

MEMORANDUM BETWEEN
THE MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND
TECHNOLOGY (MEXT)
of
JAPAN
and
THE NATIONAL SCIENCE FOUNDATION
(NSF)
of
THE UNITED STATES OF AMERICA
concerning COOPERATION on
THE INTEGRATED OCEAN DRILLING PROGRAM (IODP)

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the National Science Foundation (NSF), hereinafter referred to as the Agencies:

Recognizing the importance of research on earth system processes ranging from changes in the earth's climate to the rifting and drifting of continents;

Emphasizing that scientific ocean drilling is the primary technique for sampling sediment and crustal rock from 70% of the earth's surface covered by ocean and the only technique for sampling deep into the ocean floor;

Desiring to build on the outstanding scientific results of the Deep Sea Drilling Project (DSDP) initiated in 1968 and of the Ocean Drilling Program (ODP) which succeeded it in 1985;

Acknowledging the contribution that international cooperation and sharing of financial and intellectual resources have made to the ODP, e.g., through participation of over 1500 scientists from forty countries since 1985;

Desiring also to develop substantive cooperation with other earth and ocean sciences programs and initiatives;

Responding to recommendations of the earth science communities in Japan and the United States expressed at the Conference on Cooperative Ocean Riser Drilling (CONCORD: 1997) and Conference on Multiple Platform Exploration of the Ocean (COMPLEX: 1999);

Taking into account the encouragement that the United Nations Convention on the Law of the Sea has provided to international cooperation in marine scientific research;

Stressing the importance of assuring stable support for scientific ocean drilling by government/national agencies with both interest and capability in geosciences research;

Recognizing further the close cooperation that has developed in scientific ocean drilling between scientists, research institutions and government/national agencies of both Japan and the United States;

Hereby express the Agencies' intention to cooperate as follows:

I. Purposes and Commitment

The Agencies intend to cooperate in the planning, management and operations of a new program of cooperative, international, scientific ocean drilling, to be known as the Integrated Ocean Drilling Program (IODP), and contribute equally to support of the core scientific facilities and capabilities, as the IODP Lead Agencies (Annex I). The IODP Lead Agencies are to have equal membership rights and responsibilities. The objective of the IODP is to conduct marine scientific research whose purpose is neither exploration nor exploitation of natural resources. The scientific and technical results of the Program are to be openly available.

The IODP scientific program is identified in the Initial Science Plan for the IODP, Earth, Oceans and Life, and includes emphasis on the following research themes:

The Deep Biosphere and the Sub-seafloor Ocean: Drilling will concentrate on defining the architecture and dynamics of the vast subseafloor plumbing system, where flowing water alters rock, modifies the long-term chemistry of the oceans, lubricates seismically active faults, concentrates economic mineral deposits, and controls the distribution of the deep biosphere.

The Processes and Effects of Environmental Change: Using a global array of sites, ocean sediment cores will be used to construct a detailed record of the causes, rates and severity of changes in the earth's climate system and their relation to major pulses in biologic evolution.

Solid Earth Cycles and Geodynamics: Drilling will concentrate on sampling and monitoring regions of the seafloor that currently have the highest rates of energy and mass transfer, and comparing these results to older geologic settings. A crucial initial program of deep drilling will be to study the seismogenic zone responsible for large destructive earthquakes along active plate boundaries.

The IODP drilling operations are to focus on a core capability provided by two scientific ocean drilling platforms. One is a riser-capable vessel to be provided by the MEXT and owned and operated by the Japan Marine Science & Technology Center (JAMSTEC), and the other is a non-riser vessel to be provided by the NSF. The NSF is to determine the implementing organization for the non-riser platform. Both vessels are to be available for scheduling and operations on a global basis. Access to mission specific platforms (in addition to the two primary vessels) is required to meet specific objectives of the science

plan. Financial support for the operation of these additional platforms is to be the responsibility of the IODP member(s) which make the decision to offer this additional capability to the Program. IODP operations are planned to be implemented as described in Annex II. The IODP is to seek substantive cooperation with other earth and ocean science programs and initiatives.

All activities undertaken under this Memorandum are to be implemented on the basis of equality, reciprocity and mutual benefit of the Agencies.

II. Scientific Planning

Science Advisory Structure

A Science Advisory Structure (SAS) for the IODP is to be established and composed of scientists and engineers designated by and representing the Agencies and other IODP members, as appropriate. The SAS is to provide long-term guidance on the scientific planning of the IODP, and recommend annual science and engineering plans based on proposals from the international science community.

An Executive Authority is to be established for the SAS and is to be composed of representatives from scientific institutions or organizations in the IODP member countries that have a major interest in the study of the sea floor. The Executive Authority is to formulate scientific and policy recommendations with respect to IODP planning and operations.

