

No. 16588

**UNITED STATES OF AMERICA
and
FRANCE**

**Memorandum of Understanding on Participation of France
in the International Phase of Ocean Drilling of the Deep
Sea Drilling Project (with Scientific Goals and Objec-
tives). Signed at Paris on 15 January 1976**

Authentic texts: English and French.

Registered by the United States of America on 27 April 1978.

**ÉTATS-UNIS D'AMÉRIQUE
et
FRANCE**

**Mémorandum d'accord relatif à la participation de la France
à la Phase internationale de forage des océans relevant
du Projet de forage à grande profondeur (avec Buts et
objectifs scientifiques). Signé à Paris le 15 janvier 1976**

Textes authentiques : anglais et français.

Enregistré par les États-Unis d'Amérique le 27 avril 1978.

MEMORANDUM OF UNDERSTANDING¹ BETWEEN THE U.S. NATIONAL SCIENCE FOUNDATION AND THE CENTRE NATIONAL POUR L'EXPLOITATION DES OCÉANS ON PARTICIPATION OF FRANCE IN THE INTERNATIONAL PHASE OF OCEAN DRILLING OF THE DEEP SEA DRILLING PROJECT

The Deep Sea Drilling Project (DSDP) is an ongoing project of the U.S. Ocean Sediment Coring Program (OSCP) of the U.S. National Science Foundation. Its goal is to learn more about the structure, composition, origin and geologic history of the ocean basins and their relationship to the continents. This goal is being realized by drilling and coring the sediments and part of the underlying crystalline layers of the oceanic crust. The DSDP has been funded from 1966 through 1973 solely by the U.S. National Science Foundation through a contract with the University of California. The Scripps Institution of Oceanography, a part of the University of California at San Diego, is responsible for operations management. The University of California currently subcontracts with Global Marine, Inc., for the leasing and operation of the *D/V Glomar Challenger*, which provides the ocean-going platform from which the drilling and coring are accomplished.

Scripps Institution of Oceanography plans the various scientific phases of the project with advice from a scientific advisory committee composed of distinguished scientists drawn from the international earth sciences community. The committee presently consists of representatives from the Lamont-Doherty Geological Observatory, Columbia University; the Scripps Institution of Oceanography, University of California at San Diego; the Woods Hole Oceanographic Institution; the Rosenstiel School of Marine and Atmospheric Science, University of Miami; the Department of Oceanography, University of Washington; the Hawaii Institute of Geophysics, University of Hawaii; Department of Oceanography, University of Rhode Island; Department of Oceanography, Oregon State University; Department of Oceanography, Texas A&M University; the Institute of Oceanology of the U.S.S.R. Academy of Sciences; the Ocean Research Institute, University of Tokyo, Japan; the Centre National pour l'Exploitation des Océans (CNEXO) of France; the Natural Environmental Research Council, United Kingdom; and the Bundesanstalt für Geowissenschaften und Rohstoffe, the Federal Republic of Germany.

Phase I of the DSDP began operations in 1968. It has since been extended twice; Phase III began August 1972, at which time international participation was invited. Drilling and coring during Phase III continued until September 30, 1975, and analyses and reports will be continued through June 1976. As of August 12, 1975, 387 sites have been drilled in the ocean bottom. Depths as great as 6200 meters with up to 1200 meters, penetration of bottom sediment have been reached. The International Phase of Ocean Drilling (IPOD), which began October 1, 1975, will be carried out through September 30, 1978, with the participation of other interested countries. Scientific organizations of participating countries will be invited to be co-equal members of the scientific advisory structure for this program and these countries will

¹ Came into force on 15 January 1976 by signature.

provide scientific, technical, and financial contributions. The scientific objectives of drilling during the International Phase of Ocean Drilling are (1) to determine, through deep penetration below the sediments, the nature of the oceanic crystalline basement; (2) to determine the paleoenvironmental history of the world's ocean basins through a continued program of sediment coring at sites in the open ocean, and (3) to begin a study of the geologic history, composition and resource potential of the continental margins through a pilot program of shallow penetration. From the results of this study and concurrently scheduled engineering studies, planning will be undertaken for a fifth phase of drilling in which the continental margins will be studied in detail.

