

**No. 51189\***

---

**United States of America  
and  
France**

**Memorandum of Understanding between the National Aeronautics and Space Administration of the United States of America and the Centre National d'Études Spaciales of France for cooperation in the Calipso mission. Paris, 18 June 2003**

**Entry into force:** *18 June 2003 by signature, in accordance with article XX*

**Authentic texts:** *English and French*

**Registration with the Secretariat of the United Nations:** *United States of America, 20 August 2013*

*\*No UNTS volume number has yet been determined for this record. The Text(s) reproduced below, if attached, are the authentic texts of the agreement /action attachment as submitted for registration and publication to the Secretariat. For ease of reference they were sequentially paginated. Translations, if attached, are not final and are provided for information only.*

---

**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 la France en vue d'une coopération dans le cadre de la mission Calipso. Paris, 18 juin 2003**

**Entrée en vigueur :** *18 juin 2003 par signature, conformément à l'article XX*

**Textes authentiques :** *anglais et français*

**Enregistrement auprès du Secrétariat des Nations Unies :** *États-Unis d'Amérique, 20 août 2013*

*\* Numéro de volume RTNU n'a pas encore été établie pour ce dossier. Les textes reproduits ci-dessous, s'ils sont disponibles, sont les textes authentiques de l'accord/pièce jointe d'action tel que soumises pour l'enregistrement et publication au Secrétariat. Pour référence, ils ont été présentés sous forme de la pagination consécutive. Les traductions, s'ils sont inclus, ne sont pas en form finale et sont fournies uniquement à titre d'information.*

[ 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 CALIPSO MISSION**

**Table of Contents**

Preamble	
Article I	Purpose
Article II	Mission Description and Participation
Article III	CNES Responsibilities
Article IV	NASA Responsibilities
Article V	Project and Program Management
Article VI	Science Team and International Science Advisory Panel
Article VII	Project Plan
Article VIII	Mission Reviews, Integration and Flight Readiness
Article IX	Exchange of Personnel
Article X	Funding
Article XI	Customs and Taxes
Article XII	Ownership of Elements and Equipment
Article XIII	Exchange of Technical Data and Goods
Article XIV	Invention, Patent and Intellectual Property Rights
Article XV	Science Data Policy
Article XVI	Publication of Public Information and Results
Article XVII	Liability
Article XVIII	Registration of Space Objects
Article XIX	Settlement of Disputes
Article XX	Entry into Force, Duration, Amendment and Termination

**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), as 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,

as the Parties to this Memorandum of Understanding (MOU) (hereinafter the Parties),

CONSIDERING their cooperative effort that led to the successful TOPEX/Poseidon mission launched by an Ariane launch vehicle on August 10, 1992, and their agreement of December 20, 1996, for the Jason-1 program,

RECOGNIZING the need for a mission to collect data to understand better the role of clouds and aerosols in climate, thus improving the ability to predict long term climate change and seasonal to interannual climate variability,

CONSIDERING that such a mission could use light detection and ranging (lidar) technology and applications,

RECALLING the success of the first demonstration of the feasibility of lidar in NASA's Lidar In-Space Technology Experiment (LITE), launched on the STS-64 mission in September 1994,

CONSIDERING their common interest in developing the capacity to use a lidar instrument on a long-term basis to improve the ability to predict long term climate change,

RECALLING that a cloud and aerosol mission was recommended for Phase A study by the CNES science advisory panel (CPS) in March 1998, following the prospective scientific seminar in Arcachon, France,

RECALLING that the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) mission, including CNES participation, was selected for development in December 1998 by NASA's Earth Science Enterprise through its second Earth System Science Pathfinder (ESSP-2) Announcement of Opportunity (AO), and

RECALLING that in October 1999, the CNES Board of Directors endorsed CNES' participation in the CALIPSO mission,

Have agreed as follows:

## **Article I - Purpose**

This MOU sets forth the terms and conditions under which the Parties will cooperate in the CALIPSO mission.

## **Article II - Mission Description and Participation**

1. The primary objective of the CALIPSO mission is to collect cloud and aerosol data to allow a better understanding of the role of clouds and aerosols in climate and improve the ability to predict long-term climate change and seasonal to interannual climate variability. The Parties will use lidar, infrared radiometry, and visible imaging techniques to satisfy this objective.
2. A secondary objective is to provide a set of simultaneous coincident data with which to validate and improve data retrievals from NASA's Earth Observing System (EOS) Aqua mission. To satisfy this objective, CALIPSO will adapt its orbit to the EOS Aqua orbit.
3. The CloudSat mission, also selected by NASA under the ESSP-2 AO, will fly in formation with CALIPSO, so that the two satellites can simultaneously collect cloud and aerosol data. It is understood between the Parties that the CloudSat mission will adapt its orbit to the CALIPSO orbit, and that the CloudSat mission will neither create a major interference nor a major impact on the CALIPSO mission. Plans are to co-manifest CALIPSO and CloudSat for a dual launch from a U.S. launch site using a NASA-provided Delta II launch vehicle. The CALIPSO satellite will be in the upper position of the dual configuration.
4. CNES also plans to fly its Polarisation et Anisotropie des Réflectances au sommet de l'Atmosphère couplées avec un Satellite d'Observation emportant un Lidar (PARASOL) mission in formation with CALIPSO so that the two satellites can simultaneously collect cloud and aerosol data. PARASOL will adapt its orbit to the CALIPSO orbit and will neither create a major interference nor a major impact on the CALIPSO or the CloudSat mission.
5. For purposes of this MOU, the payload is defined as the module that contains the instruments, the payload onboard computer, payload data storage and telemetry system and the payload structure. The platform is defined as the structure to which the payload is attached. The flight Star Tracker Assembly (STA) is part of the platform, but is mounted onto the payload. The satellite is composed of the assembled payload and platform and is launched into space.
6. The CALIPSO mission is led by NASA. The CALIPSO satellite, integrated and tested under CNES' responsibility, will consist of a platform, designed and provided by CNES, carrying a payload, under NASA's responsibility, containing instruments to be provided by both Parties. The payload instrument complement will consist of an Infrared Imaging Radiometer (IIR), provided by CNES, and a lidar and a Wide-Field Camera (WFC) provided by NASA. Additionally, NASA will provide the storage required and a payload telemetry system to downlink the payload data, the payload onboard computer, and the payload structure. NASA will be responsible for launching the CALIPSO satellite.