continued additions and improvements to the page are planned, including an enhanced interface with the ODP log database.

The newly designed web site can be accessed at http://www.ldeo.columbia.edu/BRG/brg_home.html
JOIDES Planning Committee

Draft Minutes

April 1996
# PCOM April 1996 - Participant List

## Planning Committee - PCOM

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<tbody>
<tr>
<td>K Brown</td>
<td>University of California, San Diego, Scripps Institution of Oceanography</td>
</tr>
<tr>
<td>R M Carter</td>
<td>James Cook University, Australia, Australia-Canada Consortium</td>
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<tr>
<td>H Dick</td>
<td>Woods Hole Oceanographic Institution</td>
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<tr>
<td>R Kidd (Chairman)</td>
<td>University of Wales, Cardiff, United Kingdom</td>
</tr>
<tr>
<td>H Kudrass</td>
<td>Bundesanstalt für Geowissenschaften und Rohstoffe, Germany</td>
</tr>
<tr>
<td>R Larson</td>
<td>University of Rhode Island, Graduate School of Oceanography</td>
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<tr>
<td>J McKenzie</td>
<td>ETH, Zurich, ESF Consortium</td>
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<tr>
<td>C Mével</td>
<td>Laboratoire de Pétrologie, Université Pierre et Marie Curie, Paris</td>
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<tr>
<td>A Mix</td>
<td>Oregon State University, College of Oceanography</td>
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<tr>
<td>G Moore</td>
<td>University of Hawaii, School of Ocean and Earth Science and Technology</td>
</tr>
<tr>
<td>G Mountain</td>
<td>Columbia University, Lamont-Doherty Earth Observatory</td>
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<tr>
<td>J Natland</td>
<td>University of Miami, Rosenstiel School of Marine and Atmospheric Sciences</td>
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<tr>
<td>W W Sager</td>
<td>Texas A&amp;M University, College of Geosciences</td>
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<tr>
<td>T Shipley</td>
<td>University of Texas at Austin, Institute for Geophysics</td>
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<tr>
<td>K Suyehiro</td>
<td>Ocean Research Institute, Japan</td>
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## Liaisons

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<th>Name</th>
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<tr>
<td>D Falvey</td>
<td>Joint Oceanographic Institutions, Inc.</td>
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<tr>
<td>T Francis</td>
<td>Science Operator (ODP-TAMU)</td>
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<tr>
<td>D Goldberg</td>
<td>Wireline Logging Services (ODP-LDEO)</td>
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<td>B Malfait</td>
<td>National Science Foundation</td>
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## Guests and Observers

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<tr>
<th>Name</th>
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<tr>
<td>J Briden</td>
<td>University of Oxford, United Kingdom (EXCOM Chair)</td>
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<tr>
<td>R Detrick</td>
<td>Woods Hole Oceanographic Institution (EXCOM Chair - elect)</td>
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<tr>
<td>J Farrell</td>
<td>Joint Oceanographic Institutions, Inc.</td>
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<tr>
<td>P J Fox</td>
<td>Science Operator (ODP-TAMU)</td>
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<td>K Fujikawa</td>
<td>Deep Sea Research Division, JAMSTEC</td>
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<tr>
<td>S Humphris</td>
<td>Woods Hole Oceanographic Institution (PCOM Chair - elect)</td>
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<tr>
<td>E Kappel</td>
<td>Joint Oceanographic Institutions, Inc.</td>
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<td>H Kinoshita</td>
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<td>H-C Larsen</td>
<td>Co-Chief Scientist Leg 163, Danish Lithosphere Centre</td>
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<td>M Lovell</td>
<td>ODP-WLS, LUBR Leicester, United Kingdom</td>
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<td>V Louvel</td>
<td>IMT, Marseille (ODP-WLS)</td>
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<td>Y Otsuka</td>
<td>Planning Division, JAMSTEC</td>
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<td>C Paull</td>
<td>Co-Chief Scientist Leg 164, University of North Carolina</td>
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<tr>
<td>J A Pearce</td>
<td>University of Durham, United Kingdom</td>
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<td>M Reagan</td>
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<td>P Pezard</td>
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<td>S D Scott</td>
<td>University of Toronto, Australia-Canada Consortium</td>
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<tr>
<td>H Sigurdsson</td>
<td>Co-Chief Scientist Leg 165, University of Rhode Island</td>
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<tr>
<td>S Takagawa</td>
<td>Deep Sea Technical Development Division, JAMSTEC</td>
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## Panel Chairs

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<th>Name</th>
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<tr>
<td>J Ludden</td>
<td>LITHP CRPG, Nancy, France</td>
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<tr>
<td>W W Hay</td>
<td>SGPP University of Colorado</td>
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<tr>
<td>A H F Robertson</td>
<td>TECP University of Edinburgh, United Kingdom</td>
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## JOIDES Office

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<tr>
<th>Name</th>
<th>Role</th>
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<tbody>
<tr>
<td>K Ellins</td>
<td>Executive Assistant and US Liaison</td>
</tr>
<tr>
<td>C Jacobs</td>
<td>Executive Assistant and Science Co-ordinator</td>
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Planning Committee Motions and Consensus's

PCOM Consensus 96-1-1
PCOM approves the agenda of the meeting as set out in the agenda book.

PCOM Motion 96-1-2
PCOM approves the minutes of the December 1995 annual meeting as a true record, subject to the changes described above.

Proposed: Sager, Seconded: Mountain 15 For, 0 Against, 0 Abstentions, 1 Absent

PCOM Consensus 96-1-3
PCOM encourages a workshop to be held in June 1996 to investigate the scientific and technical benefits of using JOIDES Resolution to conduct tension pile tests necessary for commercial operations in water depths beyond those accessible by jack-up rigs. Future utilisation of JOIDES Resolution in such operations would depend on the possibilities of significant benefits to both the scientific and technical communities. Actual scheduling of JOIDES Resolution ship-time must be done in the context of other programs scheduled or under consideration.

PCOM Motion 96-1-4
Whereas current development of the DCS is proceeding satisfactorily; whereas technological development is a keystone of the LRP; whereas improvements in heave compensation techniques offer improvements in all drilling phases; and whereas further reduction of DCS engineering effectively terminates the project with the spectre of greater re-start costs later, PCOM gives its support to continued DCS development at the level requested by ODP-TAMU, for Phase III of that project.

Proposed: Sager, Seconded: Natland 12 For, 1 Against, 2 Abstentions, 1 Absent

PCOM Motion 96-1-5
PCOM adopts the following four-step voting procedure for purposes of determining a drilling schedule.

Step 1: Choose programs to retain for purposes of ranking, based on whether they are sufficiently ready in terms of site survey and safety, and are within a reasonable region of operations. PCOM retains two options for this step:

Option 1: Panel consensus on recommendation of chair;

Option 2: Show-of-hands vote on each drilling proposal, with retention of a proposal for ranking based on 50% or more of votes in favour. Conflicted members of PCOM will be excluded.

Step 2: Rank proposals based on scientific quality. Given X programs retained from the previous step, un-conflicted PCOM members will rank programs from 1 to X, on a signed paper ballot. After voting, written ranks of each program by each voter will be tabulated and reported (in PCOM minutes) in a matrix, along with a calculation of mean ranking of each program. A draft schedule will be constructed of top-ranked programs. Conflicted members of PCOM will be excluded from Step 2 in its entirety.
**Step 3:** In a case of statistical ties in rankings that affects the choice of programs to drop from the schedule, PCOM will choose between closely ranked programs on this boundary based on a one-on-one vote using signed paper ballots. A majority vote will choose the program to retain on the schedule, and the draft schedule from Step 2 will be adjusted accordingly. Conflicted members of PCOM will be excluded from Step 3 in its entirety.

**Step 4:** After assembling the draft schedule from steps 1-3 into a cruise track, PCOM will consider the logistics, costs, and quality of the proposed schedule as a whole. PCOM will vote with a show of hands to accept or reject the schedule in its entirety, based on a simple majority of votes cast. Rejection of the schedule at this stage dictates a return to Step 1 in the voting procedure. Conflicted members of PCOM will be excluded from Step 4 in its entirety.

**Proposed:** Mix, **Seconded:** Kudrass 14 For, 0 Against, 1 Abstain, 1 Absent.

**PCOM Motion 96-1-6**

The Voting Procedures Motion be tabled until the Conflict of Interest discussion.

**Proposed:** Larson, **Seconded:** Sager 13 For, 2 Against, 0 Abstentions, 1 Absent

**PCOM Motion 96-1-7**

PCOM accepts the recommendation of DMP to redefine the geochemical tool string as an ODP Speciality Tool and sees no other significant way to reduce items for inclusion in the WLS Scope of Work. PCOM agrees that the WLS RFP should refrain from descriptions that compel selection of any specific operator as the provider of logging tools.

**Proposed:** Moore, **Seconded:** Brown 14 For, 0 Against, 1 Abstentions, 1 Absent

**PCOM Motion 96-1-8**

PCOM approves the request of the co-chiefs of Leg 173 that to maximise basement recovery they wash down to approximately 100 m above basement.

Note: PCOM endorse the current operational guidelines and recognise Leg 173 as a special case, as the sedimentary section in this region has already been extensively cored.

**Proposed:** Mèvel, **Seconded:** Dick 15 For, 0 Against, 0 Abstentions, 1 Absent

**PCOM Motion 96-1-9**

Any potential time that may be available on Leg 174B as a result of not being able to do engineering tests, be re-allocated on a 50-50 basis to Leg 174A and LoI 69 for the CORKing work, with the proviso that if there are required port changes, it does not impact the science time on other Legs.

**Proposed:** Larson, **Seconded:** Carter 13 For, 0 Against, 2 Abstentions, 1 Absent
PCOM Consensus 96-1-10

PCOM considered the FY97 schedule prepared by JOI and ODP-TAMU following the recommendations of the December 1995 meeting. No changes in the schedule are recommended other than the following:

1) should extra time become available from the engineering portion of Leg 174B, it should be divided equally between Leg 174A and the CORK operation at Barbados that is proposed as part of Leg 174B (see PCOM Motion 96-1-9);

2) any additional gains from port-call changes should be allocated to Leg 174A.

PCOM Consensus 96-1-11

PCOM advises JOI that it wishes the cores from Leg 174A to be stored at the East Coast Core Repository at LDEO.

PCOM Motion 96-1-12

The general direction of the drilling vessel into the Indian Ocean and Western Pacific beginning in FY98 is confirmed into FY99.

Proposed: Natland, Seconded: Mével 9 For, 0 Against, 6 Abstentions, 1 Absent

PCOM Motion 96-1-13

To address continuing concerns about the cost of ODP publications and also the impact of the December 1995 PCOM recommendations on the quality of the Scientific Results volume, PCOM makes the following recommendations to JOI for one possible new model for ODP publications:

1) That ODP-TAMU publish a single Proceedings volume for each drilling Leg.

2) The Proceedings should be a single high quality monograph containing the prime data, synthesis and scientific results.

3) The contents of the Proceedings volume should contain:

(A) in text form

(a) site summaries
(b) operations reports
(c) site chapters
(d) scientific syntheses
(e) scientific papers
(f) text of data reports
(g) abstracts of papers submitted or published outside the Proceedings.

(B) on CD-ROM

(h) large data sets (>1 page tables)
(i) core photographs
(j) core descriptions  
(k) VCD’s and barrel sheets  
(l) thin section descriptions

4) The publication date of the Proceedings should be 48 months post-cruise with an initial submission deadline for scientific papers 30 months post-cruise.

5) An initial core description volume should be published 3 months post-cruise in a relatively inexpensive form in soft cover. This document, however, should be citable and might contain:
   (a) core photographs  
   (b) VCD’s and barrel sheets  
   (c) site summaries  
   (d) operations reports  
   (e) thin section descriptions in table form

Specific items to be included will be amended after discussions with ODP-TAMU and JOI.

6) PCOM re-affirms its advice to JOI that scientific participants in drilling legs should be permitted to submit single or multi-authored scientific articles after 12 months post-cruise without prior approval of the scientific party.

7) PCOM re-affirms its advice to JOI that the scientific participants should be required to submit either a paper to a peer-reviewed journal or to the Proceedings by the closing date of the Proceedings volume.

8) PCOM advises JOI that the Editorial Review Board should be constituted by 12 months post-cruise and be charged with reviewing papers submitted for publication outside the proposed Proceedings volume for proper citation of the site summaries and site chapters, and for proper use of data and conclusions of other members of the scientific party.

9) PCOM advises JOI that permission to submit to a non-ODP publication prior to closing of the Proceedings should be contingent upon simultaneous transmittal of a full copy of the manuscript to the Editorial Review Board.

Proposed: Dick, Seconded: Mével 15 For, 0 Against, 0 Abstentions, 1 Absent

PCOM Motion 96-1-14

PCOM advises JOI that it would like the Leg 164, 165, and 166 participants to have the option of submitting single or multi-authored papers to the outside literature 12 months post-cruise without the prior approval of the shipboard party.

This is contingent upon:

1) An extension of the publication of their Scientific Results volume to 4 years post-cruise.

2) Transmission of copies of papers to their ERB's at the time of submission to the outside literature.

3) Inclusion of the abstracts of these papers in the Scientific Results volume.

Proposed: Dick, Seconded: Larson 15 For, 0 Against, 0 Abstain, 1 Absent
PCOM Motion 96-1-15

PCOM (or its successor, ODP Science Committee, SciCom) will establish two science review panels in line with the two major themes of the Long Range Plan. These panels will be generally tasked with the review of ODP proposals for scientific quality and potential feasibility (potential feasibility may require development of new capabilities and technologies). These panels will meet at the same time and place so that they can discuss divergent issues separately, and common issues together.

Proposed: Larson, Seconded: Natland 12 For, 1 Against, 1 Abstain, 2 Absent

PCOM Consensus 96-1-16

The Planning Committee recommends to EXCOM the following three-tiered structure to carry out scientific planning and implementation in the period 1998-2003:

1) Establishment of an ODP Science Committee (SciCom), concerned with proposal ranking, long-term scientific planning, and implementation of the ODP Long Range Plan. An ODP Operations Committee (OpCom), chaired by the SciCom chair, will be responsible for the annual program plan, budgetary matters, panel recommendations, and issues concerning the operators. OpCom would also be responsible for monitoring technical developments needed to meet long-term phased scientific objectives as identified by SciCom and the LRP. It is charged with monitoring these developments so that they are properly budgeted and meet time lines for inclusion in the multi-year science program.

2) Two review panels, dedicated to the themes of Earth's Environment and Earth's Interior, which will work both with proponents and working groups to handle proposal evaluation, and external peer review.

3) Working groups created by SciCom, possibly in conjunction with international geoscience initiatives, and individual proponents, will prepare proposals for drilling or other experiments using drilling platforms. Mature proposals would be passed from the working groups to the relevant review panel.

PCOM will prepare a summary statement of its deliberations on these issues, explaining the rationale for the changes, panel mandates (including those of the service panels which are not addressed here), and the manner in which these panels and committees would work together, with the JOIDES Office, the operators, and with JOI. PCOM recommends that the new structure be in place by January 1, 1997.

PCOM Motion 96-1-17

PCOM recommends that the $221K estimated for item 29 (Costa Rica LWD) of the tabled X-base budget be moved in priority to above the funding cut-off line. To preserve budget balance, PCOM recommends that the equivalent $221K be moved to below this cut-off line by removing the following items: Resistivity at bit LWD tool test, CORK bottom hole televiwer, $50K from pre-JANUS data migration, NW Atlantic Sediment Drifts GHMT (Leg 172), $25K from the core-image capture system, and most of Blake Nose GHMT (Leg 171C). The top priority for reinstatement, should funds become available, is the GHMT tool for Leg 171C.

Proposed: Carter, Seconded: Dick 12 For, 0 Against, 3 Abstentions, 1 Absent
PCOM Motion 96-1-18

Conflicted PCOM members should not be present during that part of a PCOM meeting when any substantive discussion of any proposals or voting leading to an inclusion in or exclusion from the upcoming schedule takes place.

Proposed: Larson, Seconded: Mountain 12 For, 3 Against, 0 Abstentions, 1 Absent

PCOM Motion 96-1-19

PCOM recommends the following to EXCOM:

A. Definition of Conflicts of Interest

If any JOIDES panel or committee member has any interests, affiliations, or relationships that might affect his/her review of, or decisions relating to, an ODP drilling proposal, the member is required to declare his/her interests to the Chair. Such interests, affiliations or relationships include (1) being a proponent of the pending drilling proposal or an associated site survey proposal, (2) being proposed as a co-chief scientist. All such conflicts of interests, and the actions taken, will be recorded in the Minutes of the meeting. Based on the nature of the proceedings and the nature of the member's interests, the following courses of action should be taken.

B. Courses of action to avoid Conflicts of Interests:

1) Members who declare a conflict of interest that is deemed by the Chair not to be serious (e.g. from the same institution but in entirely different fields with no working relationship) will participate fully in the discussions and voting of proposals. When deciding if an actual conflict exists, the Chair may consult with other members of the group for advice, but the Chair's decision is final.

2) Members who are not conflicted as defined but who are deemed by the Chair to be in conflict with the common best interest (e.g. close working colleagues, scientists managing specific equipment, being a member of the same institution as a proponent) will refrain from any discussions relating in any way to the proposal and from voting.

3) Conflicted panel members should not be present during that part of any panel meeting when proposals with which they are conflicted are being discussed, reviewed, or ranked. Conflicted PCOM members should not be present during that part of a PCOM meeting during substantive discussion of any proposals or voting leading to inclusion in or exclusion from the upcoming schedule. In PCOM meetings where specific expertise is required in order to fairly evaluate a proposal, the Chair may permit conflicted members to be present for discussion of proposals other than their own. However, these conflicted members must restrict their comments and discussion to the scientific objectives of those proposals and will refrain from making comparisons with their own proposals and from voting.

4) During discussions that do not involve competitive ranking of proposals (e.g. determination of the long term ship track at PCOM), all members will be allowed to participate fully in order to provide a full range of expertise to the decision-making process.

Proposed: Larson, Seconded: Sager 13 For, 0 Against, 2 Abstain, 1 Absent

PCOM Motion 96-1-20

PCOM recommends the formation of a Detailed Planning Group, chaired by SGPP Chair, W Hay, to further develop and prioritise proposals near Antarctica related to the history and extent of Antarctic Glaciation and Climate (the JOIDES Office will determine which proposals and LoIs are appropriate). The mandate for this working group is to: 1) develop viable drilling plans to constrain the timing and extent of
regional glaciation, 2) guide the proponent groups as they assemble relevant site
survey information and submit it to the Site Survey Data Bank, 3) prioritise the
proposals based on scientific quality and consistency with the ODP Long Range Plan,
4) consider operational constraints, recognising that weather will likely limit the extent
of drilling operations in the region, 5) submit a drilling plan for possible inclusion in
the 1998 drilling prospectus for the August 1996 PCOM meeting, and further reports if
needed for Fall 1996 thematic panel meetings and the December 1996 PCOM meeting.
PCOM will evaluate in its December 1996 meeting whether to disband this DPG, or
continue its operation.

Proposed: Mix, Seconded: Larson 14 For, 0 Against, 1 Abstain, 1 Absent

PCOM Consensus 96-1-21
PCOM requests that ODP-TAMU investigate the use of differential GPS on board the
JOIDES Resolution, and report at the August 1996 PCOM meeting.

PCOM Consensus 96-1-22
PCOM request that JOI ask ODP-TAMU to re-define its budget priorities and ensure that
ODP-TAMU liaisons to SSP are able to attend every meeting of that panel.

PCOM Consensus 96-1-23
PCOM requests Henry Dick and Catherine Mével to ask one or more of the Working
Groups that will be formed at the upcoming ODP - InterRidge Workshop to be held at
Woods Hole Oceanographic Institution, to include in their discussions potential site
survey requirements for successful deep oceanic crust drilling, using a riser. They are
asked to report at the August PCOM meeting.

PCOM Consensus 96-1-24
PCOM confirms its strong interest in the Greenland margin scientific drilling program of
which ODP Legs 152 and 163 were a part. Completion of shallow water drilling within
the context of the Danish Lithosphere East Greenland Margins program is an exciting
opportunity to link JOIDES to programs with other resources.

PCOM would welcome further information and discussion with the Danish Lithosphere
Centre on possible linkages. JOIDES is committed to establishing direct mutually
beneficial relationships with other scientific groups using drilling or coring platforms.
PCOM Motion 96-1-25

PCOM accepts the DPG Report on a drilling plan for Leg 172 and agrees to its recommendations, with the following amendments: 1) use of the GHMT tool is not advised for any of the Leg 172, and 2) at Site BBOR-4B, penetration by double XCB to recover Pliocene sediment will precede efforts to begin a third XCB.

PCOM thanks the Detailed Planning Group members, the co-chief scientists, and the DPG chair Greg Mountain for a job well done, and disbands the group.

Proposed: Mix, Seconded: Carter 15 For, 0 Against, 0 Abstain, 1 Absent

PCOM Motion 96-1-26

PCOM supports the general principle that all PCOM members should be chosen on the basis of scientific excellence but also in consideration of the need for thematic balance on PCOM. PCOM notes as a welcome example USSAC’s recommendation to open PCOM membership to scientists from non-JOI institutions in the U.S.A.

Proposed: Mix, Seconded: Carter 15 For, 0 Against, 0 Abstain, 1 Absent

PCOM Motion 96-1-27

There will be no changes in the JOIDES panel membership at this time. Members due to rotate off will be asked to continue to serve.

Proposed: Natland, Seconded: Sager 15 For, 0 Against, 0 Abstentions, 1 Absent

PCOM Motion 96-1-28

PCOM expresses its appreciation to Wolf Berger for his years of service on PCOM. His astute comments, charm, sense of humour, and philosophical perspective have greatly enriched our deliberations. We wish him continued success in all his endeavours and look forward to his setting new records in the acquisition of "aromatic muds" along the African margin.

Proposed: Dick, Seconded: Mix 15 For, 1 Absent

PCOM Motion 96-1-29

The Planning Committee thanks Sherman Harrison Bloomer for his skilful chairing of the Lithosphere Panel over the past three years. We commend especially his leadership in preparation of the Lithosphere Panel’s White Paper which contributed greatly to the content of the new Long Range Plan, and his efforts to solicit broad community input to that White Paper. We fondly recall Sherm’s unselfish, even-handed, and good humoured chairing of the Panel Chair’s meeting two years ago, and his clear presentations to PCOM on LITHP’s behalf. We wish Sherm well in his future endeavours and success on his pending survey cruise to the Tonga forearc. We look forward to Sherm's future scientific contributions to ocean drilling.

Proposed: Natland, Seconded: Mével 15 For, 1 Absent
A. WELCOME AND INTRODUCTION

1) INTRODUCTION OF PCOM MEMBERS, LIAISONS, AND GUESTS

Lancelot and Mével welcomed all participants to Provence, outlined the logistics of the meeting and the history and the facilities available at CEREGE. Pezard then reviewed the work undertaken at IMT, as part of the ODP-WLS contract.

Kidd thanked the organisers of the meeting for hosting this event and the preceding field trip, and then called for round table introductions.

2) APPROVAL OF THE AGENDA

Kidd said that at the end of the day he would like PCOM to try and come to a common view, or at most a couple of views on the evolution of the JOIDES advisory structure. He said that he would prefer the last session of the day to be just PCOM members, country representatives, and JOI representatives. There would be time for others to contribute on Wednesday and possibly Thursday.

Kidd reported that NSF required a science budget plan to be in place before PCOM, whereas BCOM had hoped that SOE’s could have been prioritised by PCOM at this meeting. He said that there are still some items to be dealt with. The country reports would be taken as read. Moving down the agenda, Kidd then said that he felt that in terms of the scientific leadership issue in the Greve Report, individual views were probably better than trying to get a PCOM consensus, and he urged members to write to Otis Brown with their views.

PCOM Consensus 96-1-1
PCOM approves the agenda of the meeting as set out in the agenda book.

3) APPROVAL OF THE MINUTES OF THE DECEMBER 1995 PCOM MEETING, LA JOLLA.

Francis commented that he would like to see some changes on p.36, lines 6 and 7. He would like them to read “the ship was able to maintain it’s heading”, and to delete the words “in a given hemisphere and”.

Mountain said that he would like to modify the wording on p.35 and re-phrase the last paragraph to read "Mountain commented that the distance between Washington D.C. and the daily operations and ODP personnel in College Station will pose substantial challenges to unified, timely, and accurate distribution of public information".

Fox said that on p.53, the last paragraph should read that "August 97 will be when JANUS data can be accessed from the world wide web".

PCOM Motion 96-1-2
PCOM approves the minutes of the December 1995 annual meeting as a true record, subject to the changes described above.

Proposed: Sager, Seconded: Mountain 15 For, 0 Against, 0 Abstentions, 1 Absent

B. REPORTS OF LIAISONS

1) NSF

Malfait reported that US federal government budget problems were yet to be resolved. He reported that the budget for FY96 was expected to remain level. NSF Planning for the FY97 budget had included a 4.6% increase and the ODP program budget would increase by 3%. He reported that the USSSP and grants program would also increase. The FY97 target for JOI is $44.4M, assuming 6 full international partners.
Malfait continued saying that the draft Program Plan is nearly complete. He said that in terms of Program continuation, JOI will submit a 5-year plan in Spring 1997, and there are several reviews that will need to take place. Malfait then reviewed a timetable of events to FY2000 (Appendix 1), and said that in terms of MOU's and partner commitments, NSF need firm commitments at the summer 1997 ODP Council meeting. Malfait said there is a small hitch with the Japanese MOU, and also the French MOU needs to be re-worded should France remain a member. Malfait said that the international review had been completed and a response was expected in summer 1996. In looking at the JOIDES Resolution refit, a decision on this “mid-life” has to be made in late 1997. There will be a US review in 1997 and new funding approval will be sought from the National Sciences Board in late 1997.

In terms of beyond 2004, USSAC has been charged by NSF with marshalling support for the LRP and identifying US priorities. Meetings between NSF Ocean Sciences and JAMSTEC personnel will be occurring on a regular basis. JOI, ODP-TAMU, ODP-LDEO, and the JOIDES Office will be visited by a JAMSTEC scientist this summer to see how the Program actually works. NSF and Office of Science and Technology Policy officials will be briefed on OD21/JOIDES plans.

Regarding Southern Ocean drilling, Malfait reported that the Antarctic Treaty provisions have changed since the last ODP drilling in that region, and NSF-ODP are working with other NSF Polar Programs to identify potential problems.

NSF has been discussing candidate membership with China for a 1/6 membership over 3 years, but he foresees problems with progressing this membership rapidly.

The NSF Inspector General’s office submitted an unsolicited report to the NSF Ocean Sciences Division on ODP publications. Recommendations included dropping the Scientific Results volume, moving the Initial Reports to CD-ROM and WWW and re-targeting funds to higher priority items. Malfait said that the Inspector General’s Office has a mandate to look at savings in US government programs and copies of the report will be available. Natland asked why ODP was looked at? Malfait said that was unclear, but they do look at a number of programs. Kappel said the report would be distributed tomorrow.

Malfait said that there will be a meeting/workshop looking at the future of geosciences, in terms of priorities and required facilities and infrastructure in the US, in December 1996, in Oregon.

Sager asked why budget allocation was only $44.4M, when it used to be $44.9 with 6 full partners. Malfait said that last year NSF only held back $500K when the Aus - Can was only 2/3 full and not at its expected level of 5/6.

In reply to Francis, Malfait said the Oregon meeting is scheduled for the week before PCOM. Larson asked the sources of funding for the $5M refit. Malfait said that NSF is looking for sources outside the basic Program, but that such sources may not be forthcoming. Sager then asked what would happen if the Program lost a partner? Malfait said that the Program would have to re-evaluate priorities. Mix asked about the pessimism with China. Malfait said that there are political problems.

2) JOI

Falvey began by outlining the draft BCOM allocations (Appendices 2a & 2b), commenting that the increase in WLS allocation reflected LWD.

Falvey said that the Chinese remain enthusiastic about joining the Program, but there are issues related to Taiwan that complicate matters. Korea is still indicating it will join Aus - Can in FY97. There is no change in the potential membership status of Brazil or Russia.

Falvey then turned to the Co-operative R&D initiative. He reported that some model agreements have been produced for consideration by NSF. He reported that JOI has appointed a Mrs Pamela Baker-Masson as Communications Director and she will be co-ordinating with ODP-TAMU. Falvey said that training for project management has begun in ODP-TAMU for senior management and it will also soon be underway at ODP-LDEO. Falvey said Expressions of Interest were sought from JOIDES partners for provision of Wireline Logging Services and Site Survey Data Bank services. He said the scope of these services will be refined at this meeting and then EXCOM and NSF will have to approve the RFP, which will be issued before the end of 1996. Falvey indicated that March 97 will see the start of the RFP appraisal. The final decision will be made in July/August 97.
Mountain asked for clarification that Expressions of Interest came from both the existing WLS providers and the UK’s NERC? Falvey confirmed that was so, with NERC acting as a “front” for a consortia from the UK, France and the USA.

3) ODP-TAMU

Francis reported that 3 successful legs had been completed since the last PCOM. He reviewed the statistics of the PCS use on Leg 164 (Appendix 3). He reported that on Leg 165, there were clearance problems, and a significant number of observers having to be accommodated. He reported that the US Ambassador in Columbia helped enormously in getting clearance for the Cariaco Basin site. He continued, saying that Leg 166 had just ended, and was possibly more successful than initially expected, the two major objectives were achieved. Francis commented that no problems were encountered with the relatively shallow water sites, although at Site 1003 a BHA was lost when the top of the hole collapsed, and there were problems with the VSP tool. Francis then showed a composite section of the sites drilled and said that the biostratigraphy was better than expected, with 16 seismic sequence boundaries dated with biostratigraphy alone. Francis said that on the transit there was a lot of activity on the JANUS project, and that Mike Fuller from UCSB was making magnetic measurements of some APC cores.

Francis then turned to Leg 167. He said that there was a glitch with Mexican sites; Mexico has insisted that it has a naval participant and he was unsure if the person sailed. He said there will be a short port call in San Diego to off-load core and the Mexican observers. Francis continued his report, saying that following PPSP, Site 893 will not be re-occupied, and Russ Merrill from ODP-TAMU is a participant operating the colour digital imaging system. He said that there are new guidelines for Leg 167 coring to avoid safety problems (Appendix 4). Francis reported that the San Francisco port call will include a large public relations exercise.

Leg 168 will have 4 cased re-entry holes with a number of downhole experiments before they are CORKed. The co-chiefs want jet-in tests to be carried out as far as possible from the re-entry sites. The precise timing of Saanich Inlet (Leg 169S) is still to be determined, but it will be either the late 18th or early 19th August. There may only be time for two holes at each site. There will be a science party of 12, with some VIPs on board, and JAMSTEC observers will also be present. The cores will be shipped to the Pacific Geoscience Center for up to 1 year for detailed sampling and description (A-holes). B and C-hole cores will be left unsplit on the ship before shipping to the Gulf Coast repository.

Leg 169 will be split between Middle Valley and the Escanaba Trough. CORK sites will be re-instrumented and a split-core multi-sensor track will be tested. At Site 857D the top of the CORK was knocked over and recovery of the data logger may cause problems. Site 858G has warm water emanating from the site but it is unclear if it the CORK seal has failed, or if it is coming from outside the casing (in which case there is no point in re-CORKing the hole).

Francis then moved on to FY97. Leg 170 has some major coring challenges in the 5 sites. The rock types expected are poorly defined, and maybe two re-entry holes will be needed, but the details will not be known until the leg is underway. Leg 171B has one chief scientist, though he wants the leg expanded. The Leg 171C co-chiefs have been selected and 7 sites approved. The Leg 172 co-chiefs have been selected and the sites approved, despite rough ride from PPSP. The Leg 173 co-chiefs have been selected and sites approved; co-chiefs have asked to wash down to ca. 100 m above basement, to allow up to 3 re-entry sites. Francis said that ODP-TAMU only have the budget available for 2 re-entry holes. Francis reported that the Leg 174A co-chiefs have been selected, and since the last PCOM, ODP-TAMU have discussed the shallow water operations with SEDCO. No release-sub or shear-rams will be used, and operational considerations will be used to govern operations and safety in shallow water. Additional "stuck-pipe" training will be given to staff. SEDCO have said that they want some compensation if the ship is damaged through shallow water operations. Francis reported that the co-chiefs are requesting more time for this Leg, which, if granted, will have scheduling and budgetary consequences. Estimates for using a jack-up rig have been obtained for the other New Jersey shallow sites. Francis stated that 7 days drilling would cost around $7M, and 4 sites would be over $4M. Francis said that ODP-TAMU need advice as to where the cores will be housed as the rest of the "transect" cores are at East Coast (LDEO) repository. Leg 174B has co-chiefs selected, but again more time is requested for additional logging operations. Legs 175 and 176 co-chiefs have also been selected.

Francis then reviewed the status of ODP publications (Appendix 5). ODP-TAMU have found the resources, from savings, to buy the new flatbed and drum scanners, and software required to
implement the publications policy agreed at the December 1995 PCOM. He reported that Leg 168 will have the new format Initial Report, and Leg 161 will have the new format Scientific Results.

ODP-TAMU have appointed a new manager of Engineering and Drilling Operations, Brian Jonasson. Francis also reported that ODP-TAMU had a presentation from some representatives of the oil industry to drill in 3600 m without a riser, but with well-control, by 2001. He said that CONOCO (one of the major players) are trying to raise interest and partners in this initiative, and that ODP-TAMU will be keeping a close watch on this. Francis then reported that Sondenfjelds are buying BP's share of the SEDCO/BP 471. He said that this should be transparent to the ODP community.

Shipley asked about the tele-digital imaging system. Francis said that this is a tool for imaging cores that has been in existence for several years, but it is not suitable for JANUS II. Mével said that riserless drilling would be very important for ODP and asked what ODP-TAMU would be doing. Francis said that at the moment they would maintain contact, and see what developments occur. Mével said that it may be useful for TEDCOM to see a similar presentation. Mix asked about implications of the recent eruption on the southern Gorda Ridge. Francis said that he had not heard anything. Malfait asked if the costs of the jack-up were just for the rig or included laboratories? Francis said that the costs were just the rig.

4) ODP-LDEO

Goldberg reported for WLS, beginning with recent logging results: 4 holes on Leg 165 and 5 holes on Leg 166 were successfully logged. He said that satellite data transfer operations were also tested for the first time. Goldberg then reviewed upcoming operations and outlined some of the new tool developments, which include a Multi-Sensor Combinable Gamma-Ray Tool, Downhole Accelerometer for heave correction, a Schlumberger-to-3rd Party Tool X-over System, and an upgrade of the Downhole Measurements Laboratory. He said that the downhole measurements laboratory had been partially upgraded during the Leg 166 transit.

Veronique Louvel then outlined the Leg 165 results. She reviewed the logging tools used on the leg and showed an FMS image of the K-T boundary (Appendix 6), saying that the resistivity correlated well with the lithology. Site 1001 total magnetic field data and magnetic susceptibility data were shown, as was some partially and fully processed data in determining a magnetic stratigraphy (Appendices 7-9).

Goldberg then continued with a brief Leg 166 report, saying there were some spectacular achievements and advances, including upgrade of the geophysical tool string (gamma, porosity and density tools) and VSAT satellite ship-shore data transmission (Appendices 10 & 11). This allowed processing in near-real time ashore and re-transmission of processed data back to the ship. He said that the data file scan be sent on a variety of bandwidths, but FMS data took a long time to send (ca. 1 m of data per minute) and that standard data was probably the most productive.

Goldberg also reviewed the new tool strings, including triple combo string and FMS string (Appendix 12). He said that the natural gamma core logs correlate well with the FMS and that core to log spectral gamma correlation was ever improving (Appendices 13 & 14). He then reviewed Site 1006 showing results from “new” and “old” tools. He said that the resolution is a major advance and correlation with core is exceptional (Appendix 15).

Goldberg explained future developments (Appendix 16); announced a new updated WWW page (showing some examples), and said that the database can now be searched and downloaded online from this week (Legs 143-160). The Log Database work in hand was also outlined; standard log data templates for shipboard database completed (processed data templates to be developed in May 1996 between BRG and Tracor); initial interactions between WLS and JANUS user group 6 (FMS/spciality logs) have begun; and a project to migrate historic log data has been initiated.

Finally, Goldberg reviewed the FY97 logging Program plan (Appendix 17), including the LWD and special tool deployments (magnetic tool, televiwer and resistivity tool).
B. JOIDES PARTNER REPORTS

1) AUS-CAN

Carter said he had an updated paper which he tabled for PCOM. He said that in terms of expanding their consortia, Korea looks the most likely.

2) ESF

McKenzie reported that Greece is no longer a member of ECOD, and that the consortia are trying to get Portugal to fill that slot.

3) FRANCE

Mével announced that the French Committee on Ocean Drilling is about to be appointed with a mandate to evaluate the need for Ocean Drilling in France, and how French priorities will fit with the LRP. The committee will be chaired by John Ludden.

4) GERMANY

Kudrass reported a 30% increase in proposals for ODP work in Germany, and said that there were not the funds available to accommodate all the proposals. Kidd commented very positively on the European ODP Colloquium at Oldenburg and reminded the meeting of the Oldenburg Declaration.

5) JAPAN

Suyehiro said that Japan has begun the process of trying to extend commitment to ODP beyond 1998 and he hopes that it will be concluded by the fall of 1996.

6) UNITED KINGDOM

Pearce updated PCOM on the status of the UK National Review of ODP membership. The Program review reported to the NERC Earth Science & Technology Board who in turn reported their opinion to the NERC Council, who will meet in June 1996 for a final decision. He said that the national review is highly favourable.

7) UNITED STATES (USSAC)

Larson said that USSAC had met twice since the last PCOM. He referred PCOM to the report in the agenda book. He said that USSAC responded to the charge of NSF (see NSF Report, above) by appointing J Austin as a sub-committee chair. USSAC will co-ordinate and help sponsor 2 or 3 more meetings similar to the ODP-InterRidge WHOI meeting, which USSAC sees as a blueprint for other meetings to follow. He hopes these workshops will culminate in a COSOD III-type meeting in mid-late 1997.

Larson said that USSAC has formulated a position on PCOM membership that has been submitted to the JOI BoG. He said that USSAC would like to see institutional affiliation eliminated as a criteria for membership of PCOM. He continued, saying that USSAC want to broaden membership to include the entire US ODP community. He said that US participation on the drill ship is currently running at about 65% of non-JOI institution personnel.

Larson reported that USSAC disapproves of the recent PCOM policy on publications, it feels the compromise on the Scientific Results will not be a viable way to go, but did not make any specific suggestions.

Kidd said that he had asked Henry Dick to re-constitute the Publications sub-committee and tasked it with formulating some recommendations for consideration during the budget discussions tomorrow.

Kidd asked if PCOM want to keep this section, the Partner Reports from EXCOM with updates as an ongoing agenda item? PCOM agreed that the EXCOM reports with updates is the preferred option.

Francis asked Larson about a possible COSOD III conference? Larson said that it seemed that such a meeting was inevitable, and the US community wanted a good lead time for such an event.
D. PCOM LIAISON REPORTS AND PANEL RECOMMENDATIONS

1) EXCOM

Kidd said that he would assume that PCOM members had read the EXCOM minutes, and said that here, he only wanted to flag a few major points. Firstly the response of EXCOM to the Greve Committee Report. He said that a key item was the motion that EXCOM had endorsed, that had put a major emphasis on the LRP. He said the EXCOM motions will be referenced during later discussions. He then reported that EXCOM want to see a change in reporting established; the PCOM chair would be responsible for reporting to EXCOM what progress is being made with the LRP and its implementation. He said that EXCOM want the science more tightly constrained. Kidd then said that the PCOM Chair will, in future, report direct to ODP Council on the science - a direct result of the Greve report. He said that EXCOM have asked PCOM to develop an implementation strategy for the LRP, the basis of which is on record. He said that recommendations on LRP implementation have to go to EXCOM by June 1996. Kidd said that EXCOM is also looking to PCOM for budget prioritisation, and there is a possibility that budget increases may be forthcoming. However, he warned, increases should not be expected unless ODP justifies its current expenditure and future prioritisation. He said that this was why he had asked the panels for their comments on what services they consider are essential for the Program.

Kidd said that EXCOM wish to see more ODP-OD21 meetings; this will be manifest on Thursday afternoon, again with a report to EXCOM on its outcome in June. Kidd has also been asked to formulate a joint TEDCOM-OD21 meeting, but this will take longer to arrange.

Kidd encouraged PCOM to respond direct to Otis Brown on the issue of scientific leadership.

2) BCOM

Kidd said that he was reporting as PCOM representative; the meeting was also attended by Susan Humphris. Kidd reviewed the BCOM membership, and said that there will be detailed discussion of BCOM actions tomorrow. He said that there was a shortfall of $778K at the start of BCOM (due to the flat budget) and the need to develop innovation. Kidd applauded the efforts of the operators in trying to get to their targets set by NSF and JOI. He said that BCOM wanted to see the budgets in terms of projects, and he referred PCOM to p.242 of the agenda book and the BCOM recommendations. He said that the key was that the fixed costs were set aside, and BCOM wanted to give the operators some flexibility, seeing an increasing SOE as a way of doing this. He said that in a flat budget scenario there need to be savings (in envelope 3) to accomplish this. He said that the X-base was where PCOM should focus. He referred PCOM to the tabled costing sheet (Appendices 2 & 3), saying that there is a cut-off at $3.5M. Kidd said that PCOM will return to this list when it discusses budget prioritisation.

Falvey said that BCOM would attempt to increase the X-base from $3.5M in FY97, to $5M in FY98, and $6.6M in FY99. He said that many of these are project-budgeted and so include salaries, thus they can be properly costed in time as well. Falvey said that this was a response to EXCOM's request to produce a streamlined and cost-efficient Program, running at maximum efficiency. Mével asked who did the prioritisation? Kidd said that he had input, though he had hoped it could have come to PCOM. He said that some items in the BCOM "list" did include innovation, and he commented that BCOM specifically asked the operators to include innovation and new things that they would like to see in ODP, e.g. test of the Damage system. Goldberg then reviewed just what the Diamage system was (a Schlumberger system that allows FMS and a 3-D scan of the outside of the core to be viewed together).

Francis said that he was worried as ODP-TAMU had not been included in these discussions, and he said that they should be before such items are put into the budget. Goldberg said that this was for an initial shore-based system.

Kidd said that PCOM passed a motion that to help ODP-TAMU's budget, more panel meetings should take place at College Station, and he referred PCOM to the note on p.8 of the agenda book.

3) LITHP

Dick reported that LITHP did consider and review Proposal 480 (Caribbean) after the panel received a request that it be re-inserted into the FY97 schedule. He said the panel did not pursue the request for re-insertion into the JOIDES Resolution schedule as the proposal was out of the FY97 area.
of operations. Dick reported that LITHP also made strong statements on DCS and it wanted
clarification on membership rotation. Dick said that the panel also addressed the request to look at
the panel evolution and that all the information was contained in the minutes.

In answer to Carter, Dick said that LITHP want to see two panels and that it sees a need for
external review of proposals to get the breadth of expertise required.

4) TECP

Shipley said that the discussion of changing the ODP advisory structure at TECP was very
positive, and it believes there should be an evolution for future planning, with an injection of peer
review. Shipley also said that the problems of cross-panel interest would still be around even if there
was a switch to two rather than four panels. Shipley said that TECP is very concerned with DCS and
that it is happy that ODP continues to look at other alternatives. The panel wants to know that it can
still do downhole work in DCS-drilled holes. TECP believes that riser drilling is very important, and
considers it essential for some of its objectives.

In terms of cost-savings, TECP was concerned that support services at ODP-TAMU should not
be reduced, and it wants JANUS to capture sedimentological and structural data. Shipley said that
this again returns to the digital imaging of data. He reported that TECP does not believe that ODP-
TAMU needs the expensive, high resolution systems it has proposed to make a start. Shipley said that
TECP also commented on the JOIDES Resolution refit: it wants to see a quieter ship with more space.
TECP would like to see limits on proposal lengths. Ellins said that there are guidelines, but they are
frequently ignored. Kidd asked PCOM if it would like the JOIDES Office to return overlapping
proposals? Moore said that until the guidelines become rules, it would be difficult. Brown
commented that it would be critical for a peer review system. Natland asked if there was a problem
because proponents had been asked to detail sites? Shipley said that was not the case he saw. Sager
returned to the digital imaging question, and said that the low-cost imaging system had been talked
about in a recent workshop, and it appeared that it would be a project the size of JANUS. Shipley said
that the TECP view was that "entry-level" systems were adequate to make a start and that ODP-
TAMU should be doing this. TECP also wants to see core tensor stress measurements discussed at
DMP.

Mountain asked if anyone could say what tools would fit in a DCS hole? Goldberg said that
there are not many tools that would fit, he said probably temperature and pressure, and possibly
gamma ray.

5) SGPP

Hay said that ANTOSTRAT gave a presentation to SGPP. He said that the panel could not
evaluate the proposals even with ANTOSTRAT people present. He said that maybe this was because
SGPP was told the place to drill first was the area for which the presenter for ANTOSTRAT was the
main proponent. He said that this is why SGPP wants a Working Group (WG) at ODP-TAMU as soon
as possible. Kidd said that he has encouraged the ANTOSTRAT proponents to get their data to the
Data Bank whilst PCOM discuss the membership of any WG. Hay said that there are currently 6 full
proposals, but only one is really ready for drilling.

6) OHP

Mix said that OHP had previously requested better information on how to calculate drilling
time estimates and they have still not appeared on the WWW. He said that the panel discussed
organisational issues, OHP did not see a need for 5 panels, especially sea-level. It prefers to keep 4
panels, but is open to changes in emphasis, with sea-level moved to OHP if SGPP took more interest
in the biosphere. He reported that OHP is not opposed to peer review, but wants to retain panel
discussions; it believes that peer review should augment the current practices. OHP also had
discussions of ANTOSTRAT proposals and it did rank them. He said that OHP has told
ANTOSTRAT to move its drilling targets off the shelf for recovery of better dateable samples. Mix
said that a WG would be supported and OHP would like representation in such a group.

Mix reported that on implementation of the LRP, OHP had devised an outline 5-year
experiment plan that was essentially a draft update of the OHP White Paper. He reported that OHP is
becoming very proactive with implementing the Rapid Climate Change initiative; it wants to look at
fjords and is talking with other Programs.
Mix said that OHP tried to identify essential services in a list-form (he referred PCOM to the OHP minutes in the agenda book). Mountain asked if they see XCB as a high priority tool? Mix said that they did not discuss that issue in depth at their last meeting.

Francis asked if OHP did not want a ship-based split-core MST? Mix said that they simply wanted to speed-up ship-based studies, possibly with two whole-core scanners.

