AMENDMENTS AND ADDITIONS:

Page 1: Current membership of ODP is now the U.S.A., Canada, France, the Federal Republic of Germany, Japan, the U.K., and the European Science Foundation (ESF) Consortium (which comprises Belgium, Denmark, Finland, Greece, Iceland, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, and Turkey).

Page 14: Section 5, Regional Panels, Col. 2, Para. 2 - Revise to read "PCOM establishes liaison between Regional and Thematic Panels by the appointment of non-voting liaison.

Page 29: Figure 5 - Change Principal Investigator to read W. Friedman

Page 59: Paleontological Reference Centers - The Center in Japan is located at the National Science Museum, Tokyo.

Page 65: Table 5, Site Survey Data Standards - This has been revised by the Site Survey Panel. Please see the new revised Table 5 with attached explanatory notes.

Page 81: Revise to read Dr. Hutchison of EMR represents Canada on the ODP Council and Dr. Keen is the EXCOM representative.

Page 82: Executive Committee - Delete Dr. F. Bender; Dr. H-J. Durbam is the EXCOM representative.

Page 83: Additional members of the French ODP Executive Committee are M. Francois Jarraye (ORSTOM), M. Joel Lancelot (Ministere de l'Educaton Nationale), and M. Georges Scosari (BRGM).

Page 84: Japanese National Committee for ODP - Replace with revised list.

MEMBERS OF THE JAPANESE NATIONAL ODP COMMITTEE

Takahisa Nomoto, Chm. (EXCOM)  Kazuaki Nakamura (TECP)
Shohei Banno                        Hakuyu Okada (CEPAC)
Naoyuki Fujii                         Hisatake Okada (ARP)
Toshitsugu Fujii (LITHP)             Minoru Ozuma
Hiroshi Gyoza                           Tsunemasa Saito (SOHP)
Keiji Higuchi                         Hitoshi Sakai
Eiichi Honza                             Jiro Segawa (IOP)
MEMBERS OF THE JAPANESE NATIONAL ODP COMMITTEE (cont.)

Tadakata Isakoda
Hideo Kagami
Katsutada Kaminuma (SOP)
Tadahiko Katsura
Hajimu Kinoshita (DMF)
Kazuo Kobayashi (ENCOM)
Katsuhide Kusaba
Ikuo Kushiro

Hideki Shimamura
Kiyoshi Suyehiro (SSP)
Asshiko Taira (POOM)
Akio Takagi
Yokichi Takayanagi
Kensaku Tamaki (WPAC)
Seiya Uyeda
Hiroshi Wakita

Page 85: JOI-USSAC - See revised USSAC section.

Page 88: NSF - Delete Bridgewater; insert Assistant Director Astronomy, Atmospheric, Earth and Ocean Sciences: W. Merrell.

JOI - Amend Vice-President for Finance & Administration: J. Clotworthy.
Delete Hunt; insert Director, Ocean Drilling Program: T. Fyle.

Page 89: Texas A&M University representative - Delete Merrell; insert M. Friedman.

EMR representative - Delete Hutchison; insert M. Keen (Atlantic Geoscience Centre).

Page 90: BGR representative - Delete Bender; insert H.-J. Durbaum.

ORI representative - Delete Hattori; insert T. Namoto.

Add - Natural Environment Research Council (N.E.R.C.)
Polaris House
North Star Avenue
Swindon SN2 1EU, U.K.
Telephone: (44) 793-40101
Representative: J. Briden

Add - ESF Consortium for Ocean Drilling (ECOD)
European Science Foundation
1, quai Lezay-Mernesia
67000 Strasbourg, France
Telephone: (33) 88-35-30-63
Representative: J. Stel (Netherlands Council of Oceanic Research)
Alternate: M.-O. Ottosson (Swedish Natural Science Research Council)

ODP Science Operator Principal Investigator - Delete Merrell; insert M. Friedman.

Wireline Logging Services Contractor - Delete Fornari; insert R. Jarrard.

