IMPLEMENTING ARRANGEMENT
BETWEEN
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OF THE UNITED STATES OF AMERICA
AND
THE CENTRE NATIONAL D'ETUDES SPATIALES
OF FRANCE
ON
THE ARGOS DATA COLLECTION SYSTEM

PREAMBLE

The National Oceanic and Atmospheric Administration, an agency of the United States Department of Commerce (hereinafter referred to as "NOAA"), represented by its Assistant Administrator for NOAA's Satellite and Information Services,

and

The Centre National d'Etudes Spatiales, a French scientific and technical public establishment of industrial and commercial nature, established by Law No. 61-1382 of 19 December 1961 (hereinafter referred to as "CNES"), represented by its President,

Hereinafter referred to collectively as the "Implementing Agencies,"

CONSIDERING the provisions of the Framework Agreement between the Government of the United States of America and the Government of the French Republic for Cooperative Activities in the Exploration and Use of Outer Space for Peaceful Purposes, signed on January 23, 2007 (2007 Framework Agreement) applicable to this Implementing Arrangement between NOAA and CNES, acting as Implementing Agencies;

RECOGNIZING that NOAA's mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet economic, social and environmental needs;

RECOGNIZING that CNES's mission is to promote and guide space research and technology for scientific and technical purposes;

RECALLING that NOAA and CNES have cooperated since 1974, in implementing the global Argos Data Collection and platform location System (Argos DCS) on the Polar-orbiting Operational Environmental Satellites (POES), and have signed in1986 a Memorandum of Understanding for the Argos DCS which has been amended by exchange of letters with regard to system use in 1990, the NOAA N satellite in 1991, and the NOAA N' satellite in 1998;

NOTING that an Argos Operations Committee (Argos OPSCOM) exists for the purpose of supervising the implementation, administration and operations of the Argos DCS;

RECOGNIZING the desire of NOAA and CNES to continue cooperation in global environmental data location, acquisition, and dissemination for the purposes of improving knowledge of the Earth, its characteristics and natural phenomena, and protection of the environment;

RECOGNIZING that continued collaboration on the Implementing Agencies' respective requirements in these fields holds great potential for improved service, mutual support

and cost savings, without unfairly competing with commercial satellite data telemetry providers;

NOTING that the United States has initiated the development of the National Polar-orbiting Operational Environmental Satellite System (NPOESS), administered by the United States Department of Defense (DoD), the National Aeronautics and Space Administration (NASA), and NOAA, to replace NOAA's POES series and DoD's Defense Meteorological Satellite Program (DMSP) series; and

RECOGNIZING the desire of NOAA and CNES to deploy an improved Argos DCS to meet the requirements of NPOESS era environmental users;

HEREBY AGREE AS FOLLOWS:

ARTICLE 1
PURPOSE, OBJECTIVES AND DESCRIPTION

1.1 PURPOSE AND SCOPE

1.1.1. PURPOSE

The purpose of this Implementing Arrangement is to set forth the respective responsibilities of the Implementing Agencies and the terms and conditions under which they will cooperate with the continuation of the Argos Program instruments that will be flown on NOAA's NPOESS C1 and C2 satellites.

1.1.2. SCOPE

Should the Implementing Agencies subsequently agree to fly Argos instruments on other NOAA NPOESS satellites, their decision shall be set down through an exchange of letters. In addition, the Implementing Agencies agree that the provisions of this present Implementing Arrangement shall apply to these subsequent cooperative activities.

1.2 OBJECTIVES

1.2.1 OBJECTIVES OF THE ARGOS SYSTEM

The objectives of the NPOESS Argos DCS are to provide a capability to receive data from the DCPs, through the Argos instruments on board the NPOESS satellites, and to send and make received data available to Argos users. The Argos DCS collects environmental data from fixed and moving platforms and locates these platforms to obtain information to improve knowledge of the Earth, its characteristics and natural

phenomena and the protection of its natural resources, thereby contributing to oceanographic and meteorological modeling and forecasting and climate monitoring. Continued use and expansion of the Argos DCS will improve and expand the capabilities of the global Earth observing system of systems. The Argos DCS also will support research and development in ocean, weather, and other environmental disciplines.