7) SSP

Kidd reported that he attended Edinburgh SSP, but that the report would be given by Ellins. She said that SSP made three recommendations to PCOM and referred to the minutes. She said that the differential GPS issue was brought up as the ODP-TAMU representative said that his organisation did not have the budget to buy this equipment. Another SSP recommendation was that ODP-TAMU always send a representative to SSP. Ellins reminded PCOM that SSP always have two meetings at LDEO, and Mountain said that it was a cost-saving to the Program in not having to duplicate original data.

Ellins said that SSP examined how it saw its own, and the Data Bank's role in ODP Phases III and IV. For Phase IV, SSP believed that it would have to look at what data would be required for deep drilling, as well as non-scientific data (hazards etc.). SSP said that 3-D seismics, and maybe heatflow data, would probably be required. It wants to see a committee established to look at imaging the crust for deep drilling.

SSP submitted a report on the Site Survey Data Bank RFP. SSP wants the SSDB to move toward a GIS system and the use of postscript files that can be stored and manipulated easily.

Ellins said that SSP classified proposals in terms of their site survey readiness. Kidd said that this will be discussed later.

8) TEDCOM

Natland gave this report; no minutes were available. He said the first day of the meeting was taken up with a DCS review, he reported that nine controllers had been developed that would resolve the secondary heave compensation problems, and the TEDCOM recommendation was to continue development of the system. There were two other related recommendations: improve the primary heave controller by applying the DCS controller (which would benefit all coring operations), TEDCOM also recommended putting accelerometers on the ship to get real data for input to the secondary heave controller models. New friction seals on the primary heave controller would also help current and DCS coring operations.

Natland said that TEDCOM were told that the hammer-in casing has yet to be land tested. He then said that a report on shallow water drilling recommendations and restrictions was presented and the impression was that these may be too strict. He said that the feeling of TEDCOM was that the oil industry has to deal with these problems every day, and so the recommendation is that ODP-TAMU move to an operational control mode of termination of operations rather than pipe severing (i.e. being extras vigilant with sea and general weather states).

Natland reported that TEDCOM endorsed the idea of a joint TEDCOM - OD21 technology meeting, and the committee also commented that ODP-TAMU's resources are now at the bare minimum for any progress on engineering projects.

9) SMP

Larson reported that SMP and JAMSTEC will be having a joint session at their next meeting. He said that most of the panel recommendations should really be going to ODP-TAMU, with guidance from BCOM. Larson said that he wanted to quote one general statement from the SMP executive summary "SMP is well aware of the budgetary constraints put on ODP as a result of (potential) funding reductions. In order to study the future of Shipboard Measurements in greater detail under these constraints, SMP deems it appropriate to request ODP-TAMU to provide information to be discussed in detail during the next meeting of SMP." He referred PCOM to the panel minutes, saying that SMP is very sensitive to cutbacks in shipboard measurements, and he said that this may put ODP-TAMU in a more constrictive system as it takes time, effort and money to provide the information that SMP requires.

Larson reported that SMP was unhappy at being asked to look at a digital imaging system by ODP-TAMU that cost $319K. He said that system was more advanced than SMP thought was
necessary. He said that SMP felt very awkward in being presented with a list of items for potential prioritisation that the panel did not actually create. He said that SMP was enthusiastic about one particular imaging system, and it cost far less than $319K.

Larson said that the SMP has an excellent working relationship with ODP-TAMU, and it does not want to see technical panels amalgamated as it would dilute their expertise and efforts. Francis said that ODP-TAMU have 2 liaisons to SMP due to the complexities of the shipboard equipment.

Brown said that he has recently sat on a committee dealing with a core scanning/imaging system. He said that the requirements for ODP would be a resolution of 3 pixels per mm, with a 1 core per hour imaging rate. Brown said that to place a digital camera system where the whole-core camera system currently is would cost ca. $50K per camera without lenses. He said the preferred option was a cheaper camera (ca. $25K), on a split-core system, with pictures taken at 20 cm intervals. He said the very cheapest cameras had bad optics and would not give adequate depth of field. The decisive recommendation was for a mid-price camera on a split core track (for around $150K or less), including simple splicing software. He said that the aim was to speed up the process on the ship.

Lunch Break ............................................................................................................. 13:15 - 14:30

10) IHP

Sager reported that IHP reacted negatively to the EXCOM motion regarding the discontinuance of certain services, and especially publications. It wants PCOM to re-constitute the publications sub-committee and re-examine the publications issue. IHP is afraid that if the Scientific Results volume is abolished, much of the US community will become non-performers as presently defined. IHP are supportive of JANUS and want the historical data included in this project. IHP are not happy to see the summer core-curation student employment at ODP-TAMU discontinued.

Kidd said the publications sub-committee has been re-constituted and should meet this evening for a report tomorrow. Mêvel was added to the publications sub-committee and Kudrass will attend the voting procedures sub-committee.

11) DMP

Moore reported the major recommendations. Firstly looking at the 1998 dry-dock, he said the DMP recommend that the improvements include a renovation and expansion of the down-hole measurements laboratory, and improvements in the pressure recording systems for packer experiments. DMP prioritised the different down-hole tools and came up with a list of essential services and a scope of work for the WLS contract. Moore said the DMP wants no statement that would compel Schlumberger to be service provider in either the scope of work or RFP. The panel also thought that the LWD provider need not provide other logging services, and that LWD should be considered as an essential measurement in some environments. Francis said that different logging providers would have staffing implications on the ship. Brown said that with LWD there may not be a need for other logs and this may negate the staffing problem.

12) PPSP

Francis said that he had covered much of this in his report. Ellins said that in the case of re-occupation of Site 893, the vote was 9-2 opposed to drilling again, PPSP would approve drilling only to a depth of 25 m. She also said that as regards drilling in Phase IV, PPSP did not have enough time to consider this question in detail, but it thought the Japanese would probably have their own safety panel just as ODP-TAMU have their own.

E. LEG REPORTS

LEG 163 EAST GREENLAND

Larsen reported on Leg 163, the related drilling on Leg 152, and continental drilling programs, saying that about 50 people had been involved in these studies. He began with a summary of Leg 152, the land-based work, the events of Leg 163, and future drilling plans.

The ocean drilling legs arose from the NARM DPG. The main objectives were to understand the outburst of extreme volcanism (6-7 km of lavas dipping toward the rift zone). The area is a large igneous province (LIP), 5000 km in diameter, with evidence of igneous underplating.
To understand this area the Iceland plume has to be looked at to see what role it played with the LIP. Existing models were built upon DSDP and early ODP drilling. One model is that decompression melting triggered the volcanism and another is where the plume forced its way through the lithosphere. The investigation strategy was to drill two transects, with offsets, to look at the development and structure of the plume through time. The southern transect is the most complete, with sites on the Rockall Plateau which forms the conjugate. Off East Greenland, the ocean continent transition is close to shore and relatively unsealed making it an exciting area to drill. Site 988 sampled just one lava flow, which was a major deficiency.

The southern transect (63°N) has 5 sites. Larsen then reviewed the process leading to the formation of seaward-dipping reflectors. Site 917 was the key site, penetrating over 900 m into pre-rift material, mostly turbiditic sediments. There was a thin lacustrine sequence immediately overlying this basement, which has now been found in outcrop on land. He reported a marked development in the volcanism with time. There is both a continental, and an oceanic succession, the continental succession is contaminated - identified by Ba/Zr and Sr ratios. He said that the middle series is a starved system (Mg ratios around 5%), and there are replenishment pulses seen in the Mg ratios of the Lower series lavas. He said that the ages of 61-62 Ma were surprising as these are older than the break-up dates of the N Atlantic. He said that the central part of the volcanic wedge was known to be 55 Ma, and a key question was whether there was a jump or gradational change in the lavas. He said that there was a 4-5 Ma hiatus in the system, and commented that the 61-62 Ma age was the same as the British volcanic province.

Larsen reported that at Site 988A, one fresh lava unit, or sill, was recovered before the pipe became stuck in the hole. He had expected that age to be 56 Ma but it was actually measured at 47-48 Ma. In reference to a MORB-normalised spider plot, he said that this fitted well with the model that predicted there should be a stronger plume signal to the north. The Nb/Y vs Zr/Y plots indicate that the seaward dipping reflector sequence plots in the depleted, but still Icelandic, field. In the early period of volcanism, the lavas belong to the enriched part of the Iceland field. The middle series trends toward continental composition.

On land, the region has been mapped, and it is demonstrated that there may be a 6-7 km thickness of flood basalts. Geochemically, the lavas group into three clear divisions.

Larsen said that the model of the deep structure, constrained by the drilling results, has been defined by seismic and gravity data, and the presence of a sheeted dyke complex, as postulated in the model, is exposed on land.

Larsen then summarised the main findings: the Iceland model for seaward dipping reflector formation holds true and is apparently the result of excessive melting at shallow depth; it recovered the first picrites from an SDRS; there were two phases of initial volcanism - one reflecting initial plume activity through the continental lithosphere - the second reflecting final break-up; there are now new important age constraints on NAVP formation; there is the potential for high precision determination of magnetic flux during break-up; the identification of plume components at far offsets from the plume centre; and, determination of position and gross structure of the ocean-continent transition. He reported that information was also gained on the initiation of the North Atlantic Glaciation, and there were also contributions toward understanding depositional processes at glaciated margins.

The major deficiencies were: the drilling transect proximal to the plume trace was virtually non-accomplished; exciting findings of pre-rift crust on Leg 152 were not further developed; the ties to coastal exposures were not satisfactory; and the plume structure is apparently complex (enriched and depleted components). Other deficiencies were that the zero offset and very far offset sampling of the seaward dipping reflector series was not achieved; the riftting history of the Labrador Sea is badly constrained; the structure and development of the plume north of Iceland is poorly known; and, the extent of early, pre-break-up volcanism is not known.

Larsen said that for some of the required shallow water work, specialist drilling vessels may be better than the JOIDES Resolution. He then reviewed how DSND use their other vessels for diamond coring.

LEG 164 GAS HYDRATES

Paull reported on the success of Leg 164, beginning with a review of what gas hydrates actually are and an estimate of the carbon pool of the Earth. He said that Kvenvolden estimated that gas
Oslo, Norway  Draft PCOM Minutes, April 1996

225

hydrates may have 10,000 gigatonnes of carbon locked up in them, twice as much as on land. Paull said that hydrate studies took off in the 1970's, and then reviewed how hydrates have been traditionally imaged (and estimated) - seismic reflection profiles and the BSR. Leg 164 was the first dedicated gas hydrate leg since DSDP times, and he said the Blake Ridge was characterised by a large area of BSR. He said that a series of short holes were drilled on top of diapirs, although he said he will concentrate on the three holes across the crest of the Blake Ridge (Sites 994, 995 and 997). The strategy was to drill where there was no BSR and then move to where one was strongly developed.

Paull reported that there was no lithologic break at any of the BSR in the sites, they were monotonous sediments. He said that in looking at all the physical properties of the cores, there was nothing that would form a (seismic) reflection within 200 m of the bottom of any of the holes. He said the sedimentation rates in the area vary from >100 m per Ma to several 1000 m per Ma. He said that the seismic reflectivity must be attributable to something else in the sediments.

Paull reported that there was gas throughout the sediments and they began XCB coring at 160 m to help in situ degassing. He said that solid gas hydrate was found in some cores that were split soon after they came aboard. He said that one section of massive hydrate 18 cm long was recovered. He said that generally, there was an underestimate of the amount of gas in the hydrates. One method to estimate the amount of gas was to look at ion exclusion, where the chloride values can be used to determine where gas hydrate may occur in the section - dissolution of gas hydrates will release fresh water back into the core and will reduce the measured chloride values. The indications were that, on average, gas hydrates formed about 2% of the total sediment volume in the cores. Paull said that velocity logs tended to show an increase down to 450m, where there was a dip in the velocity to 1500 m/s. The resistivity logs were also interesting in that there is a positive anomaly in the zone of hydrate that was used to estimate that 7-8% of the pore space was filled by gas hydrate, with peaks of 22%. Generally, the resistivity logs independently indicates the same zone as the chloride anomaly, although in terms of velocity, at Site 994 there was no drop, and there was no BSR. At Sites 995 and 997 there was a drop in velocity, and there was a detectable BSR.

Paull said that the gas itself has methane/ethane ratios that are biogenic near the surface and all sites are very similar. He commented that the methane $^{613}$CH$_4$ has a clear biogenic signal.

Paull also reported that the PCS worked very well, but the manifold built to obtain the gas from the PCS required adaptation. He said that one of the results was that the amount of methane per litre of sediment can be better estimated - 47 litres of gas came out per litre for one sample. He said that there was plenty of gas in the zone below the BSR but that there may not be the level of gas saturation required to always form a BSR in the sediment column.

He said that to give a gross estimate of the amount of methane on the Blake Ridge, one has to make a number of assumption statements: assuming 2% (which is a minimum based upon the chloride values) of gas hydrate fills a 250 m zone, taking the ratio of 20 volumes of methane per volume of sediment that is beneath the base of the gas hydrate stability zone, and knowing that there are 24,000 km$^2$ of mapped seismic data, there is of the order of 50 Gigatonnes of methane there. He said that putting this figure in terms of how much gas there might be in the whole world, the Blake Ridge has an area of about 0.04% of the slopes and rises of the world. The above estimate of the Blake Ridge methane carbon is about 0.5% of the Earth's total (estimated) 10,000 Gigatonnes global inventory of methane carbon. He did add the rider that his sampling only covered 10-22% of the global area of the slopes and rises, and so the figures he presented were simple estimates. He concluded by saying that the BSR indicates the presence of gas bubbles, but does not really give information on the amount of hydrate present.

Coffee Break ................................................................. 16:00 - 16:25

LEG 165 CARIBBEAN OCEAN HISTORY

Sigurdsson reported on the results of this leg. He said that the KT boundary was one of the prime objectives, and it was crossed at three sites. He said there was also a great concentration of thick volcanic ash layers from sources in central America. There were also two episodes of abrupt changes in the ocean-climate system recorded and ultra-high resolution records of tropical climate variability over the last 250,000 years.

Sigurdsson reported that at Site 1001 they drilled through Campanian limestones and into sheet lava flows, produced by large flow-rates. The microfossil assemblages indicated bathyal and neritic
turbidites which were interpreted as showing a very rapid subsidence rate as deep water assemblages were found only tens of meters above these turbidites. Above the volcanic successions the turbidites were derived from local sources. The basement basalt consist of two series, based on geochemical data, with a transitional source between hot-spot and plume.

He continued, saying that the abundant volcanic ash layers (Site 999 demonstrates these well) vary in thickness up to 50 cm and show the characteristics of fall-out deposits, with glass shards that indicate pyroclastic flow or ignimbrite eruptions. Ashes were deposited at up to 250 cm per Ma, the largest rates known. There were two major episodes, late Eocene and early-mid Miocene. The ashes contain fresh biotite crystals which will be used to get dates. Other volcanic episodes can be correlated between sites (early Eocene and Campanian). At Site 998 (Cayman Rise) both ash fall and volcanic turbidites were recovered. This indicates that the Cayman arc was producing a supply of volcaniclastic turbidites in the Eocene, and the central American source was active in the Miocene. The drilling results suggest that subduction in the Caribbean beneath the Cayman Ridge may have been toward the north before the system became choked and subduction ceased. In addition to the discrete ash layers, the interstitial water composition is controlled by the silica in the sediments. The dispersed ash also has a significant signal in the solid phase chemistry. It can make up 10-25% of the bulk sediment.

Sigurdsson then moved on to report on the findings across the KT boundary. He reported that on Haiti the KT deposit is 15 cm -1 m in thickness, and the shipboard party were hopeful to recover similar rocks from the drilling. Site 999 was the first crossing of the KT boundary. He said that when the lithologic sequence was recovered, the actual boundary was between cores, but there was a good FMS record across the boundary. At Site 1001, the boundary was crossed twice, once in the core catcher. He said that the lowermost Tertiary is a white limestone, underlain by clay with shocked quartz, and then tektite-bearing smectites. In the second hole, the softer parts of the boundary were washed out. He said that the FMS record is thought to show the boundary deposit. He said the true thickness is 10-20 cm, much thinner than expected. Maybe the Caribbean sites (and others to the south) may simply reflect an oblique impact.

He said that the mid-late Miocene carbonate crash was well recorded at many of the sites, especially on the Cayman Rise, over 12.5-10 Ma. This crash can be correlated between Sites 998, 1000 and 999 (it is also recorded in the E Pacific).

Sigurdsson then briefly reported on the Cariaco Basin drilling, which, he said, is the second largest anoxic basin on Earth, and is a place with a very high sedimentation rate. He said that laminations within the cores are very well preserved. There were 5 holes drilled that record equatorial tropical climate variability over the last 250,000 years.

F. UPDATE - PCOM DISCUSSION ON PROGRAM EVOLUTION

Kidd introduced this item by saying that he hoped to bring PCOM views together prior to meeting with the panel chairs and EXCOM representatives. He hoped to identify a PCOM model or models if at all possible. He said that he would like to try and summarise the e-mail discussion and put up a series of issues and consequences that PCOM needs to present a view on. Also PCOM needs to identify aims, and to plan who might present items on Wednesday and who might draft various items.

Kidd said that his starting point was the letter he sent to panel chairs and the discussion it initiated. He said the panels did make efforts to develop 5 year plans and there are workshops in the offering that may come up with drilling plans. Kidd said that he has had no adverse response to the notion of one proposal submission deadline per year, and said that whatever PCOM does with the thematic panels, it is likely that there will be working groups associated with them. He said most comments were in favour of fewer panels rather than more, and he said that sea-level may be a "project" that ODP could complete. He said that he sensed some resistance to reducing the number of PCOM meetings, and said this will be returned to.

Kidd said the next step was consideration of the Natland et al proposal, the essence of which was a Science Committee in addition to PCOM. He said that there was then a counter from Larson and Humphris that PCOM should evolve and become its own scientific committee. Kidd said that he thought one of the recent events that could help in the evolution of ODP was the USSAC move to broaden the US membership of PCOM, because, he said a broad scientific balance was crucial to evolution of the PCOM. Kidd said that he felt the French position was that a science committee
should be above the level of PCOM, but the change of US representation was an important step that may be acceptable as it will bring the breadth of expertise required for a science committee. He said that for PCOM to become a SciCom, PCOM must divest itself of a lot of the business it now does. Kidd said that one way is to leave a lot of the business from the panels to JOI Inc, with PCOM trusting the JOIDES Office to keep PCOM informed. He said that the "gang of 4" system works very well, and has ensured smooth communications. Kidd said that the service panels could be advisory groups to JOI in a way similar to the way that JANUS has been managed, and a second way is to move things to EXCOM that PCOM need not be worried about. Kidd said that there is expertise at EXCOM, and that if scientific leadership is to be retained at PCOM level, then the Planning Committee should take these steps. He said that he has seen a majority opinion in the e-mail to move to 2 panels, and that the SciCom should have the responsibility of ranking.

Kidd then reviewed the issues and consequences. He asked if PCOM can agree to divest some functions? He asked about the potential with the proposed change in US PCOM membership, and how this could help an integrated science plan driven by the LRP? He said that PCOM must consider the details of how the advisory panels should evolve, and how the service panels and advisory groups would fit into an advisory structure. He said that PCOM must also consider the question of reviewing vs. ranking, the question of peer review and input from other programs. PCOM must also address the question of the annual scheduling: should the SciCom ranking panel do the scheduling or is there an argument for SciCom vs PCOM vs Drillopts? Finally Kidd said that PCOM must think about the timing of these changes; he originally wanted this to be in place by 1998, but this would not then be visible until 1999, and asked if it could be done earlier? He said that PCOM must be cautious that we don't "change the rules" on proposals already submitted. He concluded with Phase IV planning, saying that maybe PCOM should bring in some kind of liaison who will be in on the planning right through Phase III to plan for Phase IV.

Kidd asked if there were any of the above suggestions that PCOM could not endorse? McKenzie said there would be problems with the peer review system as drilling proposals could be very risky when compared to "ordinary" research proposals. Dick said that he thought that the community could be trusted, ODP is a block-funded Program, and that all the review would do would be to seek advice. Mountain said that he thinks PCOM has ideas to work with, but it is a significant exercise to orchestrate a peer review system and the SciCom will be where the responsibility lies. He said that peer review should only be done on mature proposals. Mix said that PCOM should consider what works well in the ODP system and should be protected; he said the nurturing of proposals is a good thing arising from this Program, and PCOM must consider how this can be preserved. Kidd said that the nurturing would be done at panel level. Mével said that the thematic panels could play this role. Shipley said that peer review is important but proposals must go through the panels and WG's and they must be mature before they are sent out for review. He said the peer review should then go to PCOM/SciCom.

Kidd asked if there was a consensus on either a "PCOM plus SciCom" or "PCOM evolving to SciCom" model. Dick said that contingent upon the US PCOM representation opening up, he thought SciCom should be PCOM, and that service panels (DMP, IHP, SMP) should report to JOI. He didn't think PCOM needed two liaison reports per year, or co-chief reports. Natland said that areas of divestment must be thought about carefully, and that regional panels and WG's should be used far more. Sager said that PCOM listens to many reports and he is uncomfortable that PCOM may lose sight of some important recommendations from panels. Kidd said that the JOIDES Office will keep its eye on these and will make sure important things don't escape. Sager said that if PCOM had executive summaries to work from it would make life easier. Carter said that he thinks the four to two panel move has to be thought carefully about, especially for the consortia nations. He said that we are discussing 1/3 memberships and PCOM must keep an eye on what ODP can offer to new members. McKenzie said that she did not know what was wrong with four panels. Kidd said the "system" was effectively changed by writing the LRP. Dick said that each panel thinks it is entitled to 1.5 legs per year and that focus has made them become somewhat parochial in their outlook. Brown said that, for example, TECP is very interdisciplinary and even now they don't have broad enough expertise on their panel. Dick said that LITHP said the same thing. Natland said that PCOM must be able to make choices and has to prioritise what science it wants to do over a long time period. He said that one way to avoid the parochial "pull" would be to combine some of the panels. Shipley said that it would be easier if there was one group who would worry about long term plans and another to look at short term planning. He said that if the same group did the business, the ranking, and the long term planning, there would always be the appearance of conflict of interest. Humphris said that PCOM
should move from planning one year at a time, toward choosing the legs that best fit the LRP and that are exciting, even if we have to wait for 4 years to get proposals drilled. Dick said that he supported Humphris, even planning for legs up to 2003 if necessary.

Kidd said that the 5-year plans he asked the panels for would-be targets that PCOM or SciCom would then look at. He said that workshops would also likely come up with similar plans and proposals. Shipley said that still didn't answer his problem. Kidd said that if the mode of operation changes such that SciCom ranks the proposals, the scheduling committee need not be very different from the present Drillopts. Pearce said that if SciCom wanted LIPS drilled then it could create a DPG to come up with proposals. Mével said that was what the panels were for. Mountain said that there must be more flexibility in the 56 day-leg issue, and that if this was changed then the 6-legs-per-year mentality would disappear. Mix said that there could be two panels in a horizontal structure, one dealing with long and short term science the other with operational matters. Mével said the official French position was to have an independent science committee, but now she finds it difficult to make a decision and she would not want to vote at this time. McKenzie said she would like to retain the present structure to the end of the present phase. Dick said that the next phase actually starts on 1 January 1997.

Kidd said that he needed volunteers to present something on each of these items. He called for a show of hands, of all present and not just PCOM members, to identify strength of feeling and to identify who will make presentations during the main discussions.

**Mode of Operation**

- **PCOM plus SciCom**
  - majority in favour
- **PCOM evolves to SciCom**
  - majority in favour
- **two panels instead of four**
  - majority in favour
- **Timing - changes in place by January 97**
  - majority in favour
- **Ranking at SciCom and NOT panels**
  - majority in favour

*Adjourn 18:10*

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**Tuesday 23rd April 1996 08:30 am**

**G. BUDGET ITEMS**

Kidd said that this session will begin with the technical reports, the background to BCOM was presented yesterday. He wishes to insert an update on publications in this discussion session.

**1) DIAMOND CORING SYSTEM**

Francis reported with an overview of the development schedule (Appendix 18). He said that Phase II finished at the end of February 1996, and reports went to TEDCOM for discussion, and showed PCOM some examples (good and bad) of the output from the heave controller model. Francis reported that TEDCOM had identified nine different ways to provide active heave control for maintenance of weight on bit. The total weight on bit should be 5000 lbs, maintained at ±500 lbs. Francis said that the formal TEDCOM minutes have yet to appear, but the committee was convinced of the feasibility of the system and that development should continue. Francis said that ODP-TAMU have $60K in carry-over to instrument the ship with accelerometers and other sensors to provide the "real" data required for active heave control (data to be collected on Leg 169). The $551K line item in the budget will go toward the weight-on-bit tool development for land tests, controller implementation (software) and preparation for land tests. He reported that DCS Phase IV will be the land tests and preparation for a sea test in FY99, and will cost of the order of $800K. He said the sea test will involve a leg, but there will not be a large extra cost in such a leg apart from the shipping element. The $800K for Phase IV will be split into $300K for the land test, and preparations for sea will be about $500K. In answer to Malfait, Francis said the rate of development will depend upon the rate of funding, and also because TEDCOM want to see the development of this system progress on a step by step basis.
Natland commented that last December it was thought that a sea test could go in FY97, and so this is already stretching the time-scale. Kidd said that some of the panels suggested that DCS should be slowed, but if we want an operating system by 2000, it cannot be delayed any longer. Shipley said that PCOM has said that DCS should stop until the ship could be re-fit to make the DCS an efficient system to use. Natland said that to bring the instrumentation onto the rig floor will be very expensive and will have to be done at some time, but originally PCOM did discuss having the drive at the top of the rig. Fox said that the new engineering manager is reviewing the DCS, looking at it from all perspectives, and will prepare a white paper for TEDCOM and PCOM. He continued saying that the white paper will include a discussion of the implications of installation of the system. Kidd asked what would happen if PCOM asked for a hiatus. Francis said that it is going as slowly as possible, and it would probably kill the project. He said that the ODP-TAMU and sub-contractor staff would all disperse and it would take time to get new teams up to speed. Falvey said that the X-base budget item includes staff time, and stopping development would mean losing staff, and therefore losing expertise.

Kidd said that PCOM has to make a decision at this meeting. Brown said that he is concerned at the small hole diameter and that we have few tools to use. Falvey said that it has been used on land for years and there are tools around. Goldberg said there are triple combo-suites (resistivity, porosity, gamma), but no temperature tools. Carter asked for a re-cap of the costs so far involved if PCOM decided that DCS should not continue. Falvey said that it would be a total approaching $1.3M. Sager said that panel support for DCS is still there, and PCOM needs to keep that in mind; it is a tool required for some critical objectives. Francis said that the ship-time has been the biggest investment so far, with "a few millions" invested in hardware. Falvey said this project is now on a proper project-management base and he is satisfied that the risk balances and checkpoints are now in place. Mével asked if riser drilling could be used instead of DCS. Natland said that the Japanese engineers were interested in tying the DCS controller to their riser system. Dick said that most of the previous problems may have been due to management, and he is satisfied that the new approach will work. He said that the recovery and quality of core would make this system invaluable for complex deposits, including sedimentary systems. He said that we have also announced the approaching arrival of this system in the LRP. Mountain asked about the sea-floor system presented to PCOM in December. Francis said that this was an idea from Earl Shanks presented to TEDCOM in October 1995. He said that it is not a cheap solution and ODP-TAMU have estimated it would cost >$1M before testing and manpower. Kudrass said that PCOM should continue to increase the capabilities of the ship. He said that the heave compensator may have other benefits, such as for logging and use with the main drill-string.

Kidd said that PCOM needs to spell out the benefits so far. Hay said that SGPP did not mind if DCS Phases III and IV were postponed, but at that time they did not know that it would mean killing the project. He said that the panels' priorities would depend on the other projects. Larson said that predominant problem to date has been a management problem. He said that after talking to ODP-TAMU engineers, he is convinced that the project is at last on track, and that ODP will find a way to get some logs using this system. He said the biggest problem is an operational one. It will be expensive, there is no place to keep it on the ship and ODP will have to find ways of transporting it, or maybe even using it on another ship, or restrict the area of operations for logistics purposes. Natland said that TEDCOM has recognised that the money spent on the development so far will have benefits in that ODP-TAMU should be able to adapt the system to the main drill string which should improve the current system. He said that deployment on the ship is an issue, but once PCOM knows what results it will give, this committee may have to schedule consecutive DCS legs.

Fox said that Larson was right about the logistical implications, and that forward planning and focusing would be required. He said that these issues will be included in the white paper, including costs of shipping and storage. Mountain said that if this comes on line in 2000, PCOM must consider whether it will it be used on one or two ships. Kidd said that transportability may be an important factor.

Francis said that part of the DCS development included a seal friction and wear test on the passive heave compensator, which was completed in December 1995. The new design has 60% less wear assuming that the heave compensator cylinders have the same finish as when they were built. After inspection of the cylinders at the Victoria port-call discussions will begin with SEDCO on installation.
McKenzie said that there is a lot of budget cutting on small items, and we have to look very closely at this - does PCOM want to make the investment for the future or does it want to ensure good science is done today? Sager said that DCS addresses the future; it is in the LRP and there are many spin-off benefits.

Kidd said he sees a majority view for continuance, but he will call for a vote on a motion that is both supportive and indicates that ODP is getting spin-off benefits already. Sager volunteered. Shipley said that he thought the seals issue a red herring. He said it was discussed several years ago, and there are several other areas of technical development that have been held up because of the cost of DCS. Kidd said that he supported Kudrass's view. Dick said that currently ODP is spending as much on software and data processing as it is investing in technological development, and he thought ODP should be spending more on technological development.

2) TECHNICAL DEVELOPMENT AT ODP-TAMU - UPDATES

a) MDCB Update

Francis said that in October 1995, TEDCOM discussed how this tool could be made more efficient. There are three options: i) add an extension rod of 4.5 m, this will save the sum of the wireline trip times; ii) to go for a longer core barrel (9.5 m), but the motor may not cope with a longer tool; or iii) to have a system that would ream and drill ahead at the same time. Francis said that TEDCOM was in favour of the extension rods.

Larson asked what the benefit is? Francis said that the main benefit is to save time. He said that the MDCB is still tied to the "weak" APC/XCB BHA and will always be limited in its penetration to about 100 m. Sager asked if there is a test plan. Humphris said that the MDCB was used extensively on Leg 158, and that experience demonstrated that the tool was extremely valuable, even through it was slow. Sager said that he was thinking about using the system in carbonates. Kudrass said that there was some consideration to adding the PCS to this system. Francis said that Hans Amman (Berlin) is interested in this modification.

Francis said the MDCB will be used on Leg 169, and there are two sets of tools on the ship. Kidd said that this item was just an update for PCOM.

b) Hammer Drill-in Casing System

Francis said there is a feasibility test of a 5.5" water hammer that will drill-in 7" casing, to be done on land in Australia. The test will happen in June 1996, and will last for one week, including tests to spud on a slope. He said that contract negotiations had yet to be concluded, and the funding for this at a level of $200K is from carry-over from FY95. Francis said that if the tests are successful, there will be development of a 16" casing hammer system at a cost of $301K in FY97 (including salary component), but there is uncertainty in this (±$100K). Design and fabrication of parts will then be undertaken, with 3 systems ready for Leg 174B (Engineering Leg).

Mével said there are lots of uncertainties, and asked what happens to the Leg if there are problems? Natland said the 7" system already works with shallow holes, and the land test will be in a deep, flooded hole, at near-realistic pressures. Francis said that he thought that was wrong. The ODP test was simply to hammer in two 20 m lengths of casing.

Francis said that one hammer will be used to make the hole and knock in the casing (Appendix 19). He said the hammer is driven by circulation and the drilling chips/grindings will be washed out, and on the sea trials ODP-TAMU hope to have a 40 m length of casing. The Free Fall Funnel will be used to latch onto the casing and the TV system will be used to find a place to spud-in. Francis said it may be possible to go deeper than 40 m. Kudrass asked if the motor had been tested in deep water? Francis said that was so, and that it cannot be tested on land because of the vast quantities of water involved in the pumping operation.

Francis said that the system will break down to four separate projects (Hammer Drill, Re-entry Cone/Casing Hanger, Running Tool, and Sea Trial Preparation). He commented that there are some risks - the feasibility may not go well, the build schedule may slip, or there may not be enough funds. He said that a contingency for Leg 174B may be required if it appears, by August 1996, that things will not progress. Natland said that TEDCOM suggested that the 7" system be tested at sea. Francis said that could be a fall-back to demonstrate the motor works under pressure.
c) Database Upgrade (JANUS) Update

Francis reported that the shipboard system was installed in December 1995 and that Tracor staff have been on many legs. He then reviewed progress to date and future plans (Appendix 20). Francis then outlined work completed user group by user group, and said that ODP-TAMU do not have to accept the system until it is demonstrated to work as a single entity (final acceptance will be May 1997). He said a text-based VCD will be included in JANUS I, and he then reviewed where the funds have been spent in this project (Appendix 21). Francis said that JANUS 1 should be completed by mid-FY97 at a cost of $661K.

Sager said that he thought the funds ($661K) were to cover data groups 4b and 5. Brown said that in terms of new software, AppleCORE may help for the data entry on JANUS 1. Francis said that the works orders come from the JANUS steering committee. Brown replied that it was a group 4b matter, and a Tracor representative was present when they discussed using the AppleCORE software to improve the present VCD system.

Francis reported that JANUS 2 would consist of two projects: One project is "image capture"; the second is "Core Description Application" software development and inclusion of the digital information in the database. He said that ODP-TAMU have developed two models (Appendix 22), for completion in December 97 or September 98. He said that BCOM did not follow either of these models, and ODP-TAMU were unhappy with the BCOM approach as it would cost more overall. Francis commented that the $350K for historical data migration might be better spent on the core description application.

Falvey said that BCOM decided to fund the image capture system and $150K of the core description application. He said this was to have the facility to acquire the data without commitment to a specific company. He said that JOI have had three groups enquire about taking this forward on a joint venture basis, and this may be a way of getting to the endpoint of JANUS 2 by sharing the cost and the risk. He said that this would not exclude Tracor, but he didn't think they should have a guaranteed contract extension. Falvey said that JANUS must include data collected elsewhere (not just that collected on the JOIDES Resolution) or the Program won't have a truly "operational" relational database. He said that again other groups have expressed interest in this project. Brown said that there may be disappointment that things cannot be moved along more quickly, and commented that there is still no structural data input to JANUS. Falvey said that it may be possible to move quicker in a joint venture. Francis said that PCOM must be aware of the scale of the data migration project, it would take 3 years and >$2M, he said that $350K is only a very small step. He said that if JANUS 2 was to become a three year model, it would cost an extra $250-300K.

Sager said that he thought JANUS 1 was to take the data collected on the ship now and get that into a relational database. He thought the task had expanded and that was what the extra $661K was for. He said that as he understood things, the data migration could be started, with possibly 80% of the data being easily transferred by the community, but that other data would prove more difficult and would be more expensive. Fox said that was just the scenario he presented to PCOM in December 1995.

Carter asked to what extent will JANUS Phase 2 contain what is now in the Initial Reports volumes. Francis said that it would contain the data, but not text. Brown said that the system would help rapid publication from the ship.

d) Sonic Core Monitor - Panel Comments

Kidd asked if there was interest from the panels - he asked the thematic panel liaisons to comment. Sager said that the SCM will monitor the core coming into an RCB. There were no supportive comments for this project from the panel liaisons.

Coffee Break ................................. 10:15 - 10:50

3) JOIDES RESOLUTION REFIT

Francis reported that it would take 45-60 days in June 98 - July 99 window. The cost would be ca. $5M (1992 dollars) to ensure the day-rate remains the same for the next 5 years. The current day-rate is ca.$45K, which is tied to the US PPI inflation index. When that index rises more than 2% from the previous, the new day-rate is fixed for the next 6 months. The fuel costs are extra.
The objectives of the refit are to improve reliability and functionality, accommodation and the general shipboard environment, along with routine dry-dock tasks. Major items will be replacement of the automatic station keeping system (electronics), possibly with p-code GPS, replacement of the power management system, refurbishment of living quarters and labstack, improvements to drilling systems, and refurbishment of high pressure piping.

Francis said a benefit of p-code GPS would also be manifest in the cost savings of not having to use beacons. Malfait said the p-code GPS problem was due to a US airforce objection to expanding this in the US research fleet, due to security implications. Francis said that additional work on the drilling side would be improved electrical control systems, possibly these may even lead to fuel savings. The high pressure pipes are required for extended use of the water hammer system.

Kidd asked where the costs would be (roughly)? Station Keeping $750K-1M, Power Management and living quarters/labstack would be of the order of $100K. Larson asked the ODL constraints on the refit. Fox said the list of refurbishment’s will be an iterated, mutually agreed upon list. Natland asked if re-arrangement of the labstack is possible? Francis said that it was, and Fox said that would be an added cost. Kidd asked who will pay for this? Malfait said that he did not know at this time, it could be from within the commingled funds.

Kidd wanted to clarify the panel responses. Shipley said TEC agreed with the basic list outlined by Francis, with an additional floor to the labstack. LITHP want to see the downhole logging laboratory expanded as part of the refit. OHP wanted to see improvements in speed of flow of core through the laboratories. SGPP noted that a microbiology laboratory would be required, and it asked that adequate space be made available for PCS, and commented that the geochemical laboratory needs refurbishment. Kidd said that he did not ask service panels directly. Fox said he sent a letter to the SMP Chair. DMP would like to have a refurbishment of downhole measurements laboratory, an improvement to some of the measurement systems and more integration of people aboard ship. Natland said that in Makuhari, JAMSTEC said it would be looking at shipboard systems and Natland suggested that it may wish to test its equipment on the JOIDES Resolution. Dick said that the co-chief scientists offices need to be refurbished, especially when compared to some of the ODL facilities. Fox asked how PCOM will deal with this feedback, how will the list be prioritised and what strategy ODP-TAMU should take? Falvey said there should be a simple prioritisation list of panel requirements, but beyond that it was a management issue. Kidd said the "scientific" requests are the changes to the downhole laboratory and the microbiology laboratory. Francis said that the "scientific" lists will be in addition to the $5M dollar requirement. Kidd said it was hoped that these could be negotiated as part of the general refit.

Mével said that PCOM must have details to look at before any vote is taken. Kidd said that he would write to the panels asking what, exactly, they would like to see, and then ask ODP-TAMU to estimate costs for discussion at the December meeting. Francis said that an extra floor on the labstack would cost about $300-400K. Brown said that getting more space seems to be a priority if more tools and different science is to be done. Mountain said that to follow the LRP we must put a biology laboratory on board. Falvey said that more space is also required for downhole measurements.

Kidd said that EXCOM have asked PCOM to look at what ODP does now and what it could do without. Humphris said the biosphere objectives would not be heavily used, and perhaps a mobile laboratory could be utilised. Kidd said that microbiology may soon become a routine part of every leg in the same way that micropalaeontology used to be done. Kidd said that in his request to the panels he will stress that they must address the question of services that ODP can do without.

4) INDUSTRY-FINANCED MINI-LEG IN THE GULF OF MEXICO

Francis said that the petroleum industry is moving to deeper water and using tethered platforms. He said the companies need to have a good understanding of the geotechnical properties of the seabed to about 150 m depth. He said they usually spend $250-500K on these operations.

Francis said that ODP regularly looks at undrained shear strength vs depth below sea-floor, and the HPC may be a much more efficient method of obtaining the required data. Francis said the pull-out strength is also measured routinely on ODP cores and this can be expressed in terms of a skin friction. He said that this means that during HPC operations ODP is actually conducting a series of pull-out tests. He said that the Offshore Technology Research Center, College Station, is very excited by this, and has indicated that the general offshore industry could also become very excited by these
studies. He referred to the tabled letter with the outline plan of operations, including a workshop in Houston in June 1996.

Francis then summarised the "ground-rules" agreed between NSF, JOI and ODP-TAMU that must be followed: There must be no competition with commercially available services; there must be industry and ODP community participation; it must be proposal-driven from outside ODP-TAMU; there must be open publication of results; and the proposal must fit the LRP partnership concept. He then outlined a proposed schedule (Appendix 23). If the leg took place it would be run for two weeks into 500-2500 m water depths in the Gulf of Mexico.

Malfait said that if ODP wants to do this just to get extra money, the Program will run into trouble. Falvey said that it could be viewed that if ODP gives up 14 days of ship time the Program may generate the funds to charter another vessel for other things such as finishing off New Jersey and going into the Arctic.

Larson said that in principle he is enthusiastic about this, but the Program has a tight weather-window constrained schedule planned. Dick said that it would demonstrate the applications of the Program. Natland said it is a geotechnical leg and to understand how it is translated to engineering benefits would be scientifically very good. Kidd said that the schedule concerned him, and that the proponents should stick to JOIDES deadlines. Brown said that he is enthusiastic, but wants to hear more about the scientific benefits. Mélé said PCOM should hear the results of the workshop before a decision. McKenzie said such a leg would have to be done in early 1997, and that weather windows will prove a problem, though the science aspects are interesting. Kudrass said the workshop should make clear the science benefits to JOIDES. Francis said that ODP should be selling the benefits of its tools. Mix asked if ODP is selling to industry or if industry is buying from ODP? Falvey said the primary consideration must be "Is it good science?" It must not be viewed as a money-making enterprise. Carter said that he agreed with many remarks, but is concerned with the comments from Malfait, and said this discussion maybe subverting ODP's usual procedures. Dick asked if was off, if it could not be done in this year? Moore said that the JOIDES Resolution would be passing through SE Asia shortly and industry may be able to pick it up there. Natland asked about site selection. Francis said that sites have not been selected as yet. Natland said that whoever is proposing to drill must be alerted to the JOIDES review system. Falvey said that it is very likely that the site survey data will be available. Kidd said that PCOM should encourage the workshop and remind the proponents that our schedule is already full and time is of the essence for all the review procedures. Larson said that PCOM must get some scientific representatives at the workshop to recommend the science (or otherwise) to PCOM. Fox said that ODP is accessing a new scientific community, and that PCOM should be the arbitrator, with specialists brought in to review the science. He said that this may also allow the proponents to look at this in the future and submit a full proposal.

Dick said that ODP should ask SEDCO if it would allow a sub-Antarctic leg in a slightly later weather window to see if there is schedule flexibility. Mélé and Larson said that PCOM should agree to hold the workshop that would be attended by PCOM representatives who would act as science reviewers.

5) PUBLICATIONS

Dick reported on the sub-committee meeting. He said that the only way to make further savings would be to return to the DSDP model: an Initial Core Description (ICD) volume, published at 3 months post-cruise, possibly expanded to include core photos (he said an ideal to aim at was a cost of $20K per leg, with wide distribution). The site chapters could be available on the WWW. At 1 year post-cruise an Editorial Review Board (ERB) would be in place and authors could submit for external publication with copies of the manuscript sent to the ERB. At 4 years post-cruise would be a Proceedings volume, or monograph which would include mature synthesis and scientific papers of routine measurements that would not be published externally. Scientists would be required to submit a paper to the external literature or to the Proceedings volume. A CD-ROM would include large data
sets, core photos, logging data, etc. The ICD would provide a vehicle to those who do not have access to CD-ROM technology. The page limit should be 500 - 800 pages; leg dependent. This may allow palaeoceanographers to publish more plates.

Suyehiro asked for clarification that the Scientific Results would be replaced by the monograph volume. Falvey said that to go to a single volume would save about $800K. Fox said he thought $550K is more realistic. Dick said that the sub-committee should give a response to the Inspector General's report. PCOM agreed that Dick would draft this and pass it to JOI (Kappel and Falvey) who could then include the PCOM input in the JOI response.

Brown asked if there could be a CD added to the ICD, based on the JANUS database? Dick said that this was agreed by the sub-committee, and the Program should proceed toward this goal, but as a migration rather than the instant change as proposed. McKenzie said this is an excellent idea and commented that the volumes are seen as a legacy by her Consortia. Sager said that ODP has to ensure the format and quality of the ICD must be of a very high standard. Mountain asked if the ICD would be citable? Dick said he saw no reason why not, after 12 months. They could also migrate to the WWW. Mountain asked if 4 years was an acceptable time-frame for publication of the monograph? McKenzie said it was. Kudrass said that if ODP didn't publish its results for 4 years, it would mean the co-chiefs are not available for a long time period, and maybe it should be a shorter time-scale.

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Francis asked about an implementation time scale. Kidd said PCOM needs to take advice from JOI and sub-contractors. He said the Leg 164-166 co-chiefs would be offered the option of getting those results in the open literature as soon as possible, and it would be implemented fully for Leg 167. Dick said that many co-chiefs ask for extensions and the volumes are generally already running at 3.5 years post-cruise for publication. Fox commented that the description of the ICD is already growing, and each embellishment will be taking up costs. Fox suggested that ODP-TAMU cost out the model for PCOM. Mével said that she agreed with these proposals as it gives an opportunity to publish outside as soon as possible. Suyehiro said he was not convinced about publishing after 4 years, and that with multi-leg programs ODP does not need to stick with publishing after each leg. Mével said that the volumes are a good place to put the data from each leg. Carter said that it seemed like a good idea, but we must be careful of embellishments. Kidd said that PCOM can decide what embellishments it wants once the costs are known.

Dick said that PCOM must come to a firm decision at this meeting. Kidd said that PCOM will vote on this issue and asked Dick to draft a motion.

6) SUB-CONTRACTOR BUDGETS, SERVICES AND PRIORITISATION

Kidd said that PCOM should get responses to the EXCOM motions as outlined in the agenda notes.

Moore reviewed the DMP recommendations (DMP Recommendation 96-1-2) on what the scope of work for WLS should be. The biggest difference from present operations is that the geochemical tool is recommended for re-classification as a specialty tool, which would be a net cost saving for the Program. DMP also considered that LWD should be considered as a standard tool in certain environments. Falvey asked about the idea of LWD being a separate contract. Moore said that DMP did not want LWD tied to one contractor, to allow for innovation, whilst recognising the advantages of a single supplier. It was confirmed that the geochemical tool was presently under the remit of Leicester University. Shipley asked if it would be possible to get logging on a leg-by-leg basis and obtain savings for other purposes and to give more flexibility? Moore said that DMP are very concerned that there be room for innovation in a new contract. Falvey commented that the DMP list was really "business as usual" and nothing was changed.

