

FINAL IMPLEMENTATION AGREEMENT

BETWEEN

THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

OFFICE OF EARTH SCIENCE (OES)

AND

NATIONAL POLAR-ORBITING OPERATIONAL ENVIRONMENTAL SATELLITE
SYSTEM (NPOESS) INTEGRATED PROGRAM OFFICE

AND

THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)
NATIONAL ENVIRONMENTAL SATELLITE DATA INFORMATION SERVICE

FOR THE

NPOESS PREPARATORY PROJECT (NPP)

I. PURPOSE

The Office of Earth Science (OES) of the National Aeronautics and Space Administration (NASA), the National Oceanic And Atmospheric Administration's (NOAA) National Environmental Satellite Data and Information Service (NESDIS), and the National Polar orbiting Operational Environmental Satellite System (NPOESS) Integrated Program Office (IPO), hereby agree to enter into a partnership to jointly implement a mission called the NPOESS Preparatory **Project** (NPP) to accomplish the following objectives:

1. Demonstrate and validate:
 - a. A global imaging radiometer and a suite of two sounding instruments, associated algorithms, and data processing
 - b. An ozone mapping and profiling instrument, associated algorithms, and data processing
 - c. A NPP Command, Control and Communications segment (C3S), an **Interface** Data Processing Segment (IDPS), an Archive and Distribution Segment (ADS), and a Science Data Segment (SDS)

2. Provide continuity of the calibrated, validated and **geo-located** EOS Terra and Aqua systematic global imaging radiometry, sounding observations, and ozone mapping and profiling observations for NASA Earth Science

NPP will provide scientific measurements which meet a subset of the NASA Earth Science Enterprise science needs, as well as those of the **NPOESS** Program. It is planned to launch in 2006, with a mission duration on-orbit of at least 5 years. The instruments flown on this **mission** will also be flown and operated on the NPOESS.

This Final Implementation Agreement (FIA) identifies the respective partners' responsibilities to be used for the implementation phase of the mission, and supercedes the NPP Initial **Implementation** Agreement (IIA), dated November 21, 1999. This is in accord with the policy and procedures set forth in Appendix 1 of the "Memorandum of Agreement" Between the Department of Commerce, Department of Defense and the National Aeronautics and Space Administration for the National Polar-orbiting Operational Environmental Satellite System, dated May 26, 1995.

NOTE: "**NPP** Mission Data" in this document includes instrument raw data records, sensor corrected data records, and **environmental** data records with supporting ancillary data, telemetry, etc required to process the data.

Ia. AUTHORITY

The NPOESS IPO and **NOAA/NESDIS** are authorized to enter into this agreement pursuant to 15 USC § 313 and 49 USC § 44720, since it supports **NOAA's** mission to predict and forecast weather and climate. NASA is authorized to enter into this agreement pursuant to the sections 203 (c) (5) and (6) of the National Aeronautics and Space Act, 42 USC §2473 (c) (5) and (6).

II. RESPONSIBILITIES

NASA OES and IPO will jointly manage the project, and **NOAA/NESDIS** will manage the ADS. NASA OES, **NOAA/NESDIS** and NPOESS IPO assume the following division of responsibilities.

NPOESS IPO will:

1. Provide and manage the development of the Cross-track **Infrared** Sounder (**CrIS**), Visible-Infrared Imager Radiometer Suite (**VIIRS**) and the Ozone Mapping and **Profiler** Suite instruments, and deliver them to the NPP spacecraft contractor.
2. Provide and manage the development of **C3S** and **IDPS**.
3. Provide and manage the Missions Management Center (MMC) for **NPP** pre-launch, launch, early orbit, and operations phases of the mission.
4. **Provide the** resources and facilities to exercise command and control of **NPP** during launch, early orbit and on-orbit acceptance testing, in conjunction with NASA OES planning and management.

5. Exercise Satellite Control Authority (SCA) after NPP on-orbit acceptance, and for the remainder of the mission. SCA is the authority to direct, approve, perform and/or delegate all Satellite command and control activities to maintain the Satellite in a mission-capable operating configuration.
6. Plan satellite launch and on-orbit acceptance activities in cooperation with OES,
7. Provide and manage the development and operation of the ground assets needed to support mission operations, including data receiving systems, primary telemetry and command systems, network **services** for data and data products, and the **IDPS**. **IPO** will provide these assets and services for the **life** of the mission.
8. Provide for NPP mission data and data product's global, continuous production and distribution beginning at satellite acceptance.
9. Provide support to OES for NPP operational readiness testing, pre-launch, launch, on-orbit satellite acceptance, and the transitional engineering.
10. In conjunction with OES, jointly conduct operational readiness testing with all ground elements.
11. Support NPP instrument and system calibration and **validation** during hardware development, integration and test, pre-launch, launch, satellite acceptance, and transition phase in cooperation with NASA.
12. Provide prototype **software** (algorithms and support tools) to OES for integration into the NASA-built NPP **in-situ** ground system's Direct Broadcast terminal.
13. Provide technical representation for OES-managed NPP reviews and products.
14. Provide for NPP instrument **contractor** support NASA to PO.
15. In cooperation with NASA, provide command and control, telemetry, and mission data recovery **from** the **Svalbard** Ground Station to the US point of presence.

NASA's OES will:

1. Provide and manage overall mission systems engineering.
2. Provide and manage the development and procurement of the spacecraft bus, including the integration and test of the instruments onto the satellite, and a spacecraft simulator for use by IPO.
3. In conjunction with **IPO**, jointly conduct operational readiness testing with all **ground** elements.