The Chairmanship of the SAS is expected to initially rotate between institutions in Japan and the United States, with a term of 2 years.

The SAS may establish panels and/or committees as needed to address its responsibilities, including panels on platforms and on science operations. The Agencies are to be entitled to equal representation on the SAS and all of its panels and committees.

Science Advisory Office

The SAS Chair is to be staffed by a Scientific Advisory Office that is to be located with the Chair. Support for SAS planning is to be provided by the Central Management Office described in section III.

III. Operational Framework

Program Management

A Central Management Office (CMO) is to be established with the concurrence of MEXT and NSF to develop and manage operations and implementation plans for the IODP program. The CMO receives advice and recommendations on scientific priorities and plans from the IODP SAS; requests plans which are responsive to this advice from implementing organizations, and, negotiates with implementing organizations and the SAS

to produce an integrated annual IODP Program Plan. The annual IODP Program Plan is to be consistent with budget guidance provided to the CMO by the Agencies. The annual IODP Program Plan includes a presentation of total program costs, which include both science operations costs and platform operations costs (as defined in Annex I). The CMO manages science operations funds that are provided under contract with the NSF. The NSF is expected to administer the contract with due consideration to the interests of MEXT, as described in Annex III.

The CMO is expected to submit the annual IODP Program Plan to the Executive Authority of the SAS for review and approval prior to its consideration by the Agencies. The NSF has responsibility for contractual approval of the annual IODP Program Plan, in consultation with the MEXT. After approval by the Agencies, significant changes in the annual IODP Program Plan are to be considered and approved by the CMO and the Agencies prior to implementation, in consultation with the Executive Authority of the SAS and the Implementing Organizations, as appropriate.

Program Operations

Implementing Organizations are to have primary responsibility for management of the Program's facilities, operational capabilities and services as identified in the annual IODP Program Plan. The JAMSTEC is to be the Implementing Organization for operation of the riser platform. The NSF is to determine the Implementing Organization for the non-riser platform. The Agencies share the responsibility of ensuring that the IODP cores, samples and data are properly maintained and made available to the international scientific community.

The Agencies may, through mutual understanding, approve establishment of other implementing organizations by the CMO for specific purposes, as appropriate.

IV. IODP Program Costs and Funding

The Agencies determine annual total program costs and contribute equally to support of these costs over the duration of IODP, after subtracting other IODP member's contributions. Total program costs are composed of platform operation costs and science operation costs (Annex I). Platform operation costs of the two primary vessels are to be the responsibility of the MEXT and the NSF, respectively. Mission specific platform operation costs are to be the responsibility of the IODP member(s) providing the platform. The IODP members, including the Agencies, are to contribute to support of the science operations costs of the IODP.

Support of scientific research and development costs for shore-based analysis and research on the IODP samples and data and for non-routine downhole measurements are the responsibility of the individual Agencies or the IODP members and are not to be supported by program costs.

IODP members are expected to make appropriate annual payments to the NSF in U.S. dollars on a payment schedule acceptable to the Agencies for participation in the IODP. The contribution, as identified in Annex IV, entitles an IODP member to one participation

unit, with one participation unit equivalent to one member per panel and two scientific participants per cruise leg, or equivalent. An IODP member may acquire additional participation units through a corresponding increase in financial contribution, and/or long-term provision of mission specific platforms.

The Agencies contribute equally to total program costs and acquire participation units necessary to fully support the Program.

Funds from the IODP members are to be commingled in an IODP operating fund administered by the NSF. The NSF provides commingled funds to the CMO for science operations costs based on the approved annual IODP Program Plan. The CMO, in turn, provides funds to the implementing organizations for science operation costs through contracts.

The Agencies intend to provide funds directly to the implementing organizations for platform operations costs. Legal and financial responsibility including mobilization and platform operation costs for the riser capable vessel resides with the MEXT and for the non-riser vessel with the NSF. Legal and financial responsibility, including mobilization and platform operation costs of additional platforms, is to reside with the IODP member(s) which provide this capability to the IODP. Provision of such capability is not to be considered a contribution in lieu of an annual IODP membership contribution.

V. Participation in Scientific Activities and Operations

Membership in the IODP is available to government and/or national agencies (or their representatives) which have an interest and capability in geoscience research. The Agencies intend to cooperate to ensure broad international participation in the IODP.

Membership may be secured through signing an appropriate memorandum with the Agencies. Membership is to be based on participation, in principle, through 2013.

Each IODP member, has the right to: (1) have its scientists participate in each drilling cruise; (2) be represented on all planning and advisory panels; (3) have access to all data, samples, scientific and technical results, all engineering plans, data or other information produced under contracts supported as program costs; (4) have access to all data from geophysical and other site surveys performed in support of the program which are used for drilling planning; (5) submit proposals to the SAS for drilling or engineering developments in support of IODP science; and, (6) be represented on the IODP Council as identified in section VI below .