NOAA and CNES are entering into this Implementing Arrangement to meet the requirements of their environmental missions. In addition, they recognize the importance of the development of commercial space-based data telemetry services.

NOAA and CNES recognize their common interest in achieving maximum use of the Argos DCS system. A CNES objective is to achieve a self-sustaining Data Processing and Distribution System (DPDS) with revenues from users fully offsetting operating costs. This DPDS may provide value-added data processing.

1.2.2 ARGOS DCS DESCRIPTION

a) The global Argos DCS consists of:

   i) POES/Argos DCS data acquisition chain, operated jointly by CNES and NOAA;

   ii) METOP/Argos DCS data acquisition chain, operated jointly by CNES and EUMETSAT;

   iii) SARAL/Argos DCS data acquisition chain, operated jointly by CNES and ISRO;

   iv) NPOESS/Argos DCS data acquisition chain, operated jointly by CNES and NOAA;

   v) Argos DPDS, developed and operated by CNES and comprised of Argos Data Processing and Distribution Centers (DPDCs) in the following locations: Largo, Maryland, USA; Toulouse, France; and other locations as directed by the Argos OPSCOM; and

   vi) Argos DCS direct broadcast ground station network operated by CNES and NOAA.

b) In particular, the NPOESS /Argos DCS consists of a data acquisition chain comprising:

   i) DCPs operated by the users;

ii) The Argos instruments hosted on the NPOESS satellites;

iii) The part of the on-board NPOESS data handling system related to the command and control of the Argos instrument, the provision of on-board storage capacity for Argos data collected in orbit, and the transmission of such data to the ground;

iv) A command and control facility with a data acquisition receiving network;

v) A capability at NOAA for the extraction of the Argos data (including housekeeping data) from the NPOESS Stored Mission Data (SMD) stream and to make the data available to the Argos DPDCs in Largo, Maryland, USA, and Toulouse, France;

vi) A SMD stream, sent through the NPOESS SafetyNet receptors deployed on foreign sites, which is subject to agreements with the hosting governments;

vii) Direct broadcast of the NPOESS/Argos DCS data stream;

viii) Master Beacons, one of them being hosted in Fairbanks, Alaska, USA;

ix) Global real time data stream receiver network; and

x) Satellite two-way communication service to user DCP's.

1.2.3 ACRONYMS AND DEFINITIONS

- Argos Ground Segment Project Plan: This plan defines the ground segment operations including data sharing ground network of the global real time data stream sites, reference beacon network and master beacon operations.
- CNES: Centre National d'Etudes Spatiales
- DoD: Department of Defense
- DCP: Data Collection Platform (transmitter beacons with or without receivers)
- DCS: Data Collection and platform location System (Argos DCS stands for the overall system, POES/, SARAL/, NPOESS/ and METOP/Argos DCS stand for data acquisition chains contributing to the system)
- DMSP: Defense Meteorological Satellite Program

- DPDS: Data Processing and Distribution System
- DPDC: Data Processing and Distribution Center
- EUMETSAT: EUropean organization for the exploitation of METeorological SATellites
- ISRO: Indian Space Research Organization
- IT: Information Technology
- ITU: International Telecommunication Union
- MB: Master Beacons (common command and control facilities able to access directly Argos DCS instruments for Argos downlink management)
- NASA: National Aeronautics and Space Administration
- NOAA: National Oceanic and Atmospheric Administration
- NPOESS: National Polar-orbiting Operational Environmental Satellite System
- NPOESS Argos Project plan: Describes the activities for the integration and operation of the A-DCS instrument on NPOESS spacecraft
- OPSCOM: Operations Committee
- POES: Polar-orbiting Operational Environmental Satellites
- SMD: Stored Mission Data stream
- SUA: System Use Agreement
- TOR: Terms Of Reference