JOIDES Office - Delete URI (as from 1 October 1986); insert:
College of Oceanography
Oregon State University
Corvallis, OR 97331
Telephone: (503) 754-2296
Executive Committee Chairman: D. Caldwell
Planning Committee Chairman: N. Pisias

Page 91: Atlantic Ocean Regional Panel (ARP) - Delete Montadert; insert J. Austin, Institute for Geophysics, University of Texas at Austin, 4920 North I.H. 35, Austin, TX 78751, Telephone: (512) 458-4238.
Indian Ocean Regional Panel (IOP) - Add R. Schlich, Institut de Physique du Globe, Laboratoire de Geophysique Marine, 5 rue Rene Descartes, 67084 Strasbourg, France, Telephone: (33)88-60-25-31.

Lithosphere Panel (LITHP) - Delete Purdy; insert R. Detrick, Graduate School of Oceanography, University of Rhode Island, Narragansett, RI 02882, Telephone: (401)792-6926.

Sediments and Ocean History Panel (SOHP) - Delete Arthur; insert L. Mayer, Department of Oceanography, Dalhousie University, Halifax, Nova Scotia B3H 4J1, Canada, Telephone: (902)424-2503.

Page 92: Western Pacific Regional Panel (WPAC) - Add B. Taylor, Hawaii Institute of Geophysics, University of Hawaii, 2525 Correa Road, Honolulu, HI 96822, Telephone: (808)948-6649.

Canadian National Points of Contact - Delete Hutchison; insert M. Keen.

German National Points of Contact - Delete Bender; insert H-J. Durbaun (EXCOM representative).

Japanese National Points of Contact - Delete Hattori; insert T. Namoto.

Page 93: Add - U.K. National Points of Contact
J. Bowman (GDP Council)
J. Briden (EXCOM representative)
N.E.R.C.
Polaris House
North Star Avenue
Swindon SN2 1EU, U.K.
Telephone: (44)793-40101
Telex: 44293(BNEVRE G)

T. Francis (ECOM representative)
Institute of Oceanographic Sciences
Brook Road
Wormley, Godalming GU8 5UB, U.K.
Telephone: (44)42879-4141
Telex: 858833(OCEANS G)

Page 93: Add - ESF Consortium for Ocean Drilling (ECOD) Points of Contact

GDP Council:
R. Van Lieshout
Netherlands Organization for the Advancement of Pure Research (ZWO)
Postbus 93138
NL-2509 NC The Hague
The Netherlands
Telephone: (31)70-49-66-49
Telex: 31660(TINOQV NL)

Alt: M. Munsch
European Science Foundation
1, quai Lezay-Marnesia
F-67000 Strasbourg, France
Telephone: (33)88-35-30-63
Telex: 890440(ESF F)

EXCOM:
J. Stal
Netherlands Council of Oceanic Research
Postbus 19121
NL-1000 GC Amsterdam
The Netherlands
Telephone: (31)20-22-39-02 ext. 125
Telex: 16064(NRZ NL)

Alt: M-O. Ottosson
Swedish Natural Science Research Council
Box 6711
S-113 85 Stockholm, Sweden
Telephone: (46)8-30-46-45
Telex: 13599(RESCOUN S)

ECOM:
O. Eldholm
Department of Geology
University of Oslo
Postboks 1047 Blindern
N-0316 Oslo 3, Norway
Telephone: (47)2-45-66-76, 50-50
Telex: 42705(ASHTO N)

Alt: H. Thierstein
Geologisches Institut
ETH-Zentrum
CH-8092 Zurich, Switzerland
Telephone: (41)1-377-26-07
Telex: 53178(ETH BI CH)
The United Kingdom has been a member of the international scientific ocean drilling community since the inception of the International Phase of Ocean Drilling of the Deep Sea Drilling Project in 1975, and has been concerned to maintain and develop this interest through participation in the Ocean Drilling Program, although it was unable to join the Program as a regular member until 1 October 1985.

U.K. membership in ODP is handled through the Natural Environment Research Council (N.E.R.C.) which is providing about 60% of the funds, the remainder coming from central government through the Departments of Energy, Environment, and Trade and Industry (collectively about 25%). The balance is being met by six U.K.-based oil companies.

A coordinating committee is responsible for representing the interests of the U.K. marine scientific community in ODP. Members are the national representatives (and alternates) on the JOIDES panels, other U.K. scientists selected for their expertise, and representatives from government departments and the oil industry. Panel representatives are responsible for convening workshops of interested scientists to formulate and develop proposals in the appropriate themes or regions, and to ensure that the opportunities of participation in ODP are made known to the widest possible audiences.