Natland said that logging is structured so that certain things are expected for every leg, even if the logs were not proposed. He said that PCOM should evaluate whether or not logging is scientifically valuable for every single leg. Brown said that he didn't believe logging was required on every leg. Francis said that the Schlumberger engineer has to be on board the JOIDES Resolution for safety purposes. Dick said that he is concerned about the scientific return per dollar of logging. He thought that logging should be reviewed in the normal way and should be justified in terms of science output. McKenzie said that logging may not be necessary but it is like many other pieces information that are collected on cores for example, it allows integration of criteria.
Goldberg said there were major misconceptions aired here. He said that long-term contract with Schlumberger made it cheaper; LWD in an on/off scenario with standard logging is not that simple, there are engineers and training required, and there is negotiation with the logging contractors every year. Putting the Schlumberger engineer on and off would be disastrous. Pezard said that is essential to retain continuity, the quality problems of DSDP were terrible. He said the quality of the current logging is excellent, and the logs from Leg 164 and 165 were integral parts of all the major results of the legs. He said that it taken 10 years to reach the present quality and stability. Lovell said that the flexibility discussed is very difficult to achieve in terms of the budget available. Goldberg said that the DMP has honed measurement types to the current status. He said that Schlumberger is a high cost service provider, and this was well-known, but the quality is also very high. Pezard said that over the years some logs have been taken off the standard suite which is in response to quality evaluation.

Kidd said that aside from the question of a leg-by-leg contract, there is nothing for PCOM to change from the DMP requirements in a response to EXCOM. PCOM could also suggest that potential bidders for future logging services also come in with LWD bids. Moore said that PCOM should tell EXCOM that the Program has been spending wisely and therefore nothing can be dropped.

Ellins said that SSP prepared a response on the services provided by the Site Survey Data Bank (SSDB) and referred PCOM to the tabled letter. SSP sees a GIS system, to improve data management, as essential and they also requested that the SSP chair assist in the preparation of the RFP. Ellins said that SSP did spend time discussing the effect of disruption if the SSDB was moved to another location, and that was its biggest concern. Kidd suggested that PCOM should add to the SSP advice, that they want the GIS system put into the RFP.

Kidd said he asked the panels to respond to EXCOM Motion 96-1-14. Fox said that he contacted SMP and defined the cost of a 'generic' leg and the costs of running each laboratory. Kidd said that he had asked what the panels could do without. TEC thought the only non-essential was the XRF. OHP identified XRD and XRF (they did not appear on the list of what they wanted to retain). LITHP believe that all the laboratories are essential, did not specify what should be cut, but did suggest that the XRD and XRF services should be closely examined, and they recommended that publications be looked at again. SGPP discussed the geochemical and proposed biology laboratories, but did not come to any conclusion.

Fox spoke to the tabled paper on standard leg costs (Appendix 24a & 24b) explaining its make-up. Larson asked about post-cruise publications. Fox said that there are 18-24 publication projects running at any one time, and the costs per publication were not easy to detail.

Kidd reminded PCOM that many of the recommendations to EXCOM for June 1996 will be draft recommendations and indications of where PCOM are looking in detail for savings.

Lunch Break

7) PCOM DISCUSSION AND PRIORITISATION FOR BCOM

Falvey reported that BCOM met in March and made a change in the structure in the way the allocations were presented. JOI took the inputs from ODP-LDEO, ODP-TAMU, PCOM, the panels and the science plan, and put together the prioritisation list that was tabled (Appendices 2a & 2b). He said at this stage the budget allocation process is completed though there may be some discussion of items at the margins of the priority list. The key issues are the allocation of funds to development projects that are designed to position the Program in Phase III and maybe Phase IV, and projects that are related to legs in the Science Plan. This priority list has been endorsed by BCOM and has been presented to NSF. Salaries are included in the priority list to make the planning and budgetary process more transparent.

Kidd said that in his letter of response, he flagged items for probable PCOM discussion. Firstly Costa Rica LWD on Leg 170 is below the $3.5M line; above the line is Leg 174A New Jersey LWD (which involves adding time); then the DCS development. Other items include 2 rather than 3 reentry cones for Leg 173, Iberia II, the outcome of the Leg 172 WG (use of the GHMT), what was to be included in item 19 (underway laboratory), and the overall cost of WWW (item 20).

Natland asked how the order of the list was established? Falvey said it was established as he outlined above: the first priority was to establish the Program for the next decade and have a working
JANUS, then specific leg support. He said these items are well up the list, so the actual order did not matter above item 20. Mёvel asked about GHMT development at IMT, saying it is a software development that is being undertaken now, and if not funded there will be a year hiatus and the end result would be a cost-saving in not having to rent software from Schlumberger. Goldberg said preliminary results were already forthcoming. Pezard said the net saving would be about $3.5K per leg, that in one year the data quality would be of the top class, and the Program could stop paying Schlumberger as of now. Larson said that from his experience the savings from processing through LDEO are very worthwhile.

Kidd asked for comment on the Leg 170 LWD at Costa Rica. Moore questioned why it was below the cut-off line given that the thematic panels and DMP were specifically asked to comment, and DMP, LITHP and TECP considered that it was an integral part of that leg? He did not understand why PCOM considered it was not an essential part of the leg. Kidd said that the leg was originally recommended by TECP without LWD. Moore said the initial proposal did not anticipate LWD at that time, but once the success of Leg 156 became known, approached PCOM with a request for LWD, and PCOM did not allow that modification. He said that when the proponents then submitted the LWD proposal to the panels, they said that it was essential. Kidd said that when it came up in the scheduling discussion in December, PCOM were aware of the value of LWD, and in answer to questions from PCOM, the TECP chair said that it was not essential to the objectives of the leg. Moore said that TECP did not discuss the proposal at their last meeting so the TECP chair should not have said that it was the TECP view. Ellins said that the TECP chair telephoned the proponent who said the he would rather have the leg with standard logging if there was not the budget for LWD. Dick said that he recalls that PCOM decided that the LWD should be held off until the drillability of the section was known. Suyehiro said that PCOM is having the same discussion it had in December. He said that Costa Rica was then scheduled and Barbados was not, and PCOM chose Barbados as the LWD priority. Francis said that Dick's view was absolutely right, and the environment should be better known before using LWD. Brown said that part of the problem is that PCOM is now going back to discussing strategies of how convergent margins should be drilled. He said that it is known that the standard logs will not be very good, and ODP will be spending a lot of money on results that may not be the best. Goldberg showed examples of LWD at Barbados and a Neutron log at Cascadia, and pointed out the difference in quality of the data. He said that another consideration should be that 3 BHA's were lost at the standard logging site (at $100K per site), and that the overall costs are not apparent in the numbers alone. Hay said that SGPP discussed the LWD proposal, and it reaffirmed that LWD was of primary importance at both Barbados and Costa Rica. He said that PCOM may have to revise the schedule again to accommodate this. Francis said that Leg 170 will have extra Tracor personnel and so there are implications for berth spaces at sea.

Kidd said that the list as it stands is in line with previous PCOM discussions. He said that if Leg 170 LWD is to move above the cut-off line then something else must go. Mountain asked what the WWW publications item is? Fox said that IHP have asked ODP-TAMU to enhance their web publications, including table of contents from previous publications, etc. He said that there is a necessity for training if the web site is to be as current and user friendly as the community requires. It is a new initiative with 1 full-time person plus part-time help. Falvey said that the Inspector General's report also recommends utilising the web more. Mountain said that the ICD would go on the web, and asked if that would be co-ordinated with this effort. Fox said that with this initiative, the ICD would be on-line sooner rather than later. Hay commented that the WWW trans-Atlantic connection is very slow and is not a practical way of getting information at present.

Moore presented a motion for supporting LWD on Leg 170.

**Proposal: Moore, Seconded: Mountain**

**Motion withdrawn.**

Larson said that there is no alternative that he could see to give up, and so he cannot support this motion. Carter said the WWW comments were relevant, but it is where the data is going to be in the future. He said that in reality, because of the problems with the WWW, as of today the support indicated in the priority list is not essential, but support for the Leg is essential, and the message that
EXCOM should get from this is that ODP is down to the bone in terms of finances. Kudrass asked if the LWD could be combined with item 25, the LWD tool test? Goldberg said that item 25 is a test of the tool that will likely be deployed at Barbados. Dick said there are two issues: firstly that LWD should not be used in an area that has not previously been drilled, secondly is LWD more important than the other items on the list. Moore said that each site will be standard coring and the LWD. He agreed to withdraw his motion.

Mountain suggested PCOM either move the line or look at individual items. Falvey said that BCOM considered drawing the line lower but, as it was such a major shift in the way business is done, BCOM had to allow ODP-TAMU room to change without total disruption to the science delivery process. He said that moving the line now would create chaos. McKenzie said that PCOM have identified two items that could be moved. She said that the WWW publications could wait and so could the LWD tool test. Falvey said the Inspector General's office did not think that was so and nor did he. McKenzie asked if there could be some slippage in the budget? Natland said that there is some precision in the listing, and that PCOM have to look at the bottom part of the list for items to loose. Brown said that item 16 could be moved, and maybe item 21 could also be moved. Sager suggested that item 22 could be moved. Brown said he was not happy with that; he said that JANUS was supposed to help the shipboard scientist, and right now it is not doing so. Dick asked if item 21 could be spread over two years, or cut, as the data would still be there? Falvey said that it would delay the system, but he could not say what the actual effect would be; he said that he wanted the database to be useful. Natland said that if items 23-26 were lost, could $53K be culled from items 21, 22 or both? Mountain said that only two holes would be logged on Leg 172 so item 15 could go.

Kidd asked Malfait if there was flexibility for these potential changes? Malfait replied that there was. Moore then presented another motion.

PCOM will find $221K from items 1-26 of the BCOM prioritisation list to permit LWD to be a part of the science of Leg 170.

Proposed: Moore, Seconded: McKenzie

6 For, 8 Against, 1 Abstention, 1 Absent

The motion is defeated.

Kidd asked for draft motions from earlier discussions to be presented at this time.

PCOM Consensus 96-1-3

PCOM encourages a workshop to be held in June 1996 to investigate the scientific and technical benefits of using JOIDES Resolution to conduct tension pile tests necessary for commercial operations in water depths beyond those accessible by jack-up rigs. Future utilisation of JOIDES Resolution in such operations would depend on the possibilities of significant benefits to both the scientific and technical communities. Actual scheduling of JOIDES Resolution ship-time must be done in the context of other programs scheduled or under consideration.

PCOM Motion 96-1-4

Whereas current development of the DCS is proceeding satisfactorily; whereas technological development is a keystone of the LRP; whereas improvements in heave compensation techniques offer improvements in all drilling phases; and whereas further reduction of DCS engineering effectively terminates the project with the spectre of greater re-start costs later, PCOM gives its support to continued DCS development at the level requested by ODP-TAMU, for Phase III of that project.

Proposed: Sager, Seconded: Natland

12 For, 1 Against, 2 Abstentions, 1 Absent

Alan Mix presented a scheme for voting procedures
PCOM Motion 96-1-5

PCOM adopts the following four-step voting procedure for purposes of determining a drilling schedule.

**Step 1**: Choose programs to retain for purposes of ranking, based on whether they are sufficiently ready in terms of site survey and safety, and are within a reasonable region of operations. PCOM retains two options for this step:

**Option 1**: Panel consensus on recommendation of chair;

**Option 2**: Show-of-hands vote on each drilling proposal, with retention of a proposal for ranking based on 50% or more of votes in favour. Conflicted members of PCOM will be excluded.

**Step 2**: Rank proposals based on scientific quality. Given X programs retained from the previous step, un-conflicted PCOM members will rank programs from 1 to X, on a signed paper ballot. After voting, written ranks of each program by each voter will be tabulated and reported (in PCOM minutes) in a matrix, along with a calculation of mean ranking of each program. A draft schedule will be constructed of top-ranked programs. Conflicted members of PCOM will be excluded from Step 2 in its entirety.

**Step 3**: In a case of statistical ties in rankings that affects the choice of programs to drop from the schedule, PCOM will choose between closely ranked programs on this boundary based on a one-on-one vote using signed paper ballots. A majority vote will choose the program to retain on the schedule, and the draft schedule from Step 2 will be adjusted accordingly. Conflicted members of PCOM will be excluded from Step 3 in its entirety.

**Step 4**: After assembling the draft schedule from steps 1-3 into a cruise track, PCOM will consider the logistics, costs, and quality of the proposed schedule as a whole. PCOM will vote with a show of hands to accept or reject the schedule in its entirety, based on a simple majority of votes cast. Rejection of the schedule at this stage dictates a return to Step 1 in the voting procedure. Conflicted members of PCOM will be excluded from Step 4 in its entirety.

Larson said that PCOM didn’t have time to delve into this issue now and it should be postponed, and he presented the following motion.

**PCOM Motion 96-1-6**

The Voting Procedures Motion be tabled until the Conflict of Interest discussion.

*Proposed: Larson, Seconded: Sager*  
13 For, 2 Against, 0 Abstentions, 1 Absent

**PCOM Motion 96-1-7**

PCOM accepts the recommendation of DMP to redefine the geochemical tool string as an ODP Speciality Tool and sees no other significant way to reduce items for inclusion in the WLS Scope of Work. PCOM agrees that the WLS RFP should refrain from descriptions that compel selection of any specific operator as the provider of logging tools.

*Proposed: Moore, Seconded: Brown*  
14 For, 0 Against, 1 Abstentions, 1 Absent

**Coffee Break** ................................................................. 15:50 - 16:15

Kidd asked for PCOM agreement to modify the agenda because extended discussion of some items has led to enforced time constraints. PCOM agreed.
H. FOUR YEAR PLAN

1) PROPOSAL 404 DPG REPORT

Mountain presented this report and began with a review of the relevant PCOM Motion (95-3-10). He said the gist of the issue is that several sites had been proposed in a depth transect, and that with appropriately designed sites, benthic forams will record, in their chemistry, changes in benthic water in the WN Atlantic. PCOM wanted this record extended to the Pliocene.

Mountain then outlined the goals and recommendations of the DPG (Appendix 26). Based on experiences on Leg 164 (Site 994C), APC recovery was uniformly 100%, with XCB at 158 m, recovery went to zero and did not climb until below the BSR. On Leg 162 HPC refusal was much deeper and the change in tools on Leg 164 was due to crimping of core liners, and so was an operational decision. Paull confirmed this, and said that there were also problems with overpull on retrieving the cores. Mountain said it is reasonable to expect similar conditions to Leg 164 on Leg 172.

Kidd asked about the co-chiefs reaction losing GHMT. Mountain said that the co-chiefs would probably be pleased, but a proponent would not. Mével said that the tool gives a lot of information about the cores. Mountain said that only two sites were to be logged originally. Mix said that it would be used to align the core if it was expanded by gas. Paull commented that there was a lot of microbial activity in the cores, and he questioned how good the susceptibility record would actually be, he didn’t think it was stratigraphically useful. Mix said the suggestion of double XCB to go deeper is a good one, the GHMT could be a lot of money spent at a risk of no results, and he would be willing to see it dropped.

2) LEG 173 (IBERIA II) - UPDATE

Kidd said that there is correspondence in the agenda book, and he flagged that the number of re-entry cones has been reduced to two rather than three due to time constraints. Goldberg said the Diamage tool is a joint project for hard rock scanning, it is a core orientation system for matching cores with logs, as explained yesterday. He said that it must be used on legs with significant whole-core recovery. Kidd said the co-chiefs have requested to wash through the already sampled sedimentary sequence. Francis said they would still go for more basement if they couldn’t have three holes.

Larson said that ODP policy is to continuously core all the time, and basement drilling is to bit destruction. Kidd and Dick said that PCOM has become more flexible on these items. Francis said that the preceding legs re-entry cones may not be used and so a third system may be available for this leg.

PCOM Motion 96-1-8

PCOM approves the request of the co-chiefs of Leg 173 that to maximise basement recovery they wash down to approximately 100 m above basement.

Note: PCOM endorse the current operational guidelines and recognise Leg 173 as a special case, as the sedimentary section in this region has already been extensively cored.

Proposed: Mével, Seconded: Dick 15 For, 0 Against, 0 Abstentions, 1 Absent

3) LEG 174A (NEW JERSEY MARGIN) - UPDATE

Fox reported, beginning with a review of the PCOM discussion and approval at December PCOM. He said that ODL have moved to a more flexible position and four sites have now been approved for drilling, with the understanding that ODP-TAMU have a set of operational procedures in place to avoid problems of being stuck in a hole. He said that the new procedures may have some time penalties. LWD could be done at all sites with conventional logging at one site. It is also apparent that the US Office of Naval Research (ONR) may be interested in casing these sites, 100 m casing would cost $60K, and 500 m casing would cost $85K, with time penalties of 3 and 4.5 days. The present schedule has 21 days on site and with LWD it would require 32 days, not including the casing operations.

Kidd referred PCOM to the tabled addendum to the proposal, and he reminded PCOM that the costs were listed under the BCOM item 7. Goldberg said that item 7 is only 2/3 of the cost for three holes, the other third would be picked up by ONR. He said the cost element would be $40-60K for a
fourth hole, and the extra hole would cost 2 days of time as well. Dick said that this is not what was voted on in December and he is not happy with this.

Kidd said that in December PCOM approved 2 sites on the shelf and the deep water site, and agreed that negotiations would continue for a third shelf site. He said that the co-chiefs are now arguing for all sites, when he believes they could use the deeper site to run to in bad weather. The $116K cost of LWD is a three site scenario, and assumes that money is forthcoming from ONR. Mevel asked how it complemented the previous leg. Mountain declared his interest, and said that the deeper site was to provide the pelagic biostratigraphy to link to the shallow sites. He said that it could be a stretch to correlate the Leg 150 sites to the shallower sites. He commented that the co-chiefs may decide only to drill a couplet on the shelf, or they may choose to drill all three shallow sites if the weather allows. Francis said that if this leg is extended there would have to be an extra port-call for crew rotation and this has financial consequences.

Mix asked the science goal of the casing exercise? Fox said that it would provide a natural laboratory and would be used by ONR. So far as Fox knew, all work would be published in the open literature. Kidd said that the co-chief has addressed the science goals in the tabled letter. Ellins said that if all requests are met the leg length goes to 39 days, from 21 on site. Goldberg said that for 3 sites with LWD, and one site also with a wireline log, it was a net saving of time, so at least three of the sites and the wireline hole was within the 21 day time frame. Carter said that the proponents were disappointed that they couldn’t drill shallow holes, and that PCOM should give the co-chiefs leave to drill three shallow holes if they so desire. However, he said that he does not like the way they are jumping all the normal planning procedures. He continued that PCOM must be aware of the time scale that other organisations work on. Dick said the US Navy first brought up the casing question 3 years ago and they have had opportunity to go through the system properly.

Kidd said the co-chiefs requested extra time for Site 7B, but he senses that PCOM just want to give them latitude to drill the extra shallow hole if conditions allow and to use the deeper site if conditions made shallow-water drilling impossible. He said the co-chiefs have also asked for extra time for the casing operations. Fox said that it was still uncertain just what would be involved in the casing operations, but the 3 - 4.2 days (per hole) are realistic windows. McKenzie said that the time was originally scheduled as it was thought only three sites were possible. She said it was a crucial transect for global sea level studies, and PCOM must decide if it wants to give time to the science and time to the casing.

Mountain said that McKenzie was correct with her statement, that was why the co-chiefs have now requested more time. He said the casing will make the Sites legacy holes, provide a link with another Program, and may provide a level of funds from the ONR. He said that PCOM could offer to extend the leg for the casing option, and let the proponents choose two or three shelf sites. Sager said that ODP is getting more requests for extensions and PCOM should be careful about this. Kidd said that he senses agreement for an extension to accommodate the extra hole should time become available. Mix asked about the cut-off for additional port-calls for staffing changes. Larson said that he didn’t want to squeeze the southern weather window, and that maybe PCOM could do this by removing the same amount of time from the Iberia leg. Francis said there are long trip times on that leg, with two re-entry sites, and it would be penalised. Kudrass said that maybe odd days could be saved from a number of legs. McKenzie said the casing was not important to the science objectives of the leg, and Kudrass said that PCOM rejected the industry leg earlier without hearing the science case. Shipley said that it is important that the co-chiefs do have some extra days, and that the "casing days" should be at the end of the leg. Mix suggested that PCOM prioritise the items.

Natland said that adding a few more days allows the co-chiefs to either do the extra site or the casing. Mountain asked if PCOM would be more comfortable if they had a demonstration how useful the casing would be. Dick said he was not happy with this and proposed a motion.

| PCOM will not add further days to Leg 174A. |

**Proposed: Dick, Seconded: Carter**

*4 For, 7 Against, 4 Abstain, 1 Absent*

The motion is defeated.

Larson then said that PCOM has to reach a decision and he too proposed a motion.
PCOM will extend the length of Leg 174A by 6 days and shorten Leg 173 by 4 days and 2 off Leg 172, allowing the co-chiefs the flexibility to readjust their drilling.

Proposed: Larson, Seconded: McKenzie  5 For, 8 Against, 2 Abstain, 1 Absent

The motion is defeated.

Sager said that he would rather share the reduction in days over several legs. Francis said that this will involve a crew change and that has financial consequences. He said that it could cost of the order of $100K in FY97. Falvey said PCOM would have to consider where that extra money will be coming from.

Sager asked about the 56 day leg-length, and asked if the ship could run for longer? Francis said their contract has to maintain "approximately 56 day legs" and "approximately the same rotation between crews". Francis wanted advice as to where the core from New Jersey should be stored, he said the rest of the transect is at the east coast repository. Kudrass said that Bremen is already overloaded and would not object. Falvey commented that it was really a management decision.

4) LETTER OF INTENT FOR EXTENSION OF LEG 174B

Ellins referred PCOM to the tabled letter. Mével said that Foucher is involved and would only have the funds to do this for Leg 174B. Larson said that he didn't think that there was more time. Dick said that he thought the Lol should go through the review system. Ellins said that there have been precedents set for this, and cited Saanich Inlet. Ellins said there is a flexible extra time requirement, depending upon what PCOM considered its priority, to a total of 6.5 days.

Mountain said that an extra 6.5 days added would be beyond the 62-day absolute limit suggested by Francis, though he thought only a couple of extra days was more appropriate. Ellins reminded PCOM that there were a number of requests for extra time and PCOM could decide if it wanted to approve them all. Mével said that long-term experiments are something PCOM should want to do, and so the instrument should be refurbished. Shipley said that he didn't think the proponents would be surprised if this extra time was refused, but they did have the best interests of ODP at heart. Kidd said that Leg 174B was teamed with engineering, and if any time is found on the engineering portion of the leg, then PCOM could approve use of that time for this proposal. Francis said that any extra time from this leg could also be used for Leg 174A. Francis said that the hammer-drill system development will be known about in a few months time. Falvey said asked if it was feasible to use the 10 day engineering time if there are problems with the hammer casing system? Francis said that it would.

PCOM Motion 96-1-9

Any potential time that may be available on Leg 174B as a result of not being able to do engineering tests, be re-allocated on a 50-50 basis to Leg 174A and Lol 69 for the CORKing work, with the proviso that if there are required port changes, it does not impact the science time on other Legs.

Proposed: Larson, Seconded: Carter  13 For, 0 Against, 2 Abstentions, 1 Absent

Adjourn .............................................................. 18:05

Wednesday 24th April 1996  08:30 am

Kidd welcomed the newcomers to the meeting, the JAMSTEC representatives, EXCOM representatives, and thematic panel chairs. Kidd announced that the meeting is slightly behind the published agenda schedule and will continue from where it left off yesterday.

5) REVIEW AND REAFFIRM 1997 PROGRAM

Kidd said that the outcome of the discussions yesterday was that PCOM re-affirmed the 1997 Program Plan with minor modifications.
PCOM Consensus 96-1-10

PCOM considered the FY97 schedule prepared by JOI and ODP-TAMU following the recommendations of the December 1995 meeting. No changes in the schedule are recommended other than the following:

1) should extra time become available from the engineering portion of Leg 174B, it should be divided equally between Leg 174A and the CORK operation at Barbados that is proposed as part of Leg 174B (see PCOM Motion 96-1-9);

2) any additional gains from port-call changes should be allocated to Leg 174A.

PCOM Consensus 96-1-11

PCOM advises JOI that it wishes the cores from Leg 174A to be stored at the East Coast Core Repository at LDEO.

I. THEMATIC PANEL GLOBAL RANKINGS

Kidd said that he wanted PCOM to look directly at the panel rankings and take discussion and clarification.

Ellins said that PCOM can ignore 448-Rev Ontong Java (LITHP No.1) and the ANTOSTRAT generic proposal (SGPP No.3). She said there was no strong interest to rank proposal 79, W Somali Basin. She reported that an addendum was submitted to the JOIDES Office, and the proposal falls within the proposed ship track, that is why she wanted to inform PCOM, and it can take action as appropriate. Hay commented that SGPP wanted to discuss this, as did TECP. LITHP would not rank this in their top 10. Messages from OHP indicate no interest from that panel. Kudrass said that it was unlikely the site survey could be done in 1997. Ellins said that the latest Ontong Java proposal was reviewed by LITHP even though it was NOT distributed by the JOIDES Office as it did not arrive until well after the January 1st deadline. Hay said that SGPP would like to have a DPG/WG with ANOSTRAT to sort out the priority of their proposals. He said that it was not clear that the one proposal "ready to drill" was the most appropriate to start with, and this was the main reason for the DPG. Kidd said that for ANOSTRAT to figure in the next year of operations, the DPG needs to be set up immediately to refine a proposal for the July 1st deadline, he said the proponents are putting data into the SSDB. Sager asked if only one per drilling cruise year was possible? Kidd confirmed this. Mix said that OHP ranked individual proposals (452 and 490). He commented that OHP were interested as these were the ones most likely to succeed in tying to seismic ties that would allow dating to be carried up onto the shelf. Mix said that he was supportive of a DPG as the focus of ANOSTRAT was on the margins of the ODP and ANOSTRAT were struggling to fit their goals with those of the ODP panels. Hay said that for overall planning it makes sense to distil the proposals, but that it may not be easy to do. Kidd said that there is a consensus to do this, and Hay has agreed to chair the DPG. The membership will be discussed between the PCOM Chair and DPG Chair.

1) SITE SURVEY READINESS

PCOM member Larson declared conflict of interest, as did Suyehiro, Mix, Moore, Carter.

Ellins reviewed the SSP "readiness" table and the classification for PCOM (Appendix 27). She reported that Proposals 484 and 442 were not considered as no data were sent to the data bank. Ellins said that SSP put this table together at the one meeting that is not held at LDEO, and SSP are guided by the memory of the SSDB manager and the proponents submission on the proposal. Ellins referred PCOM to the SSP minutes (tabled) and the SSP consensus statements on each proposal.

Ellins referred PCOM to the readiness map (Appendix 28), and in answer to a question from Dick, she said that PCOM agreed that the panel chairs could tell SSP which proposals to look at for site survey evaluation as some highly ranked proposals were "flags of interest" to PCOM and not near-term realistic drilling options. Francis suggested PCOM consider that there are some areas that ODP could not get to for clearance reasons, and he cited the Red Sea, and probably areas around Taiwan.
(arc-continent collision and E Asia Monsoon proposals). Kidd said that he wrote to the proponents of the Red Sea proposal explaining the clearance problems and that this issue might be addressed by proponents locally. He said that PCOM have that decision to make at prospectus time. Ludden said they are negotiating with Sudan and Saudia Arabia, and he will alert PCOM to the status before August. Moore said that he was involved in a site survey cruise for the Taiwan arc collision, and the sites are in Taiwanese waters.

2) 1998-1999 AREA OF SCIENCE OPERATIONS

PCOM Motion 96-1-12

The general direction of the drilling vessel into the Indian Ocean and Western Pacific beginning in FY98 is confirmed into FY99.

Proposed: Natland, Seconded: Mével 9 For, 0 Against, 6 Abstentions, 1 Absent

3) TECHNOLOGY NEEDS

Hay said that SGPP wish to see a fluid sampler developed. The Feissler sampler has not recovered a sample as yet, the panel would actually like a fluid sampler combined with a temperature probe, a longer barrel on the MDCB, improved material recovery and analysis for the PCS, including provision for microbial sampling at pressure, and he referred PCOM to the SGPP minutes. Shipley asked if these were expected from inside or outside ODP. Hay said that last one was a major undertaking and maybe that should be within ODP. Sager said that a number of panels have mentioned the MDCB, but commented that at present it may be difficult to get a proposal drilled based solely on that tool, and that if developed, it would be used more often. Francis referred PCOM to his report yesterday on this item. Hay said that the extension is a good first step. Shipley asked if the hot brines in the Red Sea was an operational issue? Francis said that the surface water pumped down the drill pipe cools the system and has not, so far led to any problems.

4) WORKING GROUP NEEDS

Suyehiro said that LITHP requested ION to prioritise its proposals, and said there may be a need for a DPG. Kidd asked Ludden for comment. Ludden said that LITHP have begun to highly rank ION proposals but that equipment needs testing before it can recommend legs. Robertson said that TECP had the same problem, and it would like to see a coherent plan from ION. Dick said that this is part of the LRP, and that it may be partially addressed at the upcoming WHOI meeting. He said that ODP will need someone to report back to PCOM. Mével said that ION does have a plan, but ODP needs to know when they want to start and where, and that maybe PCOM should try to combine their preferred locations with areas of interest to the wider community. Kidd said that ODP needs a WG of some longevity, but in the more immediate term there is only one proposal (with 4 sites), and 2 LoI's. He said that the PCOM liaison could take this message back to ION. Dick said that PCOM could look for an unconflicted chair for a WG. Suyehiro said that ION is going to meet in early May and the group are going to try and produce a proposal that would answer the questions posed by LITHP.

Kidd asked that the rest of yesterday's motions should now be considered. Carter asked about finalisation of the BCOM priority list. Kidd said that he would prefer to deal with that tomorrow.

Dick was asked to present a draft publications recommendation.

PCOM Motion 96-1-13

To address continuing concerns about the cost of ODP publications and also the impact of the December 1995 PCOM recommendations on the quality of the Scientific Results volume, PCOM makes the following recommendations to JOI for one possible new model for ODP publications:

1) That ODP-TAMU publish a single Proceedings volume for each drilling Leg.
2) The Proceedings should be a single high quality monograph containing the prime data, synthesis and scientific results.
3) The contents of the Proceedings volume should contain:

(A) in text form

(a) site summaries
(b) operations reports
(c) site chapters
(d) scientific syntheses
(e) scientific papers
(f) text of data reports
(g) abstracts of papers submitted or published outside the Proceedings.

(B) on CD-ROM

(h) large data sets (>1 page tables)
(i) core photographs
(j) core descriptions
(k) VCD’s and barrel sheets
(l) thin section descriptions

4) The publication date of the Proceedings should be 48 months post-cruise with an initial submission deadline for scientific papers 30 months post-cruise.

5) An initial core description volume should be published 3 months post-cruise in a relatively inexpensive form in soft cover. This document, however, should be citable and might contain:

(a) core photographs
(b) VCD’s and barrel sheets
(c) site summaries
(d) operations reports
(e) thin section descriptions in table form

Specific items to be included will be amended after discussions with ODP-TAMU and JOI.

6) PCOM re-affirms its advice to JOI that scientific participants in drilling legs should be permitted to submit single or multi-authored scientific articles after 12 months post-cruise without prior approval of the scientific party.

7) PCOM re-affirms its advice to JOI that the scientific participants should be required to submit either a paper to a peer-reviewed journal or to the Proceedings by the closing date of the Proceedings volume.

8) PCOM advises JOI that the Editorial Review Board should be constituted by 12 months post-cruise and be charged with reviewing papers submitted for publication outside the proposed Proceedings volume for proper citation of the site summaries and site chapters, and for proper use of data and conclusions of other members of the scientific party.

9) PCOM advises JOI that permission to submit to a non-ODP publication prior to closing of the Proceedings should be contingent upon simultaneous transmittal of a full copy of the manuscript to the Editorial Review Board.

Proposed: Dick, Seconded: Mével 15 For, 0 Against, 0 Abstentions, 1 Absent
Mével said that the logging data may be a problem with the schedule as outlined. Goldberg said the first volume at three months is not a problem, but for the amount of data required for the CD-ROM, it would have to go into the 4-year volume. Dick said that it may well be that it will need two CD's, but this plan needs to be costed by ODP-TAMU first, before all the minutiae can be determined. Dick said that PCOM must offer the co-chiefs and participants of Legs 164-166 the option of publication in the open literature. Kidd said that this is in response to one of EXCOM's directives, and that it will need to go to EXCOM, with funding scenarios. Fox said that it will require some time to determine the costs and any potential problems, and an implementation plan, and then to hold a sub-group meeting to fully examine the implications of this new direction and decide upon an implementation strategy.

Mix said that more thought needs to be put into the definition of what exactly will go into the ICD volume. Briden said that he thought that EXCOM will appreciate this effort. He said that his personal reaction is that the proposal is very different from the previous direction, and he would like to be sure that PCOM have fully thought out this new direction, especially the status or content, and what the precise meaning of the "12-month deadline" is. He said the rationale for the change to 48 months should be explained, as should how PCOM will ensure that the publications structure, as proposed, will be policed or enforced. Dick said that this new direction seems to have a broad community consent, he said that PCOM have realised that the old Scientific Results volume was changing, and that this is a recognition that mature papers and thoughtful syntheses can be publicised in a legacy volume, whilst enabling the interesting science to get into the open literature quickly.

Sager said that during the first 12 months the moratorium is to keep the scientific party together, but that with permission of the science party, individual publication is allowed, and the ERB is simply to ensure that people do not publish the work of others. He said that PCOM needs to focus carefully to ensure we do not simply build a new Initial Reports volume. Natland said that the original timelines of the ICD were based on the sampling distribution, i.e. that the ICD would primarily be a guide to sampling. Dick said there are several concerns about the ICD being citable, but it could be included in the Proceedings volume. Kidd said that the usefulness of the three month limit is to ensure it would not grow into other Initial Reports. Fox said that this model streamlines things, but may not result in many savings. Kidd said that this must be looked at by JOI and the operators, and one or more sub-committee representatives must meet with these contractors before the details go to EXCOM.

Larson said that he thinks that this will solve some of USSAC's problems. He said that perhaps PCOM should run this through IHP, or at least to be aware of the implications. He then asked Lancelot's opinion on the new direction. Lancelot said that he thought PCOM was on the right track, though he would like to dispense with the Scientific Results volumes completely. Mével said it would not be called, or actually be, a Scientific Results volume, as the results would be out.

Coffee Break 09:50 - 10:15

PCOM Motion 96-1-14

PCOM advises JOI that it would like the Leg 164, 165, and 166 participants to have the option of submitting single or multi-authored papers to the outside literature 12 months post-cruise without the prior approval of the shipboard party.

This is contingent upon:

1) An extension of the publication of their Scientific Results volume to 4 years post-cruise.
2) Transmission of copies of papers to their ERB's at the time of submission to the outside literature.
3) Inclusion of the abstracts of these papers in the Scientific Results volume.

Proposed: Dick, Seconded: Larson

15 For, 0 Against, 0 Abstain, 1 Absent
J. PCOM'S LONG RANGE PLAN IMPLEMENTATION

1) INTERNATIONAL REVIEW REPORT

Kidd said that PCOM has already done a lot of work on this, and he will assume that PCOM members have read the international review committee report. He said the important thing is the response of the system to this report, which went to the ODP Council who passed it to EXCOM. He said the EXCOM responses were a result of the ODP Council reply to the report. He will ask the EXCOM guests to clarify the timing and what is required from PCOM.

2) EXCOM RESPONSE

Briden said that he wanted to talk about the significance of the papers included in the agenda book to ensure their importance is fully understood. He said these items are about the life of the Program and Program renewal beyond 1998, and that is why the funding agencies and ODP Council becomes prominent. He said that ODP Council has given a signal that it wants new styles and depths of accountability from JOI/JOIDES in the future. He said the stance of funding agencies has changed world-wide, in that there is increased competition for funds, and ODP must justify itself against other Programs. Briden said the review report was mandated in the MOU's; the committee was appointed by NSF on behalf of the member agencies and hence formally reported to ODP Council. JOI/JOIDES main input to the review was the LRP, which was augmented and explained to the review committee by appropriate people from the community, and judging by the very positive tone of the report, the aims of the Program were fully explained and justified to the committee.

Briden continued, saying that there were however a couple of problems, but the criticism was muted and the way the committee chose to report was to adhere to general impressions. The report was therefore brief and without the hard evidence justifying those impressions. ODP Council members latched on to the way the report was done which put an onus on EXCOM, the PCOM Chair and JOI Program Director to validate the report and pre-empt criticism by an early response. He said the funding agencies were only going to sign-up to a science program that was focused and deliverable, that had a mechanism in place to deliver the program as planned, that only the best science would be done that could be done, and lastly the Program had to demonstrate efficiency. These points were delivered in the letter from the ODP Council Chair to EXCOM.

He said that the responses to all this were focusing the Program via the LRP, and he said that EXCOM signalled the intent to follow this with a resolution. He said that the mechanisms of delivery are now under discussion. The efficiency is a management action with JOI, and the accountability mechanisms will be addressed between the EXCOM and PCOM Chairs and NSF. Briden said that as a community, we were winning in the attempts to advance the Program. He said that the ODP Council liked the focus of the Long Range Plan; it was impressed with the pre-emptive response of JOI/JOIDES to the criticisms, and the agencies, by and large, were excited by the post-2003 possibilities.

Briden said the timetable is that the full response to the full review report is scheduled for January 1997, as the funding agencies have to commit to the next phase over a year ahead of time. He said that there is an interim reporting stage in June 1996 after EXCOM. He said that JOIDES must keep the ODP Council enthusiastic by showing it the progress to date. The report to ODP Council in June will be a verbal report, as the status of the report will have been determined by EXCOM in the previous 1.5 days. Nevertheless, he said, the ODP Council chair required some agenda notes for Council members and therefore JOIDES must be decisive and stay ahead of the agencies in both its thinking and planning. He said the agenda, as set out for this meeting, is appropriate and correct.

Detrick said the LRP was positively received by the review committee and ODP Council, but the Council considered the report just the first step in a longer process. He said that to go forward successfully ODP cannot continue business as usual, and the review committee highlighted the issues of scientific leadership and planning structure, and planning for the transition Phase IV as being very important. He then commented that although the response to the LRP is positive, if this is not coupled with some positive changes, then the Program may be in trouble and that is why this discussion is required. He said that these issues will require very broad thinking on the part of the whole of the JOIDES community, and EXCOM will be interested in seeing the PCOM recommendations.
Kidd said that PCOM’s action so far was to ask the panels to comment on EXCOM’s requirements, and that the message about change in the Program has been addressed with both enthusiasm and a positive attitude. He said that PCOM has examined the new innovations necessary, publications, logging etc. to try to find ways of accommodating new initiatives, but the key item is the evolution of the advisory structure, as this directly addresses both implementation of the LRP and scientific leadership. Kidd said that tomorrow PCOM will draft recommendations to EXCOM on what has been discussed and achieved. He said that PCOM has had an extensive e-mail debate and he proposes to discuss the possible models. He said that at the end of the first meeting day, PCOM discussed the position it was currently at, and he proposed to outline how the committee got to this point, then Natland will comment on one model and its implications, with additional comments and counter views as necessary, and then he would let the panel chairs comment before moving on to the implications of the models.

K. EVOLUTION OF THE JOIDES ADVISORY STRUCTURE

Kidd then outlined where the discussion had reached: there was the chair’s starting point, followed by a Natland et al model, then a Larson/Humphris counter argument. He said that a USSAC proposal on PCOM membership made a significant jump in the discussion, and this was discussed further on the field trip.

TWO PANEL STRUCTURE

Natland presented this and referred PCOM to the agenda book papers. Essentially the new system would have ranking done by a science committee and a reduction in the number of thematic panels to two. He said the OD21 meeting in Japan made the advocates of this model aware of a scale of operations greatly different than in the present and past. He said that some individual projects could be on the scale of the MOHOLE project. He said that with the emphases in the LRP, he thought that ODP would probably be looking at a 2/3 emphasis toward deep or large scale drilling projects.

Natland then reviewed the original mandate of DSDP legs 1-44, and the former types of long range PCOM decisions. He said that these decisions were made to focus the Program and emphasise certain areas or regions. He said that the reasons for a science committee were 1) the need for long range planning, 2) a requirement to report to EXCOM on LRP implementation, progress and accountability, 3) the need to make hard choices and set priorities, 4) the need to integrate multi-leg and multi-platform proposals with smaller proposals, 5) the need to point to OD21 in 1998-2003, and how much it would cost. He said the science committee needs to reclaim the ranking process and be independent. He suggested that selection by national committees should remove conflict of interest problems and this will be greatly helped by the USSAC recommendation on PCOM membership.

Natland then outlined his rationale for two panels: 1) synergy - diverse opinion and expertise comes to bear on broad scientific problems, and proposals are already in the system that should not be split into tectonics and lithosphere, these will require a broad-based panel, 2) two panels will be sufficient to make basic recommendations to a SciCom, 3) they will be a partial mechanism for the hard choices, 4) they will look at review management, especially if peer review is utilised, 5) provision of advice and oversight to the SciCom. Proviso - there is a need to shift the detailed Program planning back to onto a panel/DPG structure and away from PCOM, and to use DPG’s or WG’s set up by major initiatives and vetted by PCOM, and liaisons from these should liaise to the SciCom.

ALTERNATIVE STRUCTURE

McKenzie said that the advocates of this system want to focus the science and enable representation from a broad-based community. EXCOM would become the guardian of the LRP; there would be an operations and a science committee, with one meeting per year together. All thematic panels would be disbanded with a series of key WG’s (5-12) of 10-12 people with one meeting per year of each group and attempts should be made for them to get together, with meetings in spring or fall. Service panels would report direct to JOI, and the JOIDES Office and TEDCOM would sit between and report to both SciCom and OpCom. WG’s could be thematic, regional, topical and opportunistic quality science.

The WG’s set-up would be based on other Programs requiring drilling proposals, asking SciCom to set up the group. The WG would develop the proposals that would be sent to SciCom for evaluation and ranking, possibly with peer review.

DISCUSSION
Mével said that this was just what she had proposed a year ago, but commented that with multi-year proposals, the WG's may need to last as long as the proposal was active. McKenzie said that a fixed term was essential, but it could be renewable. Mével said that the service panels could be amalgamated. Natland asked about the JOIDES Office, and where the current PCOM chair would be? Kidd also asked the same question. Carter said that the SciCom chair would hold that position. He said that for PCOM to become SciCom then PCOM must divest a lot of its current business. Kidd said that OpCom would be like the current Drillopts, but that the JOIDES Office needs to be in a position for co-ordination. Dick said he did not see the themes from the LRP in this model, and, possibly of more concern is that ODP currently has panels that rank and review, and there is a lot of criticism of that system, and suggestions that proponents do not always get a fair hearing. He said the panels are also an independent review body from a WG or DPG that will have it’s own agenda. McKenzie said that was why they thought that EXCOM should be more active. Sager said that he was concerned as to how proposals would enter the system, and who would do the reviews. He said that WG’s need to have a short renewable term rather than 3 years. He said that it may not be appropriate for PCOM to make a new role for EXCOM. Kidd said that he recommended that PCOM divest a lot of functions, i.e. the JOIDES Office overseeing the service panels, and that EXCOM take on other business items, and not science. Humphris said that SciCom has to be the guardian of the LRP and they have to justify the science plan to EXCOM. She also asked the make up of the OpCom. Carter said that it was really for EXCOM to keep an eye on the role and power of SciCom, and that SciCom should retain its leadership, but somebody needs to audit SciCom. Brown commented that he agreed with separation of planning, the WG’s and the judges of the quality of proposals.

Kidd asked for comment from panel chairs. Robertson began by saying that TECP’s ideas were in the agenda book. He said that a multi-panel approach was not the way to go, and TECP decided that there should be a single unified thematic panel with WG’s (which he said could be SciCom), which will evaluate relevance of proposals and LoI’s relative to the LRP, and a single, unified service panel and WG’s, a separate TEDCOM, a science review panel with working groups to guard the excellence of the science with “outsiders” and, he commented, it will stop one panel having too much power, and there should be an operations committee. Robertson said that in terms of the two models outlined here, the two panel approach may just produce two chariots rushing head on or diverging from each other, another problem is that the thematic panels would end up split into different panels that would be detrimental to the active margin program. He said that with McKenzie’s approach, it was not appropriate to give EXCOM a science role, but in general TECP is in agreement with this plan, with some modifications. He said that ODP must guard against the perception that PCOM is taking even more power. Dick said that the two themes in the LRP are Robertson’s “two chariots” anyway. Robertson said that the groupings of WG’s would not be so formalised. Carter asked what SciCom would do if it didn’t rank? Robertson said that it would ensure the LRP was adhered to, and look at and review new proposals, and work with OpCom to get them scheduled.

Natland said that his two panels would fulfil the review functions alluded to by Brown, and that they must have the power to set goals. Robertson said that was a benefit of one panel. Larson said that SciCom must be given the power to do the job right. He said that if the USSAC PCOM membership proposal is accepted, it should solve 60% of the current perception problems. He said that an outside review panel would probably be superficial and therefore not necessary. He said this only big concern with the McKenzie plan was the loss of a long-term panel structure, and the loss of continuity. He said that he preferred two panels. McKenzie said that she was actually happy with four panels, and would prefer ODP to stay this way, but PCOM was mandated to find a new way. Mével said that PCOM has to ensure it implements the LRP, then SciCom will have the power to generate the appropriate WG’s. Humphris raised the issue of wider community involvement. She said that this would be true with the McKenzie plan, but with no panel structure the involvement would in reality decrease the involvement of the community. Falvey said that the advisory structure must fit with the delivery of the science. He said that to get to an annual program plan, JOI needs advice coming from an advisory structure through to JOI as a science plan, and they need budget advice and approval of the program plan by EXCOM. He said that a visible structure reflecting the LRP is essential. Carter said that a structure is needed, not panels.

Ludden said that LITHP discussed a planning structure similar to that of Natland et al (see panel minutes). He said that the JOIDES Office has a role in screening the proposals for quality, and that maybe 20% of proposals could be eliminated, with the good ones going to a 2-panel review structure with WG’s or DPG’s as required. These two panels would be responsible for mail review with maybe 20-25 mature proposals then going through a technical review element and then going on
to a scientific planning group with 50% of its members from outside ODP. This group would then be responsible for science planning and pushing 1 or 2 operational schedules to PCOM. He said the two thematic panels have a scientifically valid role to ensure you get the right individuals involved.

Scott said that the core group, as discussed, is just another layer of bureaucracy. Ludden said that PCOM could become the core group if one meeting was spent planning and not on business. Dick said it would give the panels definite jobs 1) advice and feedback to proponents, 2) to provide independent review, and it would allow SciCom to plan and rank the proposals. Ludden said that LITHP would like the two panels to do the ranking.

Hay said that SGPP has possibly the broadest based expertise and they discussed mail review with the conclusion that the quality and content is so variable that unless the reviewers are involved in the system it would prove inconclusive. Also some of the SGPP interests would not be represented in both panels. He said that there are specific interest groups in SGPP and this can be tracked. SGPP is unhappy that they have to be "defenders of turf", and came to the conclusion that there should be four panels.