Each IODP member has the responsibility to: (1) actively participate in all aspects of the IODP; (2) assure that all data, samples and scientific and technical results are shared among the IODP members and are made widely available; and, (3) participate in providing data and proposals for planning of drilling programs.

VI. IODP Council

The Agencies intend to establish an IODP Council, which provides governmental oversight for all IODP activities; assures effective planning, management and operation of the IODP; and encourages and promotes broad international participation in the IODP.

The members of the Council are to be representatives of each country or entity contributing to support of the IODP, regardless of whether it is participating as an individual member or as a member of a consortium. The participating countries are to designate members of the Council and their alternates. The Chair of the Council is to be from the Agencies and is to alternate between the Agencies on a yearly basis.

The Council is expected to meet at least once per year, but additional meetings may be called as needed. The agenda and site for all meetings is expected to be decided through mutual understanding. The responsibility for meeting arrangements is to reside with the Chair. The Chair is expected to be responsible for developing the meeting agenda, in consultation with other Agency. Meetings of the Council may be open to participation by others through mutual confirmation of the Agencies.

The Council is expected to serve as a consultative body reviewing financial, managerial, and other matters involving the overall support of the IODP. A formal agenda is to be prepared for each meeting and written records are to be kept.

Liaison representatives from the CMO, Implementing Organizations, and science advisory structure are expected to be available to the Council.

VII. Data, Information, Intellectual Property Rights

The Agencies take necessary measures to assure that all data, samples, and scientific and technical results of the Program's scientific and engineering activities are made widely available to the international scientific community and to the public through customary channels and in accordance with the normal procedures of the Agencies, or as identified by the SAS. Such measures should be taken in accordance with the respective laws and regulations of Japan and the United States.

Information transmitted by one Agency to the other under this Memorandum is expected to be accurate to the best knowledge and belief of the transmitting Agency which may not be liable for the content or issue of such information.

Protection of intellectual property and rights thereto resulting from scientific research activities conducted under the auspices of this Memorandum will be addressed as set forth in Annex IV to the Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology, signed at Toronto on June 20, 1988, and extended by the Protocols done at Washington on June 16, 1993, on June 16, 1998, on March 19, 1999 and on May 19, 1999, and extended and amended by the Protocol done at Washington on July 16, 1999.

VIII. Administrative Provisions

This Memorandum is not legally binding and should have no effect as a legal precedent.

Cooperation between the Agencies under this Memorandum is subject to the availability of appropriated funds and in accordance with the applicable laws and regulations in each country, including those intended to prevent, reduce and control pollution of the marine environment.

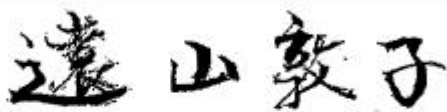
The Agencies intend to cooperate under this Memorandum from 1 October 2003, within the limits of available funds, until 30 September 2013. The Agencies through mutual concurrence have chosen to support and participate in important planning activities for the IODP prior to 1 October 2003.

This Memorandum may be amended by mutual confirmation of the Agencies.

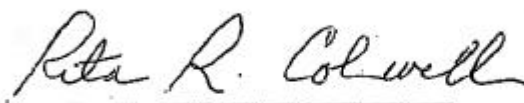
Either Agency may at any time give written notice to the other Agency of its intention to terminate the cooperation under this Memorandum, in which case the cooperation may terminate one year after such notice has been given.

Termination or expiration of the cooperation under this Memorandum should not affect the carrying out of any project or program initiated under this Memorandum, but not yet completed at the time of termination or expiration, unless otherwise decided.

DONE in Tokyo, this 22nd day of April, 2003, in the English language.



Atsuko Toyama
Minister
THE MINISTRY OF EDUCATION,
CULTURE, SPORTS, SCIENCE AND
TECHNOLOGY (MEXT)
of
JAPAN



Rita R. Colwell
Director
THE NATIONAL SCIENCE
FOUNDATION
of
THE UNITED STATES OF AMERICA

ANNEX I DEFINITIONS

Lead Agencies have equal membership rights and responsibilities, contribute core capabilities to the IODP program, determine total program costs, and contribute equally to total program costs. Lead Agencies provide budget guidance to the Central Management Office, and review and approve the annual IODP Program Plan prior to its implementation.

Platform Operations Costs are expected to support the basic operation of the vessel as a drillship, and include, for example: (1) costs of the drilling and ship's crew; (2) catering services; (3) fuel, vessel supplies and other related consumables; (4) berthage and port call costs; (5) disposal of wastes; (6) crew travel; (7) inspections and insurance; (8) drilling equipment, supplies, and related consumables; (9) engineering or geophysical surveys, and data acquisition and laboratory analyses required for the safety of platform and drilling operations; and, (10) administration and management costs of the platform operators.