ARTICLE 2
RESPONSIBILITIES

2.1 NOAA RESPONSIBILITIES

NOAA shall use reasonable efforts to:

a) Set forth the specifications for the NPOESS system, taking into account both the integration of the Argos instrument onto the NPOESS satellites and the development and integration of the Argos data extraction software in the NPOESS Ground Segment;

b) Provide CNES with the relevant technical specifications, including satellite-instrument interface data and planning information, to enable CNES to duly meet its obligations as defined in this Implementing Arrangement and further specified in the NPOESS Argos Project Plan referred to in Article 3.3 below;

c) Develop and integrate the instrument control and command functions;

d) Arrange for the integration of the instruments onto the NPOESS satellites as specified in the NPOESS Argos Project Plan;

e) Provide the antennas and radio frequency equipment up to and from the instrument, meeting the performance requirements referred to in the NPOESS Argos Project Plan;

f) Provide support to CNES for the in-flight commissioning of the instruments;

g) Command the instrument and perform memory loads in accordance with requests made by CNES;

h) Ensure, within the resources available to the NPOESS Program, the continuous operation of the Argos instrument on board the operational NPOESS satellites as long as those satellites are being operated;

i) Extract the Argos data portion, including housekeeping data, from the NPOESS SMD stream received through the NPOESS Ground Segment and ensure its transmission to the Argos DPDCs in Largo, Maryland, USA, and in Toulouse, France, in a time frame compatible with specified operational requirements of the Argos DCS referred to in the NPOESS Argos Project Plan;

j) Make available to CNES the NPOESS satellite ephemeris and other data necessary for Argos data acquisition and processing in a time frame compatible with the specified operational requirements of the Argos DCS referred to in the NPOESS Argos Project Plan;

l) Inform CNES promptly of any event likely to have a technical, schedule or financial impact on the Argos DCS;

m) Provide written technical input for the creation and maintenance of the NPOESS Argos Project Plan;

n) Arrange for the launch and operation of NPOESS satellites;

o) Provide master beacon site, power/network connections, and installation support as required for the Fairbanks, Alaska Master Beacon;

p) Assist in the operation of the Fairbanks, Alaska Master Beacon on a not-to-interfere basis with normal operations, and in trouble shooting problems;

q) Provide firewall services to protect the Information Technology (IT) system from unauthorized access and only allow connectivity from identified IP addresses according to the detailed procedures specified in the Argos Ground Segment Project Plan;

r) Arrange for the registration of the satellite pursuant to the Convention on the Registration of Objects Launched into Outer Space, 14 January 1975; and

s) Arrange for the registration of the NPOESS satellites frequencies by the ITU.

2.2 CNES RESPONSIBILITIES

CNES shall use reasonable efforts to:

a) Develop and deliver to NOAA Argos flight instruments which meet the technical requirements and schedule identified in the NPOESS Argos Project Plan;

b) Deliver to NOAA Argos special test equipment which meets the technical requirements and schedule specified in the NPOESS Argos Project Plan;

c) Make available to NOAA, or its designated representative, at a date and location agreed in the NPOESS Argos Project Plan, an engineering development unit and simulators, as well as any hardware and software required to support the integration of the instruments in the NPOESS satellites as defined in the NPOESS Argos Project Plan;

d) Provide assistance and personnel, as necessary, to support NOAA in the integration, launch and operation of the Argos instruments on the NPOESS satellites, as defined in the NPOESS Argos Project Plan;

e) Provide, with NOAA support, post-launch testing of the Argos DCS following the launch of each satellite;

f) Deliver to NOAA, in accordance with the schedule the control and command procedures for implementation into the NPOESS Ground Segment and participate in their validation and acceptance tests as agreed to in the NPOESS Argos Project Plan;

g) Provide support to NOAA, as detailed in the NPOESS Argos Project Plan, for the interface validation and acceptance testing of the Argos data extraction and transfer Argos DPDS;