He suggested that national groups may become involved in which proposals should be selected for submitting for drilling consideration. He said that at the time of regional panels, there were some active proponents and that at the moment some of the proponents are too far removed, and there may be too many filters in the way. He said that proposal "heroes" may not actually be fully aware of what the proponent is trying to do. Kidd said that proposals will hopefully be arising from the international workshops that ODP is trying to encourage. Hay said that in Germany things are very open, and that presentations before proposal submission tends to ensure good ideas go forward. He said that maybe the ODP workshops will be a step in this direction. Moore said he liked the idea of proponents making presentations but asked about the mechanics. Hay said that he didn't have an answer for that, and that ANTOSTRAT have this problem at the moment. He didn't think it would involve a large number of proponents, that there would have to be some degree of pre-filtering.

Fox said that ODP must focus on overarching global issues, and also that there is not a cohesive plan that arises from individual proposals, but that with the use of workshops, integrated long-term strategies could be developed to answer some of the fundamental global questions. Kidd said that is also a mechanism for integration of other global programs. Mêvel said that ODP have been very passive and to become pro-active this Program should try to generate proposals via workshops. Scott said that workshops and WG's open up the Program to the entire earth science community. Natland said that if these groups report to a science committee it will compound the current problem, as they will all be competing for ship time. Brown said that during periods of focus then the number of WG's can simply be cut back. Scott said that things will be predicated by the LRP and therefore any WG's set up will be on items in the LRP, or very good arguments will have to be presented.

Dick said that the arguments of the two models are not exclusive. The thematic panel will perform an independent review and allow a route into the Program for the outstanding, but rare, non-LRP linked proposal. Robertson said that he agreed with Dick, and that a science panel is essential because otherwise the science may become fragmented and dismembered by having two panels.

Carter then reviewed the discussions so far. He saw seven advantages of McKenzie's model:

- 1) competitive at 3 levels
- 2) enfranchises a wider community
- 3) delivers a science lead to SciCom
- 4) provides accountability
- 5) allows for continual program renewal (within context of LRP)
- 6) provides mature proposals to SciCom
- 7) allows for peer review (if desired)

He saw two main disadvantages:

- 1) judge and jury problem
- 2) continuity (panel expertise problem).
Moore said the LRP has a lot of things in it and so there is a huge community that can send in proposals, and that some of the WG's for the larger initiatives may last until the end of the Program. Francis said that PCOM should keep an eye on the liaison with the Science Operator; it will have manpower implications. Kidd said that PCOM recognise that issue but that it can be decided later. Mix said that the discussions are becoming polarised unnecessarily and that the two panel model can also use DPG's etc. and this can provide the continuity required.

Mix said that he would try and present the OHP views. That panel started from the principle of what works well and what is broken. They see the thematic panels as working well, as a good focus for their themes, they see PCOM as requiring re-alignment. First they want PCOM to look at thematic balance (which may now be addressed), second PCOM never ranks the science that cuts across the themes (but PCOM should not be the only science panel), OHP is not opposed to mail review, whilst retaining the nurturing aspect. Kidd said the science balance is considered on thematic panels (except PCOM) and has been addressed by the US membership.

Kidd said that he would like to summarise the issues. He said that PCOM seems to be moving to where the major panel is SciCom, and OpCom could be an annual panel that works with the operators and JOI. He said that PCOM must decide if it wants the thematic panels or WG's or both, how many panels, the ranking and reviewing issue, services panels and their relationship with operators, and timing? He asked if the new structure can begin in January 97? He said that PCOM also has to look at annual scheduling, and where it is taking the Program in the development of planning for Phase IV, and then PCOM needs to look at the mandates and membership of the particular panels and/or WG's.

Suyehiro said that SciCom and OpCom should be integrated, and cited the New Jersey discussion of yesterday. Kidd said that SciCom should simply tell the operators what it wants to see scheduled. Humphris asked if the setting up of WG's is driven by the proposals coming into the system or by the LRP, and that the ground-rules for setting up the WG's must be carefully defined.

Kidd opened this session with a clarification of the role of an OpCom. He said that in his view it should be a sub-committee of SciCom, with the role of fitting together a number of legs (say 10) into a schedule with the operators, SSP and PPSP. He said that before SciCom sends the package to OpCom, SciCom will have been briefed on the implications of the package that they put together. Hay said that there are a lot of other operational questions such as who deals with DCS development. Kidd said that he saw the TEDCOM Chair as liaison to SciCom, and that science and technology matters would be decided by SciCom. Sager said that he and some others believe OpCom is the present PCOM. He said that proposals could go to SciCom who would pass them to review panels. He said that OpCom should be responsible for looking at budget allocations to various projects. Shipley said that he did not mind a SciCom as defined but there are too many issues to handle.

Mountain said that SciCom should really be an implementation committee. Falvey said that the operator and JOI implement the Program. Mountain continued, saying that SciCom should be in the review process ensuring the LRP is followed. OpCom would be the body of experts that see that proposals are realistic. He said that there needs to be another group close to the proponents, and that there should be a review process that can involve people from outside the JOIDES structure. Humphris asked Mountain about the composition of the OpCom, and he replied it should have liaison from the operators, SSP, PPSP. Mix said that the operators cannot be a member of a JOIDES committee. Falvey said that the program implementation is the responsibility of JOI and its subcontractors with advice from JOIDES. The contractors can be permanent liaisons to JOIDES committees. Scott said the committees remits are what to do and when and how to do it. Kudrass
said that looking at where money and ideas meet must be done in one committee because the long-term science goals are predicated on the money available to achieve the goals. Natland said that a SciCom could set out a 5-year plan and it would be the most important committee. He said that it is simply another model for shedding functions to allow SciCom to continue science planning. Shipley agreed that was what he wanted, and maybe the rest of the group. He said that PCOM is always doing trade-offs, and that PCOM has to show the ODP Council what the science themes are by development of a long term science plan, which has to go to EXCOM who then have to try and raise more money. He said the Program will need incremental funding.

Briden responded with a short review. He said the divide between program development and implementation is sound and maybe should not be weakened. He said that he thinks the SciCom has to have the best ideas of what the best science (and technology) should be. He said that absolutely everything is advisory to JOI, and that EXCOM is the body that determines what the definitive advice to JOI actually is. EXCOM sets policy and it approves implementation proposals. A problem will arise if what SciCom recommends is not achievable. He said that it will then be discussed at a higher level or sent back.

Sager said that if SciCom said it needs LWD on Costa Rica but OpCom want a JANUS upgrade, will EXCOM make that choice? Falvey said that BCOM is there to help in that kind of evaluation, though that situation should not arise if planning is done properly. Kappel said that SciCom should provide advice to the management as to what they want to see implemented, with priorities. They should ask the management to implement these priorities and for management to report back what cannot be done. Dick said that PCOM have a desire for one deadline per year, and that change would change the workload of this committee and should allow SciCom and OpCom to be the same committee with one science meeting per year. Mix said that he wanted to respond to Kappel, and that he thought relying on the contractors would slow things down. He said that if SciCom and OpCom were separate committees then the reporting lines would be different and the workload should be spread. He said that SciCom could signal ready programs to OpCom for technology development and scheduling as and when possible. Falvey said that the relations between the contractors and advisory panels is interactive. Brown said that he is in favour of the split between SciCom and OpCom, and cited New Jersey as an example, he said that WG's should also have some kind of representation. Larson said that the Program is too big and complicated for one group to run. He said the technology is overwhelming and the operational aspects are also very complicated. He said that PCOM views itself as a candidate for SciCom, and that it seems there is a strong desire not to give up any level of control. Kidd said that he is hearing the view that OpCom is larger than he envisaged earlier, and PCOM is approaching consensus, but it has to look at the question of thematic panels.

Larson said that he considers some more permanent thematic-like panels between SciCom and the WG's, and he proposes that there be two, who would be reported to by the various WG's. The WG's would generate proposals, panel level would be where review occurs, SciCom would rank, and OpCom would execute. Brown asked if the review level should be one or two committees, but if two they should meet at the same place and time. Sager said that the smaller the number of committees the better, and a bigger committee working with lots of WG's would feel less pressurised. Natland said that the inter-panel competition should not happen at this level, and that the SciCom would ensure that it did not. Robertson said that he is now convinced that we need a tier below SciCom but there is still a need for some independent review element. Mével said that SciCom creates the WG's and so should control its own workload. Carter said that he is sympathetic to science review panels as opposed to thematic panels. He asked what the role of the SciCom would be if there were individual review panels. Mix said that Larson's model separates church and state and he is supportive of that with the "thematic" panel handling mail review and SciCom doing cross-theme ranking.

Kidd asked for a straw poll of the need for a level between the SciCom and WG's. There were 9 in favour, 4 against, and 2 abstentions. Mountain commented that the responsibility stops with JOI and PCOM must ensure the best advice is given to it, and he said that this seems to be a workable solution. Kidd said that he didn't want to give the science leadership to JOI. Carter asked what SciCom would do if review panels were involved, and was told that it would do long term science planning and ranking. Carter said that experience shows that we have closed down WG's due to monetary reasons, and that, practically, the money may not be there to support this ideal.
Kidd asked for a straw vote on the number of review panels:

- One: 6 in favour
- Two: 7 in favour
- Four: 1 in favour

1 Abstention, 1 Absent

Dick said that he voted for two because of the workload issue. Brown said that if the WG is doing its job properly then there should not be that many proposals going to SciCom. Mountain said that PCOM should not think that it necessarily has to have something in the advisory structure that reflects the LRP. Natland reminded PCOM that it does need to have enough people on the committee to give a broad sense of advice, and that either has to be 16 (which may be too few), 32 or 64. Mix said that the structure is appropriate to mirror the LRP, both for the workload reason and to give focused advice. Kudrass said that with a review level, he couldn’t see what work was left for the SciCom. He wanted to see a more established and firm structure to retain continuity, and he reminded PCOM of the recent change of 3 to 4 year terms for thematic panel members. Mével said the expertise problem disappears if peer review is utilised. McKenzie said that she has lost track of the WG’s. Larson said that one large panel could divide into sub-groups to address certain issues. Shipley asked what the panel’s would be? Kidd said they would be science review panels. Shipley said that the Program does need a lot of expertise and he was now happy to go along with either one or two, though he voted originally for one.

Hay liked the suggestion of one large group divided into subgroups, with different sub-groups meeting together each year. Dick said that he was very worried about sub-groups which may involve too strong a thematic focusing, something that the Program is trying to avoid. Humphris said that PCOM could arrange for meetings to be held jointly so that proposals that fall between the cracks could be caught. She said that this would then allow specific mandates. Robertson said that he supported that idea, especially in not losing proposals between the cracks by having the two panels meet together. Ludden said that it was a very good idea.

Briden commented that the panels do not have to be 16 or 32, it could be 16 plus 4, 6 or 8 internationally respected scientists who are invited by JOIDES. He said that he has a charge that the implementation plan should address science priorities. He asked what was in this plan to ensure that the science priorities of ODP had been addressed. Kidd said that it will be in the mandate of SciCom. Briden said that it is mandatory for SciCom to set up WG’s along the lines of the LRP. Falvey said that SciCom’s long term plans will allow the contractors to plan delivery of the science required.

Coffee 15:15-15:45

Larson presented a motion and it was then opened for discussion and modification. Dick and Mével asked that there be no reference to affinity to the LRP in the role of the panels, and it was agreed that this can be removed. Mix suggested that there be no compulsion to always meet together. Mountain and Larson said that they should always meet together but could split apart into specialist sub-groups if required. The vote was then taken.

**PCOM Motion 96-1-15**

PCOM (or its successor, ODP Science Committee, SciCom) will establish two science review panels in line with the two major themes of the Long Range Plan. These panels will be generally tasked with the review of ODP proposals for scientific quality and potential feasibility (potential feasibility may require development of new capabilities and technologies). These panels will meet at the same time and place so that they can discuss divergent issues separately, and common issues together.

Proposed: Larson, Seconded: Natland

12 For, 1 Against, 1 Abstain, 2 Absent
Kidd referred to a sketch of the "new" structure, and Sager asked about the level of membership, saying that there would be too many people involved. Kidd said that need not be the case. Brown asked about WG's feeding into OpCom for equipment matters, and suggested that TEDCOM could have a quasi-engineering review role.

Kidd then opened discussion of the service panel system, by saying that SSP, PPSP, and TEDCOM should remain untouched, with an amalgam of DMP, SMP and IHP. Mountain said that SSP may require some input to the review process and it must not be allowed to input information too late. Mix agreed that this was required and said that PCOM should ensure that some liaison function is built in. Dick suggested passing the measurements function on to JOI, as it was not really part of the science planning. Kidd said that group also needs to be in a link through the JOIDES Office as an oversight function. Sager asked for clarification. Dick said the measurements would be advisory to JOI with liaison to science planning through the JOIDES Office. Sager said that he thinks that IHP would be happy with that, but the combination of all panels may prove a problem. Falvey said that the composition and expertise could be streamlined and JOI could ask national committees for specific expertise to address specific issues. Brown said that there are some major issues that should not be portioned off on a sideline, and he wanted to see a WG system. Falvey said that the JANUS database Steering Committee is a de facto WG.

Malfait said that a major initiative is in-situ monitoring, and he couldn't see how this could be done without a connection to DMP. Mével and Kidd said that a WG could be set up to look at this. Dick said that maybe the DMP expertise could be moved into the thematic level groups. Sager asked if core-log integration would have evolved if SMP and DMP had not existed. Falvey said that a WG could have addressed that. Mix said that it may well have happened faster with a specific WG. Kidd agreed that joint DMP/IHP/SMP was a good idea but that it was a detail.

Shipley then said that he thought that SciCom would be mainly feeding the WG's. Mountain said that it was a way for mature proposals to be fed to SciCom. Dick said that he would like to see an independent path for proposals to get to SciCom. Mével said that was exactly the role of SciCom. Dick said that he would like to see reviewed proposals going to SciCom. Mével again said that was the role of SciCom. Dick said that ODP will have to say whether SciCom will to see all unsolicited proposals or if it will only see filtered proposals. Shipley said that the proposals should go through the JOIDES Office to the WG's. Humphris said that PCOM is talking about two processes and the question is to do with the links between the panels. Brown said that there could be a liaison, and Natland said that the chairs of the WG's could appear at the August SciCom meeting for reports. Mountain said that PCOM was supposed to be trying to unburden itself from this. Dick said that it should not be up to SciCom to determine drillability, SciCom should be seeing packages of proposals. Mountain said that the review committees must be entrusted to keep SciCom involved. Mix said that most discussion should be between WG and review panels and not WG's and SciCom. He would prefer the proposals to go through the JOIDES Office and review panels to allow SciCom to keep their eye on long range goals and ranking in an interdisciplinary manner. Mix said that PCOM should look at where the current system is broken, at present PCOM says it's the panels and vice versa. Kidd said that the WG's give the opportunity to interact with other Programs and address the initiatives in the LRP. Natland said that a liaison from a large-agenda WG should present an overall perspective on where the WG stands, and also targets that are close, or ready to go, at the same time that the science review system presents what else is on offer, so that the SciCom can then balance how it wants to respond in its long range planning. Falvey said the WG's are the cutting edge of the Program that will integrate with other Programs. Fox said that it is incumbent on WG's to show how a set of legs will address a given problem, so that ODP can show how each leg has contributed to a major science question. Moore said that should be the way that a science committee works, and Brown said that he too agreed with that view.

Kidd said that he will take the advice offered during this discussion and produce a draft plan that will be circulated for further input and comment after this meeting. Detrick asked who is responsible to whom? He felt that the SciCom should be the top level and that OpCom should report its proposals back to SciCom. Kidd said that SciCom would report to EXCOM, and Falvey said the annual program plan is presented to EXCOM by JOI and then it is presented to NSF.

Falvey reported that the cycle is: at December PCOM the legs are decided upon, the JOIDES Office writes the science plan, the operators write the program plan, JOI adds in the budget and sends a draft to NSF for comment, then the plan goes to EXCOM and finally back to NSF for final approval.
Briden said that if there is a reporting line put in from OpCom to SciCom there will be a temptation for re-examination of the program plan, and that the program plan should go on direct to EXCOM from SciCom/OpCom. Francis asked about BCOM, and Briden suggested that this is not the appropriate forum for a discussion of BCOM.

Humphris said that the relationship between SciCom and OpCom must be made crystal clear, and that SciCom must have an opportunity to review the OpCom science plan. Falvey said that there is a danger of holding up the cycle. Shipley said that OpCom must take on more than just an annual scheduling role, including budgetary issues. Kidd said that the key item will be the fact that PCOM/SciCom will know what the budgets for each leg will be and this should make planning much easier. Kidd reminded PCOM that the submission to EXCOM in June is a draft and that PCOM will have further opportunities to look at this.

Kidd then moved on to the timelines and asked if the "new" Program could start with proposals submitted for 1 January 1997? Larson reminded PCOM that the USSAC input will take time, although personally he would like to see this implemented within a year. Kidd said that PCOM must let the community know. Falvey quoted that the LRP invites the new structure from 1 January. Hay suggested asking the contractors for their deadlines and then working backward. Moore asked about the current proposals that are in the system, and suggested that SciCom could establish WG's based on those. He did not see any problems with a January 1 start.

Natland suggested that PCOM take some time in August to discuss a 5-year plan, and that PCOM ask the thematic panels look at the current proposals and categorise them in terms of the LRP. Scott said that he has to have his Program renewal proposal submitted shortly, and asked when the implementation will occur. Kidd said that the review level would be in place for Spring 1997. Scott said that he has already been asked where Canada sits in the planning process, and he must be able to articulate that. Dick said that membership of WG's will be determined on the activity of the scientists. Humphris said the top half of the advisory system should be reasonably easy to re-organise, but the WG's may be more difficult, and that the Program may have 6 months to a year when the bottom part may not be as well developed as hoped, and the review panels may have to pick up the slack. McKenzie said that she didn't think it would be too difficult to do.

PCOM Consensus 96-1-16

The Planning Committee recommends to EXCOM the following three-tiered structure to carry out scientific planning and implementation in the period 1998-2003:

1) Establishment of an ODP Science Committee (SciCom), concerned with proposal ranking, long-term scientific planning, and implementation of the ODP Long Range Plan. An ODP Operations Committee (OpCom), chaired by the SciCom chair, will be responsible for the annual program plan, budgetary matters, panel recommendations, and issues concerning the operators. OpCom would also be responsible for monitoring technical developments needed to meet long-term phased scientific objectives as identified by SciCom and the LRP. It is charged with monitoring these developments so that they are properly budgeted and meet time lines for inclusion in the multi-year science program.

2) Two review panels, dedicated to the themes of Earth's Environment and Earth's Interior, which will work both with proponents and working groups to handle proposal evaluation, and external peer review.

3) Working groups created by SciCom, possibly in conjunction with international geoscience initiatives, and individual proponents, will prepare proposals for drilling or other experiments using drilling platforms. Mature proposals would be passed from the working groups to the relevant review panel.

PCOM will prepare a summary statement of its deliberations on these issues, explaining the rationale for the changes, panel mandates (including those of the service panels which are not addressed here), and the manner in which these panels and committees would work together, with the JOIDES Office, the operators, and with JOI. PCOM recommends that the new structure be in place by January 1, 1997.
Kidd said that the evolution of the advisory structure will be dealt with by preparation of a draft document, based on yesterday’s discussions and consensus items, that will be circulated by e-mail for comment so that the draft can be presented to EXCOM June.

G. BUDGET ITEMS (CONTINUED)

Kidd asked the operators to re-consider their funding requirements to try and get LWD for Costa Rica included in the Program Plan. Falvey said the over-riding philosophy was to try not to disturb ODP-TAMU’s budgeting too much. He said that items 25, 24, $50K from 21, 15, $25 from 12, most of item 11 could be moved to accommodate the LWD. He said these changes will give $220K, and the principal cost is the resistivity tool test. Sager asked about “part of the core image capture system”. Falvey said that $25K of that was a non-discretionary salary component, and the system will still be developed. Mountain asked if the resistivity tool test can be done a year later? Goldberg said that it could be. Mével said that she is concerned that GHMT is being removed from two legs. Mix said that item 16 was mentioned, and in his view it was interesting but not essential for immediate operations, and was an opportunity to attract outside funds.

Falvey said that he has tried to maintain some balance in the X-base for the future. He said if PCOM always puts things off for operational reasons, then there will never be any future developments. Shipley asked if the Diamage could have been funded from outside, and if BCOM had a bigger list to work from. Kidd said there was a bigger list originally and that this was a pilot for future years. Kidd said that in future this list will go before SciCom for prioritisation. Mix said that he sees item 16 as less essential than item 11 and the $25K in item 12. Goldberg commented that with cost-savings item 11 (GHMT) is the kind of thing that would be reinstated first. Kidd reminded PCOM that it gave the contractors the job of finding the funds and this is their model. Brown suggested that some money could be saved on data migration for item 11, and Falvey said that the amount suggested for the data migration may not be fully used, and some re-direction is possible.

Fox said that ODP-TAMU don’t yet have a clear definition of how the historical migration should be described. He said ODP-TAMU will announce a workshop for participants who would like to be involved in defining a model for data migration, and then an RFP could be defined, and then pass on the appropriate amount of resources. He said it will be a small effort on ODP-TAMU’s part and a large part of someone else’s effort. Kidd said that there are other ways of retaining the GHMT on Leg 171 and he suggested that this be the first priority to move above the cut-off line at $3.5M. Goldberg said that as money becomes available things can move above the line, but some items will require lead time.

PCOM Motion 96-1-17

PCOM recommends that the $221K estimated for item 29 (Costa Rica LWD) of the tabled X-base budget be moved in priority to above the funding cut-off line. To preserve budget balance, PCOM recommends that the equivalent $221K be moved to below this cut-off line by removing the following items: Resistivity at bit LWD tool test, CORK bottom hole televiwer, $50K from pre-JANUS data migration, NW Atlantic Sediment Drifts GHMT (Leg 172), $25K from the core-image capture system, and most of Blake Nose GHMT (Leg 171C). The top priority for reinstatement, should funds become available, is the GHMT tool for Leg 171C.

Proposed: Carter, Seconded: Dick 12 For, 0 Against, 3 Abstentions, 1 Absent

L. OLD BUSINESS

1. CONFLICT OF INTEREST

Larson reported to PCOM with a brief history of the new Conflict of Interest definition promulgated by EXCOM, and he referred PCOM to the report in the agenda book. He pointed out the three things that are different from previous versions. 1- there are different degrees of Conflict of Interest, and so the sub-committee wanted to define potential Conflict of Interest, but, he said, the
ultimate determination resides with the chair of the meeting. 2- the sub-committee have eliminated the "prospective" Conflict of Interest element, as this was not at all practicable. 3- it has extended the definition of Conflict of Interest to include Institutional conflict, and he said that this was in line with NSF policies. Larson said that this was specific to Institutions and would not affect Country representation.

Larson asked for discussion on the opening paragraph. Carter said he was sympathetic to the intention, but he said that on the budget list there was an Australian company, so was he conflicted? Larson and Kidd replied that he was not. Carter replied that he was still not happy, because he thought that most people in this room would be conflicted. Kidd asked the EXCOM chair to comment. Briden said that his view was that the members were here as individuals, as suggested by Dick, and he confirmed that the chair's decision would be final. He reminded PCOM that any decision here will go to EXCOM, and EXCOM will have its own views, and also that the panels are advisory to the main contractor, and it is they who have to look at the legal dimension. He said that JOI may have to act differently to protect the corporation. Falvey said that the last point was very important, and he had taken legal advice. He said the key issue is firstly open disclosure, and secondly that the interest of the world-wide ocean drilling community has to be uppermost. Humphris said that in terms of institutional conflict, each member has to declare that potential conflict, but the rest of the text defines what can or cannot be done. Sager said that both himself and the LDEO member had voted on financial matters that concern their own institutions, and Falvey said that so long as they have the best interest of the community as the uppermost consideration then there is no problem.

Malfait said that he has a problem with the use of the word potential. He said that NSF went through a very long exercise on Conflict of Interest, and in Carter's case, yes he did have a conflict, but the question is was that conflict serious enough to Exclude him from the meeting? Malfait said that Project Involvement, Institutional, and family relationships are the only three issues that NSF considers automatically excluding as conflicts. Falvey said that the JOI lawyers said that institutional conflict of itself was not an issue. Kidd asked Larson if he would remove the "potential" aspect? He said that he would be happy with that. Falvey said that if elements of doubt over Conflict of Interest exist, then it should be brought to the attention of the chair who will make a decision.

Kidd asked Larson to move on. Larson then reviewed actions as defined in the report. PCOM commented that specific definitions of "equipment" should be removed.

Falvey said that one of the key things was that substantive issues require a substantive vote of all members, and that by abstaining it is still counted as a vote. He said that a quorum for PCOM consists of at least 2/3 of the US and 2/3 of the non-US voting members. Conflicted members are not required to leave the room during voting, and they can vote by an abstention. He said that PCOM can choose to set higher standards but should keep an eye on the quorum. Falvey said that individuals should refrain from substantive discussion that is leading to a vote. Carter asked if that meant there had to be a motion on the table. Falvey said that it was not necessarily so, and he said that it was still good practice to have members leave when their proposal is being discussed. He said the over-riding rule is that members must put foremost, the service of the wider community, especially with strategic issues.

Kidd pointed out that Falvey brought to EXCOM a revision of policy on Conflict of Interest, and he asked if there would be any changes. Kidd said that Larson et al have produced a report on specific items of concern to PCOM, and this report should be refined so that it can be passed to EXCOM. Falvey suggested that since it is JOI's responsibility to change the policy manual, he could draft this so the policy manual would contain guidelines. Moore said that currently the wording says that conflicted members will be excluded during discussion of ANY proposal in the potential ranking. He said that would mean the room could be emptied during, for example, the December meeting. Mével said that the PCOM chair has the discretion to ask members to stay in the room. Carter said that he did not understand the implications, but he would rather be out of the room during all of the discussions. Natland said that comments may be offered on proposals other than their own, but when a ranking is being discussed they have to be quiet. Kidd said that PCOM must be forward thinking, and for example, SciCom should be made up of unconflicted members. Dick said that SciCom would allow alternates to be used much more. Mountain said that he felt compelled to leave for free and open discussion of his proposal, and that PCOM should also do this to demonstrate to the community
that there is no conflict. Mével said that PCOM must find a way to keep members in the room during discussion.

Falvey said that during presentations from panel chairs, proponents are not in conflict, however, with the scheduling issue, it becomes substantive as it is heading for a vote. When it gets to a specific proponents discussion, the proponent should leave the room; he said all PCOM members should be in the room for the vote, but proponents should abstain. Dick said that voting on a package of proposals can then include proponents so long as they abstain and so long as they were out of the room for the individual proposal discussions. Falvey said that he would draft some guidelines based upon the discussions and presentation here, and circulate them for comment before submitting them to EXCOM. Scott said that Malfait's suggestions were very sensible and that spousal relationships should be covered. Mountain said that NSF had three automatic exclusions, and all other instance are on a case-by-case basis, and he asked if this was what the first paragraph meant. Larson said that it was not because it would unfairly penalise large institutions.

Kidd asked Larson to re-draft the motion during coffee, and then said that PCOM must decide if it wants proponents in the room to hear discussion.

**PCOM Motion 96-1-18**

Conflicted PCOM members should not be present during that part of a PCOM meeting when any substantive discussion of any proposals or voting leading to an inclusion in or exclusion from the upcoming schedule takes place.

Proposed: Larson, Seconded: Mountain 12 For, 3 Against, 0 Abstentions, 1 Absent

Coffee Break 10:17 - 10:54

Larson presented the re-worded definition of Conflict of Interest and presented it to PCOM for any further discussion. There was none and so the vote was called.

**PCOM Motion 96-1-19**

PCOM recommends the following to EXCOM:

A. Definition of Conflicts of Interest

If any JOIDES panel or committee member has any interests, affiliations, or relationships that might affect his/her review of, or decisions relating to, an ODP drilling proposal, the member is required to declare his/her interests to the Chair. Such interests, affiliations or relationships include (1) being a proponent of the pending drilling proposal or an associated site survey proposal, (2) being proposed as a co-chief scientist. All such conflicts of interests, and the actions taken, will be recorded in the Minutes of the meeting. Based on the nature of the proceedings and the nature of the member's interests, the following courses of action should be taken.

B. Courses of action to avoid Conflicts of Interests:

1) Members who declare a conflict of interest that is deemed by the Chair not to be serious (e.g. from the same institution but in entirely different fields with no working relationship) will participate fully in the discussions and voting of proposals. When deciding if an actual conflict exists, the Chair may consult with other members of the group for advice, but the Chair's decision is final.

2) Members who are not conflicted as defined but who are deemed by the Chair to be in conflict with the common best interest (e.g. close working colleagues, scientists managing specific equipment, being a member of the same institution as a proponent) will refrain from any discussions relating in any way to the proposal and from voting.

3) Conflicted panel members should not be present during that part of any panel meeting when proposals with which they are conflicted are being discussed, reviewed, or ranked. Conflicted PCOM members should not be present during that part of a PCOM meeting during substantive discussion of any proposals or voting leading to inclusion
in or exclusion from the upcoming schedule. In PCOM meetings where specific expertise is required in order to fairly evaluate a proposal, the Chair may permit conflicted members to be present for discussion of proposals other than their own. However, these conflicted members must restrict their comments and discussion to the scientific objectives of those proposals and will refrain from making comparisons with their own proposals and from voting.

4) During discussions that do not involve competitive ranking of proposals (e.g. determination of the long term ship track at PCOM), all members will be allowed to participate fully in order to provide a full range of expertise to the decision-making process.

Proposed: Larson, Seconded: Sager  13 For, 0 Against, 2 Abstain, 1 Absent

Kidd thanked the sub-committee for their work on this item, and he asked Mix to present the Voting Procedures motion again.

PCOM Motion 96-1-5

PCOM adopts the following four-step voting procedure for purposes of determining a drilling schedule.

Step 1: Choose programs to retain for purposes of ranking, based on whether they are sufficiently ready in terms of site survey and safety, and are within a reasonable region of operations. PCOM retains two options for this step:

Option 1: Panel consensus on recommendation of chair.

Option 2: Show-of-hands vote on each drilling proposal, with retention of a proposal for ranking based on 50% or more of votes in favour. Conflicted members of PCOM will be excluded.

Step 2: Rank proposals based on scientific quality. Given X programs retained from the previous step, un-conflicted PCOM members will rank programs from 1 to X, on a signed paper ballot. After voting, written ranks of each program by each voter will be tabulated and reported (in PCOM minutes) in a matrix, along with a calculation of mean ranking of each program. A draft schedule will be constructed of top-ranked programs. Conflicted members of PCOM will be excluded from Step 2 in its entirety.

Step 3: In a case of statistical ties in rankings that affects the choice of programs to drop from the schedule, PCOM will choose between closely ranked programs on this boundary based on a one-on-one vote using signed paper ballots. A majority vote will choose the program to retain on the schedule, and the draft schedule from Step 2 will be adjusted accordingly. Conflicted members of PCOM will be excluded from Step 3 in its entirety.

Step 4: After assembling the draft schedule from steps 1-3 into a cruise track, PCOM will consider the logistics, costs, and quality of the proposed schedule as a whole. PCOM will vote with a show of hands to accept or reject the schedule in its entirety, based on a simple majority of votes cast. Rejection of the schedule at this stage dictates a return to Step 1 in the voting procedure. Conflicted members of PCOM will be excluded from Step 4 in its entirety.

Proposed: Mix, Seconded: Kudrass  14 For, 0 Against, 1 Abstain, 1 Absent.

Natland said that he felt sending all conflicted people from the room during an evaluation of site survey readiness was unnecessary. Kidd said that if people are in the room, there are subtle nuances that could affect the discussion. Kidd said that if discussion is purely technical it will be up to the chair to include proponents in the discussion (so long as it is not their proposal under consideration). Mix said the process outlined here will be involved after the formulation of the prospectus. Mountain said it must be clear that if conflicted members proposals are removed from the schedule then they are no longer conflicted.
2. CALL FOR PROPOSALS (RESPONSES)

Kidd asked JOI to report on progress with the advertisement. Falvey said that it has been in EOS and in the USSAC newsletter. Kidd reported that it is also in the UK newsletter, but so far it has not got to the community outside ODP. Kidd said that it should not just be EOS. Kidd suggested Nature and maybe Science. Carter suggested New Scientist. Falvey asked for an order of preference, which was as follows: 1) Nature, 2) New Scientist, 3) Science.

Detrick suggested Geotimes or GSA Today rather than Science. Briden suggested that members should take this up in their own countries.

3. PCOM RESPONSES TO PANEL RECOMMENDATIONS

Kidd said that first he wanted to bring up some other items. Kidd said that the Inspector General’s report on Publications seems to require a response. Malfait said that there was no requirement from PCOM. Kidd said that even so, PCOM should make a response. Falvey said that JOI would be making a response with input from Dick’s subcommittee. Kidd said that he wanted EXCOM to see the PCOM comments before JOI responded. Falvey said that Dick will help Falvey and Kappel to draft a response to NSF (it will actually go to Mike Purdy). Dick said that PCOM should be e-mailed a copy of the draft response and it should be made clear to NSF that the JOI response has the PCOM response embedded in it.

Kidd suggested that PCOM wait until after EXCOM have considered the proposed new structure before PCOM makes detailed responses to the panel recommendations unless there is anything urgent.

LITHP No urgent items
TECP The panel wants DMP to look at core orientation (JOIDES Office action item to write to DMP chair).
SGPP ANTOSTRAT Working Group.

Kidd said that ODP should have some proposals available for consideration for the July deadline, so there is a timing problem. Mix said that he didn’t think that this would be possible. Kidd said that he meant that a refined proposal would be required for submission. Hay said that the WG is required for late May or early June, and that the proponents are to supply data to the SSDB. Kidd suggested that PCOM delegate Hay and Kidd to determine actual membership from a suggested list. Natland said that there should be reference to Southern Oceans drilling to put this item into context. Kidd and Mix said that they wanted a focused ANTOSTRAT WG. Mountain is concerned with the workload that could arise from this. Kidd said the data is being considered for submission now and a proposal could be in the next prospectus, so it will be focused. Natland said that any drilling in that region should have its context established. Specific proposals will not be included in the motion, they will be determined by SGPP Chair, PCOM Chair and JOIDES Office.

PCOM Motion 96-1-20

PCOM recommends the formation of a Detailed Planning Group, chaired by SGPP Chair, W Hay, to further develop and prioritise proposals near Antarctica related to the history and extent of Antarctic Glaciation and Climate (the JOIDES Office will determine which proposals and LOL’s are appropriate). The mandate for this working group is to: 1) develop viable drilling plans to constrain the timing and extent of regional glaciation, 2) guide the proponent groups as they assemble relevant site survey information and submit it to the Site Survey Data Bank, 3) prioritise the proposals based on scientific quality and consistency with the ODP Long Range Plan, 4) consider operational constraints, recognising that weather will likely limit the extent of drilling operations in the region, 5) submit a drilling plan for possible inclusion in the 1998 drilling prospectus for the August 1996 PCOM meeting, and further reports if needed for Fall 1996 thematic panel meetings and the December 1996 PCOM meeting. PCOM will evaluate in its December 1996 meeting whether to disband this DPG, or continue its operation.

Proposed: Mix, Seconded: Larson 14 For, 0 Against, 1 Abstain, 1 Absent
OHP  Drilling time to appear on WWW - Francis has agreed (ODP-TAMU asked to investigate), also logging times.

SSP  Mountain and Kudrass have drafted responses which they presented.

SSP #1  Differential GPS. Mountain said that this may cost about $70-100K. Francis said that there is a system that applies to the US and it needs extension to global coverage.

**PCOM Consensus 96-1-21**

PCOM requests that ODP-TAMU investigate the use of differential GPS on board the JOIDES Resolution, and report at the August 1996 PCOM meeting.

**SSP #2**  ODP-TAMU liaisons to every SSP meeting.

**PCOM Consensus 96-1-22**

PCOM request that JOI ask ODP-TAMU to re-define its budget priorities and ensure that ODP-TAMU liaisons to SSP are able to attend every meeting of that panel.

**SSP #3**  Site Survey requirements for deep drilling. SSP did not have the necessary expertise on their panel and they need advice. Francis referred to Natland's report on p.486 of the agenda book, saying that some JOIDES Resolution drilling will be required as a preparation for OD21 drilling. Natland said that the WHOI workshop could come up with some kind of statement that could be sent to panels for their comments and suggestions. Dick said it may be appropriate for the convenors to write a report, but after that PCOM should consider whether they need a joint WG from all the panels. Dick said that knowledge of the deep structure before drilling a deep hole is crucial, as demonstrated by the experiences of the German deep-drilling site. Brown said that the MARGINS group needs to be brought in on this and that all communities need to have input.

**PCOM Consensus 96-1-23**

PCOM requests Henry Dick and Catherine Mével to ask one or more of the Working Groups that will be formed at the upcoming ODP - InterRidge Workshop to be held at Woods Hole Oceanographic Institution, to include in their discussions potential site survey requirements for successful deep oceanic crust drilling, using a riser. They are asked to report at the August PCOM meeting.

Kidd asked how PCOM can make these workshops happen quickly so that PCOM can get the WG's together, and whether or not they could be "internationalised"?

**TEDCOM**  No urgent actions (see panel membership below).

**SMP**  Nothing specific.

**IHP**  Whole-round samples for biological studies - Sager reported that IHP resists this unless absolutely necessary. Hay to write to IHP chair for discussion.

Recommendation #3 will be on the August agenda for detailed PCOM discussion.

Recommendation #4 the Science Operator has to work within its budget, and will do all that it can.

**DM**  Dealt with main recommendation (see PCOM Motion 96-1-7).

**PPSP**  Nothing specific.

4. RED SEA PROPOSAL

This has been dealt with.
M. NEW BUSINESS

1. PCOM CORRESPONDENCE

Dealt with earlier.

2. FUTURE MEETINGS

August 1996

19 - 22 August (full day on 22nd). 3 1/2 days with half day on Wednesday 21st.

Field trip before meeting (Saturday and Sunday), arrive Cairns Friday evening. Go to Great Barrier Reef on Saturday as a group with other tourists to outer reef with pontoon mooring, with snorkelling, fishing and scuba diving and lunch. Full day trip. Sunday trip to Great Divide Range and trip through the rain forest canopy. Remainder of that day’s possibilities include reef overflight. Fly back to Townsville on the Sunday night. Meeting is at the Seagulls Resort.

December 1996

Sat 7 Dec - Friday 13 Dec 1997. Biosphere, Arizona. AGU starts on the Sunday. Monday 9th would be a field trip. The Biosphere is about 40 minutes from Tucson, but it is an isolated site, reasonably priced transportation would be investigated.

Spring 1997

ODP-TAMU will host in April 1997.

August 1997

McKenzie offered Switzerland as hosts for this meeting.

3. OTHER BUSINESS

Francis said that Hans-Christian Larsen is seeking involvement with ODP that has staffing implications (p.475 in agenda book). Francis wants to bring PCOM’s attention to this and asks it to express a view. Francis said that he could wait until a more formal request is forthcoming. Kidd said that this joint working with another Program is just what is spelt out in the LRP. Dick said that it would be helpful for Larsen and be good for ODP to be involved in this. The action item will be on Kidd to respond.

PCOM Consensus 96-1-24

PCOM confirms its strong interest in the Greenland margin scientific drilling program of which ODP Legs 152 and 163 were a part. Completion of shallow water drilling within the context of the Danish Lithosphere East Greenland Margins program is an exciting opportunity to link JOIDES to programs with other resources.

PCOM would welcome further information and discussion with the Danish Lithosphere Centre on possible linkages. JOIDES is committed to establishing direct mutually beneficial relationships with other scientific groups using drilling or coring platforms.

Francis then said that Hans Amman from Berlin will be applying to the European MAST Program to upgrade the PCS, and he wants to borrow one of the tools. Francis sees no problem with this. Kudrass said that there will be some developments done as the German Science Foundation will also provide some funds. There was agreement that this should be done.

PCOM Motion 96-1-25

PCOM accepts the DPG Report on a drilling plan for Leg 172 and agrees to its recommendations, with the following amendments: 1) use of the GHMT tool is not advised for any of the Leg 172, and 2) at Site BBOR-4B, penetration by double XCB to recover Pliocene sediment will precede efforts to begin a third XCB.

Lunch ............................................................................................................................................ 12:45 - 14:05
PCOM thanks the Detailed Planning Group members, the co-chief scientists, and the DPG chair Greg Mountain for a job well done, and disbands the group.

*Proposed: Mix, Seconded: Carter*  
15 For, 0 Against, 0 Abstain, 1 Absent

Mountain asked if this was too much micro-management by PCOM? Carter said that, yes, as a generality, but there was a long history of trying to get this proposal into good shape and there was no decisive action until this DPG was formed.

Kidd said that there is great importance to the initiative taken by USSAC for the change in PCOM membership and PCOM needs to express whether or not it supports this.

Mix then proposed the following motion.

**PCOM Motion 96-1-26**

PCOM supports the general principle that all PCOM members should be chosen on the basis of scientific excellence but also in consideration of the need for thematic balance on PCOM. PCOM notes as a welcome example USSAC’s recommendation to open PCOM membership to scientists from non-JOI institutions in the U.S.A.

*Proposed: Mix, Seconded: Carter*  
15 For, 0 Against, 0 Abstain, 1 Absent

Shipley said that he would prefer to see a more general principle. The wording was re-arranged with PCOM agreement. Carter said this means that national committees must liaise with the PCOM chair to ensure scientific balance.

**4. PANEL MEMBERSHIP RECOMMENDATIONS**

Kidd asked if PCOM should continue with this or wait until after EXCOM has looked at the proposed changes, and PCOM simply request retiring members to stay on until things are resolved.

**PCOM Motion 96-1-27**

There will be no changes in the JOIDES panel membership at this time. Members due to rotate off will be asked to continue to serve.

*Proposed: Natland, Seconded: Sager*  
15 For, 0 Against, 0 Abstentions, 1 Absent

In terms of meeting locations, Kidd suggested that the other panels have their last meeting in College Station, apart from SMP and possibly TEDCOM who will be trying to meet with OD21 representatives. Carter said that PCOM should not ask them to do this for their last meeting. McKenzie said that she feels it important for members to host meetings at their home institutions. Falvey said that unless a sound case was made, he would not allow USSAC to fund travel to Oman. Kidd said that there is no enthusiasm for his plan, but that he will insist TEC meet in a member country, but will not insist on College Station. Movel said that she is concerned about the locations of post-cruise meetings. Francis said that it is the majority view of the science party, but all the party do not turn up if it is in an “exotic” i.e. expensive, place. Sager said that the shipboard party each have a $1500 stipend to spend and any excess would come from elsewhere.

Kidd suggested that he reflect this concern of the costs in a letter to the relevant national committees. Shipley suggested that PCOM ask EXCOM to ensure that post-cruise meeting locations are approved by the JOIDES Office. Humphris said that the co-chiefs have to write to JOI justifying their choice of location, with a copy to the PCOM Chair. Mountain said that he has experience of this process and he has been asked to justify locations. Kidd said this is not PCOM’s remit, and Falvey can take the message back to USSAC. Kidd said that he has not had many copies of these letters and if he sees them he will raise the mater with JOI.
Kidd said that PCOM have to get the TEDCOM chair more involved, and that the present TEDCOM chair has not had time to deal with all the ODP business. He said that Earl Shanks has agreed that he could give up the chair, and passed the names of possible replacements to Kidd. Kidd said that Frank Schuh chaired the last TEDCOM meeting, and Shanks also suggested Alastair Skinner. Kidd asked PCOM for other suggestions and also said that ideally it needs to be someone without too many constraints on their time, for example someone from academia or a government institution. Moore said that this was absolutely right, and also that the retired people who currently serve on the panel didn't want to spend more time on TEDCOM business. Moore said that Skinner would be an excellent choice. Francis suggested Frank Williford who has recently retired from SEDCO/FOREX. McKenzie said that she too was enthusiastic about Skinner, who had been very helpful during the Australian Barrier Reef drilling. Francis said that he thought that Gary Marsh had been mentioned, Natland said he didn't think Marsh wanted the commitment. Kidd said that he would take this forward on behalf of PCOM, noting the names mentioned.

5. PCOM MEMBERSHIP AND LIAISONS

Kidd asked who would be unavailable for the meetings. Larson is trying to get Johnson to attend SMP. Kudrass will go to the SSP meeting.

6. PCOM THANKS

PCOM Motion 96-1-28

PCOM expresses its appreciation to Wolf Berger for his years of service on PCOM. His astute comments, charm, sense of humour, and philosophical perspective have greatly enriched our deliberations. We wish him continued success in all his endeavours and look forward to his setting new records in the acquisition of "aromatic muds" along the African margin.

Proposed: Dick, Seconded: Mix
15 For, 1 Absent

PCOM Motion 96-1-29

The Planning Committee thanks Sherman Harrison Bloomer for his skilful chairing of the Lithosphere Panel over the past three years. We commend especially his leadership in preparation of the Lithosphere Panel’s White Paper which contributed greatly to the content of the new Long Range Plan, and his efforts to solicit broad community input to that White Paper. We fondly recall Sherm’s unselfish, even-handed, and good-humoured chairing of the Panel Chair’s meeting two years ago, and his clear presentations to PCOM on LITHP’s behalf. We wish Sherm well in his future endeavours and success on his pending survey cruise to the Tonga forearc. We look forward to Sherm’s future scientific contributions to ocean drilling.

Proposed: Natland, Seconded: Mével
15 For, 1 Absent

Briden said that he wanted to record how much he has appreciated the efforts of PCOM over the past two years whilst he has been EXCOM Chair.

Meeting Adjourned ................................. 15:00
Jointly Chaired by Kidd/Fujioka

1. OPENING REMARKS

Kidd welcomed everyone and said that the aim of this joint session was to try and follow on from the EXCOM motion in the agenda book. Kidd said that personally, he felt the priority should be to identify the specific science goals and areas of overlap, as well as things that have not been considered in the ODP LRP.

Kidd asked the OD21 delegation to introduce themselves to the JOIDES representatives with a few brief biographical details.

2. REPORT ON SHONAN JOINT MEETING IN FEBRUARY 96

Mountain opened this report with a review of his talk. He focused on why riser technology was required - safety and pollution prevention - and stated that it also allowed drilling where the science benefit was greatest and the environmental and political risks are minimised. He then outlined some special concerns including the fact that drilling targets will span the globe; be less than 75 m or greater than 2000 m in depth; the latest technology will be required; excellent core recovery and logging will be essential; shipboard data processing must be efficient; site survey requirements will be unique; territorial permission will be especially critical; and land-based links will be beneficial.

Mountain stated PCOM enthusiastically supports OD21, but believes that much careful planning lies ahead. He said that PCOM are ready to assist OD21 in any way they can. He added that territorial permission may become a limiting factor of where the Program may be able to drill, highlighting that data quality was of prime concern to ODP.

Francis confirmed that territorial permission was important, and that currently ODP do not apply for clearance until 6 months before drilling, usually just before the deadline. He said that possibly this will not be sufficient for the OD21 project.