Science Operation Costs are expected to provide for those activities onboard program platforms necessary to the proper conduct of the scientific research program and those shore-based activities required to properly maintain and distribute samples and data, support seagoing activities, and administer and manage the program. These costs include, for example: (1) technical services; (2) computer capability; (3) data storage and distribution; (4) description, archiving, and distribution of data and samples; (5) deployment of a standard suite of logging tools; (6) development of new drilling tools and techniques required by IODP research; (7) program publications; (8) costs of consumables (exclusive of those identified under platform operations costs); and, (9) costs required for administration and management, including the Central Management Office.

Modifications to the above categorization of Platform and Science Operation costs may be changed through consultation and concurrence of the Agencies.

ANNEX II IODP IMPLEMENTATION SCHEDULE

The IODP is expected to begin with an implementation period extending from 1 October 2003 until 30 September 2006. During this period, drilling is to be accomplished from the non-riser platform, and from mission specific platforms (if recommended by the SAS and provided by IODP members). Preparation for riser drilling (including detailed scientific planning, engineering planning, and engineering and safety surveys, etc.) should also be undertaken in this period. The IODP should be fully implemented beginning 1 October 2006 to include drilling programs on the riser vessel, the non-riser vessel, and from mission specific platforms (if recommended by the SAS and provided by the IODP members).

ANNEX III MEXT AND NSF MANAGEMENT AND ADMINISTRATIVE PROCEDURES

The MEXT and the NSF are to each designate an individual to serve as the Principal Official for the activities identified in this Memorandum. The Principal Officials should have responsibility for the Lead Agency oversight of the IODP implementation, operations, management and funding issues.

The Principal Officials are to serve as the chairs of the IODP Council (alternating on a yearly basis), with responsibilities as identified in section VI of this Memorandum. The Principal Officials are to identify the budget guidance for the CMO which is to be used in preparation of the annual IODP Program Plan. The Principal Officials are expected to meet on an annual basis to review and approve the annual IODP Program Plan prepared by the CMO, and to identify the annual member financial contributions that are intended to support the annual IODP Program Plan. The Principal Officials may meet/confer as required to evaluate and approve recommendations from the CMO on changes in key personnel on the CMO contract, and to approve significant changes in the CMO contract which affect the IODP operations. To ensure continuity and responsiveness of CMO planning, management and administrative procedures, annual support of \$1 million each is expected to be made to the CMO by the MEXT and by the NSF. MEXT's annual payment of \$1 million is to be made to the NSF, which in turn includes these funds on behalf of MEXT as part of the annual funding to the CMO for science operations costs.

The MEXT designates and provides support for an IODP liaison to the NSF located in the NSF IODP program office. The liaison is expected to work with the NSF program staff in day-to-day administration of the CMO contract. The liaison may have access to all information and documents related to the CMO contract and should have authority to act on behalf of MEXT in recommending contract actions and approvals that are not reserved for the Principal Officials, as noted above. Such actions may include: 1) required approvals for changes to the annual IODP Program Plan or budgets; 2) required approvals of management office activities; 3) required acceptance of management office reports; 4) required approvals of changes in salaries of the CMO staff; 5) other actions to be determined.

ANNEX IV ANNUAL MEMBER CONTRIBUTIONS AND RIGHTS

Based on 2002 projections of total annual Program costs for a fully operational IODP program (approximately \$150 million), and considering the IODP Program activities and costs planned for the implementation period (1 October 2003 to 30 September 2006) identified in Annex II, the annual contribution required for one IODP Participation unit in U.S. dollars is estimated to be:

1 October 2003 - 30 September 2004	(U.S. Fiscal Year 2004) = \$1.5 million
1 October 2004 - 30 September 2005	(U.S. Fiscal Year 2005) = \$3.5 million
1 October 2005 - 30 September 2006	(U.S. Fiscal Year 2006) = \$3.5 million

The annual contribution required for one IODP Participation unit for the period 1 October 2006 to 30 September 2013 is estimated to be \$5.6 million (U.S. dollars), but is subject to increase or decrease based on operating experience and projected operating costs. Identification of the annual contribution level for this period is to be done by the Agencies.

One participation unit entitles an IODP member to a representative serving on each committee or panel of the Science Advisory Structure, and two scientific participants per "cruise leg", or equivalent, for each Platform operation identified as an IODP cost. More than two participants on a cruise leg may be acceptable as offset by reduced participation in other legs. An IODP member may acquire additional participation units through a corresponding increase in financial contribution, and/or long-term provision of mission specific platforms.

An IODP member with at least one participation unit may maintain the same rights in data as the Agencies for activities conducted using the IODP science operations funds.

An IODP member with at least one participation unit is to have the right to a royalty free license for all patents resulting from developments supported by the IODP science operations funds.