In addition to providing the bulk of the subscription to ODP, N.E.R.C. meets the travel costs (domestic and international) and will consider applications for other support for U.K. scientists participating in the Program via its research grants scheme and through bids for time on N.E.R.C. ships. All such proposals are judged on perceived scientific merit, in open competition with other grant applications, and are subject to peer review.

Add: \textbf{NATIONAL ODP STRUCTURES - UNITED KINGDOM}

A consortium of six organizations from five "smaller" European countries was established in December 1983 under the aegis of the European Science Foundation (ESF), an international non-governmental organization with its seat in Strasbourg, France. The consortium held candidate member status in the ODP from early 1984 to September 1985. During this period and until early 1986 the founding members were joined by further organizations from various countries of Europe, eventually totaling twelve: Belgium, Denmark, Finland, Greece, Iceland, Italy, The Netherlands, Norway, Spain, Sweden, Switzerland, and Turkey. In April 1986 the decision was reached that the consortium, henceforth called "ESF Consortium for Ocean Drilling (ECOD)," should apply for regular membership in the ODP as from 1 June 1986. A memorandum of understanding with NSF was signed on 29 April 1986 by the ESF President, Professor E. Seibold.
The management structure of ECOD was finalized in June 1986. An ESP Management Committee for the ODP (EMCO) chaired by Professor R. Van Lieshout (The Hague, The Netherlands) and co-chaired by Dr. M-O. Ottosson (Stockholm, Sweden) is responsible for political, managerial, organizational, and financial matters as well as for over-viewing the long-term scientific planning. Scientific and operational matters are entrusted to an ESP Scientific Committee for the ODP (ESCO) chaired by Professor O. Elnholm (Oslo, Norway) and co-chaired by Dr. H. Thierstein (Zurich, Switzerland). Both committees report to the ruling bodies of the ESP. Each participating country is represented on each of the two committees by a delegate (with a vote) and, if necessary, a (non-voting) alternate. However, the normal practice is to reach decisions by consensus.

EMCO is assisted by an administrative secretariat located at the ESP Office. A scientific secretariat located with the ESCO Chairman in Oslo assists ESCO. Operating costs of both secretariats are paid from a special budget, under a scheme termed an ESP "associated program." This budget as well as the ODP membership fee are jointly financed by all members of ECOD. Support costs including all travel are funded nationally by participating countries.

Pages 85-87 (Revision): NATIONAL ODP STRUCTURES - USA

The National Science Foundation (NSF) is responsible for overseeing the ODP and provides the U.S. contribution to the internationally funded program. In addition, the NSF provides support for U.S. drilling-related science activities.

JOI U.S. Science Support Program - Over one-half of the available funding goes to support: 1) regional or topical planning workshops initiated by U.S. scientists; 2) attendance by U.S. scientists at JOIDES panel meetings; 3) shipboard participation by U.S. scientists; 4) postcruse scientific studies related to publication of the ODP Proceedings; and 5) the U.S. Science Advisory Committee. These activities are coordinated and administered by Joint Oceanographic Institutions, Inc. (JOI), under contract with NSF. The JOI-U.S. Science Advisory Committee (USSAC), appointed by the JOI Board of Governors, has members drawn from academia, government, and industry, and serves as steering committee for the Science Support Program. It is responsible for the overall long-term scientific direction of the program. The USSAC Secretariat is presently located at the Institute for Geophysics at the University of Texas at Austin.

JOI-USSAC Membership -
R. Bennett, NORDA
R. Carlson, Texas A&M Univ.
T. Davies, Univ. Texas, Austin
J. Delaney, Univ. Washington
F. Duenebier, Hawaii Inst. Geophysics
R. Duncan, Oregon State Univ.
M. Horn, Cities Services Oil & Gas Co.
R. Kay, Cornell Univ.
K. Kvenvolden, U.S.G.S.
M. Langseth, Lamont Doherty Geol Obs
R. Merkel, Anaconda Minerals Co.
T. Moore, EXXON Production Res. Co.
J. Orcutt, Scripps Inst. Oceanography
S. Schlanger, Northwestern Univ.