Otsuka said that the Shonan Conference statement made it very clear that OD21 would be open to world-wide activities with guidance from an international JOIDES-like structure.

Natland began his report by saying that he wanted to make people aware of the scale of possible future projects. He reviewed some quotes (Hess 1959, Jaggar 1943). There were three objectives to his talk, and he reviewed reasons why no deep drilling had occurred so far, adding a comment that there had never been a proposal to drill to the mantle! He then reviewed a planning concept for deep drilling and outlined some time estimates for a MOHOLE project with the present JOIDES Resolution capabilities, and an upper crust project time estimate.

Natland also outlined what MUST be done to see a project of this type come to fruition, and suggested a current "short list" of required tools and techniques. Natland said that his short-list received many comments as it seemed to focus on the scale of operations required. It was agreed around the table that the MOHO project could not be achieved without considerable further development after OD21 had begun, and that there are a number of drilling targets that could certainly be addressed with the OD21 vessel. Natland further commented that such a large-scale project may have to be a "stand-alone" project.

3. ODP LONG RANGE PLAN AND OD21 OBJECTIVES

Suyehiro explained that the science objectives of the OD21 Program were in the OD21 project booklet and he referred the joint session to it. The summary states that the OD21 goals are those that are impossible or impractical to meet with the use of a non-riser equipped drilling platform. He said that all of the OD21 objectives were contained in the ODP Long Range Plan, including two items they intended highlighting in Japan to gain wider support from their geological community, namely the new paradigm (of plumes and climate change), and in situ real time monitoring (seismogenic zone).

Kidd said that he thought these were exciting extra dimensions, the first of which was not explicit in the ODP Long Range Plan. Larson commented that, from a current USSAC view, it sees the riser drill ship as the lead vessel of a two-ship program for post-2003. He said that two ships would
be required as there were many scientists that did not need to use a riser and they needed to keep the support of the broader community. Also a second ship would provide much more flexibility for a post-2003 drilling program. Suyehiro replied that the Japanese scientists supporting OD21 would also like to see a two-ship program.

Hay commented that the cost of recovering a sample with a riser would be much greater than using the present JOIDES Resolution and the riser ship must aim at samples that really could not be achieved with any other method of collection. He said that the Continental Drilling Program was based upon getting into areas that had never been seen before, such as active faults on the San Andreas. To achieve this the Program must have the backing of the whole scientific rather than just geological community. Hay continued, saying that you have to know where the sample that you wish to collect is, because of the planning of casing strings, and yet another item to consider was that the longer the hole is, the more likely it is to fail, for all sorts of reasons, so you must get to the objective very quickly and this may mean not coring on the way to the target. He said that any more than 1/3 coring was unrealistic. Maybe a better way of planning should be to decide what the objective was and then work backwards to see how to achieve the target and how long the operation would take.

Kidd said that the message was to identify our targets for Phase IV early in Phase III. Takagawa said that the casing question was very important, but the formation conditions must be identified very early on so that the casing type and amount required could be determined. This will probably require a new planning style and almost certainly longer on site. Kudrass said that the pre-site surveys must be done in conjunction with the technological design of the holes.

Otsuka confirmed that they were working to start the basic design in FY97/8 and construction would begin in either FY98 or FY99, with a construction period of 4 or 5 years and operations starting in 2003. The next milestone would be when they could start the next stage of basic design, but they are awaiting authorisation from the Finance Ministry. He explained it was likely that the basic design would begin in FY98 as they needed a very precise science plan, coming from the international scientific community, of what the OD21 vessel will be used for. If a concrete plan is put forward it would probably help things move forward.

4. SCIENTIFIC USE OF A RISER DRILLING PLATFORM - IS A COSOD MEETING REQUIRED?

Dick suggested that the workshop required should plan for riser drilling only, and Larson commented that it must also focus on the boundary of where the riser will take over from a non-riser vessel.

Fujioka gave his presentation, acknowledging that science planning meetings for riser drilling had been suggested by JOIDES EXCOM and the Shonan Statement. He outlined the "Spider's Thread" long-term ocean borehole monitoring project, explaining that if downhole and cable network systems were combined world-wide, it would allow real-time plate movement monitoring in terms of the Earth as a single integrated system.

Fujioka then outlined a possible timeline for such a COSOD-type meeting, saying if it could be agreed now it could come to fruition in October 1997. He said that he would welcome suggestions for such a meeting, including (maybe 4-6) nominations for a steering committee. Otsuka said that such a steering committee could meet in September 1997 (in Japan). The call for presentations would be in August 1997. A conclusion of which riser system will be required for OD21 must be decided by December 1996, and there will be a debate on this in the autumn of 1996.

Kidd said that PCOM would make nominations for the suggested steering committee at it's next meeting in August 1996.

Briden asked about involvement with JOIDES in determining the ship specifications. He said that this relationship needs a continuing communications channel to either JOI or PCOM, rather than meetings just twice a year. Suyehiro said that ODP-Japan should be the contact route. There will be a JAMSTEC representative going to JOI and NSF from the end of June 1996.

5. PROPOSED RISER CAPABILITIES FOR OD21

Takagawa gave a short presentation of the riser system debate and tabled a paper. He reported that a workshop was planned to discuss this issue in greater detail in conjunction with JOIDES TEDCOM (below). He also reviewed the potential topics of discussion for this proposed meeting.
Kidd said that he would ask TEDCOM to pass on information on "generic" holes, and he would get a mail input from the thematic panels for forwarding.

Kinoshita asked PCOM to make nominations of potential participants in each of 5 working groups for the autumn workshop in Japan. The working groups will be in the areas of deep sediments, deep crust, deep tectonics, long-term monitoring and technology.

6. PROPOSED JOINT SESSION BETWEEN JOIDES TEDCOM AND STA/JAMSTEC

There may be an opportunity for a joint meeting in Japan to discuss the finalisation of the OD21 riser system in the autumn of 1996, possibly in October, coincident with the meeting outlined in (4) above.

7. CLOSING REMARKS AND ACTION ITEMS

Kinoshita and Kidd thanked all participants and said that a draft report will be circulated for comment.

Session Adjourn ..........................................................17:05
APPENDICES

Appendix 1 NSF timetable of events for Program renewal to FY2000
Appendix 2a BCOM allocations to contractors
Appendix 2b BCOM X-base budget prioritisation
Appendix 3 Leg 164 PCS results
Appendix 4 Leg 167 operational coring guidelines
Appendix 5 FY96 Volume progress report
Appendix 6 Leg 165 FMS recored across the K-T boundary
Appendix 7 Site 1001 Total magnetic field, and GHMT and MST magnetic susceptibility logs
Appendix 8 Leg 165 partially processed magnetic stratigraphic logs
Appendix 9 Leg 165 fully processed magnetic stratigraphic logs
Appendix 10 WLS Leg 166 technical accomplishments
Appendix 11 Ship to shore high speed data transmission
Appendix 12 New ODP-WLS tool string configurations
Appendix 13 Site 1003 FMS, natural $\gamma$ (log and core), and lithology comparison
Appendix 14 Site 1005 Results from Intergrated Porosity-Lithology logging Tool (IPLT)
Appendix 15 Site 1006 Results comparison of IPLT string vs. Induction-Sonic string
Appendix 16 WLS FY96 initiatives
Appendix 17 FY97 logging summary
Appendix 18 DCS development schedule
Appendix 19 Hammer drill-in casing schematic
Appendix 20 JANUS overview
Appendix 21 JANUS expenses to 31 January 1996
Appendix 22 JANUS 2 funding models
Appendix 23 Industry sponsored mini-leg, proposed schedule
Appendix 24a "Standard Leg" costs
Appendix 24b "Standard Leg" costs per laboratory
Appendix 25 Leg 172 (Proposal 404) DPG Report (9pp)
Appendix 26 Global SSP "readiness" map
Appendix 27 ANTOSTRAT (and others) drilling proposal locations
Conflict of Interest Issue - JOI Response

Following the PCOM discussion of this issue in August, 1995, JOI sought clarification of the possible legal constraints under which the Corporation, the JOI Board of Governors and the JOIDES Advisory Structure are required to work. The following is a draft outline (subject to detailed review by counsel) of the advice received from JOI's corporate lawyers on the conflict of interest issue:

- JOI is established as a Not-For-Profit Corporation under New York State Corporation Law. All members of the JOI Board of Governors, the JOIDES Executive Committee, and all the lower tier committees and panels of the JOIDES structure are subject to the fiduciary duties of care and loyalty. In general, these duties require members of boards, committees and panels to discharge their duties in good faith and with due diligence (eg, be informed of the issues), and put the interests of "the Corporation" first. JOI's interests, interpreted in accordance with JOI's corporate mission, includes the interests of the Ocean Drilling Program as a whole.

- This means that, to avoid conflict of interest, each member, when actually involved in a board, committee, or panel meeting, is required to put the interests of the Program as a whole ahead of their duties to the individual institution or country to which they belong. The general rule is that conflict of interest arises when a director, or member of a JOIDES committee or panel has a personal, professional or other interest which is in potential conflict with his or her duty to the Program. The ramifications to JOI of any failure by members to adhere to this principle are potentially serious, for both the JOI institutions and the Program.

- In the case of conflict of interest, the member of a board, committee or panel must comply with certain general procedures:
  - full and open disclosure of the facts behind the possible conflict;
  - abstention from deliberations on the matter; and
  - abstention from voting.

- On the specific issue of the quorum, we are advised that under New York State Not-For-Profit Corporation law, JOI Governors (directors), or members of JOIDES committees or panels, declaring conflict of interest on a particular issue, and thus abstaining from deliberations and voting on that issue, may still be counted for the purpose of determining the presence of a quorum.

- On the issue of board, committee, or panel members absenting themselves from any discussion relating to a matter on which they are in conflict of interest, the law does not actually prohibit such involvement in general discussions about matters. Indeed, the member in a conflicted situation may be the best person to properly advise the rest of the board, committee, or panel of the critical issues involved; ie, their contribution to such a general discussion may be the best means of ensuring that the rest of the members show due diligence by being fully informed of the issues. Nonetheless, prior open disclosure of the basis of their conflict of interest is essential, and their subsequent abstention from deliberations on the matter is critical. Deliberations, as distinct from general discussions, are the articulation of substantive issues or debate which leads directly to a vote or decision on the matter.
Consideration of these issues, together with the outcome of discussions at PCOM in April, 1996, have lead to the following recommended modifications to the ODP Policy manual, sections 1.0 and 11.0.

1.04 The JOIDES Organisation

The Planning Committee (PCOM)

1.04.10 (a) The following four-step voting procedure is recommended to avoid potential problems arising from conflict of interest situations involving the special case of proposal ranking and determination of a recommended annual or long term science plan.

Step 1: Choice of proposals to retain for purposes of global ranking: PCOM has two options for this step:

Option 1: Panel consensus on the recommendation of Chair.

Option 2: Show-of-hands vote on each candidate drilling proposal, with a vote of at least 50% in favour being sufficient to retain a proposal for ranking. Conflicted members of PCOM will abstain from voting.

Step 2: Ranking of proposals based on scientific quality: Given X proposals retained from Step 1, unconflicted PCOM members will rank programs from 1 to X on a signed paper ballot. After voting, written ranks of each program by each voter will be tabulated and reported (in PCOM minutes) in a matrix, along with a calculation of mean ranking of each program. A draft science plan will be constructed of top-ranked proposals. Conflicted members of PCOM will be excluded from Step 2 in its entirety.

Step 3: In a case of statistical ties in rankings that affect the choice of proposals to drop from the draft science plan, PCOM will choose between closely ranked proposals on this boundary based on a one-on-one vote using signed paper ballots. A majority vote will choose the program to retain in the draft science plan and the draft science plan from Step 2 will be adjusted accordingly. Conflicted members of PCOM will be excluded from Step 3 in its entirety.

Step 4: After assembling the top ranked proposals from Steps 1-3 into a draft recommended science plan, PCOM will consider the logistics, costs, and quality of the proposed plan as a whole. PCOM will vote with a show of hands to accept or reject the draft recommended science plan in its entirety, based on a simple majority of votes cast. Rejection of the draft science plan at this stage dictates a return to Step 1 in the voting procedure. Conflicted members of PCOM will be excluded from Step 4 in its entirety (New).

11.0 Conflict of Interest

General Ocean Drilling Program

11.01 Any NSF, JOI, TAMRF, TAMU, LDEO, or JOIDES Office Ocean Drilling Program employee, or contractor changing employment from one ODP institution to another will refrain from any involvement in contract negotiation between the two respective institutions for one year (same as July, 1995).
11.02 ODP employees (i.e., those paid directly or indirectly from commingled funds) may serve as part of the shipboard scientific party only at the invitation of the Director of Science Operations, TAMU, with the agreement of the Co-Chief Scientists, and with the approval of the appropriate national program director (same as July, 1995).

11.03 When participating in the Ocean Drilling Program as part of the shipboard scientific party, a full-time Ocean Drilling Program employee will not receive additional salary compensation. A full-time Ocean Drilling Program employee, working as part of the shipboard scientific party on activities unrelated to his/her terms of employment in the Ocean Drilling Program will be required to take leave without pay (same as January, 1996).

11.04 If any JOIDES panel or committee member has any interests, affiliations, or relations, either personal, professional, family, or otherwise, that would be affected by any ODP matter under, or likely to come under consideration by such panel or committee (defined here as an "interest"), including, but not limited to consideration of a drilling proposal, or discussions pertaining to the award of a contract, then the member has a duty to declare his/her interest to the Chair, as soon as practicable upon becoming aware of such interest, and preferably in writing ahead of the meeting. Other panel or committee members or liaisons are also entitled to raise questions concerning a potential conflict of interest affecting a member. Specific examples of situations involving conflict of interest in the ODP context include (1) being a proponent of a pending drilling proposal, or an associated site survey proposal, and (2) being proposed as a co-chief scientist. All conflicts of interest, and the actions taken, will be recorded in the Minutes of the meeting at which the interest was considered. With respect to any such declared interest, or possible interest, the Chair will make an initial determination regarding whether the interest constitutes a serious conflict of interest.

(a) In determining whether an interest constitutes a serious conflict of interest, the Chair may, at his/her discretion, consult with other members of the panel or committee. The Chair's decision will be subject to review in accordance with Robert's Rules of Order.

(b) Panel or committee members who are determined to have a serious conflict of interest with respect to a drilling proposal will not be present during any part of a panel or committee meeting when proposals affected by such serious conflict of interest are subject to deliberation, review and ranking.

(c) PCOM members determined to have a serious conflict of interest will not be present during deliberations leading directly to a vote, and will not vote with respect to the inclusion in, or exclusion of a proposal with which they are involved from the upcoming recommended science plan. However, a conflicted panel or committee member may, at the Chair's discretion, be permitted to participate in general discussions that do not lead directly to voting, regarding proposals in general, including discussion of his/her own proposal. Such members must restrict their comments and discussion to the scientific objectives of those proposals and will refrain from making comparisons with their own proposals.

(d) Panel or committee members who are determined to have a serious conflict of interest will not be present during deliberations leading directly to any vote and will not vote with respect to any other matters affected by such interest.

(e) During panel or committee discussions that do not lead directly to a vote, or that do not involve competitive ranking of proposals (e.g., determination of the long-term ship track at PCOM), all members may participate in general discussions, in order to provide a full range of expertise to the decision-making process. Members having an active proposal that may form part of the long-term track of the drillship will abstain from deliberations leading to a vote on the long-term track. (New).
11.05 If a JOIDES panel or committee member is nominated as Co-Chief Scientist to the Director of Science Operations, TAMU, he/she must first have been a proponent of the relevant proposal or site survey (same as July, 1995).
Agenda Item 5: FY97 Program Plan

The inputs to the Program Plan are the Science Plan, seen by EXCOM at its last meeting, and the indicative budget supplied by NSF. JOI and subcontractors make their initial proposals for implementing the Science Plan to the Budget Committee which meets in March. The BCOM Report is Paper 5(a).

This year BCOM called for reappraisal and prioritising on a new basis, a process that involved PCOM as well as JOI, TAMU and LDEO. It led to the prioritisation of the newly defined X-base budget as in Paper 5(b).

At its April meeting, PCOM also fine-tuned its Science Plan including aspects that interacted with the re-prioritisation of the budget. PCOM discussed again the provision of Logging While Drilling off Costa Rica and modified its prioritisation of budget to allow for this (Leg 170). ODP-TAMU was requested to modify the schedule to make extra time for New Jersey Shelf operations. The transit leg (formerly 171A between Costa and Barbados) was eliminated, and the New York port call was shortened to 1 day. Additionally PCOM agreed that should the hammer-in casing system not be available for deployment on Leg 174B, any Engineering time saved would be shared between further CORK experiments on that leg and additional time for New Jersey Leg 174A. These actions culminated in the production of the FY97 Program Plan (Paper 5(c)). It is presented here for EXCOM approval in succinct form, appropriate to the level of overview which EXCOM seeks to exercise. This has enabled the plan to be included in the Agenda Book for the first time. Further details of budgetary allocation that are required by NSF to fulfil contractual obligations, are not included here but will be supplied to NSF by the contractor as usual. EXCOM is asked to approve the FY97 Program Plan for forwarding to NSF.

To enable EXCOM to do this, first the BCOM Chair (Dr Orcutt) will explain his committee's key concerns. Then the PCOM Chair will explain the re-prioritisation recommendations. Finally the JOI Program Director will identify key features of the Plan and ask for EXCOM's approval, that is necessary before it can be forwarded to NSF for funding approval at agency level.
1. Introduction

The Budget Committee met 13, 14 March, 1996, to consider the budget and planning for FY'97. Committee members present were John Orcutt (Chair), Rob Kidd, Robin Riddihough, and Susan Humphris. Margaret Leinen was unable to attend this session. The initial shortfall, between sub-contractors estimates and the budget target, was $778,078, including Special Operating Expense (SOE) requests to support FY'97 Science Plan projects associated with logging while drilling (LWD), borehole televiwer, re-entry cones, and shallow drilling on the New Jersey Margin.

As noted in previous BCOM reports, the budget review process has become progressively more difficult over the last few years. In the past, the source of this difficulty has been the ever increasing gap between available funds and the scientific needs and expectations. We are now working in an environment in which the projected budget is flat, and inflating "fixed" costs are reducing the discretionary portion of the drilling budget. At the same time, the new ODP Long Range Plan (LRP) calls for innovation in the drilling program and significant changes in direction. This raises critical issues that have major implications for the operations and planning for the next three years and will require the involvement of both the PCOM and EXCOM.

There is no doubt that the quality of operator services, both delivered and proposed by ODP-TAMU and LDEO-WLS is consistently very high. Both organizations obviously spent considerable time in striving to meet the budget target. However, the current reality and budget outlook requires that we take a more radical approach in considering the allocation of our resources.

The 1995 BCOM argued that full project management for all aspects of ODP. For example, leg-based management and budgeting is essential, both to adapt to a future of flat-lined and declining budgets, and to achieve a new way of doing business that will be necessary not only for renewal beyond 1998, but also to address the initiatives in the LRP. The BCOM budgeted funds this past year for training in project management and training sessions have started. However, both LDEO and TAMU presented their budgets in a manner similar to those presented in 1995. The 1995 BCOM set a goal of full adoption of project management by FY'98 (later extended to FY'99 in the context of the July 1995 EXCOM submission). We feel that the budgetary scheme we present below will make this transition essential.

The new LRP presents significant challenges to the oceanographic community by mandating new directions for science associated with ocean drilling under the two major themes: Dynamics of Earth's Environment and Dynamics of Earth's Interior. Within these two themes, ODP is to emphasize three initiatives which capitalize on new drilling technologies and scientific approaches, frontiers, and collaborations and to which scientific ocean drilling can make unique contributions:

1. To use the ocean's record of past rapid environmental change—to better understand the sensitivity of different parts of the climate system with the goal of improving the models used to predict future climate change.

2. To locate geophysical and geochemical observatories in the uniquely quiet environment of seafloor boreholes—to provide both a clearer view of Earth structure and a means to monitor Earth processes and hazards, such as earthquakes, in real time; and
3. To penetrate hitherto inaccessible regions beneath the seafloor—to explore the underlying processes that form continents, rifts, oceanic crust, and economic resources (precious metals, ore, energy), and to test models of active processes occurring at convergent margins.

To achieve these ambitious scientific objectives, ODP requires a ship with riser capabilities for deep drilling (e.g. mainly 3 above) and continued use of a platform with capabilities similar to the current drilling vessel, JOIDES Resolution (e.g. mainly 1,2 above). In addition, ODP needs access to other platforms that will permit drilling in shallow water and polar regions. Finally, JOIDES must develop strong ties with other international programs which potentially can make use of drilling techniques (e.g. Nansen Arctic Drilling(NAD) and International Ocean Network (ION)). None of these initiatives can be achieved as a simple ornamentation of a slowly evolving Ocean Drilling Program. Fundamental change is required and access to funding to support these new initiatives must be identified. The proposed budget plan takes a major step in providing an environment in which changes in the program can be rewarded.

2. BCOM Recommendations

BCOM recommends a progressive but modest increase in the “Special Operating Expenses” concept of resource allocation over the next three years. BCOM believes that this process will have the following impact:

(1) Increase the proportion of funding available for innovation and new initiatives so as to ensure a forward looking program;

(2) Send a signal to the funding partners that ODP is changing its way of doing things;

(3) Align the ODP resource allocation process with the new approach to management inherent in adopting the new Long Range Plan;

(4) Give the scientific planning structure of ODP more direct responsibility in establishing priorities for resource allocation;

(5) Increase financial pressure on the sub-contractors to make management efficiencies and tough choices in delivery of their services;

(6) Drive the concept of project and leg-based management MORE firmly into the ODP structure.

2 (a) New Resource Allocation Scheme

To initiate this new approach, BCOM reconciled the budgets presented this year with the available funding, using conceptual funding “envelopes”, in the following manner.

Envelope 1.

BCOM set aside a group of so-called basic “fixed costs”. These were the costs of ship operations at TAMU (Line Item 418064 - $21.6M); the estimated cost of the Schlumberger logging contract for one year of standard drilling ($2.3M at LDEO); and logging tool insurance ($140,000 at LDEO).
Envelope 2.
BCOM set the SOE fund at $3.5M (an increase of approximately $700 K) for FY 1996-97 (now called the "X-base fund"). We recommend that this amount progressively increase over the following two years to $5.0M in FY'98 and $6.5M in FY'99.

Envelope 3.
BCOM assigned the remainder of the $44.4M available resources to TAMU, LDEO and JOI/JOIDES/Data Bank on the basis of need. (This is now called the "A-base", being the Base Budget, less a particular set of fixed costs set in envelope 1.)

There is no intention that once allocated, the sub-contractor cannot move funds between envelopes 1 and 3. That is an internal management issue. However, funds in envelope 2 - "X-base," will be allocated on the basis of a priority setting and allocation process managed in a new way by BCOM, or a similar group or committee, that can bring direct application of scientific priorities to these choices.

Items for submission to "X-base" budget allocation process will include the current SOE items, but may also include other "stand-alone" projects, new initiatives or innovative proposals (See next section.). Items in the "A-base" plus fixed costs must encompass all the base level of services specified in the Prime Contract and sub-contracts. The BCOM considers that this process, especially the reduction of the "A-base" and expansion of the "X-base" budget over the next 3 years, will address the EXCOM motion (96-1-14/1), namely:

"JOI, in consultation with PCOM & BCOM, examines the important new innovations in the program (Borehole Utilization, Legacy Holes, inter alia) and detail their costs. PCOM & BCOM should advise JOI on what existing components (publications, logging, indeed all components) might be dropped or reduced to accommodate these new initiatives and clearly label the costs, benefits and losses. This step is fundamental to addressing concerns from funders that all cost cutting measures have been examined prior to requesting additional funds. Action by June 1996."

The new approach outlined above aims to achieve the maximum demonstrable efficiency in Program delivery, as required by EXCOM. Nonetheless, if project-based budgeting clearly demonstrates that an efficiency threshold will be reached before the A-base falls to its indicated levels in FY'99, then JOI should rationalize the process and present the new base allocations, with associated service provisions, to EXCOM and the ODP Council.

Although this new approach will involve some delay in finalizing the budgeted Program Plan for FY'97, NSF has confirmed that this can be accommodated. BCOM, therefore, recommends that the sub-contractors prepare project outlines and budgets for the new "X-base" fund and that a BCOM Review Committee be convened in early May after the next PCOM meeting to review the budgets and allocate X-base funds.
Table: Base Budget Allocations for FY'1996/97

<table>
<thead>
<tr>
<th>Envelope 1.</th>
<th>(&quot;Fixed&quot; Costs)</th>
<th>$</th>
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<tbody>
<tr>
<td>TAMU</td>
<td>(Ship Operations 418064)</td>
<td>21,632,000</td>
</tr>
<tr>
<td>LDEO</td>
<td>(Schlumberger Contract-est.) (Logging tool insurance)</td>
<td>2,300,000</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>24,072,000</strong></td>
</tr>
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<table>
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<tr>
<th>Envelope 2.</th>
<th>(&quot;X-Base&quot;)</th>
<th>$</th>
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</thead>
<tbody>
<tr>
<td>TAMU</td>
<td></td>
<td>3,500,000</td>
</tr>
<tr>
<td>LDEO</td>
<td></td>
<td>13,200,000</td>
</tr>
<tr>
<td>JOI/JOIDES/Data Bank</td>
<td></td>
<td>1,868,000</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>16,828,000</strong></td>
</tr>
</tbody>
</table>

**Grand Total:** $44,400,000

Final Base Budget Allocations (Envelopes 1 plus 3):

- TAMU: $34,832,000 ($36,137,000 requested - 3.6% reduction)
- LDEO: $4,200,000 ($4,145,102 requested - 1.3% increase*)
- JOI/JOIDES/DB: $1,868,000 ($1,912,976 requested - 2.3% reduction)

* This increase is apparent rather than real, due to uncertainty over the base level of the Schlumberger subcontract.

The BCOM emphasizes that this change represents both an opportunity and a challenge for sub-contractors to provide the basic level of specified operational services better, for less—a challenge that has been successfully met by very many scientific research organizations around the world in the last decade.

2 (b) The Wireline Logging Services “Partnership”

In reviewing the FY'97 budget proposal submitted by Wireline Logging Services at Lamont-Doherty Earth Observatory (LDEO-WLS), the Committee was struck by the marked reduction proposed for the Leicester University Borehole Research group (LUBR):

<table>
<thead>
<tr>
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<th>FY'95 actual</th>
<th>FY'96 current</th>
<th>FY'97 (Proposed)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$265 059</td>
<td>$292 952</td>
<td>$85 000</td>
</tr>
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LDEO made the point that, in moving to the next level of budget austerity, they were forced to consider shedding a whole service area. They selected to eliminate processing of the geochemical logging data, since usage of that tool had fallen significantly in recent years, and projected use in FY'97 was limited.

On reviewing information provided, it was clear to the Committee that there was misunderstanding between LDEO-WLS and LUBR as to the nature and scope of the services that could or should be provided by LUBR as part of a revised WLS budget proposal. The Committee accepted that a degree of “commercial reality” may have been the underlying motive for the budget revision, but there were other very significant factors that had not been taken into account by LDEO-WLS in reaching this decision to sharply reduce the LUBR share of work and budget. The Committee was very firmly of the view that the award of the logging contract to LDEO in 1993 was, in large part, based on the proposed sharing of the service delivery amongst ODP partner agencies in the UK and France. This decision must inevitably be seen...
in the context of the concurrent EXCOM endorsement of the concept of "internationalization" of Program service delivery contained in the Dorman Report. The Committee therefore took the view that LUBR and IMT should be viewed as being in a cooperative partnership arrangement with LDEO, and not simply "subcontractors".

The Committee therefore recommends that, in revising the total wireline logging services budget, minimum allocations should be set for LUBR and IMT, for FY'97, as follows:

- LUBR $200,000
- IMT $250,000

The Committee strongly encourages an improved dialogue between the WLS partners. Since the outcome of the RFP for wireline logging services may be known by this time next year, the Committee saw no reason to extend this recommended moratorium through FY'98. Both LUBR and IMT are entitled to put forward innovation proposals, through LDEO-WLS, for X-base funding.

3. Continuing Process to Create the FY'97 Budget

Recognizing that our new approach requires follow up after the April PCOM meeting (22-25 April '96), BCOM will reconvene in early May, this year. At that Planning Committee meeting advice will come available to the contractors on a number of currently uncertain items that will figure in the "X-base" budget. In particular, a decision will be made on the continuation of DCS development; a series of Leg-related issues will be resolved, along with better estimates of their costs; and the service and other panels will have prioritized new equipment and other items, such as further exploitation of the JANUS project for incorporating historical data. In addition, the advisory panels have been charged, in line with an EXCOM directive, to consider the range of services offered by the Program and indicate whether some might be discontinued with the goal of freeing funding for initiatives required by the new LRP.

As a result of the PCOM discussions and the priorities that it adopts in each of these areas, the ODP-TAMU and BRG-LDEO Directors will be able to formulate proposed "X-base" budgets for FY'97 that can become their "bids" to the reconvened BCOM in May. All "X-Base" proposals must be presented in project format identifying a project manager, objectives, scope, implementation strategy, timetable, budget (including allocation of staff costs and share of overhead, as applicable), and performance indicators.

It is important to recognize that BCOM's intention is to free funds for new initiatives, through rigorously defining fixed costs in sub-contracts and contractual and other essential services, and then providing for a bidding process that will identify choices and priorities in the allocation of special operating expenses to innovative projects. These options are to be influenced directly by PCOM input. Leg-related SOE's definitely qualify for the X-Base, as do further DCS and JANUS phases and optional equipment purchases, but basic services, such as publications, information services, and technical support for routine equipment on board ship, do not qualify.

We recognize that this reallocation scheme may result in some changes in the quality or style of services that the Program has come to regard as basic to ODP. However, over recent years many other scientific research organizations faced with even more drastic budget cuts have found ways of delivering even better basic services, for less
overall cost. BCOM also recognizes the opportunities that will be provided each year to bring new and innovative projects to the Program for LRP Phase III and IV. As this X-Base budget allocation rises to a $6.5 M target in 1999, we also envisage having the potential to address some of the LRP’s Phase III goals of cooperative ventures with other global programs; in particular, the carrying out of multi-platform projects, borehole instrumentation and other relatively high cost one-off initiatives.

4. The Future

Last year, the Budget Committee acknowledged the challenge presented by flat budgeting against the need for innovative science within the Ocean Drilling Program. Even though there is the hope that additional partners will increase the available funding over the next few years, it is important to continue to plan within a flat budget scenario. This comes at a time when we need to demonstrate innovation and the pursuit of exciting scientific objectives as we approach the 1998 renewal of the contract and begin to prepare for the implementation of the Long Range Plan.

The Budget Committee believes that the maintenance of sufficient funds within the Special Operating Expenses (SOE) category in the budget is critical to encourage pursuit of scientific and technical innovation that will lead the way forward to addressing the challenging projects that we have identified in the Long Range Plan. This has led us to recommend adoption of the new method of resource allocation that has been described earlier in this report. Over the next few years, we recommend increasing the SOE and X-base allocation from $3.5M in FY’97, to $5.0M in FY’98, and to $6.5M in FY’99.

Within a fixed budget scenario, this plan implies that the funds allocated to the A-base will decrease each year, hence encouraging the development of new and innovative ideas that can compete successfully for the X-base or SOE funds. Such a strategy requires that we move to a project-based management approach, as recommended by the Budget Committee last year, with discrete projects and their associated costs being clearly defined. This is absolutely critical if we are to use our limited resources wisely and to best advantage for the goals of the Ocean Drilling Program. This approach will also help us evaluate, and if necessary change, our current ways of doing business and plan future budgets for operations within the new resource allocation method.

The Budget Committee also needs to take a longer term view of resource allocation in order to be able to assess, and prepare for, any potential impact of declining or flat budgets on both the science program and the technical developments defined in the Long Range Plan. Consequently, projected budget estimates are necessary from the subcontractors for two years beyond the year under consideration, and we plan to begin this forward-looking process with the budgets for FY’98.

The next few years may be difficult ones for the Ocean Drilling Program as we strive to accomplish the best science and foster technical developments within strict budgetary constraints. Maintaining a component of innovation during these times is essential for the renewal of the program, to ensure the full, continued involvement of our non-US partners, and to make the addition of new partner countries or consortia attractive. These are important if we are to secure the new funds necessary to achieve the goals of the ambitious Long Range Plan.
**Item 5(b): Final Resource Allocations for FY97**

**Summary Table of X-base Allocations**

The following X-base allocations were determined by JOI, following consultations with the operators, the Budget Committee and PCOM.

<table>
<thead>
<tr>
<th>No.</th>
<th>Proposal Title</th>
<th>Cost($)</th>
<th>Sum $</th>
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</thead>
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<tr>
<td>1</td>
<td>JANUS Phase 1 completion</td>
<td>661702</td>
<td>661702</td>
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<tr>
<td>2</td>
<td>Barbados LWD</td>
<td>253500</td>
<td>915202</td>
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<tr>
<td>3</td>
<td>Leg 176 - 735B hard rock guide base</td>
<td>44480</td>
<td>959682</td>
</tr>
<tr>
<td>4</td>
<td>Leg 176 - Casing &amp; eng. support</td>
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<td>1031242</td>
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<td>5</td>
<td>Leg 173 - Iberia 2 reentry cones, etc</td>
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<td>6</td>
<td>Leg 174B - CORK 395A</td>
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<td>New Jersey LWD</td>
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<td>Benguela Current GHMT</td>
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<td>9</td>
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<td>10</td>
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<td>11</td>
<td>Core Image Capture System - part 1(FY97)</td>
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<td>Hammer-Drill-in-Casing System</td>
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<td>13</td>
<td>Costa Rica LWD (added to Barbados)</td>
<td>220866</td>
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<td>Joint Diamage core test (LUBR/LDEO)</td>
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<td>DCS Development</td>
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<td>16</td>
<td>Sampling Parties 167,171C,172</td>
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<td>CORK 395A DLL</td>
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<td>30</td>
<td>NW Atlantic Sediment Drifts  GHMT</td>
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<td>Co-Chief Review Meeting</td>
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<td>35</td>
<td>SLIP software development (LDEO)</td>
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<td>36</td>
<td>Iberia Geochemical tool</td>
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<td>37</td>
<td>TABI image library (LUBR)</td>
<td>62370</td>
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The final allocations were determined by JOI, following distribution of the X-base.

(a) **Summary**

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<td>LDEO</td>
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<td>JOI/JOIDES/DB</td>
<td>1 872 053</td>
<td>1 868 000</td>
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(b) **Breakdown**

<table>
<thead>
<tr>
<th></th>
<th>Fixed Costs</th>
<th>A-Base</th>
<th>X-Base</th>
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<tr>
<td>TAMU</td>
<td>21 632 000</td>
<td>13 200 000</td>
<td>2 746 636</td>
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<tr>
<td>LDEO</td>
<td>2 440 000</td>
<td>1 760 000</td>
<td>753 364</td>
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<tr>
<td>JOI/JOIDES/DB</td>
<td>0</td>
<td>1 868 000</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24 072 000</td>
<td>16 828 000</td>
<td>3 500 000</td>
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</table>
An ODP Council-commissioned international “Mid-Term Review Committee,” chaired by Dr. Gordon Greve, recently concluded the following about the ODP, in regard to its scientific and technological accomplishments and future goals:

The strong record of achievement by the ODP, coupled with the 1996 Long Range Plan, which accurately describes an important and vital future role for scientific ocean drilling into the next century, justifies the continuation and enhancement of the program.

This conclusion, which was based on the scientific accomplishments of the past five years, is a powerful and independent endorsement of the program which was welcomed by EXCOM and the community at large. The ODP’s achievements during FY 95-96 have been numerous, and they build upon the of success that has marked the program since Leg 100 sailed in 1985. For example, one of the most important results of Mediterranean Sea Leg 161 was the totally unexpected discovery of abundant sapropels (organic-carbon-rich sedimentary layers with unique geochemical and magnetic properties) in the western Mediterranean. In fact, they had never been encountered west of the Tyrrhenian Sea prior to this leg. The excellent quality of cores from this leg and from Leg 160, in the eastern Mediterranean, will help resolve the controversy of whether sapropel formation is primarily controlled by deep water anoxia or by surface water productivity. Leg 162 sailed into the North Atlantic, and up to 77°N into the Arctic, to recover sediment cores that will answer questions on the frontiers of paleoclimate research. The exceptional stratigraphic detail in these cores and their quantity (a new ODP record of 6731 m), will allow scientists, for the first time, to characterize the amplitude and high frequency component of climate change over time intervals much longer than can be obtained from traditional piston cores. Studies of the last 150,000 years indicate that variations in surface water properties and circulation are linked to large and rapid shifts in air temperature over Greenland, as documented in ice core records. The timing and the nature of these millennial-scale climatic changes will be reconstructed much further back in time by reconstructing lithological, biological, and geochemical proxies of climate change that are preserved in the Leg 162 deep-sea sediment cores. After a portcall in Reykjavik, JOIDES Resolution headed east, on Leg 163, to the Greenland margin (63°N) to explore the geologic history of lithospheric extension during the early formation of the Atlantic Ocean. By careful site selection, scientists were able to recover elusive sequences that now complete the record of volcanic evolution of this margin, from the early stages of continental break-up to the later stages of oceanic crustal production. Farther south on the Blake Outer Ridge off North Carolina, Leg 164 scientists explored the nature and extent of gas hydrates, which are a poorly understood energy resource primarily composed of methane. Beautifully preserved samples of hydrates were recovered, at in situ conditions, thanks to the ODP’s first successful deployment of the pressure core sampler. Preliminary results confirm that sedimentary gas hydrates, in addition to the dissolved and gaseous phases, represent an enormous methane reservoir beneath our continental margins. Caribbean Sea drilling during Leg 165 obtained data on topics ranging from Cretaceous/Tertiary (K/T) boundary ejecta from the Yucatan Peninsula to annually laminated sediments in the anoxic Cariaco Basin off Venezuela. Leg 165 also recovered, completely unexpectedly, a rich Paleogene history of Caribbean volcanism. Thousands of volcanic ash layers, some as great as 35 cm thick, indicate intense volcanic activity between 20 and 35 million years ago. Also recovered during this leg are expanded tropical records of the late Paleocene thermal maximum (LPTM), which show evidence of oxygen-poor waters and indicate changes in deep water circulation. Interestingly, one leading hypothesis for the cause of the LPTM is climate warming from the dissociation of large amounts of gas hydrates, the topic explored on the preceding ODP leg.
Operationally, ODP made great strides in FY 96 on the Janus project (new database management system). In December 1995, the database computer server and several software applications were packaged and delivered to the JOIDES Resolution for installation, prototyping and testing on Leg 165. Installation of the DEC Alpha server went without a hitch. Currently, a large group of computer experts, including personnel from Tracor, ODP/TAMU, and the JOI Database Management Steering Committee are sailing on Leg 166T (transit) to test the existing system and to build new portions of Janus, such as programs for chemistry and physical properties. Back on shore, ODP/TAMU is busy creating software tools that will be linked to Janus, enabling, among other things, World Wide Web access to the Oracle database through a homepage.

The publication of the 1996 Long Range Plan (LRP) in March set the stage for several changes in the way in which ODP budgets, operates, and receives scientific advice from JOIDES. Modifications to the budgeting process should encourage innovation and allow for increased availability of funds for “special operations.” To that end, the Budget Committee recently requested that JOI implement a new philosophy, beginning in FY 97, that incrementally expands the “special operating expense” category (see page PP-45 for an expanded discussion on this topic). Increased operational efficiency will be required to minimize the impact of a larger SOE category in the face of flat budgets. To assist in this budgetary effort, and in other changes resulting from an evolution in management philosophy, JOI and the ODP subcontractors will be trained in project management in FY 96. Successful completion of training will likely lead to improved efficiencies and better management of “change” in all aspects of ODP operations. Changes to some ODP operations are likely to be significant, such as to ODP/TAMU publications. Other ODP operational requirements, such as Wireline Logging and Data Bank Services, will be discussed at upcoming PCOM and EXCOM meetings. EXCOM has recommended that JOI issues requests for proposals for the delivery of these services for the years 1998-2003. PCOM will also be developing an implementation strategy for the LRP at its April 1996 meeting. Included in this plan will be recommendations on how to modify the JOIDES planning structure so that it provides the best scientific advice to JOI in implementing the LRP.

JOI made progress on the “new initiatives” proposed in the FY 96 Program Plan, including Project Management, Public Communication, and International Partnerships. As mentioned above, JOI and the subcontractors will complete project management training in FY 96. JOI hired a new Public Information Director, Ms. Pamela Baker-Masson. Her first assignment will be to update and revise ODP’s public communications strategy, in conjunction with ODP/TAMU and LDEO/WLS personnel. JOI made progress on the International Partner Initiative, holding positive discussions about ODP membership with scientists and others from the People’s Republic of China, Brazil, Taiwan, Russia, South Korea, and Mexico (see pages J-1 to J-3 for more information).

NSF’s target budget of $44.4M for FY 97 has been met. The budget includes all of the high-priority operational requirements (e.g., logging-while-drilling, reentry cones, casing, CORKs) requested by the Planning Committee to accomplish the legs’ scientific goals. The following is a brief summary of the scientific objectives of each leg scheduled for FY 97. More details on each leg are in the Program Plan section of this Plan.

**Leg 170 (Costa Rica):** The principal objective of this leg is to determine the flow paths for mass and fluid through a well-defined accretionary prism. Costa Rica represents an ideal location for obtaining the first good estimates of these fluxes because of the capping sediment apron, the lack of trench turbidites, and the extensive seismic imaging of the accretionary complex. A major goal is to better constrain sedimentary cycle processes that occur in a subduction zone, as reflected in fore-arc fluids and arc volcanics. Efforts will include estimating mass balances of fluids, sediments and various chemical species.

ES-2
Leg 171B (Barbados LWD): The principal objective is to better understand the interrelationships among deformation, fluid flow, seismic imaging and changes in physical properties at an active margin. The logging-while-drilling (LWD) program will build on existing LWD measurements made during Leg 156 in order to determine the characteristics of the negative polarity (seismic) reflections at Barbados, measure the physical properties of faults, and assess the physical properties of the incoming sedimentary sequence.

Leg 171C (Blake Plateau/Blake Nose): The principal objective is to test existing models for the Paleogene and Cretaceous history of intermediate and deep waters in the Atlantic and Tethys. Particular emphasis will be placed on the search for evidence that “warm, saline deep water” formed in low latitude oceans. The existence of such a water mass has significant implications for our understanding of ocean circulation, because WSDW does not form in today’s oceans. An understanding of Paleogene and Cretaceous deep water structure also provides boundary conditions for general circulation models and test the assumptions we use in modeling Quaternary oceans. Sedimentary sections will also be used to provide tropical sea surface temperature records, refine microfossil chronologies and evolutionary dynamics, and to correlate local magnetic stratigraphy to chemo- and biostratigraphic reference sections.

Leg 172 (Western North Atlantic Sediment Drifts): The principal objective is to obtain a detailed history of Late Neogene paleoceanography and paleoclimatology in the Blake-Bahama Outer Ridge area by investigating: (1) millennial-scale oscillations of stable isotopes (C, O, N), carbonate, and trace metals in rapidly-sedimented drift deposits; (2) the amplitude and frequency of these oscillations via timeseries analysis; and (3) the link between these oscillations and northern hemisphere glaciations. The drill sites are optimally located to monitor changes in North Atlantic Deep Water and Antarctic Bottom Water, which are among the most important water masses in the global ocean, at least in terms of their affect on climate. Secondary objectives focus on sedimentological, magnetic, geotechnical and resource (gas hydrates) topics. For example sedimentologists will seek to understand sediment wave migration and drift sediment processes. Paleomagnetic experts will use the high-resolution records to study secular variations in field intensity and changes occurring during magnetic reversals.

Leg 173 (Iberia): The principal objective of this leg is to determine the extent to which rifting along this continental margin was asymmetric, to characterize the ocean-continent transition, and to assess the role of low-angle, principally crustal, normal faulting in the rifting process. Rifted margins contain the principal record of the breakup that follows continental rifting and the onset of seafloor spreading, both of which are first-order plate tectonic processes.

Leg 174A (New Jersey Mid-Atlantic Transect): The principal objective is to date Oligocene to Recent sequences on the New Jersey margin, correlate them to glacioeustatic age estimates obtained from the oxygen isotope record, estimate the amplitudes and rates of sea-level change independent of oxygen isotope estimates, and assess the stratigraphic response of sequence architecture and facies successions to glacioeustatic forcing. These data will help to determine the age, amplitude, mechanism, and stratigraphic response to sea-level change, a long-standing ODP goal.

Leg 174B: (395A CORK): The principal objective is to monitor how the hydrogeological system in Hole 395A varies with time as natural hydrogeological conditions are reestablished once the hole is sealed. The experiment will provide essential information about formation pressure and permeability structure, which are critical to understanding the crustal hydrogeology in this active hydrologic system.
Leg 175 (Benguela): The principal objective is to reconstruct the history of the Benguela Current and strong upwelling that occurs in the coastal region between 5°S and 32°N. The Benguela Current is linked to the exchange of heat between the South Atlantic and the North Atlantic. This energy transport, operating over great distances, influences the magnitude of polar ice caps. The development of the Benguela Current has an important bearing on the evolution of climate in both hemispheres, and on northern Europe in particular.
## Table ES-1: Ship Schedule for Legs 158 - 176 (FY 95 - FY 98)

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<tr>
<th>Leg</th>
<th>Port of Origin</th>
<th>Cruise Dates</th>
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<tr>
<td></td>
<td>Transit to Drydock</td>
<td>Falmouth</td>
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<tr>
<td></td>
<td>European Drydock</td>
<td>11/22 - 12/23/94</td>
</tr>
<tr>
<td></td>
<td>Transit to Dakar</td>
<td>12/23/94 - 1/3/95</td>
</tr>
<tr>
<td>159</td>
<td>Eq. Atlantic Transform</td>
<td>Dakar, 1/3 - 1/4/95</td>
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<tr>
<td>161</td>
<td>Mediterranean II</td>
<td>Napoli, 5/3 - 5/7/95</td>
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<tr>
<td>162</td>
<td>Atlantic Arctic Gateways II</td>
<td>Leith, 7/4 - 7/8/95</td>
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<tr>
<td>163</td>
<td>SE Greenland</td>
<td>Reykjavik, 9/3 - 9/6/95</td>
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<td>164</td>
<td>Gas Hydrates</td>
<td>Halifax, 10/28 - 10/31/95</td>
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<tr>
<td>165</td>
<td>Caribbean Ocean History</td>
<td>Miami, 12/19 - 12/23/95</td>
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<td>166</td>
<td>Bahamas Transect</td>
<td>San Juan, 2/18 - 2/22/96</td>
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<td>166T</td>
<td>Transit</td>
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<td>167</td>
<td>California Margin</td>
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<td>168</td>
<td>Juan de Fuca Hydrothermal</td>
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<td>Saanich Inlet</td>
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<td>Sedimented Ridges II</td>
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<td>Transit</td>
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<td>171C</td>
<td>Blake Nose</td>
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<td>NW Atl. Sediment Drifts</td>
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* This port call may be avoided if LWD equipment is loaded during Leg 170 or in Panama
Budget

This Program Plan presents a budget for FY 97 of $44.4 M, and is based upon the assumption of having six full international partners. In considering this budget, which is at the same level as that approved for FY 96, and the challenges presented to ODP in implementing the 1996 Long Range Plan, BCOM recommended at their March 1996 meeting that JOI initiate a new budget strategy. This strategy involves a progressive increase in the “Special Operating Expense” category, beginning in FY 97. This increase in SOEs allows for a larger proportion of funding to be available for innovation and new initiatives so as to ensure a forward-looking program. It is recognized that this reallocation scheme may result in some changes in the quality or style of service delivery that the Program has come to regard as basic to ODP. However, BCOM considered that this new budget strategy will enable and encourage the management of the Program to explore ways of delivering even better basic services, for less overall cost.