h) Inform NOAA regularly on the schedule status of the CNES elements of the Argos data acquisition chain and advise it promptly of any event likely to have a technical, schedule or financial impact on the NPOESS/Argos Program;

i) Operate the Argos DPDS referred to in Article 1.2.2, above, including the interface with the users of data from the Argos DPDS, subject to the guidance of the Argos OPSCOM;

j) Provide written technical input for the creation and maintenance of the NPOESS Argos Project Plan;

k) Provide, deliver, and install all Master Beacon equipment at the Fairbanks, Alaska site;

l) Provide testing, monitoring, maintenance, and operation of the Master Beacon;

m) Provide required information technology (IT) security services for the Master Beacon, including vulnerability patching, anti-virus updates, and host based monitoring;

n) Immediately contact Fairbanks operations personnel if the IT system is compromised;

o) Provide firewall services to protect the IT system from unauthorized access and only allow connectivity from identified IP addresses according to the detailed procedures specified in the Argos Ground Segment Project Plan; and

p) Ensure the registration of Argos DCS instrument frequencies with the ITU to manage frequency coordination issues with support of NOAA as required.

2.3 COMMON RESPONSIBILITIES

Satellite launches in the NPOESS series will not necessarily be delayed due to the availability of the Argos Data Collection System instruments.

Should a delay or an issue in the development and delivery of the Argos DCS instruments be deemed to adversely affect the NPOESS launch schedules, the Implementing Agencies shall consult each other as soon as possible and use reasonable efforts to minimize the negative effects on the Argos DCS.

ARTICLE 3
PROGRAM MANAGEMENT

3.1 COORDINATION

While their management structures shall remain independent, the Implementing Agencies agree to consult each other as necessary on any matter under their control which may affect the execution of this Implementing Arrangement.

3.2 ARGOS OPSCOM

3.2.1 The Argos Operation Committee (Argos OPSCOM) exists in order to:

- review the development and operation of the Argos DCS
- review and approve applications and formulate criteria for approval of applications received from prospective platform operators for the use of the Argos DCS in accordance with the Articles 3.3.2 and 4
- review and concur in the structure of the rates (payment) for the processing of data by the Argos Data Processing System
- resolve issues that may arise with respect to the implementation and operation of the Argos DCS

3.2.2 Agencies contributing to the Argos DCS space segment are referred to as Participating Agencies (presently NOAA, EUMETSAT and CNES are Participating Agencies) and designate a co-chairperson to the Argos OPSCOM. Agencies developing a future contribution to the Argos DCS space segment are referred to as observers (presently ISRO is an observer to the Argos OPSCOM).

3.2.3 Decisions shall be made by consensus of the co-chairpersons designated by the Participating Agencies. The decisions are recorded in the Argos OPSCOM Consolidated Report.

3.2.4 The Argos OPSCOM will develop and revise as necessary its objectives, membership, organization, meeting procedures and decision making process. These detailed provisions will be formalized in the Argos OPSCOM Terms of Reference.

3.3 PROGRAM MANAGEMENT DOCUMENTS

3.3.1 The Implementing Agencies shall develop an NPOESS Argos Project Plan, which shall constitute a work plan that may be revised from time to time by mutual agreement, and which shall provide, at a minimum:

a) The joint management structures and points of contact;

b) Appropriate documentation list related to accommodation of the Argos DCS instrument on the NPOESS program;

c) Detailed requirements and delivery schedule related to the provision of any equipment, data, software, services or facilities;

d) A list of deliverables and project milestones; and

e) The procedures for change requests or change proposals to the NPOESS Argos Project Plan.

3.3.2 The Implementing Agencies agree to require the users of the system to adhere to the Global System Use Policy, which is delineated in the Argos SUA and the Argos OPSCOM Consolidated Report and administered by the Argos OPSCOM. These technical program documents provide the guidance and procedures to review the implementation and supervise the operation of the global Argos DCS, and they are contained in the Argos OPSCOM Consolidated Report. The Argos OPSCOM will follow the TOR of the Argos OPSCOM in its administrative function.