NSF Sponsored Activities - The balance of the funds available to U.S. science is distributed in two ways. First, using advice from USSAC, JOI may issue requests for proposals (RFPs) for tasks that are important and valuable to the U.S. scientific community and for which unsolicited research proposals are unlikely to be submitted. These tasks may include items such as site specific surveys, regional, or topical syntheses of existing data, and the development of downhole tools and instrumentation for general use in the drilling program. NSF will provide U.S. science support funds to JOI as appropriate to execute these tasks. Second, the Ocean Drilling Program office at NSF (NSF/ODP) directly receives and funds unsolicited proposals for drilling-related scientific research. Proposals from U.S. scientists and institutions may be accepted at any time during the year, but there are three main target dates (February 1, June 1, and October 1). These are the same as the Marine Geology and Geophysics (MGG) target dates at NSF. Proposals requiring ship time must meet
the February 1 or June 1 target dates to be considered for field programs during the following year. Proposals must be prepared using the guidelines set forth in NSF Publication 83-57 (Grants for Scientific and Engineering Research). The proposals are peer-reviewed and in some cases also evaluated by the MX panels for additional advice. Close contact is maintained with other related NSF programs and divisions, such as MGG, Polar Programs, Atmospheric Sciences, and Earth Sciences in order to facilitate coordination of proposals, particularly in cases where the research includes objectives of interest to both ODP and the other programs. In such cases proposals may be split-funded.

Proposals are evaluated primarily on their intrinsic scientific merit in the general context of marine geology and geophysics. ODP proposals, however, are also judged on their value to the drilling program.

Proposals and requests for further information should be sent to the Ocean Drilling Program, National Science Foundation, 1800 G Street NW, Room 613, Washington, DC 20550. Telephone: (202) 357-9849; telex: (RCA)257623/NSF0 UR UD; telemail: NSF.OCE.ODP.
TABLE 5 (Revised May 1986)

<table>
<thead>
<tr>
<th>TARGETS TECHNIQUES</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PALEOENVIRONMENT (shallow penetration)</td>
<td>PASSIVE MARGINS</td>
<td>ACTIVE MARGINS</td>
<td>OCEAN CREST (thick-sediment cover)</td>
<td>OCEAN CREST (sediment cover)</td>
<td>BARE-ROCK DRILLING</td>
<td>ACOUSTIC &amp; SEIGNEURS PLATEAUS &amp; SEDIMENTS</td>
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<tr>
<td>X = Vital</td>
<td>(X)</td>
<td>(X)</td>
<td>X</td>
<td>3</td>
<td>(X)</td>
<td>(X)</td>
<td></td>
</tr>
<tr>
<td>(X) = Desirable</td>
<td>X</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>X</td>
<td>X</td>
<td>(X)</td>
</tr>
<tr>
<td>(X) = Desirable but may be required in some cases</td>
<td>(X)</td>
<td>X</td>
<td>X</td>
<td>1</td>
<td>(X)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R = Vital for re-entry sites</td>
<td>(X)</td>
<td>X</td>
<td>X</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td></td>
</tr>
<tr>
<td>H = Required for high temperature environments</td>
<td>6.3.5 KHz</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>X</td>
<td>(X)</td>
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<td>1. Deep penetration SCS</td>
<td>Multi-beam bathymetry</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>X</td>
<td>X</td>
<td>(X)</td>
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<tr>
<td>2. High resolution SCS</td>
<td>8. Sidescan sonar: A - shallow</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
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<td>(X)</td>
</tr>
<tr>
<td>3. MCS &amp; velocity determinations</td>
<td>B - deep-towed</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td></td>
</tr>
<tr>
<td>4. Seismic data on cross lines</td>
<td>9. Heat flow</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
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<tr>
<td>5. Seismic refraction</td>
<td>10. Magnetics &amp; gravity</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
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<tr>
<td>6.1.5 KHz</td>
<td>11. Coring information: A-palaeoenvironmental</td>
<td>X</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td></td>
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<tr>
<td>B-geotechnical</td>
<td>(X)</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>X</td>
<td>R</td>
<td></td>
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<td>12. Dredging</td>
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<td>R</td>
<td>R</td>
<td>R</td>
<td>X</td>
<td>(X)</td>
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<td>13. Photography</td>
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<td>X</td>
<td>(X)</td>
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<td>14. Current meter (for bottom shear)</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
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</tbody>
</table>
SITE SURVEY DATA STANDARDS: EXPLANATORY NOTES

The list of "TARGET" categories describes broad types of drilling objectives. Individual sites with multiple objectives may need to meet the requirements of two "TARGET" categories. Frequently, sites will have shallow APC objectives (TARGET A) and deeper sedimentary and basement objectives (TARGET D or E).