Table ES-2 summarizes the FY 97 budget and compares it to the current approved FY 96 budget. In customary fashion, the ODP budget is divided into three major categories: TAMU, LDEO, and JOI/JOIDES. The TAMU budget includes the costs of the Science Operator and its subcontractors (e.g., drillship operations). The LDEO budget includes costs of the Wireline Services Operator (Borehole Research Group), its international processing centers in France and the United Kingdom, and its subcontractor (Schlumberger Offshore Services). The JOI/JOIDES budget includes program management at JOI, Inc., advisory services of the JOIDES Office at the Woods Hole Oceanographic Institution, the ODP Data Bank at LDEO, and various costs such as printing and distribution of the JOIDES Journal and the expenses of panel chairs. These numbers combine standard expenses and Special Operating Expenses (SOE) for each function. Table ES-3 spells out the SOE. More details are provided in the Program Plan section and in the subcontractors’ budgets appended to the plan.
### Table ES-2: Budgets for FY 96 & FY 97 ($K)

<table>
<thead>
<tr>
<th>Category</th>
<th>FY 96</th>
<th>FY 97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headquarters/Administration</td>
<td>2,000</td>
<td>1,898</td>
</tr>
<tr>
<td>Publications</td>
<td>2,106</td>
<td>2,105</td>
</tr>
<tr>
<td>Drilling and Engineering</td>
<td>3,917</td>
<td>3,584</td>
</tr>
<tr>
<td>Technical and Logistics Support</td>
<td>3,860</td>
<td>3,586</td>
</tr>
<tr>
<td>Science Operations</td>
<td>1,017</td>
<td>1,262</td>
</tr>
<tr>
<td>Ship Operations</td>
<td>20,922</td>
<td>21,567</td>
</tr>
<tr>
<td>Information Services and Curation</td>
<td>3,896</td>
<td>3,577</td>
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<tr>
<td><strong>TOTAL TAMU</strong></td>
<td><strong>37,718</strong></td>
<td><strong>37,579</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>FY 96</th>
<th>FY 97</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDEO</td>
<td>4,810</td>
<td>4,953</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>FY 96</th>
<th>FY 97</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOI/JOIDES</td>
<td>1,872</td>
<td>1,868</td>
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</tbody>
</table>

**GRAND TOTAL ODP BUDGET**                      **44,400** | **44,400**
Table ES - 3: Summary of FY 97 Special Operating Expenses

**TAMU**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamond Coring System (DCS):</td>
<td>551,000</td>
</tr>
<tr>
<td>Leg 173 Non-standard Leg Costs:</td>
<td>148,267</td>
</tr>
<tr>
<td>Hammer Drill System:</td>
<td>300,814</td>
</tr>
<tr>
<td>Leg 174B CORK/Hole 395A</td>
<td>66,074</td>
</tr>
<tr>
<td>Leg 176 Reentry Hardware/Engineering Support:</td>
<td>116,040</td>
</tr>
<tr>
<td>JANUS I:</td>
<td>661,702</td>
</tr>
<tr>
<td>JANUS II:</td>
<td>150,000</td>
</tr>
<tr>
<td>Core Image Capture System - Part 1:</td>
<td>110,508</td>
</tr>
<tr>
<td>Sampling Parties - Legs 167, 171C and 172</td>
<td>29,400</td>
</tr>
<tr>
<td>Data Migration:</td>
<td>300,000</td>
</tr>
<tr>
<td>WWW Publication:</td>
<td>100,358</td>
</tr>
<tr>
<td>Semi Annual Report of the Science Operator:</td>
<td>$8,000</td>
</tr>
<tr>
<td>Underway Lab Upgrade to Solaris 2X:</td>
<td>8,100</td>
</tr>
<tr>
<td>Indium Antimonide XRF Crystal Installation:</td>
<td>6,000</td>
</tr>
<tr>
<td>Split-Core MST Purchase:</td>
<td>190,373</td>
</tr>
<tr>
<td><strong>Total TAMU SOE</strong></td>
<td><strong>$2,746,636</strong></td>
</tr>
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</table>

**LDEO**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbados LWD</td>
<td>253,500</td>
</tr>
<tr>
<td>Costa Rica LWD</td>
<td>220,866</td>
</tr>
<tr>
<td>New Jersey LWD</td>
<td>116,559</td>
</tr>
<tr>
<td>Benguela Current GHMT</td>
<td>35,588</td>
</tr>
<tr>
<td>Blake Nose GHMT</td>
<td>7,732</td>
</tr>
<tr>
<td>CORK 395A DLL</td>
<td>4,816</td>
</tr>
<tr>
<td>Joint Damage Core Test (LUBR/LDEO)</td>
<td>65,053</td>
</tr>
<tr>
<td>CLIP Software Development</td>
<td>49,250</td>
</tr>
<tr>
<td><strong>Total LDEO SOE</strong></td>
<td><strong>$753,364</strong></td>
</tr>
</tbody>
</table>

**Total ODP SOE**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>$3,500,000</strong></td>
</tr>
</tbody>
</table>
A. Organization and Staffing

1. Organizational Framework

ODP is funded by the U.S. National Science Foundation (NSF) using commingled funds from the U.S. and the international partners, currently the Australia/Canada Consortium, the European Science Foundation Consortium for Ocean Drilling, France, Germany, Japan, and the United Kingdom. The ODP Council provides a forum for consultation among the NSF and the international funding agencies.

The organizational framework for ODP consists of four basic components: the overall program manager (JOI); the scientific advisory structure (JOIDES); the Science Operator (TAMU); and the wireline services operator (LDEO). The general relationships among these components are illustrated in Figure PP-1. The organization, staffing, and responsibilities of each component are described below in further detail. In considering the organization of ODP, it is important to bear in mind that not only are the organizational components physically separated, but also that the program organization cuts across institutional lines. For example, LDEO houses parts of three different ODP organizational components (i.e., wireline logging services, ODP Site Survey Data Bank and the TAMU-operated ODP East Coast Core Repository).

2. Program Manager

ODP is managed by JOI as the prime contractor to NSF. JOI is a consortium of ten major U.S. oceanographic institutions (in legal terms, a not-for-profit corporation), which provides management support to large multi-institutional scientific research programs such as the ODP. JOI is located in Washington, D.C. and currently has a staff of 15 people, of which approximately 6.82 FTE are directly charged to ODP (one FTE is the JOIDES international liaison who actually works in the JOIDES Office). JOI provides scientific, contractual and fiscal links among NSF and the various operational and advisory components of ODP.

3. Scientific Advisory Structure

The scientific objectives of ODP are established by JOIDES, an international group of scientists drawn from the JOI institutions, other U.S. institutions, and representatives of the non-U.S. partner countries. JOIDES provides planning and program advice to JOI with regard to scientific goals and objectives, facilities, scientific personnel, and operating procedures. JOIDES consists of an Executive Committee and a scientific advisory structure headed by the Planning Committee. The Executive Committee designates the members of the Planning Committee which, in turn, appoints members of panels and detailed planning groups. The JOIDES organization, which currently involves the voluntary efforts of over two hundred scientists, is shown in Figure PP-2.

The JOIDES Office typically consists of four people, and provides support for the JOIDES Executive and Planning Committees and for the science advisory structure in general. During the first ten years of ODP, the JOIDES Office has rotated among the JOI institutions, with the exception of the subcontractors, Texas A&M University and Columbia University. The JOIDES Office is located at Woods Hole Oceanographic Institution beginning October 1, 1996, after a two-year term at the University of Cardiff, Wales.
A. Program Management

NSF

Ocean Drilling Program

Joint Oceanographic Institutions Inc.

Lamont-Doherty Earth Observatory

Wireline Services

Site Survey Data Bank

Overseas Drilling Ltd.

Drillship Operation

France Processing Ctr.

Schlumberger Logging Services

U.K. Processing Centre

B. Science Advisory Structure

NSF

Ocean Drilling Program

Executive Committee (EXCOM)

BCOM

Planning Committee (PCOM)

Thematic & Service Panels; TEDCOM

Texas A&M

Ship Operation & Science Services

Lamont-Doherty Earth Observatory

Wireline Services & Data Bank
4. Science Operator

Texas A&M University (TAMU), located in College Station, Texas, serves as Science Operator for ODP through a contract between JOI and the Texas A&M Research Foundation (TAMRF). As Science Operator, TAMU is responsible for implementing science planning and operations, including managing the operation of the JOIDES Resolution (owned and operated by Overseas Drilling, Ltd. (ODL)); engineering development and improvement of drilling technology; selecting scientists for the shipboard scientific parties; designing, furnishing, staffing and maintaining shipboard laboratories; curation and distribution of all core samples and data; publishing scientific results; and working with JOI to provide public information about ODP. TAMU has facilities that serve as a repository for ODP cores from the Pacific and Indian Oceans. In addition, TAMU is responsible for core repositories at LDEO for Atlantic, Mediterranean, and Caribbean cores through Leg 150; at Bremen, Germany for Atlantic, Mediterranean and Caribbean cores from Leg 151 onward; and at Scripps Institution of Oceanography, which houses previously-collected DSDP cores from the Pacific and Indian Oceans. The general organization of the Science Operator is shown in Figure PP-3 and detailed in Appendix A (TAMU section) of this Program Plan.

5. Wireline Services

Lamont-Doherty Earth Observatory (LDEO), Palisades, New York, provides, through its Borehole Research Group, a full suite of geophysical and geochemical services which involve the acquisition, processing and presentation in usable scientific form of in situ logging measurements. LDEO is charged with providing state-of-the-art “oil industry” logging customized to the scientific needs of ODP, plus certain specialty logs which, though not generally available, are particularly useful for scientific investigations. LDEO also provides interpretation and dissemination services so that scientists participating in ODP can use the logs to help solve their particular scientific problems.

The organization of the ODP wireline services operation is shown in Figure PP-4. A log analysis center operated by the Borehole Research Group at LDEO with additional processing centers in France and the United Kingdom has computer processing, log analysis and interpretation services ready for the ODP scientists’ use after leaving the drillship. LDEO also contracts for basic oil-field type services from Schlumberger Offshore Services. Schlumberger supplies state-of-the-art commercial logging services on every leg of ODP.

6. ODP Site Survey Data Bank

The ODP Site Survey Data Bank, formerly the IPOD Data Bank, is located at Lamont-Doherty Earth Observatory. It has served the JOIDES community since 1985 by cataloging, collecting, and distributing site survey and other geophysical data to various panels and individuals associated with scientific ocean drilling. The Data Bank staff consists of 3.25 FTE.
Figure PP-3
Science Operator (ODP/TAMU) Organization

Office of the Director

Public Information

Administration

Travel Conf. & Personnel/Insurance

Contracts & Purchasing/Property

Fiscal

Science Services

Information Services

Engineering & Drilling Operations

Technical & Logistics Support

Science Operations

Publications

Curation and Repositories

Drilling Operations

Development Engineering

Technical Support

Logistics Support

West Coast Repository

Gulf Coast Repository

East Coast Repository

Bremen Repository

Staff Scientists
Figure PP - 4

Wireline Logging Services Organizational Structure

Director
D. Goldberg

Secretary
J. Totton

Program Manager
M. Reagan

France
Chief Scientist
Marseille
P. Pezard

Logging Scientists/Processing
H. Cambray
F. deLarouziere
V. Louvel

Logging Scientists
P. deMenocal

Post-Doc Logging Scientists
C. Pirmez
Y. Sun
G. Iturriño

Administrator
C. Philippot

Graduate Students
G. Guerin
C. Major

Technical Support
D. Dollfus

Science
Logging Scientists
P. deMenocal

Technical Support
D. Dollfus

Post-Doc Logging Scientists
C. Pirmez
Y. Sun
G. Iturriño

Science
Logging Scientists
P. deMenocal

Technical Support
D. Dollfus

Database
Database Supervisor
C. Broglia

Database Assistant
S. Brower

Database
Database Supervisor
C. Broglia

Database Assistant
S. Brower

Engineering
Technical Coordinator
G. Myers

Research Engineer
A. Meltser

Engineering
Technical Coordinator
G. Myers

Research Engineer
A. Meltser

Engineering
Technical Coordinator
G. Myers

Research Engineer
A. Meltser

U.K.
Chief Scientist
Leicester
P. Harvey

Logging Scientists/Processing
C. Goncalves
A. Newton
T. Williams

Technical Support
G. Williamson

Engineering
Technical Coordinator
G. Myers

Research Engineer
A. Meltser

Engineering
Technical Coordinator
G. Myers

Research Engineer
A. Meltser

Engineering
Technical Coordinator
G. Myers

Research Engineer
A. Meltser

Engineering
Technical Coordinator
G. Myers

Research Engineer
A. Meltser

Technical Support
G. Williamson

April 10, 1996
B. Program History and Major Scientific Objectives

ODP is the successor to the Deep Sea Drilling Project (DSDP), which was operated by Scripps Institution of Oceanography of the University of California at San Diego. Throughout the fifteen-year DSDP, JOIDES, with the participation of many of the world's geoscientists, has provided the scientific leadership. One of its key contributions in scientific direction was the Conference on Scientific Ocean Drilling (COSOD), held at the University of Texas at Austin in November 1981. The COSOD report is the scientific basis and justification for ODP.

A second Conference on Scientific Ocean Drilling (COSOD-II) was held in Strasbourg, France in July 1987 under the auspices of the European Science Foundation. As defined by the JOIDES Planning Committee, the primary objective of COSOD-II was “to make recommendations for the future scientific and technological objectives for the Ocean Drilling Program, bearing in mind the scientific and technical progress of the ODP (Ocean Drilling Program) to date.” As such, the mandate of the conference was not to draft a detailed drilling plan for the 1990's but to identify the most significant problems within the earth sciences to which scientific drilling might contribute solutions.

Following COSOD-II, JOIDES wrote a Long Range Plan for the Ocean Drilling Program for the years 1989-2002. Published in 1990 by JOI, the Long Range Plan presents 16 major scientific drilling objectives in four thematic categories:

Structure and Composition of the Crust and Upper Mantle

- Exploring the Structure of the Lower Oceanic Crust and Upper Mantle
- Magmatic Processes Associated with Crustal Accretion and Intraplate Volcanism
- Magmatism and Geochemical Fluxes at Convergent Margins

Dynamics, Kinematics, and Deformation of the Lithosphere

- Dynamics of Oceanic Crust and Upper Mantle
- Plate Kinematics
- Deformation Processes at Divergent Margins
- Deformation Processes at Convergent Margins
- Intraplate Deformation

Fluid Circulation in the Lithosphere

- Hydrothermal Processes Associated with Crustal Accretion
- Fluid Processes at Plate Margins

Cause and Effect of Oceanic and Climatic Variability

- Short Period Climate Change
- Longer Period Changes
- History of Sea Level
- The Carbon Cycle and Paleoproductivity
- Evolutionary Biology

Scientific planning, through the FY 97 programs presented in this Program Plan, has been guided by the 1990 Long Range Plan and COSOD-II documents, both of which are available from JOI.
In 1994, JOIDES began the process of updating and revising the 1990 Long Range Plan. In early 1996, JOI published the document, "Understanding Our Dynamic Earth Through Ocean Drilling: Ocean Drilling Program Long Range Plan into the 21st Century." This new Long Range Plan identifies two major research themes: Dynamics of Earth's environment and Dynamics of Earth's interior. Within these broad themes, several more specific "core" themes are identified, including:

- Climate change,
- Sea-level change,
- Sediments, fluids and bacteria as agents of change,
- Transfer of heat and materials to and from Earth's interior,
- Deformation of Earth.

From a consideration of these scientific themes, and the technology that will be available to ODP over the next decade, three program initiatives will be emphasized:

- Understanding natural climate variability and the causes of rapid climate change,
- In situ monitoring of geological processes, and
- Exploring the deep structure of continental margins and oceanic crust.

From the beginning of the 1997 planning year, proposals for drilling will address, and be evaluated within, the context of this Long Range Plan, also available from JOI.
C. Program Highlights

The operational phase of ODP began in January 1985 with the completion of the shakedown cruise (Leg 100) and acceptance of the JOIDES Resolution. By the end of FY 97, 74 operational cruises will have been completed (Legs 101-174B) and Leg 175 will be underway. Table PP-1 summarizes the FY 95-98 schedule of the JOIDES Resolution; Figure PP-5 shows the location of all ODP operations through Leg 176. Initial description of the cruises and scientific results can be found in the “Preliminary Reports” distributed by the Science Operator. For each leg, the Science Operator publishes detailed descriptions of the drilling results and scientific accomplishments in the “Initial Reports” (printed 10-12 months post-cruise) and the “Scientific Results” (printed 36 to 39 months post-cruise) volumes of the Proceedings of the Ocean Drilling Program.

The JOIDES Resolution has now drilled in the Atlantic, Pacific, Indian, and Southern Oceans, including high-latitude zones bordering East and West Antarctica and Greenland, and the Mediterranean, Caribbean, Weddell, Sulu, Celebes, Philippine, and Japan Seas, in search of answers to important scientific problems designated by the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES). As of Leg 165, she has revisited, drilled, and cored 1009 holes at 390 sites and retrieved 122,306 meters of cored material. As of Leg 165, 1,657 shipboard scientists from around the world have participated in cruises. These scientists have taken over 1,255,600 individual samples to their home institutions for further study.

The following section provides a brief account of the scientific highlights of mid FY 95 through mid-FY 96. Additional discussions are provided in this Program Plan by TAMU (Appendix D in the TAMU section), and LDEO (pages L-1 to L-11).

Scientific Highlights

Leg 161

Both tectonic and paleoceanographic objectives were addressed by Leg 161, the second of a two-leg ODP program in the Mediterranean. To meet these objectives, an east-west transect of sites were drilled that extends from the Tyrrhenian Sea, across the Menorca Rise, and ends in the Alboran Sea. The paleoceanographic interests focused on the paleoenvironmental implications of the exchange of waters between the Atlantic and the Mediterranean, and on sapropels, which were found, rather unexpectedly, to be common in the western part of the basin. In fact, before Leg 161, sapropels had not observed west of the Tyrrhenian Sea. Sapropels are sedimentary deposits that have unique geochemical properties, curiously high magnetization, and contain high concentrations (up to 6% in the western basin and up to 30% in the eastern reaches) of organic carbon (degraded algal and microbial material with some land-plant compounds). They occur in discrete bundles that coincide with maxima of northern hemisphere insolation, at Milankovitch periods of 23-, 100-, and 400-kyr. This temporal pattern reveals their link to climate, but the actual mechanisms responsible for forming these deposits remains uncertain. Traditionally, their formation have been attributed to bottom-water anoxia. However, new models noting the links between sapropel deposition and orbital insolation, have called upon changes in monsoonal intensity and moisture transport to the Mediterranean catchment area as the driving mechanisms. These changes affect sea circulation and nutrient distribution patterns such that the combined effects of biological productivity and anoxia may be responsible for sapropel formation. The excellent quality of the cores recovered by Legs 160 and 161 will be used to help resolve
the controversy over their origin. Secondary paleoceanographic objectives included determining environmental conditions during the early Miocene, onset of evaporitic conditions, prior to the “Messinian salinity crisis,” and the subsequent re-establishment of open-marine conditions during latest Miocene.

The prime tectonic objective was to better understand the dynamics, kinematics and deformation of continental lithosphere margins, a topical subject, especially in regard to the hypothesis of active lithospheric delamination (e.g., Geophysical evidence for lithospheric delamination beneath the Alboran Sea and Rif-Betic mountains, Seber et al., Nature, 379:785-790, 1996). Delamination involves the recycling of sub-continental lithosphere into the convecting mantle below, resulting in direct contact between the asthenosphere and the crust. Scientists are testing the idea that mantle intrusion may have shed olistostromes (a mappable and lens-like sedimentary deposit consisting of a chaotic mass of well-mixed heterogeneous materials that accumulated by submarine gravity sliding or slumping of unconsolidated sediments) to the north and south of the central Alboran Sea.

Leg 162

Record-breaking core recovery (6731 m) was just one of the highlights of Leg 162, which explored the past five million years of climate variability in the North Atlantic over time scales ranging from millennial to Milankovitch (10 to 100 kyr). This time interval was chosen because climate has generally become colder since 5 Ma and the frequency and amplitude of climate variations have changed substantially. Leg 162 was the second of two legs designed to explore long-term paleoceanographic change in the North Atlantic-Arctic Gateways region, one of the world’s most climatically reactive regions. This ocean sector is the origin of North Atlantic Deep Water, the engine that drives the global pattern of deep circulation known as the Global Conveyor Belt. The quantity of core material may be exceeded by the quality of the records generated from it. Stratigraphic records of biological, lithological, and geochemical proxies of oceanic conditions promise to characterize the amplitude and frequency of climate change over time intervals much longer than have been accessible in the past, from traditional piston cores. The new ODP records will, for example, allow scientists to see how climate behaved back in the warm intervals of the Pliocene, before the northern hemisphere was glaciated to any significant extent.

Drill sites on the Feni, Gardar, and Bjorn sediment drifts yielded material that are being used to look for, and characterize, millennial-scale climate cycles that are imprinted by ice-rafted sedimentation and are clustered at periodicities of ~3 kyr (referred to as Dansgaard-Oeschger oscillations) and at ~7-10 kyr (Heinrich events). The shorter cycles are thought to be controlled by either solar variations or by thermohaline circulation changes, while the Heinrich events are attributed to the combination tones of orbital frequencies. These orbital frequencies are superimposed on the shorter period D-O and Heinrich events, and are identified as the 41- and 21-kyr Milankovitch cycles corresponding to known variations in Earth’s orbital geometry (tilt and precession). High sedimentation rates (~15 cm/kyr) and detailed measurements of magnetic susceptibility, GRAPE density, p-wave velocity, natural gamma radiation, and color spectral reflectance from the shipboard multi-sensor track are being used to show that suborbital climate variability clearly occurred in the Pliocene and early Pleistocene and therefore are not exclusive to a climate system dominated by marine-based ice sheets. Ongoing work will also take advantage of the fact that the drill sites span a broad range of water depths, enabling the reconstruction of vertically stratified water masses over time. Comparison of the younger sedimentary intervals to ice core records from Greenland promises to yield important climatic information regarding ocean-atmosphere interactions.
Leg 163

When the North Atlantic formed during continental breakup, flood basalts poured onto Earth’s surface, forming a large igneous province. Leg 163 investigated the timing of this event and the dynamics of the Iceland mantle plume that supplied the subaerially erupted flood basalts. This drilling leg was the second of two to the Southeast Greenland margin. The first, Leg 152, drilled into the seaward-dipping reflector sequences (SDRS) associated with rifting and breakup at the continental margin. The SDRS are basalts with a minimum age of ~55 Ma, that onlap continental (mainly Precambrian) crust to the west and terminates eastward in oceanic crust of early Tertiary age. The principal results of Leg 163 include: (1) recovering material that completes the record of volcanic evolution of the East Greenland margin at 63°N, from early stages of continental breakup, to late stages of oceanic crustal production; (2) providing fundamental constraints on the age of the SDRS volcanism, from magnetic polarity reversals; and (3) identification that the Iceland plume mantle component is more strongly expressed in the composition of the basalts at latitude 66°N than at 63°N. Leg activities were interrupted by Mother Nature, who sent a fierce north Atlantic storm into the path of JOIDES Resolution. The storm knocked out the ship’s radar, blacked out communications, partially crippled the dynamic position system, and damaged ship structures. Needless to say, the results forced the scientists to abandon remaining research objectives such that only three of the six planned sites had been drilled. Lourrain Southey, an ODP marine laboratory specialist, best summed up the experience in her design of a T-shirt, a traditional leg activity. The shirt shows a floating life preserver and reads “East Greenland Sea. Force 12+ storm. 100+ kt winds. 60+ ft seas. Maxed Out. Survival is: a good crew.”

Leg 164

Natural gas hydrates were the focus of Leg 164, which was devoted to investigating the amount, and the in situ characteristics, of these enigmatic deposits within marine sediments on the Blake Outer Ridge, off the eastern U.S. Gas hydrates are a solid phase composed of water and low-molecular-weight gases, primarily methane. These deposits have attracted increasing interest because they are a large and untapped source of energy, they constitute a submarine geohazard, and they play a role in controlling global climate, as most recently argued by Dickens et al. (“Dissociation of oceanic methane hydrate as a cause of the carbon isotope excursion at the end of the Paleocene” Paleoceanography, 10:965-971, 1995). The amount of methane in gas hydrates likely exceeds 10^19 g of methane carbon, which represents more fossil fuel energy than is contained within known global reservoirs of conventional oil, gas, and coal deposits, combined (Kvenvolden, Gas hydrates-Geological perspective and global change, Rev. of Geophysics, 31:173-187, 1993). Leg 164 investigated the affect gas hydrates have, as geological agents, on the physical, geophysical, and geochemical properties of the sediments. For example, scientists studied how hydrates alter shear strength, porosity, permeability, acoustic velocity and resistivity, and fluid composition and movement. The Blake Outer Ridge was chosen as the study area because it contains one of the world’s most laterally extensive hydrate fields.

Hydrates were recovered by drilling three sites into the rapidly-deposited sediment drift on the ridge. Drill holes into carbonate-rich clays extend to ~750 meters below the sea floor and penetrate through the bottom simulating reflector, at ~450 mbsf. Finely disseminated gas hydrates were found to occupy more than 1% of the sedimentary section between 200 and 450 mbsf. Some solid hydrate nodules, as large as 30 cm, were also recovered. Successful deployment of the Pressure Core Sampler, for the first time in ODP history, enabled scientists to determine that the methane gas volumes are in excess
of \textit{in situ} methane saturation, thus demonstrating that free gas exists intermittently throughout the sedimentary section below the base of gas hydrate stability. The volume of free gas below ~450 m is larger than previously thought. Preliminary results from the leg confirm that sedimentary gas hydrates, in addition to the dissolved and gaseous phases, represent an enormous methane reservoir.

\textbf{Leg 165}

For the first time in ODP history the Caribbean Sea was the focus of leg-length scientific drilling. A veritable potpourri of geology was explored during Leg 165, ranging from Cretaceous/Tertiary (K/T) boundary ejecta from the Yucatan Peninsula to annually laminated sediments in the anoxic Cariaco Basin off Venezuela. Between these end members fits a dramatic new discovery regarding Central American volcanism. Shipboard scientists were totally unprepared for the thousands of volcanic ash layers that they encountered in the cores, with some layers up to 35 cm thick. These ashes, which originated from volcanoes in the region that includes Guatemala, Nicaragua, El Salvador, and Honduras, indicate that volcanic activity was particularly intense at about 20 and 35 million years ago.

Several other important observations came out of the six sites drilled on this leg. For example, Sites 999 and 1001 were found to contain expanded tropical records the late Paleocene thermal maximum (LPTM) which show evidence of oxygen-poor waters and suggest changes in deep water circulation. Interestingly, one leading hypothesis for the cause of the LPTM is climate warming from the dissociation of large amounts of gas hydrates, a topic explored on the preceding ODP leg.

Scientists also documented a significant decline in the accumulation of carbonate sediments in the middle to late Miocene, an event referred to as the "carbonate crash" when first observed in eastern equatorial Pacific sediments on Leg 138. This crash, characterized by a rapid and short-lived shoaling of the carbonate compensation depth appears to have occurred over a much larger region than previously thought. This has implications for the hypotheses regarding closure of the Central American Seaway at the Isthmus of Panama. Perhaps more importantly, this closing also reorganized ocean circulation patterns, shifted loci of biological productivity, and established an Atlantic-Pacific salt imbalance that influences the global ocean conveyor.

Three sites recovered K/T boundary material that was blasted out of the 180-km-wide Chicxulub crater, the site of meteorite impact that is thought to have led to great extinctions 65 million years ago. Included in the recovered material are altered glass spheres, or tektites, that formed by the explosive meteorite impact which created temperatures high enough to melt the crustal rocks in the Yucatan region, and scatter tektites over 1,000 km from the crater.

The final drilling objective of the leg was the recovery of an extremely high resolution climate record from the Cariaco Basin. By drilling five holes, this objective was met, and scientific expectations were exceeded by the recovery of a climate record of about 170 m that spans the past ~220,000 years, indicating an average sedimentation rate of approximately 75 cm per thousand years. This sedimentary sequence will permit direct comparison between tropical and polar climate by correlating to the ice core records from Greenland and Antarctica. Such work will complement similar correlation efforts based on sedimentary material from the Santa Barbara Basin (Leg 146).
<table>
<thead>
<tr>
<th>Leg</th>
<th>Port of Origin</th>
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<tr>
<td>Transit to Drydock</td>
<td>Falmouth</td>
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</tr>
<tr>
<td>European Drydock</td>
<td>11/22 - 12/23/94</td>
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</tr>
<tr>
<td>Transit to Dakar</td>
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<td>1/5/95 - 3/2/95</td>
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<td>Napoli, 5/3 - 5/7/95</td>
<td>5/8/95 - 7/4/95</td>
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<td>Leith, 7/4 - 7/8/95</td>
<td>7/9/95 - 9/3/95</td>
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<td>Reykjavik, 9/3 - 9/6/95</td>
<td>9/7/95 - 10/28/95</td>
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<td>Halifax, 10/28 - 10/31/95</td>
<td>11/1/95 - 12/19/95</td>
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<td>165 Caribbean Ocean History</td>
<td>Miami, 12/19 - 12/23/95</td>
<td>12/24/95 - 2/18/96</td>
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<td>166 Bahamas Transect</td>
<td>San Juan, 2/18 - 2/22/96</td>
<td>2/23/96 - 4/11/96</td>
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<td>4/21/96 - 6/16/96</td>
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<td>8/19/96 - 8/21/96</td>
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<td>Victoria, 8/21</td>
<td>8/22/96 - 10/17/96</td>
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<td>San Diego, 10/17 - 10/21/96</td>
<td>10/22/96 - 12/17/96</td>
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<td>171A Transit</td>
<td>Panama, 12/17 - 12/20/96</td>
<td>12/21/96 - 12/29/96</td>
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<tr>
<td>171B Barbados LWD</td>
<td>Barbados, 12/29/96*</td>
<td>12/30/96 - 1/11/97</td>
</tr>
<tr>
<td>171C Blake Nose</td>
<td>Barbados, 1/11/97</td>
<td>1/11/97 - 2/16/97</td>
</tr>
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<td>Charleston, 2/16/97 - 2/20/97</td>
<td>2/21/97 - 2/18/97</td>
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<td>6/23/97 - 7/17/97</td>
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<td>7/20/97 - 8/18/97</td>
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<tr>
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<td>Las Palmas, 8/18/97 - 8/22/97</td>
<td>8/23/97 - 8/18/97</td>
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<tr>
<td>176 Hole 735B</td>
<td>Cape Town, 10/18/97 - 10/22/97</td>
<td>10/23/97 - 12/18/97</td>
</tr>
</tbody>
</table>

* This port call may be avoided if LWD equipment is loaded during Leg 170 or in Panama.
D. FY 97 Science Plan

The proposed schedule for *JOIDES Resolution* through FY 97 was decided upon at the 1995 Annual Planning Committee meeting. The schedule takes the ship from the Pacific Ocean following Leg 170 (Costa Rica) through the Caribbean and back in to the North Atlantic Ocean for a series of legs. The *JOIDES Resolution* will conduct one leg of drilling in the South Atlantic before moving into the Indian Ocean for Leg 176 (Hole 735B). Brief descriptions of the drilling programs scheduled for *JOIDES Resolution* for FY 97 follow.
Leg 171B: Barbados LWD

The purpose of the Leg 171B Logging-While-Drilling (LWD) program at the Barbados accretionary prism is to better understand the interrelationships among deformation, fluid flow, seismic imaging and changes in physical properties along this active margin. Deformation and fluid flow in sedimentary sequences cause changes in physical properties. Measurements of physical properties \textit{in situ}, using technology such as LWD, allows us to evaluate processes (consolidation, cementation, dilation) which operate during deformation, fluid flow, and faulting. Leg 156 (North Barbados Ridge) demonstrated that seismic images are affected by changes in physical properties, and their measurement allows calibration of seismic data as a tool for remotely sensing processes of deformation and fluid flow. Previous ODP drilling and 3-D seismic surveys provide a rich framework for log interpretation, seismic calibration, and process evaluation. The Barbados drilling and logging results will assist interpretation of similar, but less active, systems in sedimentary basins elsewhere, contributing to the analysis of ground water, hydrocarbon migration, and earthquake processes.

The new data to be collected on Leg 171B will build on LWD measurements made during Leg 156 when ODP obtained 1,152 m of logs in Hole 947A and 948A while
drilling through the North Barbados Ridge (NBR) accretionary prism. Specifically, four sites will be drilled during Leg 171B:

- Site NBR-8A, located in an area of negative polarity (multichannel seismic imaging) about 2500 m west of the deformation front, will establish the physical properties of the negative polarity reflections in the Barbados prism.
- NBR-9A, located at CORK Site 949 1800 m west of the deformation front, will establish the physical properties of a décollement zone with intermediate reflection polarity characteristics and determine the physical property profile at this site.
- NBR-10A, located at Site 676 which penetrates the incipiently developed décollement zone and several thrusts in the off-scraped section, will determine the character of the initial deformation of the accretionary prism.
- NBR-11A, located at the “oceanic” reference Site 672, will provide information on the inception of deformation and fluid flow in the incoming sedimentary section and provide a general overview of physical properties of the oceanic sedimentary section.

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<td>NBR 11 A</td>
<td>15.54 N; 58.64 W</td>
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<td>605</td>
<td>0</td>
<td>605</td>
<td>Baseline measurements of the physical properties of incoming sedimentary section</td>
<td>LWD*</td>
</tr>
</tbody>
</table>

*LWD tools: CDR - resistivity, gamma-ray; CDN - neutron, density; RAB - qualitative resistivity images

Logging Program

The LWD tools to be used on Leg 171B are the same as those used during Leg 156, directly measuring in situ resistivity, porosity, density, and natural gamma ray. An LWD sonic tool is currently available from Anadrill for velocities >2,000 m/s, which may not be low enough for these sediments in the accretionary prism. The sonic tool will yield data on the higher velocity underthrust section and may be improved to measure the velocity of the prism by 1997. In the proposed program, the total logged interval is 2,335 m, roughly 2-2.5 times more section than drilled during Leg 156, generating a total operations time estimate of 10-12 days. Several days of transit and port calls associated with the tool logistics will also be required.
The main objective of the planned Blake Plateau/Blake Nose drilling transect is to test existing models for the Paleogene and Cretaceous history of intermediate and deep waters in the Atlantic and Tethys. To date, most reconstructions of deep water geometry have focused on the Late Neogene to Recent record. Paleogene sequences have generally been too deeply buried to be recovered either completely or consistently along depth transects. Yet, the three-dimensional structure of Mesozoic and early Cenozoic oceans is of great interest since they record climates and patterns of watermass development under conditions very different from those of modern seas. As such, an understanding of Paleogene and Cretaceous deep water structure is necessary to provide boundary conditions on General Climate Models (GCMs) and test our assumptions employed in models of the Quaternary oceans.

The best existing depth transect through pre-Neogene sections was drilled on Maud Rise during Leg 113. The transect of two sites found intriguing evidence for deep water formation at low latitudes (the “Warm, saline deep water hypothesis” proposed by Kennett and Stott, 1990). The Leg 113 sites, however, were located within the region of formation of southern source waters and so were not well located to detect the chemistry or history of northern source waters, should they exist. In contrast, the Blake Plateau is well placed to identify northern component watermasses. Patterns of mixing between
water masses from different sources could be used to reconstruct their three-dimensional structure and origins. Thus, the Blake Nose transect will add an important low latitude depth transect to our understanding of ocean history in the Cretaceous and Paleogene time intervals.

Sediments on the Blake Plateau and Blake Nose in the western North Atlantic offer an ideal record for reconstructing watermass chemistry and circulation in the Cretaceous and early Cenozoic. The plateau’s location in the northern hemisphere proximal to the western end of the Tethys seaway makes sediments deposited there ideal for detecting northern sources of deep and intermediate waters. Paleogene and Berremian-Maastrichtian strata crop out or are present at shallow burial depths in present water depths of 1200 m to over 2700 m across the plateau. Today this depth range spans deep thermocline water to upper North Atlantic Deep Water. The plateau spanned a similar range of depths in the early Cenozoic since margin subsidence was largely complete by the early Cretaceous, and minor subsidence since then is partly offset by reduced sea level after the Eocene.

Drilling Strategy

The drilling strategy is intended to recover a depth transect in pre-Eocene strata that approaches the depth-resolution possible in late Pleistocene piston core transects. ODP will drill five shallow holes (170-450 m deep) in a transect from the margin of the Blake Plateau to the edge of the Blake Escarpment. Ideally, all five holes will be triple APC/XCB to specified maximum depths and logged with standard tools. This will insure a complete >1300 m depth transect from 1200 mbsl to 2500 mbsl in the Paleocene-middle Eocene and bathyal Berremian-basal Albian. The K-T boundary will be recovered in at least four of the five holes and will permit studies of sedimentation across a depth transect of the boundary beds. Triple coring will insure nearly 100% recovery of the sedimentary section at each site. Logging will enhance site-to-site correlation, which is critical for reconstructing hydrography.

Specifically, the transect of cores is designed to:

- interpret the vertical structure of the Paleogene and Cretaceous oceans and test the “warm saline deep water” hypothesis near the proposed source areas,
- provide critically needed low latitude sediments for interpreting tropical SST and climate cyclicity in the Cretaceous and Paleogene,
- provide well preserved planktic microfossils for refinement of low latitude Paleogene and Cretaceous chronologies and evolutionary dynamics,
- recover a complete Cretaceous/Paleogene boundary along a depth transect to describe the events surrounding the boundary and water depth-related changes in sedimentation of the boundary beds,
- recover sections suitable for magnetic stratigraphy so that low latitude biochronologies may be tied directly to the magnetic reversal record, and
- interpret the thermocline and intermediate water structure of low latitude, lower Cretaceous oceans and refine the biochronology of this period.
<table>
<thead>
<tr>
<th>Site</th>
<th>Position</th>
<th>Water Depth</th>
<th>Sed. Thknes.</th>
<th>Total</th>
<th>Description</th>
<th>Log. Prog.</th>
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<td>0</td>
<td>Chemistry &amp; origins of deep &amp; intermediate waters</td>
<td>geophysical, GHMT, FMS/ sonic</td>
</tr>
</tbody>
</table>

**Logging Program**

Logging data are very important to achieving the objectives of this leg by providing:

- acoustic velocity and density data to tie core measurements to seismic reflection data (sonic, density, other geophysical),
- data with which to perform inter-site correlations (all logs, including FMS and GHMT),
- data to determine through core-log integration whether full stratigraphic recovery was achieved (mostly geophysical logs, including magnetic susceptibility, and FMS),
- data to determine the magnetostratigraphy of the sediments (GHMT),
- data with which to investigate mineralogical and diagenetic changes downhole (quad and geochemical tools), and
- data with which to investigate the origin, frequencies, and structure of depositional cycles (all logs, including FMS and GHMT).
Leg 172: Western North Atlantic Sediment Drifts

The major objective of the Western North Atlantic Sediment Drifts program is to obtain a detailed history of Late Neogene paleoceanography and paleoclimate in the North Atlantic by investigating: (1) millennial scale oscillations of stable isotopes (C, O), carbonate, and trace metals in drift deposits, (2) the nature of cyclicity of these oscillations; and (3) how these cycles are related to the history of northern hemisphere glaciations during the Late Neogene. In addition, this leg will also investigate sediment wave migration and drift sedimentation processes; detailed variations of the Earth's magnetic field (secular variations, reversals); geotechnical/acoustic properties of the deep-sea sediments; formation of gas hydrates; structure of Milankovitch cycles as expressed in stable isotopes measurements from earlier Neogene and Paleogene (flanks of the Blake Ridge); and the structure of stable isotope Milankovitch cycles during the Pleistocene/Pliocene.

The Blake-Bahama Outer Ridge (BBOR) and Carolina slope are located at the western boundary for deep water circulation in the North Atlantic and the surface waters of the Gulf Stream, which are important as a source of salt and heat to the northern North Atlantic. For this reason, the BBOR is the optimal location to monitor changes in North Atlantic Deep Water (NADW). It is also an excellent location to monitor Antarctic Bottom Water (AABW) because that watermass is recirculated in the subtropics, blending with the exposed NADW. At shallower depths the region is bathed by Labrador Sea Water which may be an especially important water mass on geological time scales as the
Upper NADW. Recently, a shallow component to Labrador Sea Water has been identified which interacts with the Gulf Stream, probably controlling the distribution of sediment on the Carolina Slope. According to the “Great Ocean Conveyor” paradigm, knowledge of the history of the surface, intermediate and deep water masses is essential to understanding the world ocean’s role in climate change. ODP drilling on Leg 172 will provide paleoenvironmental records for late Neogene hemipelagic sediments that are deposited at accelerated rates on western North Atlantic sediment drifts on the Blake-Bahama Outer Ridge (BBOR) and Carolina slope. These two areas may represent the only sediment drift locations in the world ocean where it is possible to conduct high-resolution paleoclimatic studies through a 3500 m range of water depths. Because of the very high deposition rates, records longer than about 80 kyr can only be recovered by ODP.

As water exported from the North Atlantic passes along this western boundary, deposits on the northeastern Bermuda Rise (4500 m) accumulate at rates between 20 and 200 cm/kyr. Available evidence indicates that surface ocean temperature and salinity, terrigenous sediment flux from high northern latitudes and deep ocean circulation vary on the millennial scale and are related. On Leg 172 data obtained from the Site BR 1 on the Bermuda Rise will be compared with data from sites located at deep, high-deposition rate locations on the BBOR and Carolina slope to document late Neogene oceanographic change in the western North Atlantic for millennial as well as Milankovitch timescales over the entire deep and intermediate water column.

**Drilling Strategy/Logging Program**

The goals of Leg 172 can best be achieved by APC/XCB coring of a depth transect of sites on the Blake-Bahama Outer Ridge and the Carolina Slope, the first such ODP transect in the North Atlantic, and also at one site on the Bermuda Rise. The proposed holes will not exceed 300 m penetration, and most are targeted to 250 m penetration. To achieve the primary objectives of this program, good core recovery with material for stable isotope measurements is essential. Downhole logging will help achieve the primary goals by ensuring, through the integration of core and log measurements, that full stratigraphic recovery is achieved. Where core recovery is incomplete or where core disturbance is high, usually in XCB cored sections, downhole logs will provide continuously sampled physical properties that can serve as proxies for paleoclimatic indicators. Because of the probable unconsolidated nature of the sediments to be encountered in the BBOR and BR areas, and the short penetration of the proposed holes, we suggest that dedicated logging holes (drilled continuously to previously cored depths) are likely to provide the best quality logs.

Logging data will be particularly important for a number of the secondary objectives of this proposal. In particular, geophysical logs (sonic, porosity, density, and resistivity) will help determine the acoustic characterization of the sediments and the quantification of gas and gas hydrates present in the sediments. A dipole sonic tool can be most useful to investigate gas hydrate occurrences. The GHMT will help determine the characteristics of magnetic field reversals. Physical (susceptibility, gamma-ray, density-porosity, resistivity) and chemical (calcium, silicon) properties measured in the logs will be particularly useful for examining the structure of Milankovitch cycles. FMS images can provide detailed characterization of sedimentary structures (particularly difficult to obtain in XCB-cored sections) for interpretation of sedimentary processes in the drift deposits, help orient XCB-cores for magnetic studies, as well as to provide a very high resolution record of resistivity (although not in absolute values) for cyclicity studies.
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<td>&gt;1000</td>
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<td>150</td>
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<td>100</td>
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</tbody>
</table>
The main goals for Iberia margin drilling on Leg 173 are to determine to what extent rifting along this margin was asymmetric, to characterize the Ocean-Continental Transition, (OCT; defined as the part of the lithosphere which includes the crust between the thinned continental crust characterized by tilted fault blocks, and the first oceanic crust formed by seafloor spreading), and to assess the role of low-angle, principally crustal, normal faulting in the rifting process. In addition, ODP plans to sample acoustic basement to characterize tectonic and magmatic processes that dominate the transition from continental to oceanic crust in space and time; determine the role of syn-rift magmatism in the OCT; sample acoustic basement beneath Site 901 and a site 20 km further west to confirm the existence of continental crust and to determine the approximate level from which it came; sample the oldest, first-formed oceanic crust, 20 km west of the peridotite ridge, and determine the role of detachment fault tectonics in the evolution of the margin by drilling through a detachment on the east side of the high on which Site 900 has already been drilled and drilling a basement high 14 km further west associated with a westward-dipping normal fault, to test models of simple-shear extension of the upper lithosphere.

Rifted margins contain the principal record of the break-up that follows continental rifting and the of the onset of seafloor spreading, both of which are first order plate tectonic processes. Such margins exhibit a wide spectrum of characteristics, far greater than is
seen in continental rifts, probably in response to different combinations of asthenospheric temperature, lithospheric rheology, strain rate and stress. The rifting process, through the indirect effects of concurrent greater sedimentation and heat flow, and sub-aerial volcanism, can also have important environmental and resource implications. ODP drilling can make valuable contributions to rifted margin studies because it provides the only means of directly characterizing the nature, age, and emplacement conditions of igneous, metamorphic and/or sedimentary rocks formed, deposited or tectonically exposed during margin formation. Non-volcanic margins in particular provide opportunities to investigate and understand the tectonic aspects of rifting since faults, which penetrate deep into the crust and uppermost mantle, are often evident on seismic profiles and, as was demonstrated by Leg 149 in this region, cause deeper rocks to be exposed at the top of acoustic basement. Voluminous intrusive/extrusive, which can obscure crustal tectonics, are limited and often appear to be absent at non-volcanic rifted margins. Conjugate rifted margins often exhibit some asymmetry in structural style which may relate to the mode of lithospheric rifting or the location of the original break in the continental crust.