The Centre National pour l'Exploitation des Océans (CNEXO) and the U.S. National Science Foundation (NSF) agree to cooperate in this program under the conditions and work plans stated as follows:

1. France will support the International Phase of Ocean Drilling of the Deep Sea Drilling Project with a financial contribution of one million U.S. dollars annually for a period of three years. In addition to this basic contribution, France will pay the travel expenses defined in Article 6 below. France will make this contribution in cash or in kind, as mutually agreed, to the U.S. National Science Foundation on a quarterly basis for a period beginning November 1, 1975. The financial contributions of all participants in the IPOD will be commingled to support the total program costs, estimated at 17 million dollars per year. At the end of each fiscal year, the U.S. National Science Foundation will send to France a summary of expenses for the past year. In the event that the project is terminated, France will be reimbursed on a *pro rata* basis and the U.S. National Science Foundation will send a final summary of expenses to France.

2. The Centre National pour l'Exploitation des Océans is now and will continue to be a member of the scientific advisory committee constituted to provide scientific advice to the Scripps Institution of Oceanography, which functions as the manager of the DSDP. All members of the advisory committee will have an equal voice in the advisory committee deliberations.

3. The Centre National pour l'Exploitation des Océans will recommend to the Scripps Institution of Oceanography the names of highly qualified French scientists in order to ensure appropriate French membership on the scientific advisory committee, its sub-committees and panels and as cruise scientists.

4. The Scripps Institution of Oceanography selects the scientific team for each cruise. Because of the limited space for shipboard scientists aboard *Glomar Challenger* and in order to ensure equitable treatment for all non-U.S. nation participants, space, on the average, will be available for one to two French scientists on each cruise of *Glomar Challenger* during the International Phase of Ocean Drilling. It is expected that a French scientist will be invited to serve as co-chief scientist during some of the cruises of the International Phase of Ocean Drilling. In the selection of areas in which cruises are to take place, the interests of French scientists will be taken into account through the recommendations of the scientific advisory committee.

5. The Centre National pour l'Exploitation des Océans, representing cooperating French scientists, will have access equivalent to that of other participants to

IPOD data and core samples and will coordinate the research efforts of French laboratories in the analysis of appropriate IPOD core samples.

6. The cost of the salaries of French scientists who participate in IPOD will be paid by France. All travel costs approved by Scripps of French participants in the Deep Sea Drilling Project will be paid by the Scripps Institution of Oceanography. France will reimburse the U.S. for all such travel with the following exceptions, which will be paid by the U.S.:

- (a) The cost of internal U.S. travel and per diem, from port of entry, of the members or alternate designees of the scientific advisory committee (executive, planning and advisory functions) for working sessions of this committee;
- (b) The cost of internal U.S. travel and per diem, from port of entry, for participants at post cruise conferences required for the preparation of the *Initial Reports of the Deep Sea Drilling Project* or their publication equivalent.

Reimbursement for travel will be in addition to the basic contribution discussed in paragraph 1 and will be made once per year as mutually agreed.

7. The Centre National pour l'Exploitation des Océans will coordinate French efforts to conduct geophysical site surveys and special investigations of drilling sites using French ships as available, in order to facilitate selection of specific sites to be drilled during the International Phase of Ocean Drilling and will ensure that the scientific data resulting from site surveys and laboratory analysis are provided to the Scripps Institution of Oceanography in adequate time for preparation of the *Initial Reports of the Deep Sea Drilling Project* or their equivalent. These investigations will be coordinated between the Centre National pour l'Exploitation des Océans and the Scripps Institution of Oceanography and their results made freely available to all participants in the IPOD.

8. One hundred copies of each volume of the *Initial Reports of the Deep Sea Drilling Project* or their equivalent, beginning with Volume 1 of the IPOD volumes, will be provided to the Centre National pour l'Exploitation des Océans for free distribution among French scientific establishments. France may translate these volumes into the French language and may publish them in France, in full or in part, without payment to or additional agreements with the American side. France, likewise, will provide to the U.S. National Science Foundation copies of all French publications that are based on IPOD materials, which may be translated into English and published in the United States, in full or in part, without payment to or additional agreements with France.