3.3.3 Any program documents referenced in this Implementing Arrangement, including but not limited to those referenced in Articles 3.2, 3.3.1, 3.3.2 and 3.4.1, shall refer to, and be subject to, the terms of this Implementing Arrangement. In the event of a conflict between the provisions of a technical program document and this Implementing Arrangement, the terms of the Implementing Arrangement shall prevail.

3.4 NOAA PREPROCESSING FACILITY

3.4.1 NOAA shall operate a preprocessing facility according to the guidelines set forth in the Argos Ground Segment Project Plan. NOAA shall report back to the Argos OPSCOM on Argos preprocessing DCS activities.

3.4.2 The NOAA preprocessing facility will extract the Argos DCS portion of the NPOESS data stream (including housekeeping data) and make it available in a suitable form for transmission to CNES in a time frame compatible with agreed upon operational requirements for the Argos DCS.

3.5 ARGOS DATA PROCESSING SYSTEM

3.5.1 CNES shall be responsible for the Argos DPDS according to the principal guidelines and procedures described below. The Argos OPSCOM shall provide oversight for these activities and responsibilities and shall provide general policy and operational guidance as appropriate, in accordance with the objectives set forth in Article 4.

3.5.2 The Argos DPDS shall perform the functions that are necessary for the support of user services. These functions shall include the establishment of the refined ephemeris of the satellite, the identification and location of each platform, the conversion of telemetry data into a suitable form for dissemination as agreed between the user and CNES, and the return messaging service through the two-way communication capability.

3.5.3 To fulfill some of its responsibilities under this Implementing Arrangement relating to the Argos DPDS, CNES manages a processing center in the United States. CNES agrees to ensure appropriate opportunities for United States commercial entities to participate in the United States processing center. NOAA and CNES jointly shall review and approve plans for the DPDCs.

ARTICLE 4
SYSTEM USE AND DATA POLICY

4.1 SYSTEM USE

System use policy, as defined in Article 3.3.2 is delineated in the Argos SUA and is administered by the Argos OPSCOM.

4.1.1 Access to the Argos DCS will be allowed to prospective platform operators whose proposed uses follow the Global System Use Policy, maintained in the Argos OPSCOM Consolidated Report and the guidelines listed below.

4.1.2 Data collection and location must relate to the characteristics of the Earth and its natural phenomena by helping to better understand, evaluate, monitor, or protect its natural resources.

4.1.3 Data collection and location activities beyond the scope of Article 4.1.2 may be authorized by the Argos OPSCOM under the following conditions:

a) these activities are limited in duration, as described in the Global System Use Policy, and present potential to mitigate the risk of the loss of life, or are under the control of a government agency in support of homeland security, law enforcement, or humanitarian activities;

b) the total data handling capability allowed for these activities shall not exceed 5 per cent (5%) of the Argos DCS capacity, as defined in the Argos OPSCOM Consolidated Report;

c) the activities are under the general oversight of the Implementing Agencies; and

d) in the case of third country platform operators, the use is determined in advance to be of interest to France and/or the United States of America, and be acceptable to both Implementing Agencies.

4.2 DATA POLICY

4.2.1 NOAA and CNES shall have the same rights of processing, use and distribution of all data (stored and direct broadcast) received from the Argos DCS spacecraft. NOAA and CNES shall have the right to process and use all data received from the Argos DCS at no cost except those stipulated in Article 4.3 for processing services from the Argos DPDS.

4.2.2 NOAA and CNES shall seek to ensure that users permit the Participating Agencies, and their government agencies, the full, open and timely use of their data as agreed to in the Policies and Global System Use Policy, as maintained in the Argos OPSCOM consolidated Report and delineated in the Argos SUA.