The west Iberia margin is an excellent example of a non-volcanic rifted margin. The Galicia Bank and Iberia Abyssal Plain segments of the margin were drilled during ODP Legs 103 and 149, respectively, and have also been extensively studied geophysically. Legs 103 and 149 have revolutionized notions about rifted margins by showing the existence of mantle exposure along these margins, information that together with the recognition of low angle faulting and “core-complexes” (e.g., basin and range) provided a new dimension for looking at deformation of the continental crust during breakup. The wider importance of this discovery was highlighted by the recent findings of possible serpentinized mantle at another margin pair, the conjugate Labrador-SW Greenland margins (Chian et al., Geology, 23, 7:589-592, 1995). The work of Chian et al. strongly suggests that the Iberia-Galicia margin structure has a wider occurrence than previously thought.

Leg 173 will be a sequel to Leg 149. The return to Iberia margin will enable drilling of a well imaged major detachment fault (an analogue to the S-reflector), to recover more rift-related igneous material (e.g., gabbro) and its host rock (continental or slow spreading crust?), to test the nature of the high between the rift-gabros and the most landward know serpentine complex (detached continental outlier, possibly a volcanic mound or serpentinite body), and finally to sample the oldest oceanic crust that seems to have a continuous volcanic cover (“normal” crust). These kind of observations in combination with the improved quality and quantity of seismic images, will permit better structural interpretation and allow the time frame and nature of generation of melts from the mantle during breakup and earliest generation of “normal” oceanic crust to be addressed. The planned drilled will also add to our knowledge of the early sedimentary history of the Iberia rifted margin.
Drilling Strategy

It is recognized that there will be sufficient time on Leg 173 to drill no more than three sites. The first priority sites are Iberia 7A (to test the simple shear extension model for the upper lithosphere); Iberia 9A or 9B (to test the simple shear extension model and assess the lateral extent of the possibly syn-rift gabbro basement rocks sampled at Site 900); and Site 901 or Iberia 8A (to confirm the continental nature of the basement, and its approximate original level in the crust, to thereby limit the landward edge of the OCT).

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<tbody>
<tr>
<td>*Iberia 7A</td>
<td>40.7 N; 11.8 W</td>
<td>5150</td>
<td>920</td>
<td>100</td>
<td>1020</td>
<td>Sample acoustic basement high on westernmost fault block</td>
<td>Geophysical, FMS/sonic</td>
</tr>
<tr>
<td>*Iberia 8A</td>
<td>40.7 N; 11.3 W</td>
<td>4830</td>
<td>1050</td>
<td>100</td>
<td>1150</td>
<td>Sample acoustic basement high (continental crust overlain by syn-rift sediments)</td>
<td>Geophysical, FMS/sonic</td>
</tr>
<tr>
<td>*Site 901</td>
<td>40.7 N; 11.06 W</td>
<td>4720</td>
<td>600</td>
<td>100</td>
<td>700</td>
<td>Continue Site 901 to basement at east end of OCT</td>
<td>Geophysical, FMS/sonic</td>
</tr>
<tr>
<td>±Galice 1A</td>
<td>42.7 N; 12.8 W</td>
<td>4500</td>
<td>600</td>
<td>100</td>
<td>700</td>
<td>Exploratory hole above S’ reflector</td>
<td>Geophysical, FMS/sonic</td>
</tr>
<tr>
<td>*Iberia 9A</td>
<td>40.7 N; 11.6 W</td>
<td>5150</td>
<td>750 + 350 Syn-rift</td>
<td>50</td>
<td>1150</td>
<td>drill through detachment fault</td>
<td>Geophysical, FMS/sonic</td>
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<tr>
<td>*Iberia 9B</td>
<td>40.7 N; 11.55</td>
<td>5040</td>
<td>950 + 550 Syn-rift</td>
<td>50</td>
<td>1550</td>
<td>drill through detachment fault</td>
<td>Geophysical, FMS/sonic</td>
</tr>
<tr>
<td>±Iberia 10A</td>
<td>40.8 N; 12.7 W</td>
<td>5500</td>
<td>830</td>
<td>100</td>
<td>930</td>
<td>sample oceanic basement west of known peridotite</td>
<td>Geophysical, FMS/sonic</td>
</tr>
</tbody>
</table>

* First priority sites.  Note: Either 9A or 9B; and either Site 901 or 8A
± Alternate sites.

Logging Program

Downhole measurements will contribute to (1) acoustic characterization of penetrated structures, (2) site-to-site comparison of chemical signature in basement rocks within the OCT, and (3) detailed description of tectonic features. Standard geophysical and geochemical logs should be run in each of the proposed holes to meet the first two objectives. While the recording of physical properties data is essential to core-log integration studies, FMS images allow a clear identification and cm-scale description of the succession of basement units. The FMS images will give the necessary high resolution for accurate description of tectonic features, in term of lithologic boundaries, bedding attitude (dip and strike), presence of fractures and faults and their spatial orientation, and degree of alteration of basement features.
The goals of the New Jersey Mid-Atlantic Transect (NJ MAT; Legs 150, 150X, 174A, and future supplementary drilling) are to: (1) date major Oligocene-Recent sequences on the New Jersey margin, (2) evaluate their correlation with glacioeustatic age estimates obtained from the oxygen isotopic record, (3) estimate the amplitudes and rates of sea-level change independent of oxygen isotopic estimates, and (4) assess the stratigraphic response of sequence architecture and facies successions to glacioeustatic forcing. An additional goal is to take the next step towards a global sea-level investigation by evaluating Paleocene to Eocene sequences, a time for which debate continues over the existence of ice sheets (the "Doubthouse World"). Leg 174A drilling on the New Jersey outer continental shelf and slope will focus on upper Miocene-Recent depositional sequences and test models of sedimentation and relative sea-level changes. Future drilling on the inner and middle shelf is needed to address Oligocene to middle Miocene sequences and Doubthouse sequences.

Determining the age, amplitude, mechanism, and stratigraphic response to sea level change continues to be a fundamental goal of the Ocean Drilling Program. The New Jersey Shelf margin is an ideal location to investigate the Oligocene-Recent history of sea
level change for several reasons: rapid sedimentation, tectonic stability, good chronostatigraphic control, and abundant reconnaissance-quality seismic, well log and borehole data. Sites were selected along the transect following the strategy endorsed by the JOIDES Sea Level Working Group in order to recover as complete a section as possible through several “Icehouse” sequences whose bounding reflectors can be traced to the continental slope. The age, depositional environment, and compaction histories of these strata are three of the many features that must be determined in order to evaluate the role that sea-level change may have had in their formation. To meet the goals of the NJ MAT, sampling must be carried out:

- immediately landward of the clinoform inflection point of a given sequence. This location provides a reference point for both the offlap of the underlying sequence and for the aggradation of the overlying sequence;

- at the point of lowest coastal onlap. This allows one to estimate the amount of offlap of the underlying sequence as well as the vertical aggradation of the overlying sequence (from this point to the point of highest onlap landward of the inflection point); and

- at the point of greatest physical continuity seaward of the toe of the clinoform.

Significant progress has since been made towards completing the proposed New Jersey sea level transect through the accomplishments of ODP Leg 150 and the New Jersey Coastal Plain Drilling Project (Project 150X): the dramatic facies changes of the up-dip record recovered by the New Jersey Coastal Plain Drilling Project (Leg 150X) and the nearly continuous geochronology of the down-dip record (Leg 150) have been sampled, and they bracket the crucial segment of direct geometric and facies indicators of sea level change buried beneath the shelf. The overall scientific goals of the Transect will only be fully attained when the critical locations that straddle individual clinoform inflection points on the shelf (sites MAT 1-9) have been drilled.

Drilling Strategy

Three primary drilling targets are planned. MAT Sites 8B, 9B, and 13B will be drilled on Leg 174A, subject to approval of SEDCO-FOREX. Sites 7B/8B and 8B/9B constitute updip/downdip pairs, with one site that is landward of the clinoform inflection point, and one that is near the toe of the clinoform. Drilling at sites MAT 8B and 9B will sample sections beneath the modern outer continental shelf that contain the clinoforms for the upper Neogene (upper Miocene-Pleistocene) sequences (M1 and younger). Only the m1 and the m2 sequences can be addressed fully by the MAT 8B/9B pair and MAT 7B/8B pairs, respectively. Drilling at MAT 13B will sample sections beneath the modern continental slope that contain the “correlative conformities” to sequence boundaries observed beneath the adjacent shelf. MAT 13B will determine the age of deep water correlative conformity of the Upper Miocene M1 sequence boundary, and provide a thick, high-resolution middle to upper Miocene slope section.
### Site Position Water Depth Sed. Thickness Basemt. Penetr. Total Description Log. Prog.

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<tr>
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</tr>
</thead>
<tbody>
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<td>MAT 7B‡</td>
<td>39.47 N; 72.91 W</td>
<td>71</td>
<td>Not given</td>
<td>0</td>
<td>1155</td>
<td>Age facies</td>
<td>LWD*</td>
</tr>
<tr>
<td>MAT 8B</td>
<td>39.38 N; 73.73 W</td>
<td>88</td>
<td>Not given</td>
<td>0</td>
<td>829</td>
<td>Age facies</td>
<td>LWD*</td>
</tr>
<tr>
<td>MAT 9B</td>
<td>39.36 N; 72.69 W</td>
<td>90</td>
<td>Not given</td>
<td>0</td>
<td>1065</td>
<td>Age facies</td>
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<tr>
<td>MAT 13A‡</td>
<td>39.21 N; 72.44 W</td>
<td>345</td>
<td>Not given</td>
<td>0</td>
<td>954</td>
<td>Age facies</td>
<td>Quad, GHMT, LWD*</td>
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<tr>
<td>MAT 13 B</td>
<td>39. 25 N; 72. 14 W</td>
<td>427</td>
<td>Not given</td>
<td>0</td>
<td>818</td>
<td>Age facies</td>
<td>Geophysical, FMS/sonic, LWD*</td>
</tr>
</tbody>
</table>

*LWD tools:  
  CDR - resistivity, gamma-ray; CDN - neutron, density.
‡These sites are second priority

### Logging Program

During the first phase of drilling on Leg 150, the very good to excellent core recovery at slope sites (88% mean) was largely due to the abundance of fine-grained sediments. The logging program was critical to the success of the leg objectives, however, difficulties arose when sands were encountered; success relied on the use of the Side-Entry Sub (SES), which allowed fluid circulation to clear downhole obstructions during logging. Sand is likely to be more abundant on the shelf, however, the SES cannot be used at sub-bottom depth greater than the water depth, and hence will not be available at two of the three planned sites. Alternatively, logging-while-drilling (LWD) is planned for this leg to insure that log data are acquired at the shelf sites and over the entire shallow subseafloor sequence. The benefits of LWD include: (1) high-quality gamma ray, resistivity, and porosity logs given rugose ODP drillholes (sensors are located a few meters above the bit and measure within minutes of being drilled), (2) the near certainty of saving time over wireline logging, and (3) the ability to log from TD to the mudline. Log information recorded from 0 to 100 mbsf will be crucial in tying Pleistocene sequences at MAT 13B to MAT 9B and MAT 8B and establishing a depth-seismic tie to identify shallow reflectors.
Leg 174B: CORK 395A and Engineering

The primary goal of the CORK experiment at Hole 395A is to monitor how the hydrological system varies with time as natural hydrogeological conditions are re-established once the hole is sealed. The experiment will provide essential information about the formation pressure and permeability structure, which are the real keys to understanding the crustal hydrogeology, and which control the apparently more active off-axis hydrologic system at 395A. Hole 395A is an excellent place for this experiment because the natural thermal regime will allow determination of whether the observed downhole flow is dynamically maintained due to active circulation in the basement, regardless of whether or not a borehole is present, instead of flow induced by the geothermal gradient.

Two DSDP/ODP Holes 395A and 504B, penetrate more than 500 m into “normal” oceanic crust formed at a mid-ocean ridge and thus form a key pair of reference sites for young upper oceanic crust formed at slow and medium spreading rates, respectively. They are especially important for the hydrogeology of young oceanic crust, which has been studied with extensive downhole measurements and exceptionally detailed heat flow surveys at both sites. Although these examples suggest that young upper oceanic crust under a sediment cover is easily permeable enough to support considerable flow of seawater, the details of off-axis circulation and its control by the pressure distribution and fine-scale permeability structure are as yet poorly understood.

This program on the Mid-Atlantic Ridge will carry out a selected suite of downhole experiments in Hole 395A and then install an instrumented borehole seal or CORK with thermistor cable and pressure sensor. Hole 395 is located in 7 my old crust in an isolated sediment pond that might be considered somewhat typical of the structure and hydrogeological setting of thinly-sedimented crust formed at slow spreading rates. Since it was drilled in 1975-76, Hole 395A has been revisited three times to obtain downhole measurements. These indicate a strong downhole flow of ocean bottom water, at rates of thousands of liters/hr into the permeable upper oceanic crust, and this has been virtually
unabated over the 20 years since the hole was drilled. In contrast, temperature measurements obtained during multiple visits to Hole 504B in the Eastern Pacific, indicate that the rate of downhole flow has diminished since the hole was first drilled and that the downhole flow is directed into a more restricted section of upper basement. This comparison suggests that Hole 504B penetrates a more passive hydrologic regime, while Hole 395A displays a significantly more active circulation system. The various observations at Site 395 generally support a model of lateral circulation in the upper basement beneath the sediment pond in which the site is located and this will be tested by the proposed CORK experiment and subsequent data acquisition.

**Logging Program**

Comparative studies of *in situ* oceanic structures and hydrothermal circulation systems at oceanic ridges demand high quality and high resolution logging data. The logging data in Hole 395A at Mid-Atlantic Ridge acquired before 1986 are poor compared with the high quality and high-resolution logging data acquired in Hole 504B in 1993. In particular, the dual laterlog (DLL), critical to estimate porosity in high-resistivity formations, was not run in Hole 395A. A borehole televiwer (BHTV) run was acquired by Morin by wireline reentry in 1992.

After initial reentry at Hole 395A, temperature logs followed by FMS and flowmeter logs will be run to delineate the fine-scale permeability structure of the section penetrated by the hole. Detailed permeability information will be required to allow interpretation of the data collected from the CORKed hole in terms of the hydrogeological processes in discrete zones within the formation. The FMS will provide a detailed log of fracturing. A fully configured CORK with a thermistor string and pressure sensor will then be installed to seal the hole. The cable will be 600 m with ten thermistors spaced relatively equally below 100 m to span the lowermost sediments, permeable intrusives and breccias, and the lowermost, relatively impermeable section of the hole with pressure sensor and a 10-thermistor sensor cable 600 m long.

<table>
<thead>
<tr>
<th>Site</th>
<th>Water Depth (m)</th>
<th>Sed. Thknes. (m)</th>
<th>Penetr. Depth (m)</th>
<th>Logging Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>395A</td>
<td>4490.2</td>
<td>93</td>
<td>664</td>
<td>Geophysical w/ DLL, FMS w/ array sonic, BHTV, flowmeter and temperature.</td>
</tr>
</tbody>
</table>

The Leg 174B engineering program will focus on three objectives that must be explored in order to establish a borehole in a hard rock environment. Listed in priority order, these objectives are:

1. Determine the viability of the hammer drill. The hammer drill will be thoroughly land tested before it is deployed at sea. However, it is difficult, if not impossible, to simulate deployment of such tools from a ship. Therefore, the hammer drill will first be deployed independently of the drill-in casing system for evaluation.

2. Determine the viability of the hammer drill-in casing system. Once the hammer drill viability is established, the complete hammer drill-in casing system will be deployed for
evaluation. Two or more boreholes will be drilled using the hammer drill-in casing system.

3. Determine the maximum slope that can be spudded with the hammer drill. Once the hammer drill-in casing system viability is established, the maximum slope at which the system can spud will be determined. Multiple boreholes will be spudded on increasing slopes to determine maximum slope spudding capability.
The main objective of Leg 175 drilling off Angola and Namibia is to reconstruct the history of the Benguela Current and the coastal upwelling of the region between 5°S and 32°S. The Benguela Current is linked to the exchange of heat between the South Atlantic and North Atlantic. Today, the extent and intensity of the modern Benguela Current directly influences the South Equatorial Current and its transport of heat from the South Atlantic to the North Atlantic. This energy transport, operating over great distances, is involved in the formation of the polar ice caps and influences their magnitude. Undoubtedly, the development of the Benguela Current has had an important bearing on the evolution of the climate of the southern and northern hemispheres, and particularly on that of northern Europe.
Of principal interest is the period since the Miocene, when a pattern of oceanic circulation akin to the modern circulation became established in the Atlantic. The northernmost sites of this program will yield a record of productivity variations in a complex area which is dominated by river input (Zaire), seasonal upwelling, pelagic offshore divergence, and upwelling related to the so-called “Angola thermal dome”. The sites located off mid-Angola provide a “low-productivity” standard for comparison, with the possibility of detailed correlation between the margin record and the pelagic record. Sites off southern Angola target the northern end of the continuous, high productivity portion of the Angola/Namibia upwelling system. The Walvis Ridge site will provide the record of the fluctuations of maximum upwelling in this region. The southernmost sites of the transect have been chosen to recover the record of the development of the Benguela Current system.

On Leg 175 ODP will document paleoceanographic history since the middle Oligocene at selected sites and will expand and refine the partial record provided by DSDP sites of the paleoceanographic and paleoclimatic changes in the area since the early Miocene. Results from DSDP Sites 362 and 532 indicate that the Benguela Current has increased its northward extension across the Cape Basin and into the Angola Basin since early Miocene time, partially due to strengthening of the Agulhas Current and partially due to changes in the Antarctic polar front. At the DSDP sites the effects of southern hemisphere glacial-interglacial cycles appear as carbonate dissolution cycles, productivity cycles, and continental sedimentation cycles. Both sea-level changes and climatic changes are recorded in these cycles.

The Leg 175 sites are planned above the CCD in a passive margin area characterized by rates of high sedimentation. They should provide high-resolution records of the processes governing the cycles of carbonate dissolution, productivity, and continental sedimentation. ODP drilling on this leg will also aid the study of early diagenetic processes in organic rich sediments (dolomite, phosphorite and chert), and will contribute to a better understanding of the composition and origin of organic matter sediment in high production areas.

Drilling Strategy

Nine sites are planned as part of a latitudinal transect between 5° and 32° South in the Northern Angola Basin (NAB), Mid-Angola Basin (MAB), Southern Angola Basin (SAB), Walvis Ridge (WR), Northern Cape Basin (NCB), and Southern Cape Basin (SCB).

Sites in the Northern Angola Basin will sample a complex environment dominated by reverence input, seasonal coastal upwelling, and incursions from the southern equatorial counter current. While the two NAB sites represent the same depositional environment, they are located at varying distances from the shelf break, in different water depths, and at different positions with respect to the river plume and Congo Canyon.

The Mid-Angola Basin sites have been selected to provide a section of “most nearly normal” margin sedimentation, being neither influenced by reverence input, nor by sustained year-round upwelling. ODP drilling at these sites is expected to yield a regional high productivity record with an optimum pelagic signal.

The Southern Angola Basin sites will sample the northern end of the Angola/Namibia upwelling region to provide information about the history of the Benguela Current and coastal upwelling migration. In addition, as the sites are located on a climatic boundary,
the cores are expected to document sensitive changes in the position of continental climatic zones and the general climatic history of southern Africa.

Site WR1 on the Walvis Ridge together with DSDP Sites 532 and 362 form a transect that is central to the reconstruction of the history of the Benguela Current. Although DSDP Sites 532 and 362 are located seaward of the upwelling central, they contain an upwelling signal which has been transported to this location by the Benguela Current. It is anticipated that Site WR1, located closer to the continent, will give a better record of the upwelling.

The Northern Cape Basin site will help document the northward migration of the Benguela Current system from the Miocene (perhaps Oligocene) to the Quaternary, as well as the shoreward/seaward migration of the upwelling centre. The site will also provide a record of maximum productivity in the system. The Southern Cape Basin site will explore the early history of the Benguela Current and identify possible Agulhas Current influences. The site has been located close to the continent so as to permit detection of upwelling, indicators of the influence of continental climate (pollen, clay minerals, coarser terrigenous matter), and signals related to sea-level change.

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<td>NAB1</td>
<td>5.06 S; 11.11 E</td>
<td>1397</td>
<td>&gt;500</td>
<td>0</td>
<td>400</td>
<td>Paleoproductivity/environment record of fan margin deposits</td>
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<td>4.78 S; 10.08 E</td>
<td>3001</td>
<td>600</td>
<td>0</td>
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<td>Above; most distal location to Congo Canyon</td>
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<td>11.9 S; 13.36 E</td>
<td>550</td>
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<td>800</td>
<td>&gt;1000</td>
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<td>600</td>
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<td>&gt;1000</td>
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<td>Geophysical, GHMT, FMS/sonic</td>
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<td>25.5 S; 13.08</td>
<td>1850</td>
<td>2000</td>
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<td>600</td>
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<td>1350</td>
<td>3800</td>
<td>0</td>
<td>600</td>
<td>Above</td>
<td>Geophysical, GHMT, FMS/sonic</td>
</tr>
</tbody>
</table>

Logging Program

OHP and SGPP recommended that all nine holes be logged due to the importance of the correlations with the seismic records. Seven of the nine sites were selected initially for logging operations using the Quad and Geochemical tools. Based on the high potential scientific return of magnetic measurements during this leg, deployment of the GHMT
magnetic logging tool is also recommended to insure complete recovery of the magnetic reversal sequence. The FMS microresistivity tool may also be useful for detecting ultra-high-resolution sub-Milankovitch paleoclimate signals. Both the GHMT and FMS would be most effective at high sedimentation rate sites.
The principal objective of Leg 176 drilling in Hole 735B along the Atlantis II Fracture Zone is to determine the nature of the magmatic, metamorphic, and tectonic processes in the lower crust. Hole 735B is the only existing deep penetration into plutonic basement in the oceans. Recently acquired geophysical data (Minschull et al., 1994) provide much needed control on the gross, regional structure around the site, and will allow the results from deepening 735B to be interpreted much more broadly.

The results of deepening Hole 735B will be exciting as it will permit discrimination of the conceptual models that are most applicable to the ocean crust at this location. Thus, although the drilling may reach petrologic Moho, the boundary between rocks which are the residues of the processes by which magmas form and migrate to the crust, and rocks produced by the crystallization of those magmas as they rise out and pool above the upwelling mantle peridotite, the recovery of a truly representative section of plutonic crust, would, by itself, be a major breakthrough in understanding the geologic processes occurring beneath ocean ridges.
Drilling Strategy

The priorities for Hole 735B drilling are as follows:

1. Deepen existing Hole 735B to 2 km below the seafloor.
2. Log the deepened hole.
3. Conduct both Packer and VSP experiments in the deepened hole.
4. The following priorities should be maintained in the event of difficulties in deepening 735B:
   - offset HRGB in present 200 m survey box.
   - bare rock spud-in at 400 m intervals on flow line.
   - video survey and distal HRGB deployment.
5. Efforts should focus on the wave cut terrace on which 735B is located. A conjugate basalt site should be drilled as an alternate only as a last resort.

<table>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>735B</td>
<td>32.72 S; 57.27 E</td>
<td>700</td>
<td>0</td>
<td>2000</td>
<td>2000</td>
<td>Long Gabbro section at a slow spreading ridge</td>
<td>Geophysical, GLT, DLL, FMS, BHTV, Schlumberger VSP, dipole sonic, third party magnetometer</td>
</tr>
</tbody>
</table>

Logging Program

The principal objective of deepening Hole 735B, which may reach the petrologic Moho, is to determine the nature of the magmatic, metamorphic, and tectonic processes in the lower crust. The establishment of the depth/seismic tie by the means of a vertical seismic profile (VSP) and synthetic seismograms are essential to identify deep crustal reflectors. During the first phase of drilling Hole 735B during Leg 118, geochemical data from the GLT, the compressional and shear wave velocity and amplitude logs, the borehole televiewer (BHTV), and magnetic susceptibility were especially useful in delineating structural and stratigraphic features of magmatic layering and fractures. In anisotropic formations such as those at Site 735, the shear wave velocity and amplitude measured at different azimuths in the borehole may indicate fracture orientation and the regional paleostress direction. The FMS high-resolution images will also vastly improve the determination of the fracture and alteration zone distribution in the crust and should be given high priority. Magnetic susceptibility was useful to identify metallic oxides that are quite abundant in the upper 500 m of the hole and a proposal for a third-party magnetometer should be considered. Log resistivities were as high as 40,000 ohm-m in the upper 500 m of the hole and the dual laterolog (DLL) is recommended in such high-resistivity environments.
E. Budget Overview

FY 97 Program Plan - Budget Overview

The FY 97 Program Plan budget is based on the assumption that the number of contributing partners in ODP, and their contributions, will be the same as in FY 96; namely, the US National Science Foundation, five full non-US members, and the Australia/Canada Consortium, operating at two-thirds of the full member contribution rate. This level of contributions provides for a budget of $44.4 million in FY 97.

The JOIDES Budget Committee met in March, 1996, to consider options for allocating the FY 97 budget. As noted in previous BCOM reports, the budget review process has become progressively more difficult over the last few years. In the past, the source of this difficulty has been the ever increasing gap between available funds and the projected scientific needs and expectations. ODP now works in an environment in which the projected budget is flat, and inflating “fixed” costs are reducing the discretionary portion of the drilling budget. At the same time, the new ODP Long Range Plan calls for innovation in the drilling program and significant changes in direction. This raises critical issues that have major implications for the operations and planning for the next three years.

Both JOI and BCOM consider that the quality of operator services, both delivered and proposed by ODP-TAMU and LDEO-WLS in the FY 97 budget context is consistently very high. Both organizations obviously spent considerable time in striving to meet the budget target. However, the current reality and budget outlook required JOI, in consultation with BCOM, to take a more radical approach to the allocation of ODP resources.

The new Long Range Plan presents significant challenges by mandating new directions for science associated with ocean drilling under the two major themes: Dynamics of Earth’s Environment and Dynamics of Earth’s Interior. The Long Range Plan requires development, or acquisition of new drilling technologies, scientific facilities and capabilities, and access to other platforms that will permit drilling in shallow water and polar regions. These changes will necessitate developing strong cooperative ties with other international programs and scientific agencies. None of these initiatives can be achieved as a simple ornamentation of a slowly evolving Ocean Drilling Program. Fundamental change is required and access to funding to support these new initiatives must be identified. The proposed budget plan takes a major step in providing an environment in which changes in the program is possible.

The New Budget Strategy

BCOM recommended, and JOI accepted a budget strategy that involves a progressive but modest increase in the “Special Operating Expenses” concept of resource allocation over the next three years. This is critical, if ODP is to increase the proportion of funding available for innovation and new initiatives so as to ensure a forward looking program. To initiate this new approach, BCOM recommended application of the following conceptual funding “envelopes”:

Envelope 1.
A group of basic “fixed costs”; including ship operations at ODP-TAMU, the estimated cost of the Schlumberger logging contract for one year of standard drilling, and logging tool insurance at LDEO-WLS.
Envelope 2.
A group of “Special (Project) Operating Expenses”, set at $3.5M for FY 1996-97, and now called the “X-base”. BCOM has recommended that this amount progressively increase over the next two years, to $5.0M in FY 98 and $6.5M in FY 99.

Envelope 3.
The remainder of the $44.4M available resources, be then allocated to TAMU, LDEO and JOI/JOIDES/Data Bank on the basis of need. (This is now called the “A-base”).

Funds in envelope 2, the “X-base,” have been and will continue to be allocated to priority, mostly one-off projects that are identified by JOI, ODP-TAMU and LDEO-WLS, on the basis of discussions at BCOM, PCOM, key Service Panels and EXCOM. Items for submission to “X-base” budget allocation process will include the current SOE items, but may also include other “stand-alone” projects, new initiatives or innovative proposals. Items in the “A-base” plus fixed costs are intended to encompass all the basic level of services that are necessary to support ODP management and operations. The BCOM considers that this process, especially a proactive response to the projected reduction of the “A-base” and expansion of the “X-base” budget over the next 3 years, will address the EXCOM motion (96-1-14/1), namely:

“JOI, in consultation with PCOM & BCOM, examines the important new innovations in the program (Borehole Utilization, Legacy Holes, inter alia) and detail their costs. PCOM and BCOM should advise JOI on what existing components (publications, logging, indeed all components) might be dropped or reduced to accommodate these new initiatives and clearly label the costs, benefits and losses. This step is fundamental to addressing concerns from funders that all cost cutting measures have been examined prior to requesting additional funds. Action by June 1996.”

The new approach outlined above aims to achieve the maximum demonstrable efficiency in Program delivery, as required by EXCOM. Nonetheless, if project-based budgeting clearly demonstrates that an efficiency threshold will be reached before the A-base falls to its indicated levels in FY 99, then JOI will rationalize the process and present the new base allocations, with associated service provisions, to EXCOM.

In developing the budget for this Program Plan, ODP-TAMU and LDEO-WLS proposed a number of projects for the “X-base” budget for FY 97. Their “bids” were considered by JOI, in consultation with BCOM, and prioritized. The “X-Base” budget was allocated to projects in priority order down to the $3.5 million cut-off. The outcome of this process is as follows:

<table>
<thead>
<tr>
<th></th>
<th>FY96</th>
<th>FY97</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODP-TAMU</td>
<td>37,717,503</td>
<td>37,652,000</td>
<td>-0.17%</td>
</tr>
<tr>
<td>LDEO-WLS</td>
<td>4,810,444</td>
<td>4,880,000</td>
<td>+1.45%</td>
</tr>
<tr>
<td>JOI/JOIDES/DB</td>
<td>1,872,053</td>
<td>1,868,000</td>
<td>-0.22%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>44,400,000</td>
<td>44,400,000</td>
<td></td>
</tr>
</tbody>
</table>
### BREAKDOWN

<table>
<thead>
<tr>
<th></th>
<th>Fixed Costs</th>
<th>A-Base</th>
<th>X-Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODP-TAMU</td>
<td>21,632,000</td>
<td>13,200,000</td>
<td>2,820,000</td>
</tr>
<tr>
<td>LDEO-WLS</td>
<td>2,440,000</td>
<td>1,760,000</td>
<td>680,000</td>
</tr>
<tr>
<td>JOI/JOIDES/DB</td>
<td>0</td>
<td>1,868,000</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24,072,000</strong></td>
<td><strong>16,828,000</strong></td>
<td><strong>3,500,000</strong></td>
</tr>
</tbody>
</table>

In freeing funds for new initiatives, JOI gave priority to leg-related add-on costs, such as logging-while-drilling and special engineering tests. Further DCS and some JANUS developments were also given priority.

It was recognized that this reallocation scheme may result in some changes in the quality or style of service delivery that the Program has come to regard as basic to ODP. However, BCOM considered that these reorded budgets will enable and encourage the management of the Program to explore ways of delivering even better basic services, for less overall cost. BCOM also recognizes the opportunities that will be provided each year to bring new and innovative projects to the Program for LRP Phase III and IV. As this X-Base budget allocation rises to a $6.5 M target in 1999, we also envisage having the potential to address some of the LRP’s Phase III goals of cooperative ventures with other global programs; in particular, the carrying out of multi-platform projects, borehole instrumentation and other relatively high cost one-off initiatives.

Table PP-8 compares the proposed FTE personnel levels for FY 97 with those of the current year (FY 96).
<table>
<thead>
<tr>
<th>Department</th>
<th>FY 96</th>
<th>FY 97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headquarters/Administration</td>
<td>2,000</td>
<td>1,898</td>
</tr>
<tr>
<td>Publications</td>
<td>2,106</td>
<td>2,105</td>
</tr>
<tr>
<td>Drilling and Engineering</td>
<td>3,917</td>
<td>3,584</td>
</tr>
<tr>
<td>Technical and Logistics Support</td>
<td>3,860</td>
<td>3,586</td>
</tr>
<tr>
<td>Science Operations</td>
<td>1,017</td>
<td>1,262</td>
</tr>
<tr>
<td>Ship Operations</td>
<td>20,922</td>
<td>21,567</td>
</tr>
<tr>
<td>Information Services and Curation</td>
<td>3,896</td>
<td>3,577</td>
</tr>
<tr>
<td><strong>TOTAL TAMU</strong></td>
<td>37,718</td>
<td>37,579</td>
</tr>
<tr>
<td><strong>LDEO</strong></td>
<td>4,810</td>
<td>4,953</td>
</tr>
<tr>
<td><strong>JOI/JOIDES</strong></td>
<td>1,872</td>
<td>1,868</td>
</tr>
<tr>
<td><strong>GRAND TOTAL ODP BUDGET</strong></td>
<td>44,400</td>
<td>44,400</td>
</tr>
</tbody>
</table>
Table PP - 8: FTE Comparisons: FY 96 - FY 97

<table>
<thead>
<tr>
<th></th>
<th>FY 96</th>
<th>FY 97</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAMU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HQ/Adm</td>
<td>31.60</td>
<td>32.60</td>
</tr>
<tr>
<td>Pub</td>
<td>34.00</td>
<td>27.00</td>
</tr>
<tr>
<td>D&amp;T</td>
<td>18.25</td>
<td>17.00</td>
</tr>
<tr>
<td>Tech</td>
<td>43.00</td>
<td>38.00</td>
</tr>
<tr>
<td>SciOps</td>
<td>13.50</td>
<td>13.50</td>
</tr>
<tr>
<td>IS&amp;C</td>
<td>17.00</td>
<td>32.00</td>
</tr>
<tr>
<td>Total</td>
<td>157.35</td>
<td>160.10</td>
</tr>
<tr>
<td>LDEO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRG</td>
<td>12.08</td>
<td>12.08</td>
</tr>
<tr>
<td>NEB-IMT</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>UofL</td>
<td>3.54</td>
<td>2.25</td>
</tr>
<tr>
<td>Total</td>
<td>18.12</td>
<td>16.83</td>
</tr>
<tr>
<td>JOI/JOIDES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JOI</td>
<td>6.72</td>
<td>7.72</td>
</tr>
<tr>
<td>ODP</td>
<td>2.75</td>
<td>2.75</td>
</tr>
<tr>
<td>DB</td>
<td>3.33</td>
<td>3.25</td>
</tr>
<tr>
<td>Total</td>
<td>12.80</td>
<td>13.72</td>
</tr>
<tr>
<td>Total</td>
<td>188.27</td>
<td>190.65</td>
</tr>
</tbody>
</table>
Agenda Item 6: Phase IV Planning

(a) To begin working towards scientific definition of Phase IV. PCOM responded to the EXCOM requirement to meet with OD21 planners by sending representatives to the Shonan meeting in February, and by holding a joint PCOM - STA/JAMSTEC session in Aix en Provence, as reported in the PCOM minutes. The Joint Session endorsed the idea of a COSOD-type meeting to be held by October 1997. PCOM will make nominations for the steering committee which should meet in Japan in September 1996. **EXCOM is asked to advise PCOM and the new JOIDES Office on further action on this subject.**

(b) Technological Implications. Aspects of the technology requirements were discussed in the Shonan meeting. Shipboard Measurements Panel will be meeting with STA/JAMSTEC in November. A joint JAMSTEC/TEDCOM meeting will also be scheduled for later this year. EXCOM is aware that refinement of the cost estimates for Phase IV calls for a great deal of work, and also policy decisions on the part of the US and Japan in particular. Actual operational cost of the OD21 vessel will be heavily contingent on the size of the ship, which in turn will be dictated by technological considerations, notably choice of riser system. Difficult judgements will be involved, e.g. because a conservative choice of possibly lower risk may saddle the Program with unavoidable heavy operating costs that might have been reduced by more novel system. **EXCOM is asked to note these actions and to call for an assessment of progress to date and actions required and timelines, at the next EXCOM meeting.**

(c) Management and Operations. The attached paper 6(c) by Dr Falvey reports the initial discussions and progress to date. **EXCOM is asked to advise JOI on further action on this subject.**
Item 6 (c) Options for the Joint Management of ODP and OD-21 in Phase IV

At the January EXCOM Meeting, Motion 96-1-15 stated, in part that:

"EXCOM, after reviewing the Japanese proposal for new drilling vessel construction, (and) in order to facilitate planning for this vessel and its use, EXCOM will identify STA/JAMSTEC, MONBUSHO and JOI as key organisations in the current and expected future ocean drilling operation and requests that they discuss options for international operation and management of Phase IV of the LRP and their funding implications. This group should report back to EXCOM in January 1997, but should provide a progress report at our June 1996 meeting."

This group first met at the "OD-21" meeting in Japan in February, 1996, with a followup meeting following the PCOM meeting in Aix-en-Provence in April. The group explored the specific issue of the organisation of ODP and OD-21 beyond 2003, as mandated by EXCOM, and discussed options for international operation and management of Phase IV.

The STA/JAMSTEC model, presented by Dr Kinoshita (Director, Deep Sea Research Department, JAMSTEC) to the OD-21 meeting, was based on the concept that only the OD-21 riser drilling platform would be available for scientific ocean drilling beyond 2003. OD-21 was to be the "extension", or "continuation of ODP". The proposed future organisational and management model is shown in Attachment 1. Clearly it has a close resemblance to the current structure. However, in this model there appears to be a controlling linkage between JAMSTEC and the "New JOI". "New JOI" is a Japanese organisation set up by JAMSTEC along the lines of the current US JOI, Inc, but with a subsidiary, more than a prime contractor relationship to JAMSTEC. The OD-21 Drilling, Drillship, Science and Wireline Logging Operator is designated as a "non-profit operational entity", like ODP-TAMU and WLS-LDEO. The ODP Council was omitted from the structure.

During the OD-21 meeting, it was made clear that NSF intended to pursue the recommendations of the Mid-term "International" Review, specifically that indicating the need for two scientific drilling vessels beyond 2003 - one equipped with a riser for deep drilling, or in hydrocarbon areas, as well as a "JOIDES Resolution-type" drilling vessel, without a riser. Operating on this presumption, and consistent with the new Long Range Plan, the Program Director presented an alternate organisational and management structure to the OD-21 meeting, along these lines:

(a) Basic Assumption
The Long Range Plan (1996) identifies scientific ocean drilling problems that require two drilling platforms beyond 2003:
1. a JOIDES Resolution-type vessel, without a riser system
   - for relatively shallow drilling (mainly "Dynamics of Earth's Environment")
2. A vessel of the type described in the OD-21 initiative, with a riser system
   - for deep drilling (mainly "Dynamics of Earth's Interior")

(b) Basic Criteria
The management and organisation of ODP and OD-21 beyond 2003 should satisfy the following criteria:
1. ODP (Phase IV) and OD-21 should have integrated management, science coordination and science advisory functions
2. The drilling platform provided to the international ocean drilling community by the United States should be an identifiably US facility
3. The drilling platform provided to the international ocean drilling community by Japan should be an identifiably Japanese facility

This leads to the organisational and management structure shown in Attachment 2. It is very close to the current structure and not too far from the JAMSTEC proposal. The essential difference is the nature of “JOI (International), Inc”.

- One option for such an entity would involve expanding the current membership of JOI, Inc so that it becomes jointly owned by the current US JOI institutions and JAMSTEC. A single Board, President, Joint ODP/OD-21 Program Manager and offices in both the US and Japan might be assumed. However, such a corporate entity may pose difficulties for JAMSTEC as far as contracting services. They are investigating.

- An alternative, but less elegant option could involve establishing a “joint venture” body, owned equally by both the current JOI, Inc and JAMSTEC. This would involve separate corporate Boards and Presidents, but a single “joint venture” management committee and Joint ODP/OD-21 Program Manager. Some of the legal issues require further exploration.

Prof Taira and Dr Suyehiro (representing MONBUSHO), Dr Kinoshita and Mr Otsuka (representing JAMSTEC) and Dr Falvey (representing JOI) will continue to explore these options based the “two ship” model for post 2003. The group will prepare a report for January, 1997, as requested by EXCOM.
STA/JAMSTEC Proposal for the Future Organisation and Structure of OD-21

US and International Funding Sources <-> Japanese Science & Technology Agency

JAMSTEC Prog. Office

"New" JOI

JOIDES Science Advisory Structure

JOIDES Office

OD-21 Science, Logging Operator

Scientific/Policy Advice

Funding/Accountability(contractual or MOU)
Structure of an Integrated ODP and OD-21

US & International Funding Sources
OD-21/ODP Council
Japanese Sci. & Technol. Agency

NSF - ODP Prog. Office
JAMSTEC Prog. Office

JOIDES Science Advisory Structure

JOIDES Office

ODP Science, Logging Operators
OD-21 Science, Logging Operator

Scientific/Policy Advice
Funding/Accountability(contractual or MOU)
Agenda Item 7: Executive decisions

At this point EXCOM will refine and decide motions and consensuses that will have been developed during the meeting.
Agenda Item 8: Future meetings and any other business

(a) Future meetings
The next EXCOM meeting will be in the US in January 1997; the venue and precise dates will be announced at this point. The June 1997 EXCOM and Council meetings will be held in France; the venue and date should also be determined.

(b) Members wishing to raise other items of business may do so at this point with prior arrangement with the Chair.

The EXCOM session adjourns at this point.

1500hrs: JOINT SESSION with ODP Council.

DINNER this evening will be a further opportunity to interact with Council members and others.

On Wednesday morning the Council holds its meeting. The JOI Board will meet in the afternoon.
(a) Current issues and short-term planning.

- The Program Plan for the current year is being implemented highly successfully and within budget. Professor Kidd will report in the Council meeting.
- The Program Plan for the coming year FY97 has been completed and will have been to EXCOM for approval. It then goes to NSF for funding approval. The intended cruise schedule will be displayed at the meeting.
- Maintenance of important technological innovations within the constraints of the FY97 budget were a key feature of this year's Program Plan development. The innovative Diamond Coring System will be further developed towards operational state.
- A radical new publication strategy to move to electronic publishing using CD and WWW as fast as the market will bear, will be considered at this meeting.
- JOIDES and JOI have worked to refine the ODP Policy Manual to solve Conflict of Interest questions that inevitably arise in a system which requires the highest calibre of scientific advice. EXCOM intends to have completed this exercise at this meeting. The goodwill of partner organisations in selecting committee and panel members with the maximum relevant and needed expertise yet with the minimum of potential Conflict of Interest will continue to be a significant factor.
- JOI reports to each meeting on its Internationalisation initiative on behalf of the Program. After two promising developments became stalled, for reasons outside ODP’s control, it is welcome to learn the NSF is now in negotiation with a potential new associate member.
- Last year EXCOM drew the attention of Council to the importance of developing cooperative R&D ventures. Discussions are continuing between JOI and NSF on formats for Cooperative Technology R&D agreements that might serve ODP. NSF are still considering the ramifications vis-a-vis the MOU’s with non-US members. JOI has developed an outline Agreement that is compatible with the policies of JOI, TAMU and LDEO (copy attached as Annex 1).
- Project Management Initiative: The first steps in the introduction of project-based management into ODP are well underway. ODP-TAMU are now committed to the concept of managing “legs of scientific ocean drilling” as projects and have costed such a generic project. Formal project management training has begun in ODP/TAMU for all parts of ODP.
- Communications (Public Information) Initiative

  JOI has now recruited a full time Director of Public Affairs - Ms Pamella Baker-Masson. Revisions to the policy on public information are underway and an interim outline is attached.

- Performance Evaluation Committee (PEC-IV) Implementation Update. JOI has reported on implementation of this review which is now near to being discharged.
- EXCOM has received reports on continuing development of collaboration between two regional initiatives: NANSEN Arctic Drilling and CORSAIRES, JANUS. The JOI committee monitoring progress of the crucial new databasing system has submitted a thorough expert report which EXCOM will have reviewed.
- the executive summaries of the Wireline Services Operator and the Science Operator are attached as Annexes 2 and 3.
(b) Long Term Planning: Response to mid-term review and issues raised by Council.
This is Annex 4 (attached), containing
(i) JOIDES initial response to the International Review Report in terms of its principal recommendations, and
(ii) pre-meeting status reports on the issues that Council required to be reported on an interim basis at this meeting (pending definitive reports at the end of this calendar year). These issues will have been addressed by EXCOM during the 2 days preceding this session. The EXCOM Chair will introduce, and will call on appropriate members and liaisons to speak on the critical issues. EXCOM decisions will be reported, and Council members' advice will be sought on carrying issues forward.
Item J1 Annex 1:
Suggested Model for a Cooperative Technology R & D Agreement

This suggested pro forma is based on the model "Cooperative Research and Development Agreement" (CRADA) formerly used by the US Bureau of Mines (US BoM) for cooperative research programs. It may need further development to ensure its acceptability to JOI, TAMRF and Columbia University.

1. Participating Organisations/ Joint Venture Operator
   TAMRF (for the Science Operator) and/or Columbia University (for the Wireline Logging Operator); and another party, or parties agree to cooperate as stated in this agreement. One of the cooperating parties (Participating Organisations) is designated the "Joint Venture Operator".

2. Definitions
   As Article 1, US BoM model, amended as necessary.

3. Joint Program / Project Objectives
   As agreed between the parties. A simplified example of a joint project objective might be something like: "The Participating Organisations agree to cooperate in the development of an advanced pressure core sampler."

4. Scope of Work
   As Article 1, US BoM model, amended as necessary. Engineering details of the specifications of what the Participating Organisations envisage and agree as being the characteristics of a successful end product would be put in an appendix.

5. Joint Program / Project Management Structure
   Designation of internal project management mechanisms agreed to by the Participating Organisations, including project leadership and team structure. For example, the "Joint Venture Operator" will designate an overall project leader/manager; the other parties will each designate project supervisors; a project management committee will be formed, with membership from each of the Participating Organisations, and the powers and authority of the project management committee will be specified.

6. Joint Program / Project Staff Resource Contributions
   Designation of joint project staff resource contributions agreed to by the Participating Organisations, including administrative mechanisms. For example: the "Joint Venture Operator" will designate its project staff contributions, as will the other parties.

7. Joint Program / Project Financial Obligations
   Designation of joint project funding contributions agreed to by the Participating Organisations, including payment mechanisms and timetables. For example, the "Joint Venture Operator" agrees to contribute $500,000 in non-staff resources; and, say TAMU agrees to contribute $500,000 in non-staff resources, in 4 payments over, say 2 years; each payment at a specified milestone in the project.

8. Agents, Sub-Contractors and Additional Participants
   Agreement between the Participating Organisations on the admission, roles, responsibilities and rights of and conditions governing any additional participants that may be required for
the implementation of designated joint projects.; for example, sub contractors to the "Joint Venture Operator".

This section of the US BoM model requires careful adaptation to ODP circumstances. It is intended to cover the intellectual property rights of the Participating Organisations. For example, the "Joint Venture Operator" may be granted the patent rights of the final product and the right to exploit the product commercially; TAMU might be granted the right to freely access all of the design details. This section might also cover individual rights of employees of the Participating Organisations, the procedures for filing of Patent Applications and the conditions governing the assignment and recovery of patent rights. It might also include the sharing of any recovered costs of the R & D by the Participating Organisations.