9. The NSF will seek to facilitate, to the extent feasible, through collaboration with the appropriate authorities, the granting of visas and other forms of official permission for entry to and exit from the United States of personnel, equipment and supplies when required for participation or utilization in the IPOD.

10. Other proposals of mutual interest for participation in the IPOD, above and beyond routine participation activities, will be considered, as appropriate, by representatives of the U.S. National Science Foundation and the Centre National pour l'Exploitation des Océans. Such proposals may include scientific, technical and engineering matters.

11. Scientific and administrative representatives of the NSF and the Centre National pour l'Exploitation des Océans, together with representatives of appropriate

government agencies of other nations formally contributing to the IPOD, will meet once a year, as mutually agreed, for an Annual IPOD Program Review including a summary of expenditures for the past fiscal year and an estimate of costs for the coming year, a review of scientific and technical achievements for the past year and plans for the coming year, and proposals of mutual interest for participation in the International Phase of Ocean Drilling. Additional meetings may be held at the request of either party to discuss the terms and conditions of this Memorandum and other matters of mutual interest.

12. This Memorandum of Understanding may be terminated by either party giving the other party advance notice of at least six months.

13. In the event that the International of Ocean Drilling is extended, cooperation in and contribution to such an extension may be negotiated at a later time.

14. DONE in Paris, January 15, 1976, in duplicate, in the English and French languages, both texts being equally authentic.

[Signed]

THOMAS O. JONES

Deputy Assistant Director
for International Affairs

U.S. National Science Foundation

[Signed]

YVES LA PRAIRIE

Director General
Centre National

pour l'Exploitation des Océans

SCIENTIFIC GOALS AND OBJECTIVES

1. The Deep Sea Drilling Project, which is carried out using the drilling ship *Glomar Challenger*, provides data that are essential for the solution of many of the basic problems of the earth sciences during the next several decades.

Today, the important fields of geology, geophysics, geochemistry, oceanography and a number of other sciences must have reliable data on the structure and composition of the sediments and underlying basement ocean floor in order to progress successfully.

The materials obtained by deep sea drilling are also important for developing theories concerning the origin of metallic mineral deposits, oil and gas, and for determining the distribution of mineral resources on the continental shelf and the deep-sea floor.

2. The main trends of research during IPOD will be:

(a) *Evolution of the Crystalline Crust — Deeper Penetration into the Hard Crystalline Crust of the Deep Ocean Basins*

Drilling through the sediments of the oceans during the first three phases of the DSDP has provided a framework for understanding the geologic evolution of modern oceans. Drilling two to three kilometers into the crystalline oceanic crust will provide an insight into the mechanisms of the crust's evolution, for it is in this layer of the crust that much of the history of its formation is recorded. An understanding of the genesis of the oceanic crust will also provide direct information on the origin of oceanic and continental mineral deposits.

(b) *Structure and Genesis of Ocean Margins—Penetration into the Thick Sedimentary Deposits of the Oceans' Margins*

Approximately two-thirds of the world's surface is covered by the deep ocean basins. The margins of these basins are of considerable geologic and economic importance, because they mark the boundary or transition between thin oceanic crust and the thicker, chemically-different crust of the continents.

Commercial drilling has shown the shallower continental shelf portion of the margin to be the site of mineral and petroleum deposits. There is no reason to believe that the deeper parts of the margins will not yield such resources as well.

(c) *Oceanic Paleoenvironment — Additional Recovery of Sedimentary Cores in the Deep Ocean*

Understanding the ocean as a dynamic system requires both study of present-day processes and an appreciation of the historical development of circulation patterns and climate.

A major redistribution of continents and ocean basins has taken place since approximately 200 millions of years ago. As this has occurred, the earth's temperature gradient from the equator to the poles has increased and oceanic circulation patterns have drastically changed. Because many chemical and climatic processes in the ocean are controlled by current circulation, it is imperative to know the history of these phenomena in order to understand modern oceanic conditions and how they might change in the future.

Recovery of continuous sections of undisturbed sediments from key locations will help to solve critical questions raised by the present program.