4.2.3 In the event Argos DCS capacity limitations require that priority determinations be made in approvals for access, priority shall be given to those platforms providing environmental data of broad international interest, especially of an operational nature, and to those requiring the unique capability of the Argos DCS, such as platform location or polar coverage.

4.3 DATA PROCESSING COST PRINCIPLES

The Implementing Agencies acknowledge that:

a) Platform allocation, verification of the calibration data, system quality control, conversion of mission data into physical parameters, and computations for platform location involve expenses.

b) Platform operators are subject to costs for the performance of these functions. The rate (payment) for these costs shall be determined by CNES or its agents in conjunction with the platform operators and subject to approval by the Argos OPSCOM.

c) Rates (payments) associated with these functions shall be collected to offset the operating costs of the Argos DPDS. Rate (payment) receipts that exceed these costs shall be used for Argos DPDS improvements and/or to reduce rates (payments) to government environmental platform operators, as approved by the Argos OPSCOM.

d) CNES has negotiated with NOAA a preferential rate (payment) for data processing for United States Government users. Due to their significant investment in the system, the French and U.S. Governments are eligible for preferential rate (payment) offsets from Argos DPDS basic service user fees. The Implementing Agencies intend to take steps to update this preferential rate agreement annually, taking into account existing practices and the objectives described in Article 1.

ARTICLE 5
RELATIONSHIP TO OTHER AGREEMENTS

5.1 FRAMEWORK AGREEMENT

This Implementing Arrangement, concluded pursuant to Article 2 of the Framework Agreement, shall be subject to the Framework Agreement. In the event of a conflict between the provisions of this Implementing Arrangement and the Framework Agreement, the terms of the Framework Agreement shall prevail.

5.2 LEGACY AGREEMENT

The Memorandum of Understanding between the National Oceanic and Atmospheric Administration and the Centre National d'Etudes Spatiales for the Argos Data Collection and Platform Location System, (1986 MOU) as amended, shall continue in force to the extent necessary to maintain the agreement for the POES Argos DCS program. To the extent the terms of the 1986 MOU, as amended, conflict with this Implementing Arrangement, this Implementing Arrangement shall prevail and set forth new terms that apply to the POES Argos DCS program in order to ensure consistency with NPOESS satellites and ground systems.

5.3 OTHER AGREEMENTS

This Implementing Arrangement shall not prejudice existing agreements between the Implementing Agencies, or the ability of the Implementing Agencies to conclude other agreements or arrangements regarding matters outside the scope of this Implementing

Arrangement, as mutually agreed. This Implementing Arrangement shall be without prejudice to cooperation of either Party with other government entities or international organizations.

ARTICLE 6
SYSTEM CONFIGURATION MANAGEMENT

If NOAA deactivates a POES or a NPOESS satellite in orbit that carries an operable Argos Data Collection System instrument, and if the Argos instrument carried on board the replacement POES or NPOESS satellite placed in the same orbit for any reason fails to become or ceases to be operable, NOAA will consult with CNES and both Implementing Agencies will use their best efforts to reactivate the original POES or NPOESS and Argos instruments.

ARTICLE 7
AMENDMENTS

This Implementing Arrangement may be amended or extended through mutual written agreement by the Implementing Agencies.

ARTICLE 8
ENTRY INTO FORCE AND DURATION

8.1 This Implementing Arrangement shall enter into force upon signature.

8.2 This Implementing Arrangement shall remain in force until the last operational NPOESS spacecraft with an Argos instrument is decommissioned. This Implementing Arrangement will be reviewed on request of either Implementing Agency to determine whether it should remain in effect or be terminated or amended to meet changed conditions. Either Implementing Agency may terminate this Implementing Arrangement by providing at least six months written notice to the other Implementing Agency.

DONE at Paris, on the 8 day of November, 2008, in two originals, in the English and French languages, both texts being equally authentic.

FOR THE UNITED STATES NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION:

FOR THE CENTRE NATIONAL D'ETUDES SPATIALES:
Yannick d'ESCATHA