10. Exclusive Licence
Guarantees the required exclusive licences for ODP and, where appropriate, ODP participating organisations, for research purposes. At a minimum, TAMU, say, would have the right to utilise the design to construct products for research purposes, and to further develop the design as considered necessary.

11. Data Confidentiality and Publication
Adapted from US BoM model agreement, Article 5, to suit ODP circumstances. TAMU and JOI may be required to keep the design confidential.

12. Liability and Indemnity
Adapted from US BoM model agreement, Article 8, to suit ODP circumstances. This section is designed to protect the Operator and the ODP participating organisations.

13. Termination
Right of either party to terminate the agreement on, say, 30/60 days notice. If the Operator, say, withdraws, then payments made by ODP may be partly or wholly refunded under certain conditions and joint benefits are retained by ODP.

14. Settlement of Disputes
Agreement to mechanisms for dispute settlement, including arbitration and continuation of work.

15. Legal Status, Jurisdiction and Binding Obligation
Designation of legal jurisdiction, and status in contract and, if applicable, international law.

16. Miscellaneous
This section covers such issues as amendments, third party assignments, notices, independent sub-contractors and the use of names and endorsements.

17. Duration
Duration of this agreement, extensions and effective starting date.

SIGNATURE BLOCKS, PLACE AND DATE

ANNEX 1 - DETAILED PROJECT STATEMENT OF WORK

ANNEX 2 - NON-DISCLOSURE AGREEMENT
EXECUTIVE SUMMARY

LDEO-BRG submitted the draft FY 97 ODP Logging Services budget outline to JOI prior to the Budget Committee (BCOM) meeting. The budget totaled $5,035,102. In response to BCOM guidance, a revised budget was submitted with the draft FY 97 Program Plan requesting total funds of $4,890,860. In response to recent input from PCOM, changes to this budget have been identified, and a revised FY 97 Program Plan will be submitted to JOI prior to the August due date.

During Leg 165 (Caribbean Ocean History), the K/T boundary, consisting of massive limestone bounded by clay rich intervals, was clearly displayed on FMS images as a distinct high resistivity band approximately 23 cm thick bounded by thin low resistivity layers. The sequence observed on the FMS data was critical for evaluating the completeness of the K/T recovery.

Preliminary analysis of log data from Hole 1003D (Leg 166, Bahamas Transect) revealed several interesting correlations between uranium, calcium, silica and aluminum content. The chlorinity indicator also revealed marked changes downhole that are associated with different fluid reservoirs present with the margin sediments. Further analysis of these data will help achieve an understanding of fluid flow and associated diagenesis in the Bahamas margin.

High sedimentation rates at the first site logged during Leg 167 (California Margin) provide an opportunity to examine the core and log resolution of orbital and millennial-scale bedding cycles. Comparison of the FMS record with the digital video brightness (L*) channel data suggests that periodic variability in carbonate composition at the 20-30 cm scale (equivalent to 2-3 k.y.) can be reliably resolved in the log data.

The new neutron porosity-lithology tool (IPLT) was tested during Leg 166. This Schlumberger toolstring allowed for the acquisition of much higher resolution geophysical log data. Following this successful test, the standard toolstrings were reconfigured. The first run will now be the Geophysical toolstring consisting of the IPLT and the resistivity tool. The second run will be a combined FMS and Sonic toolstring. These new configurations position both strings properly in the borehole (IPLT is eccentralized and the FMS/sonic is centralized) and increases the weight of the FMS toolstring thus improving data quality.

A comprehensive plan has been developed to migrate historic log data to the Oracle log database currently under development. A key feature of this plan is the reprocessing of historic log data by LDEO-BRG and LUBR. The plan was presented to DMP, IHP and the Database Steering Committee and it was enthusiastically supported.

LDEO-BRG personnel have been in close contact with Tracor representatives with regard to the development of the data file formats for processed log data. The design work is essentially completed with only minor modifications expected in June. These file formats will be tested by LDEO-BRG prior to the planned start-up of the shipboard Janus database during Leg 170.

A test of satellite transmission of log data from the Resolution to the shore and back was successfully completed during Leg 166. The shipboard scientists were able to utilize the processed data to generate more accurate site summary reports and conduct analyses of higher accuracy. Following this successful test, log data is now being routinely transmitted to LDEO-BRG for processing, then returned to the JOIDES Resolution, usually within seven days of logging a hole.
EXECUTIVE SUMMARY

During the last six months we have maintained our high standards of service in support of the Ocean Drilling Program, and we have been developing ways to function with enhanced efficiency and effectiveness. Highlights of our activities are summarized below.

MANAGEMENT

This spring we were instructed on the elements of Project Management, and we have designed an implementation plan that phases in the transition to a project-based operation over the next 2½ years. To start, all special-operation projects for FY97 are to be project managed, and the first component of leg-based management (pre-cruise activities) will be introduced this August. In addition, we are creating a five-year strategic plan that aligns the mission and goals of our service components, and their supporting activities, with the goals of the Long Range Plan. The creation of a five-year plan will identify a set of programmatic objectives that we want to achieve. These objectives will, in turn, serve as guideposts to determine the future of ODP/TAMU through the turn of the century. We anticipate that the major elements of the plan will be completed by early summer. These data will be used to help us establish whether our presently defined organizational framework is best suited to achieve the goals defined in our five-year plan. We plan to have this analysis, and any suitable changes in our organization, completed by Fall of 1997.

Our Publications Department is presently working with representatives from PCOM and JOI to craft a visionary new strategy to make the Program's published products more effective (i.e., wider distribution, greater versatility, maintain legacy of the Program, reduce costs).

The ODP/TAMU budget that has been submitted this year in support of the ODP Program Plan consists of the following: base budget = $34,832,449; special operating expenses = $2,823,223. Although significant inflationary increases have been experienced in a number of cost centers, we have managed to retain core services and maintain innovative new projects without increasing our budget.

With a goal to better characterize for the community, and for ourselves, how much it costs to provide each of our services, we have defined the cost of a "standard leg" of science aboard the JOIDES Resolution ($5,196,132), and we have determined how much it costs to provide the range of laboratory services aboard the JOIDES Resolution on a leg basis ($2,77,800).

SHIP OPERATIONS

Drilling Operations aboard the JOIDES Resolution have been very successful, with Leg 165 (Caribbean Ocean History) and Leg 166 (Bahamas) achieving their stated scientific goals. A transit leg (166T) between Panama and Acapulco, Mexico provided an opportunity to test new JANUS applications installed in the shipboard laboratories. Leg 167 (California Margin) is presently ongoing and, to date, meeting their stated objectives.
S C I E N C E  S E R V I C E S

A new set of operational guidelines are in the final stages to define a set of procedures that will ensure optimal safety during shallow-water operations (less than 1000 m). These guidelines will be in place for Saanich Inlet (Leg 169S) and the New Jersey Shelf (174A). In addition, we are developing with Overseas Drilling Limited, the operator of the JOIDES Resolution, a course designed to teach key personnel how to deal with stuck pipe safely.

I N F O R M A T I O N  H A N D L I N G  S E R V I C E S

The JANUS Project is moving forward. Key hardware components for the JANUS system have been installed on the JOIDES Resolution. In addition, completed applications of the Oracle-based relational database have been completed and installed on the JOIDES Resolution for testing and modification. With each leg, new applications are being introduced and integrated into JANUS. Complete integration and testing of all JANUS phase 1 applications is scheduled for this fall.

Based on community-defined priorities, post-JANUS projects include a digital core imaging/description capability, as well as the migration of the historical ODP shipboard data into the JANUS database. In the proposed FY97 Program Plan, funds have been allocated to start these projects.


A new Manager of Drilling Operations and Engineering Development, Brian Jonasson, has joined ODP/TAMU. Drilling aboard the JOIDES Resolution has been very successful during the last six months, and operations has provided the support to achieve the stated scientific goals. There are two departmental projects that are underway. The Diamond Coring System project, of which the goal is to increase core recovery in certain hostile lithologic settings, has completed Phase II, with successful testing of secondary heave compensation controllers on a laboratory test bed. TEDCOM and PCOM have both recommended going forward with Phase III in FY97. During Phase III, the secondary heave compensation system will be built, and the initial activities for Phase IV (land test) will be started. In addition, we are investigating a method to improve the capabilities of the primary heave compensation system. The second developmental project, the hammer drill coring system, is just beginning with development and testing scheduled for this summer. The hammer drill casing system has been very successful in mining applications penetrating through, and setting casing in, fractured rock, which is a geological environment that has historically proved difficult for the JOIDES Resolution to penetrate. The developmental challenge is to convert the pneumatic power and hammer system to the deep-water environment.
JOIDES interim response to the ODP Mid-term Review Committee Report: 4 June 1996

JOIDES welcomes the report of the International Review Committee, and thanks the Chairman and members for the effort and insight that they brought to the review. JOIDES welcomes not only the strong overall endorsement of the Program conveyed in the Report, but also the criticisms and the issues for future attention that are identified. JOIDES is working, and will continue to work, with all those involved in the Program to address these issues and further enhance ODP and its performance. In this interim response, we address each of the principal recommendations of the Report, and then (in an Annexe) give further details on the actions taken and planned on each of the main issues.

The major conclusions reached by the Review Committee are reproduced here in italics, and dealt with in turn:

1. The strong record of achievement by the ODP coupled with the 1996 Long Range Plan, which accurately describes an important and vital future role for scientific ocean drilling into the next century, justifies the continuation and enhancement of the program.

JOIDES welcomes this assessment of achievement (for which there is a wealth of documented evidence), the endorsement of the new Long Range Plan, and especially the emphatic prognosis of the critical role of scientific drilling in addressing truly important scientific issues.

2. The ODP should remain focused on drilling in deeper waters using the JOIDES Resolution, and a second vessel from 2003, to provide the samples and data needed to meet the goals of the 1996 Long Range Plan.

This recommendation is in full accord with JOIDES plans, which focus on deeper water without excluding occasional operations in shallower water that require the capabilities of the Resolution.

3. The ODP should be strongly supportive of and collaborative with other scientific drilling programs, and develop cooperative approaches for use of specialized shallow water, limited penetration and high latitude platforms to be operated by those programs.

JOIDES welcomes the emphasis placed on this matter by the Review Committee. Liaisons have long been established with other key programs. Measures to strengthen such linkages are in hand, and new procedures are under consideration to facilitate the flow of drilling proposals between Programs.

4. Future success will depend upon the ability to focus on major scientific objectives many of which require longer term drilling.

The Long Range Plan constitutes a firm commitment to focus the Program. Changes to the scientific advisory structure are being considered, in order to guarantee that the focus is properly directed at the major objectives that ODP is best placed to address.

5. The program after 2003 should anticipate utilizing both a Japanese ‘riser’ equipped drill ship and the JOIDES Resolution.

JOIDES planning is concentrated on this basis, with contingency alternatives being borne in mind.

6. The transition from the current program to the program after 2003 is complex and planning for the transition must begin immediately.
The initial steps have been taken.

7. The ODP should strengthen its scientific leadership.
JOIDES EXCOM has commissioned a review of this issue which it will consider in the context of possible changes in structure mentioned above (Item 4).

8. The ODP should enhance communication and broaden its support base with the general public.
JOI has appointed a Communications Director with a mandate approved by JOIDES in 1995; JOIDES will receive reports, monitor progress and advise on future actions, on a regular basis.
Phase III Planning

Following the advice from ODP Council after its Special Meeting to consider the mid-term review report of the International Review Committee, JOIDES and JOI set in motion the development of an Implementation Plan for Phase III, including the necessary planning for Transition to Phase IV.

(a) JOIDES Structure. The PCOM Chair conducted a wideranging discussion (involving PCOM, panels, JOI and operators) on how best to identify and implement the top science priorities and to determine the consequent technological requirements. The outcome of this is a proposal for radical restructuring of the JOIDES Advisory Structure involving:

1) Establishment of an ODP Science Committee (SciCom), concerned with proposal ranking, long-term scientific planning, and implementation of the ODP Long Range Plan. An ODP Operations Committee (OpCom), chaired by the SciCom chair, will be responsible for the annual program plan, budgetary matters, panel recommendations, and issues concerning the operators. OpCom would also be responsible for monitoring technical developments needed to meet long-term phased scientific objectives as identified by SciCom and the LRP. It is charged with monitoring these developments so that they are properly budgeted and meet time lines for inclusion in the multi-year science program.

2) Two review panels, dedicated to the themes of Earth's Environment and Earth's Interior, which will work both with proponents and working groups to handle proposal evaluation, and external peer review.

3) Working groups created by SciCom, possibly in conjunction with international geoscience initiatives, and individual proponents, will prepare proposals for drilling or other experiments using drilling platforms. Mature proposals would be passed from the working groups to the relevant review panel.

EXCOM will consider these changes at its Oslo meeting, and also revisions to committee membership structures and mandates that would be required. If approved, JOIDES will call on national (and consortium member) committees to nominate qualified persons to serve on the new Science Committee, Review Panels and Measurements Panel from 1 January 1997, consulting with the PCOM Chair to ensure balance of expertise.

The benefits of the new structure will include

- Enfranchises a wider community.
- Delivering science leadership and independence to SCICOM.
- Ensuring separation of scientific program development from implementation.
- Establishing an expert and responsible Operations Committee to ensure the best operational advice, project management and fiscal efficiency.
- Streamlining the number of formal JOIDES panels and committees.
- Establishing competition for proposals at three levels, but removing current inter-thematic competition and perception of panel entitlement to at least one leg per year.
- Providing accountability.
- Allowing for continual program renewal within context of the LRP.
- Providing mature proposals to SCICOM to arbitrate on acceptibility within the program.
- Providing for external peer review of proposals.
(b) Science priorities
The Long Range Plan set out the focused priorities for Phase III and the new structure proposed above, or whatever alternative is eventually adopted, will be designed to ensure delivery. The proposed Science Committee will be comprised of top ranked scientist from all the partners, and it will focus on science strategy. It will also be the arbiter of inclusion of projects within the forward planning on basis of scientific merit and relevance to the priority themes.

(c) Technological requirements
The proposed structure strengthens the existing Technological Developments Committee, and makes its Chair a member of the Operations Committee and liaison to the Scientific Committee. This committee is already addressing the requirements for Phase III based on the Long Range Plan; the new structure will ensure that initial conclusions are refined correctly in line with the Program as it emerges.

(d) Funding needs. EXCOM will be addressing innovations and economies at this meeting. It will also have considered a suite of financial projections for Phase III, with two and one ship models for Phase IV. (All the figures are ASSUMPTIONS. In particular, none is authorised by any present or future funding agency, nor, conversely, should the figures be construed as a JOIDES’ view of how much any partner SHOULD pay).

The future level of partner contributions will depend on economies and efficiency gains; inflation; recruitment of new members; financial partnerships with other programs and, ultimately, what the partners agree to subscribe.

JOIDES Mandate extends only to MAKING THE CASE to agencies worldwide to subscribe the requested funds. and EXCOM will consider proposing to ODP Council that an international negotiating forum is needed to determine the funding structure and total budget of ODP. Two models are offered for consideration:

i. That the Council itself be the negotiating forum. This is, arguably, the status quo and is tenable for Phase III. But it is not appropriately structured to deal with Phase IV, because it does not have STA/JAMSTEC membership and non-US consortia would be over-represented.

ii. For Phase IV, a body with membership reflecting the likely balance of funding, ie. among US, Japan and the other partners. It should have permanent JOI/JOIDES representatives as liaisons or non-voting members. This body must interact with JOIDES-STA/JAMSTEC planning of Phase IV Science & Technology.

(e) Linkages with other programs. Liaisons with key programs are long-established. JOIDES has prepared a model for collaboration in program development and joint operations which will be customised for each partnership that emerges. Moreover the proposed new structure provides for the submission of drilling proposals - for single projects or multi-leg, multi-year schemes - from working groups whether formally linked to JOIDES or not.

(f) Scientific leadership. EXCOM invited Dr Otis Brown to evaluate the Scientific Leadership of ODP, and the new Advisory Structure also addresses the issue by strengthening the position of the PCOM (SciCOM?) Chair.

(g) Communications. JOI has appointed a new communications director and is submitting a report to this EXCOM. The forward plan will be reported. EXCOM will
also be considering a radical plan to move progressively to full electronic publication of all ODP results, integrated with CD and WWW access to all ODP data. Key elements are being introduced NOW; the plan is for completion over 5 years and it will be adjusted - faster or slower - depending on effectiveness and acceptability, which will be continually monitored. Preliminary estimates point to economies in the region of 40% of the current Publications Budget.

(h) Accountability. Accountability lines have been drawn both for the Advisory and Operational structures. Reporting protocols will be defined. A key element of this will be Council's requirement for reporting from JOIDES and JOI, which Council itself must consider.

Phase IV Planning

(a) To begin working towards scientific definition of Phase IV. PCOM responded to the EXCOM requirement to meet with OD21 planners by sending representatives to the Shonan meeting in February, and by holding a joint PCOM - STA/JAMSTEC session in Aix en Provence, as reported in the PCOM minutes. The Joint Session endorsed the idea of a COSOD-type meeting to be held by October 1997. PCOM will make nominations for the steering committee which should meet in Japan in September 1996.

(b) Technological Implications. Aspects of the technology requirements were discussed in the Shonan meeting. Shipboard Measurements Panel will be meeting with STA/JAMSTEC in November. A joint JAMSTEC/TEDCOM meeting will also be scheduled for later this year. EXCOM is aware that refinement of the cost estimates for Phase IV calls for a great deal of work, and also policy decisions on the part of the US and Japan in particular. Actual operational cost of the OD21 vessel will be heavily contingent on the size of the ship, which in turn will be dictated by technological considerations, notably choice of riser system. Difficult judgements will be involved, e.g. because a conservative choice of possibly lower risk may saddle the Program with unavoidable heavy operating costs that might have been reduced by more novel system. EXCOM has been advised to call for an assessment of progress to date and actions required and timelines, at the next EXCOM meeting.

(c) Management and Operations. At the January Meeting, EXCOM, after reviewing the Japanese proposal for new drilling vessel construction, and in order to facilitate planning for this vessel and its use, EXCOM requested that STA/JAMSTEC, MONBUSHO and JOI discuss options for international operation and management of Phase IV of the LRP and its funding implications. This group should report back to EXCOM in January 1997, but should provide a progress report at our June 1996 meeting."

This group first met at the “OD-21” meeting in Japan in February, 1996, with a followup meeting following the PCOM meeting in Aix-en-Provence in April. The group explored the specific issue of the organisation of ODP and OD-21 beyond 2003, as mandated by EXCOM, and discussed options for international operation and management of Phase IV.
The STA/JAMSTEC model, presented by Dr Kinoshita (Director, Deep Sea Research Department, JAMSTEC) to the OD-21 meeting, was based on the concept that only the OD-21 riser drilling platform would be available for scientific ocean drilling beyond 2003. OD-21 was to be the "extension", or "continuation of ODP". It has a close resemblance to the current structure. However, in this model there appears to be a controlling linkage between JAMSTEC and the "New JOI". "New JOI" is a Japanese organisation set up by JAMSTEC along the lines of the current US JOI, Inc, but with a subsidiary, rather than a prime contractor relationship to JAMSTEC. The OD-21 Drilling, Drillship, Science and Wireline Logging Operator is designated as a "non-profit operational entity", like ODP-TAMU and WLS-LDEO. The ODP Council was omitted from the structure.

During the OD-21 meeting, it was made clear that NSF intended to pursue the recommendations of the Mid-term "International" Review, specifically that indicating the need for two scientific drilling vessels beyond 2003 - one equipped with a riser for deep drilling, or in hydrocarbon areas, as well as a "JOIDES Resolution-type" drilling vessel, without a riser. Operating on this presumption, and consistent with the new Long Range Plan, the Program Director presented an alternate organisational and management structure to the OD-21 meeting, along these lines:

(a) Basic Assumption
The Long Range Plan (1996) identifies scientific ocean drilling problems that require two drilling platforms beyond 2003:
1. a JOIDES Resolution-type vessel, without a riser system
   - for relatively shallow drilling (mainly "Dynamics of Earth's Environment")
2. A vessel of the type described in the OD-21 initiative, with a riser system
   - for deep drilling (mainly "Dynamics of Earth's Interior")

(b) Basic Criteria
The management and organisation of ODP and OD-21 beyond 2003 should satisfy the following criteria:
1. ODP (Phase IV) and OD-21 should have integrated management, science coordination and science advisory functions
2. The drilling platform provided to the international ocean drilling community by the United States should be an identifiably US facility
3. The drilling platform provided to the international ocean drilling community by Japan should be an identifiably Japanese facility

This leads to the organisational and management structure that is also very close to the current structure and not too far from the JAMSTEC proposal. The essential difference is the nature of "JOI (International), Inc".

- One option for such an entity would involve expanding the current membership of JOI, Inc so that it becomes jointly owned by the current US JOI institutions and JAMSTEC. A single Board, President, Joint ODP/OD-21 Program Manager and offices in both the US and Japan might be assumed. However, such a corporate entity may pose difficulties for JAMSTEC as far as contracting services. They are investigating.

- An alternative, but less elegant option could involve establishing a "joint venture" body, owned equally by both the current JOI, Inc and JAMSTEC. This
would involve separate corporate Boards and Presidents, but a single “joint venture” management committee and Joint ODP/OD-21 Program Manager. Some of the legal issues require further exploration.

Prof Taira and Dr Suyehiro (representing MONBUSHO), Dr Kinoshita and Mr Otsuka (representing JAMSTEC) and Dr Falvey (representing JOI) will continue to explore these options based on the “two ship” model for post 2003. The group will prepare a report for January, 1997, as requested by EXCOM.
Dr Heinrichs (Chair of ODP Council) will report orally on developments since the Chantilly meetings that have not been dealt with in the previous item.

For the information of EXCOM, the Agenda for the Council meeting in Oslo will cover the following:

**Open Session:**

Meeting Records
Edinburgh
Chantilly

**Scientific Summary**
PCOM - Rob Kidd

Midterm Review Reports
EXCOM Response to Council letter
Council response: Action items.

**Post 1998 Renewal Planning**
Timetable
Member response: Status

**Post 2003 Planning**
Current status
Council response: Action items

**New Business**
(If needed)

**Closed session**

Audit and Review Status
Membership and Financial Contribution
Cost Summary

Meeting Format
Council role
Item J3: Member Reports

Member country/consortium reports are attached as Papers J(a) to (g) and will be presented as follows:

(a) Canada/Australia
   Dr Mayer
(b) ECOD
   Dr Eldholm
(c) France
   Dr Lancelot
(d) Germany
   Dr Beiersdorf
(e) Japan
   Dr Taira
(f) United Kingdom
   Dr Briden and Dr Krebs
(g) United States
   Dr Heinrichs and Dr Falvey

The meeting is invited to discuss the reports, and EXCOM will be asked formally to accept them.
I. CONSORTIUM ISSUES:

1. Annual Consortium Meeting:
   The 1996 Annual AUSCAN Consortium Meeting took place via telephone conference on 11 April 1996. In attendance were Carter and Loutit and Susan Cook from Australia, Mayer Scott, Glenn Brown and Helen Lasthiotakis from Canada. Inasmuch as Scott was in France, Mayer, Brown and Lasthiotakis in Canada and the rest in Australia, the greatest challenge was finding a mutually acceptable time. We finally agreed on 6AM Australian EST, 5PM North American EST and midnight in France.

2. Additional Partners:
   Taiwan - As of April there appeared to be a provisional agreement on 1/6 membership from July 1996 -- changes on almost a daily basis -- Loutit and/or Falvey will update.
   Korea - Discussions and contact visits with Koreans have continued. A 1/12 July 1996 membership, to become 1/6 after 12 months still being discussed. President of KIGAM to visit Ottawa and GSC in mid-June -- his letter stated "foresee that KIGAM will join with ODP within this year...". Update at meeting.
   New Zealand: Tom Loutit has written to the N.Z. Minister of Science. There is keen interest on the part of the N.Z. scientific community and negotiations have started with the government but the community has been told that funding for ODP would have to come from the existing science budget.
   China -- Falvey will report.

3. Secretariat Transfer:
   The Consortium Secretariat will rotate back Canada after the winter PCOM meeting.

II. AUSTRALIAN REPORT: (submitted by Rowena Duckworth)

1. Secretariat:
   The University of Tasmania hosted the Leg 158 post-cruise meeting in January and the Secretariat will be hosting the August PCOM meeting in Townsville. Only two Australian scientists sailed this year but there are hopes for more Aussies on the ship when the ship comes down under (if Australia is member -- see below).

2. Funding:
   Australia is going through a very difficult period with respect to funding for science in general. The new Conservative government has broken its election promise and proposed cuts of 12% to universities and potentially as much as 32% to AGSO. This coincides with a new review by the Australian Research Council of their contribution to ODP (ARC pays 60% of the total Australian ODP budget). Justification for continued membership will be made more difficult if a panel restructuring reduces Australian representation in the planning process.
III. CANADIAN REPORT:

1. Canadian Secretariat:
   The Canadian Secretariat has nominated the following for cruise participation:
   - Leg 171B - Roy Hyndman and Hans Michel
   - Leg 173 - Rejean Hebert and Luba Jansa
   - Leg 174A - Laurent de Vertueil
   - Leg 176 - Paul Robinson

   Three Canada ODP scholarships have been awarded:
   - Scott Harris (McGill)
   - Jennifer Henry (Mount Allison)
   - Ann Ma (UNB)

   Rick Hiscott completed the first ODP Speaker Tour in the eastern provinces (UNB, St. Mary’s, Acadia, Dalhousie and St. Francis) — all talks well attended.

   The Secretariat will have a booth at the GAC-MAC meeting in Winnipeg — Steve Scott will give a lecture on ODP and Canada.

2. Victoria Port Call:
   The port call committee (Gillis, Whiticar, Barnes) have been very active organizing activities around the port call and the Saanich Inlet drilling leglet. The ODP exhibit is already at the Science Museum of British Columbia and a suite of activities are being planned including tours of the ship, open houses at IOS and PGC, hanger displays and information sessions, media coverage (arrangements are being made for a Discovery Channel program and discussions are underway with CNN). The SONNE will also be visiting PGC at this time and efforts will be made to coordinate activities and emphasize the international nature of ODP and marine science in general. The Province of BC has already contributed to costs of the port call and the Ministry of Education is keen to get involved in terms of having a post-portcall educational package emphasizing science and technology. The next meeting of the Canadian Council on ODP will take place in Victoria during the port call.

3. Funding:
   The Chair of the Canadian Council for ODP and the Director of the Secretariat received official word of NSERC’s response to their Mid-Term review. As we knew unofficially, the outcome was quite positive and serves two purposes:
   - NSERC is assured that progress is satisfactory and that investment in ODP until 1998 is well justified;
   - To provide feedback to the ODP Council and Secretariat as they prepare a proposal to NSERC to support its contribution to the ODP membership beyond 1998.

   The efforts of the Council and the Secretariat will now be focused on the renewal process. A mechanism for funding has been established (NSERC’s Research Partner Program) and a tentative timetable set (proposal submitted to NSERC by December 1996). NSERC will be looking at making a decision before the summer of 1997.
The annual ECOD Management Committee (EMCO) meeting will be held in Oslo June 10, 1996. Most EMCO members represent national funding agencies. At the meeting a number of issues relating to program extension will be discussed. Therefore, this report mainly deals with science matters. An addendum describing EMCO activities will be tabled at the EXCOM meeting.

D/V JOIDES Resolution ownership
The Oslo-based Norwegian ship owning company Det Sjøndenfelds-Norske Dampskibsselskab (DSND) has acquired BP Peru Ltd's 50% share of D/V JOIDES Resolution. DSND operates a fleet of dynamically positioned service vessels for the petroleum industry in four markets (geotechnical surveys/drilling, well maintenance/stimulation, diving/construction, underwater engineering). Among the vessels are two drillships, Norskald and Buccentaur, and the icebreaker Fennica which assisted JOIDES Resolution during Leg 151.

Euro-ODP Standing Group
The European EXCOM and PCOM members have agreed to operate as a standing group to optimize European participation in ODP.

ECOD White Paper
The ECOD White Paper is now in its final version and will be distributed to EMCO prior to the Oslo meeting. If it is approved by EMCO it will be printed by ESF in Strasbourg and distributed to the ECOD countries for submission to funding agencies together with the ODP Long Range Plan.

ODP EuroColloquium
The ECOD Science Committee (ESCO) Secretariat in Zurich co-operated in the organization of the ODP EuroColloquium which was held in Oldenburg February 28-March 3, 1996. The idea of establishing an ODP EuroColloquium with participation of all European ODP members (Germany, France, UK and ECOD) was discussed during the 19th ESCO meeting in Davos and strongly supported by the ESCO Delegates. Hence, the ESCO Secretariat welcomed the invitation to organizing the ECOD participation in the first ODP EuroColloquium which was attended by 230 scientists from Europe, Russia and the United States.

Eight ECOD scientists were invited to present research deriving from participation on ODP drilling legs:
- N. Mikkelsen, Denmark. "The Late Quaternary history of the western equatorial Atlantic: relation to productivity, dissolution and dilution".
- K. Strand, Finland. "Sedimentary processes in response to development of a transform margin evolution".
- A. Solheim, Norway. "Plio-Pleistocene glacial evolution of the Svalbard and East Greenland continental margins: preliminary results from ODP Leg 162".
- I. Premoli Silva, Italy. "New records of Cretaceous sediments recovered during Ocean Drilling Campaignes (Legs 143-160)".
- G. Fruh-Green, Switzerland. "Controls on hydrothermal alteration at a fast-spreading ridge (Hess Deep, Leg 147)".
- M. Comas, Spain. "Tectonic results of ODP Leg 161 in the Alboran Sea: a case of extensional basin in collisional setting".

Convenors: I. Premoli Silva (Sediment/Paleoenvironment Session), G. Fruh-Green (Lithosphere Session), and M. Comas (Tectonic Session).

It was agreed to continue with biannual EuroColloquia organized on a rotating schedule among European ODP members.

ESCO Meetings
The 21st meeting was held February 28, 1996 during the ODP EuroColloquium. The next meeting will be in Istanbul September 20, 1996 followed by a short field trip to the Paleozoic deposits in the Istanbul area.

6th ECOD Workshop
The 6th ECOD Workshop is tentatively planned in Qaqortoq/Julianehaab, Greenland in June, 1997. The workshop is organized by Naja Mikkelsen, Geological Survey of Denmark and Greenland, and colleagues. A questionnaire to ECOD countries inquiring about participation has recently been distributed to the ESCO delegates.

International Conference "Mediterranean Paleoceanography - Neogene to Present"
ECOD will co-sponsor the conference jointly with the Geological Society of Italy. Time: September 27-30, 1997. Venue: Erice, Sicily. Convenors: M.B. Cita and J.A. McKenzie. The conference is followed by a 2-3 day field trip along the southern coast of Sicily.
The major concern for the french ODP community has been the discussion about the future.

At the last meeting we presented the points that France considered essential if it was to continue its participation in the program beyond 1998. The actions that followed were:

1 - On the national side:

A Committee for "the future of ocean drilling" was set up by IFREMER in order to advise the agency on future decisions. This is a very positive move since it will give an opportunity to have a continued discussion of all aspects of french participation following the different "evaluation excercises" that took place during the past months. It has the advantage of providing us with some sort of a permanent forum instead of having to jump from one "single-shot" evaluation report to another. This way the progress made in changes that were advocated by the French community will be monitored more easily and more continuously. It will also give a chance to adapt the French positions to the evolution of the situation in a more regular fashion.

The main mandate of the Committee is to determine how the plans for future drilling programs correspond with scientific priorities of the French community. In simple words it will have to answer the crucial question: is the proposed program worth the financial effort ? This of course has implications on the way operations are to be conducted: evolution of the advisory structure, adaptation of the platforms to the tasks, scientific and technological returns, European cooperation, etc.

A good sign is that participants in that group come from different horizons that were concerned with the whole phase of evaluation last year. For example both Vincent Courtillot and Xavier Le Pichon are members of the Committee, so are Catherine Mevel, Philippe Pezard and Yves Lancelot.

2 - On the international side:

The discussions of the last PCOM meeting about changes considered both in the operator's responsibilities (publications policy for example) and in the JOIDES advisory structure have been monitored closely. There is no doubt that a clear demonstration of a will to change has been made in Aix, and that it is an excellent sign. The proposed changes in the JOIDES structure and the evolution of minds about publications for example are highly welcome and provide strong support for the continuation of French participation.

No doubt these points will be discussed by the national "Committee for the future of ocean drilling", as soon as possible after EXCOM has acted on the PCOM recommendations.
ODP Germany experiences a tightening budgetary situation but still sees increasing interest by the scientific community. The great number of German scientists attending the European ODP Colloquium, held in Oldenburg 28 Feb - 1 Mar 1996, may exemplify this interest. The colloquium was also commented very positively by the German funding agencies and the scientific advisory panel of DFG, the so-called "Geokommission".

The ODP meeting in Oldenburg (organized by H. Beiersdorf and J. Rullkoetter of BGR and University of Oldenburg reps, and their staff.) saw an attendance of some 230 participants, some 70 of which came from countries other than Germany including Russia (Russian Academy of Science) and the USA (NSF and ODP TAMU). Altogether representatives of 12 countries were at the meeting during which 33 talks and 93 posters were presented (an abstract volume is under preparation to be published in "Terra Nostra" of the Alfred-Wegener-Stiftung). During general meetings the ODP Long Range Plan (LRP) was presented by Rob Kidd and discussed. The "Oldenburg Declaration on Scientific Ocean Drilling" was then signed by some 200 participants. It asks decision makers in European science planning, funding agencies, public services, and industry to support ODP and its LRP on its way into the 21st century. The signatures were deposited at the Secretariat of the Board of European Marine and Polar Sciences in Strasbourg.

The Oldenburg meeting gave the individual European members an opportunity to have their national ODP meetings as well. In addition to these meetings a meeting of European EXCOM/PCOM/ODPC members was held in order to discuss European matters in the scope of ODP. They established a Standing Group with the aim to foster cooperation among European ODP partners and develop proposals and strategies of mutual interest. It will also investigate possible links with the Board of European Marine and Polar Sciences. A subgroup was established which will investigate possibilities to advance ODP technology with assistance from EU R&D programmes (MAST, EUROMAR, Framework V).

The final discussion of the Oldenburg meeting (led by J. Briden) focused on the future of ODP. It was highlighted that the position of ODP within Europe can be strengthened if the following improvements can be made:

- enhancing European contributions to ODP-related technological developments
- forming closer ties with other European research and drilling programs
- obtaining financial input of the EU to ODP.

The Oldenburg meeting was well covered by reports in the news media. The obvious success of the meeting led to the unanimous conclusion to have the next meeting of similar scope in two years. England has volunteered to host the meeting. In between the Annual German ODP Meeting will be hosted in spring 1997 by GEOMAR in Kiel (Germany). International participation is most welcomed. Invitations and the preliminary programme will be mailed probably in September this year.
1. The Committee Meeting Report
The Research Planning Committee met on May 14. The agenda was to exchange the information from various panel members, to discuss the recent JOIDES Advisory Structure change, to discuss the scientific plan for 1998-2003 extension and to evaluate the status of the drilling proposals from Japan. The discussion on the science plan raised that the Japan should take a lead role in subduction zone process monitoring. The discussion also included the deep drilling objectives in oceanic plateau, island arc crust and large submarine fan.

The National Committee met on May 16. The main agenda was to discuss the process of the renewal and the future plan. The status of OD21 was reported by STA and JAMSTEC. The possibility of inviting the JOIDES Office to Japan in the future was also discussed.

2. Site Survey
R/V l'Atalante and R/V Hakuhomaru joint cruise was conducted in May under the Japan-France KAIKO-Tokai Project which included the aspects of site survey for the ODP proposal. Extensive PASISAR (deep-tow seismics and side-scan) image was collected on the accretionary prism of the eastern Nankai Trough where soon-to-occur Tokai earthquake is expected.

3. Toward the renewal 1998-2003
Current plan and steps for the renewal process in Japan are:

July 11: Deep-sea research special committee meeting of the Geodetic Council (review of ODP activity and initial discussion on the renewal)

July-Aug: Domestic review

Sept-Oct: Geodetic Council Meeting (renewal recommendation)

Nov-March: Drafting of budget plan

June, 1997: EXCOM (Expression of commitment)

Fall, 1997: MOU exchange

April 1, 1998: New budget for the extension
United Kingdom Report

1. Leg Participation. Leg participation continues to attract significant numbers of applicants at a level of 4-5 per Leg. Legs 171C (Blake Nose) and 173 (Iberia), both with UK co-chief scientists, have attracted the greatest interest in terms of applications. Legs 164 (Gas Hydrates) and 165 (Caribbean) have attracted the greatest media interest and have generated valuable publicity for the program within the UK.

2. Site Surveys and Proposals. The UK continues to be strongly involved in site surveys and proposals in the area of forthcoming operations in the Southern Oceans (through ANTOSTRAT), the Indian Ocean, and the Western Pacific.

3. ODP Science Forum. The UK had a strong presence at the first European Science Forum, held in Oldenburg (Germany) from February 28th to March 1st 1996. During the meeting, UK EXCOM and PCOM members met with their European counterparts. They agreed to form a standing group with the purpose of enhancing technology opportunities and opportunities for EU funding, and of seeking remedies to any shortcomings in the program that might be highlighted by the European national reviews. UK scientists joined in signing the "Oldenburg Declaration on Scientific Ocean Drilling" which asked decision makers in European industry, science planning and funding to support 'enhanced investigations of Earth systems by scientific ocean drilling'.

4. National Review. The national ODP review committee met in January, chaired by Professor Chris Hawkesworth. Its report has been discussed by the NERC Earth Science and Technology Board, the recommendations of which have passed to NERC Council. NERC Council will carry out its final evaluation and prioritisation with respect to other programs in the near future.

5. Funding Allocations. Grants have recently been awarded to Parkes (Bristol) to work on geomicrobiological investigations of gas hydrates and to Revets (Natural History Museum) to develop a relational database for deep-sea benthic foraminifera. Small sums have been awarded to Pearson (Durham) to characterise the Ir anomaly at the K-T boundary and to Tappin (BGS, Keyworth) and MacLeod (Cardiff) to participate in a site survey cruise of the Tonga arc-basin system. Travel grants include those to Kempton (BGS), Allerton (Edinburgh) and Pringle (SURRC, East Kilbride) to participate in the Woods Hole deep crustal drilling workshop. The next grants meeting is on 21 June, at which further awards will be made.

6. The next UK Science Forum will be held (provisionally) in Birmingham on 30th October 1996.
Although FY 1996 budgets are still not officially available for individual NSF programs, Congress resolved some of its disputes with the White House in April and passed a budget to support government operations through the remainder of the fiscal year (September 30). The final appropriation provides for a modest increase above FY 1995 levels in the overall NSF budget. The Ocean Sciences Division should increase by 0.5% to approximately $193 million. Research section funding would increase to $104 million (a 2.3% increase above 1995). Ships and facilities funding would decrease by 3.1% to $49 million. It is expected that the final NSF Ocean Drilling Program Budget will be essentially level with FY 1995. The 1997 NSF Budget submitted to Congress by the White House requests a 4.6% increase for NSF activities. The Ocean Drilling Program within the Division of Ocean Sciences Budget is identified for a 3% increase. With presidential elections scheduled for this Fall, it is unclear how quickly Congress will act on the President’s budget request.

OCEAN DRILLING PROGRAM

The final 1996 budget for all Ocean Drilling Program activities should be approximately $38.5 million. Of this $27.7 million has been obligated in support of the prime contract for operations and management, with the remaining contract funding from international contributions.

Approximately $5.4 million will be used to support the US Science Support Program (USSSP) administered through JOI under a cooperative agreement with NSF. Activities of the USSSP and its advisory committee (USSAC) are reported separately from this document. Present funding authority for the USSSP expires in March of 1997. JOI will be submitting a new three year plan for continued support in June of this year. The plan will be reviewed and submitted to the National Science Board of NSF in the Fall for continued funding of the Program.

Three of the four ODP cruises scheduled for 1996 have been successfully completed, including:

• Dave Christie (Oregon State) and J.C. Sempere (Washington). Petrologic and geophysical study of the Antarctic Discordance in support of JOIDES proposal #426.

• Dave Hodell (Florida), Lloyd Burckle (LDEO), Phillip Froehlich (Georgia Tech) and Chris Charles (Scripps). Paleoceanographic and sediment study of the southernmost Atlantic in support of JOIDES proposal #464.

• Sherm Bloomer (Oregon State). Petrologic and geophysical study of the Tonga convergence zone in support of JOIDES proposal #451.

A fourth program is scheduled for field work in conjunction with LEG 169 Drilling:
- Spahr Webb (Scripps). Seismic monitoring during LEG 169 drilling of Sedimented Ridges to examine potential changes in hydrothermal circulation and seismicity. This project is being jointly supported by the Ocean Drilling Program and the Marine Geology and Geophysics Program as part of the Ridge initiative.

NSF/ODP has recently completed final review of proposals for field programs in 1997. Although ship availability and scheduling may impact the final decisions on these projects, the following list represents a preliminary estimate of projects for calendar year 1997:

- Deployment and recovery of buried and borehole seismometers for the OSN pilot experiment near Hawaii. The project is under the leadership of John Orcutt (Scripps), Ralph Stephen (WHOI) and Tak Yamamoto (Miami). The OSN-1 pilot experiment is being jointly supported by the Marine Geology and Geophysics Program and the NSF Division of Earth Sciences.

- Data recovery from instrumented corks to be deployed at sites to be drilled on LEG 168 (Juan de Fuca Hydrothermal Program) and LEG 169 (Sedimented Ridges II to Middle Valley and Escanaba Trough). The project will use the ROV Jason and is a cooperative program involving Keir Becker (Miami) and Earl Davis in Canada.

- Sediment coring and seismic reflection profiling in the southeast Pacific in support of JOIDES proposal #465. The project is under the direction of Alan Mix (Oregon State).

- An on-bottom seismic refraction investigation of shallow crustal structure in the Kane Transform area. The project is under the direction of John Collins (Woods Hole) and will be jointly supported by the Marine Geology and Geophysics Program as part of the RIDGE initiative.

- An investigation of heat flow, pore fluid geochemistry, and sedimentology in the Mariana Forearc. The project will use the ROV Jason and is under the direction of Patricia Fryer (Hawaii).

- A coring and seismic reflection study of Paleogene sediments in the equatorial Pacific in support of JOIDES proposal #486, as well as objectives of the US MESH program. The study is under the direction of Ted Moore (Michigan).

ACADEMIC RESEARCH SHIPS

The next year will see the end of the Navy supported upgrade of the large vessel capability of the academic research fleet. The RV Revelle will come on line in the Fall of 1996 and will be operated by Scripps Institution. The Atlantis II operated by Woods Hole and used to support the Alvin will be retired in June 1996 to be replaced by the new Atlantis which should be in operation in May 1997. The Atlantis will support Alvin and additional ROV technology. Both the Revelle and the Atlantis are 84m in length and are sister ships to the Thompson operated by the University of Washington.
OTHER OCEAN INITIATIVES

The RIDGE Initiative has completed a series of cruises in the Indian Ocean that should (in conjunction with French and German studies) provide a first order survey of the spreading ridges of the region. Approximately 50 OBSs are scheduled for recovery from the 17 S region of the East Pacific Rise as part of the MELT experiment. The OBSs were deployed in October 1996 and will hopefully be retrieved in late May. A high priority for future RIDGE work is implementing the RIDGE observatory to study hydrothermal circulation, biology and deformation on the Juan de Fuca Ridge. The MESH program is still in its development phase. As part of its planning activity, a joint MESH - USSAC workshop on Climate Intervals of Extreme Warmth will be convened in California in July.
JOI/U.S. Science Support Program Activities Report

1. Site Augmentation Proposals:
   - Alan Mix (OSU): Deployment of the OSU Digital Reflectance Spectroscopy Tool on ODP Leg 167 (funded).
   - Gregor Eberli (U. of Miami): Precise Correlation of Cores with High-Resolution Seismic Data: Request for a “Check Shot” Survey (VSP) During ODP Leg 166 (funded).
   - Geoffrey Wheat (U. Alaska) and Hans Jannasch (MBARI): Long-Term Continuous Sampling of Fluids in Instrumented Borehole Seals on the Juan de Fuca Ridge and Flank (funded).
   - Joris Geiskes (Scripps): High Temperature Fluids in Hole 858G: A Proposal for Sampling During ODP Leg 169 (pending).

2. Workshop Proposals:
   - Lisa Sloan (UC Santa Cruz): Proposal to Hold a Workshop to Design Scientific Objectives and an Implementation Plan to Investigate Climate Intervals of Extreme Warmth, March 1996 at UC Santa Cruz (funded).
   - Paul Johnson (U. of Washington) and Dennis Kent (LDEO): A Conference on the Magnetization of Oceanic Crust, October 1996 at Orcas Island, Washington (funded).

3. JOI/USSAC Ocean Drilling Fellowship Program
   - Shorebased fellowships were awarded to:
     - Katharina Billups (UC Santa Cruz): Reconstructing Pliocene equatorial Atlantic surface water hydrography – ODP Leg 154 (one year).
     - Katherine McIntyre (UC Santa Cruz): Early Pleistocene climate change: the 1.6 Ma transition – ODP Legs 154 and 162 (one year).
   - Five applications for shipboard fellowships submitted at the April 15 deadline are in review.

4. Pilot Interactive, Multimedia CD-ROM Project
   During early 1996, the final version of the interactive, educational program, ODP: From Mountains to Monsoons, was completed and distribution to educators began. An accompanying teachers’ manual was developed and included with the CD for distribution.
5. 1996/97 JOI/USSAC Distinguished Lecturer Series

The following institutions were chosen to host Distinguished Lecturers during the 1996/97 academic year. Almost 50 applications were received for consideration by the April 5, 1996 deadline.

Henry Dick  
Woods Hole Oceanographic Institution  
- California State University, Sacramento  
- University of Idaho, Moscow  
- University of Rochester  
- University of Oregon

Michael Mott  
University of Hawaii at Manoa  
- University of California, Davis  
- University of California, Riverside  
- Pennsylvania State University  
- Lawrence University

Andrew Fisher  
University of California Santa Cruz  
- University of Illinois, Urbana  
- Washington University, St. Louis  
- University of Utah, Salt Lake City

Suzanne O’Connell  
Wesleyan University  
- University of North Dakota  
- University of Nebraska, Lincoln  
- Oberlin College  
- Bryn Mawr College

Michael Howell  
University of South Carolina, Columbia  
- University of New Mexico  
- Union College  
- University of Oklahoma  
- University of Wisconsin, Milwaukee

Charles Paull  
Univ. of North Carolina at Chapel Hill  
- Fort Lewis College  
- Hampshire College  
- University of Montana  
- Rice University
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CNRS CEREGE  
University of Rhode Island  
University of New Brunswick  
Lamont-Doherty Earth Observatory  
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