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United States of America
and
France

Memorandum of Understanding between the National Aeronautics and Space Administration of the United States and the Centre national d'études spatiales of France for cooperation in the Jason program. Washington, 14 December 1996, and Paris, 20 December 1996

Entry into force: *20 December 1996 by signature*

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États-Unis d'Amérique
et
France

Protocole d'accord entre la National Aeronautics and Space Administration des États-Unis d'Amérique et le Centre national d'études spatiales de France en vue d'une coopération pour le programme Jason. Washington, 14 décembre 1996, et Paris, 20 décembre 1996

Entrée en vigueur : *20 décembre 1996 par signature*

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[ENGLISH TEXT – TEXTE ANGLAIS]

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

OF THE UNITED STATES

AND

THE CENTRE NATIONAL D'ETUDES SPATIALES

OF FRANCE

FOR COOPERATION IN

THE JASON PROGRAM

Preamble

The National Aeronautics and Space Administration of the United States (hereinafter referred to as NASA), represented by its Administrator,

and

the Centre National d'Etudes Spatiales of France (hereinafter referred to as CNES) established under the provisions of the Law 61-1382 dated December 19, 1961, setting up a national center for space research, represented by its President,

CONSIDERING their cooperative effort that led to the launch of the TOPEX/ Poseidon mission by an Ariane launch vehicle from Kourou launch site in French Guiana, on August 10, 1992;

CONSIDERING that since the launch of the TOPEX/Poseidon mission, the global sea surface topography measurements obtained have been of unparalleled accuracy compared with any data received from previous similar missions;

CONSIDERING that such measurements have provided a critically needed ability to precisely monitor the global oceans, to create new opportunities for monitoring ocean phenomena and to develop models to predict the global change;

HAVING REGARD to the imperative need that this measurement set be continued beyond the current TOPEX/Poseidon mission, a series of missions is envisioned, the first of which will be Jason-1;

HAVING REGARD to their common interest to continue using radar altimetry to study the oceans from space;

RECOGNIZING the important contribution that Jason-1 can bring to operational activities that led the U.S. National Oceanic and Atmospheric Administration (NOAA) and other operational agencies in the United States and France to express a strong interest in participating in the program through developing and demonstrating prototype operational applications of the data;

CONSIDERING that for purposes of this Memorandum of Understanding (MOU), NASA and CNES (hereinafter referred to collectively as the Parties) will represent the interests of these operational agencies within their responsibilities and commitments;

CONSIDERING their decision to proceed with the development, launch and operations of the Jason-1 mission;

THEREFORE, in consideration of the mutual covenants set forth, hereby AGREE as follows:

Article I - Purpose

The Parties each set forth in this MOU their understanding as to the general responsibilities of the Parties and the terms and conditions under which they have agreed to cooperate in Jason-1. For purposes of this MOU, the satellite-bus is defined as the platform to which the payload module (which contains the instruments) is attached. This satellite-bus with instruments in the payload module constitutes the satellite which is launched into space.

Article II - Mission Description and Participation

1. The primary objective of Jason-1 is to provide a continuation of the TOPEX/Poseidon mission's high accuracy radar altimetry measurements for global ocean circulation and sea surface studies for research and operational requirements. The techniques to be utilized to satisfy these objectives are radar altimetry, microwave radiometry, precision satellite tracking, and precision orbit determination.

2. A secondary objective is to provide a near-real time data (and product) service for operational activities such as marine nowcasting and numerical prediction of sea state, ocean circulation and weather. In this regard, NOAA is planning an operational demonstration project.

3. Accordingly, a satellite, defined in this MOU as consisting of a satellite-bus to be provided by CNES, carrying a payload module jointly provided by the Parties, is planned for launch in 1999. The payload module will consist of a radar altimeter and its antenna, and Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS) receiver package, provided by CNES, and a microwave radiometer and its antenna, laser retroreflector and Global Positioning System (GPS) receiver package, provided by NASA. The satellite will be launched from a U.S. launch site using a launch vehicle to be provided by NASA.

4. The Jason-1 satellite is planned to be operated for a minimum of three years, although sufficient satellite expendables will be carried for at least an additional two years of operations. The Parties will exchange telemetry data from the satellite in a timely manner. Each Party will process data from the instruments, making the processed data available to the other Party in a timely manner, as established in Article XV below. The data and products will be made available to the Jason-1 science team and to the broader international user community through data centers and services under the responsibility of the Parties.

5. The Parties will establish a joint science team for Jason-1 as described in Article XIV. The Parties will consult and coordinate on the preparation and release of an announcement covering both research and application demonstration projects, on the technical review of the proposals and on selection of the international team members.

Article III - CNES Responsibilities

To implement this cooperative project, CNES, in accordance with the Jason-1 Project Plan to be developed (see Article VI), will use reasonable efforts to:

1. Provide system engineering, develop an overall system specification and an overall interface control document which will define the NASA/ CNES interfaces;
2. Establish requirements for overall system level testing, plan and conduct system level tests, evaluate test results and certify satellite flight readiness;
3. Design, fabricate, test, calibrate, transport to the CNES-designated site, and prepare for integration, the CNES instruments, consisting of a two-frequency radar altimeter and its antenna, and Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS) receiver package (consisting of receiver, antenna and ultrastable oscillator);
4. Design and fabricate, test, calibrate and prepare to integrate the Jason-1 satellite-bus;
5. Integrate the Parties' instruments into the Jason-1 satellite-bus, transport the integrated Jason-1 satellite to the launch site and, support launch site processing;
6. Provide ground support equipment and qualified personnel at appropriate sites to support system integration, test, launch, and operations;
7. Provide NASA with all mission requirements and constraints necessary for satellite launch, and satisfy requirements (e.g., safety requirements) unless formally waived;
8. Perform checkout of the Jason-1 satellite during the launch operations phase;
9. Operate the satellite from launch through the satellite assessment phase (estimated to be 30 days) and then transfer real-time operations responsibility to NASA as defined in the Project Plan. Provide a satellite performance and analysis function for the total mission;