TARGET A - Generally APC/XCB penetration.

TARGET B - Greater penetration than a few hundred meters on a passive margin.

TARGET C - Greater penetration than a few hundred meters on an accretionary wedge, pre-arc, or sheared margin.

TARGET D - Greater penetration than a few hundred meters in a deep ocean environment. Often includes basement penetration.

TARGET E - Sediment thicknesses of less than a few hundred meters in a deep ocean ridge crest or fracture zone environment. Often includes basement penetration.

TARGET F - Bare rock drilling, probably on zero age crust.

TARGET G - Elevated features above the ocean floor. Widely varying sediment thicknesses. Sediment slumping may be a problem on flanks. Basement often an objective.

The techniques include commonly used geophysical and sampling techniques.

1) DEEP PENETRATION SCS - Large source Single-Channel Seismic.

2) HIGH RESOLUTION SCS - Watergun Single-Channel Seismic or small chamber airgun in some situations. Digital acquisition preferred, but usually not necessary.

3) MCS and VELOCITY DETERMINATION - Multi-Channel Seismic including velocity determination (stacking velocities and semblance plots) when accurate depths are critical. Velocity analysis to determine sediment thickness over proposed sites.

4) CROSSING LINES - A seismic grid and/or crossing lines over the proposed site. The density of the seismic grid required depends on each particular situation.

5) REFRACTION - Sonobuoy or Ocean Bottom Seismometer refraction profiles. Expanding Spread Profiles or wide-angle refraction profiles.

6) 3.5 KHz - High frequency data for near-bottom high resolution to resolve small scale features and give some indication of sediment type.

7) MULTIBEAM BATHYMETRY - SEABEAM or SeaMARC II bathymetry or equivalent. In some cases the greater resolution of SEABEAM may be required. Areas where slumping may occur should have multibeam bathymetry and/or side scan sonar.
8) SIDE SCAN SONAR - The reflectivity of sidescan sonar is often needed to interpret multibeam bathymetric data.
   a. Shallow - sidescan sonar sources towed near the surface; e.g. SeaMARC II, GLORIA.
   b. Deep - Side scan sonar sources flown near the bottom; e.g. Scripps Deep Tow, French SAR, SeaMARC I.

9) HEAT FLOW - Pogo type profiles or piston core heat flow measurements in detail appropriate to the scientific problem.

10) MAGNETICS and GRAVITY - Regional magnetics should be available on any location for which the magnetic age of ocean crust is important. Gravity is seldom an absolute requirement, but should be obtained on any profiles for which subsidence studies are planned. SEASAT derived gravity information often complements the regional magnetic picture.

11) CORING - Cores should be taken near all paleoenvironmental sites.

All re-entry sites should be supported by cores, core descriptions and geotechnical measurements (see below for specific list). The two limiting factors for re-entry operations are:

   a. Sufficient sediment thickness
   b. Ability to wash through the sediment section

The benefit of geotechnical information for re-entry operations is that wash-in capabilities are tied to the formation strength. The manner in which geotechnical information is to be used within ODP will most likely evolve as studies of that geotechnical database and re-entry operations take place.

At present (1986), the following measurements of geotechnical properties on fresh piston cores are recommended as part of the site survey package for a re-entry site.

   a. Penetrometer strength
   b. Vane shear strength (natural and remolded)
   c. Bulk density
   d. Water content
   e. Atterberg limits (liquid and plastic limits)

Gradients and maximum and minimum values of the geotechnical properties listed above are also recommended.

For older piston cores, please provide any geotechnical measurements made when the core was fresh. Atterberg liquid and plastic limits should also be measured on old core material as this is one geotechnical observation which is still valid on partially desiccated material.

The above properties should be provided in conjunction with lithology and bedding.

Site proponents should contact the Science Operator (TAMU) for further clarification on the geotechnical requirements for their particular circumstances.

12) DREDGING - May be required when basement drilling is included in the objectives.