4. Provide and manage the development and procurement of the Advanced Technology Microwave Sounder (ATMS). Support transition of ATMS follow-on production responsibility to the IPO system integration contractor.
5. Provide and manage the development of the SDS.
6. Provide and manage launch services.
7. Manage SCA planning and execution, in conjunction with IPO at the MMC, during pre-launch, launch and on-orbit acceptance testing until Satellite turnover.
8. Coordinate transition of the NPP mission operations to the IPO after on-orbit satellite acceptance is complete.
9. Provide emergency NPP anomaly resolution support as available, to the IPO after on-orbit acceptance and through mission life.
10. Provide scientific research to evaluate the quality of the IDPS-produced NPP EDRs for climate research, and provide updated algorithms to the NPOESS IPO for potential inclusion in the IDPS.
11. Provide scientific support for NPP instrument and system calibration and validation during hardware development, integration and test, pre-launch, launch, satellite acceptance, and transition phase, as necessary.
12. Conduct calibration and validation for NASA-provided instrument.
13. In cooperation with IPO, coordinate communications services and backup connectivity requirements needed to support NPP operations. Support IPO in obtaining backup command and telemetry capability via TDRSS and the White Sands Ground Station.
14. Provide technical representation for IPO-managed NPP reviews and products.

NOAA/NESDIS will:

1. Provide the NPP ADS for long-term archive and timely distribution of all NPP Mission Data.
2. Provide ADS access, interface, and data for the NPP SDS in accordance with ICDs to be negotiated between NASA OES and NOAA/NESDIS.
3. Coordinate with NASA and IPO on all scheduling, pre-launch development, testing and reviews of the ADS in the end-to-end mission.

Program Management:

OES and IPO will jointly assume program management responsibilities, and develop integrated performance milestones to be achieved for the implementation and operation

of the mission. Potential changes involving the NPP launch readiness date, costs, or system **performance** will be promptly communicated between the parties (e.g., Tri-Agency Steering Committee/NPOESS Executive Committee). Any proposed changes in instrument **performance** parameters that affect NPOESS operational or OES scientific data products requirements will be mutually agreed to by the parties or their designees. The NPP Project and the IPO will jointly report status at appropriate reviews.

All pre-launch, launch and on-orbit activities will be conducted from an **IPO-provided** MMC. The Satellite will transition **from** on-orbit acceptance testing to nominal Satellite operations approximately 90 days after Satellite launch. OES and the P O will mutually determine exactly when the Satellite transition occurs. At that time, SCA authority will be formally transferred **from** OES to the IPO.

OES and **IPO** will accept a voting member from the other party on the Fee Determination Board for the NPOESS and ATMS contracts through acceptance of the **NPP** Satellite, and remainder of the mission as necessary. With respect to the **NPP** Satellite, **OES** will accept a _____ in the milestone payment determination process.

OES and **IPO** will document and implement a single joint Configuration Control Board for all elements of the NPP mission pertaining to Level II requirements, element interfaces (Interface Requirements Documents), and NPP instrument specifications.

OES and **IPO** will maintain a shared Master Schedule, at the instrument and major **end-**item level, which supports the **launch** date in this document. Any changes in this delivery schedule of these items will be communicated to the parties or their representatives.

OES and IPO will consult promptly with each other on all issues involving interpretation or implementation of this Final Implementation Agreement. Any outstanding issues will first be referred to the Program Managers of the parties, then to the appropriate FIA signatories, or their designees.

OES, NOAA and **IPO** will share cost, schedule and mission justification **information** with all parties of the NPP Program, as necessary.

III. FUNDING

This program will be executed on a no exchange of funds basis. All activities pursuant to this FLA are subject to the availability of appropriated **funds**, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the **Anti-Deficiency Act**, 31 U.S.C. §1341. This **FIA** is not a **funding** document, and does not represent the obligation or transfer of **funds**.

Each party shall support the other in the appropriation process and shall reconsider this agreement should conditions merit.

IV. **PRINCIPAL POINTS OF CONTACT**

The principal points of contact with responsibility for implementing this FIA are listed below:

For NASA: Mr. Andrew Carson
NPP Program Executive
Office of Earth Science
National Aeronautics and Space Administration
Code YF
300 E Street SW
Washington, DC 20024
(202) 358-1702

For IPO: Peter **Wilczynski**
NPP Program Manager
Integrated Program Office
8455 **Colesville** Road, Suite 1450
Silver Spring, MD 20910
(301) 713-4786

For NOAA: Charles **Wooldridge**
NESDIS Chief of Staff
1335 East-West **Highway**
SSMC1, Room 8340
Silver Spring, MD 20910
(301) 713-3578

For Air Force: Major Deborah **Werling**
Weather Satellite Element Monitor
SAF/USAE
1060 Air Force Pentagon
Washington, DC 20330
(703) 588-7387

V. **AMENDMENT AND TERMINATION**

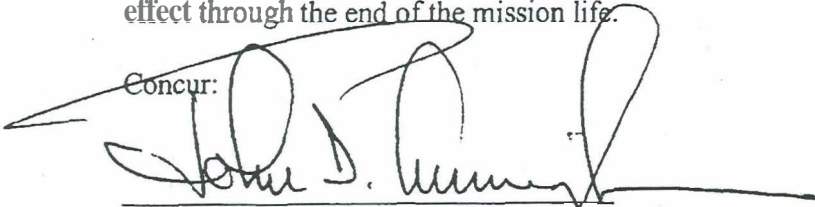
This FIA may be amended at any time upon the mutual consent of the parties. Amendments must be in writing, and signed by the authorized representatives of the parties.

This FIA will terminate automatically upon completion of the NPP. The parties may amend this FIA pursuant to the preceding paragraph to extend the termination date. A party may terminate its participation in this FIA at its sole discretion, subsequent to providing 120 days advance written notice to the other parties.

VI. EFFECTIVE DATE

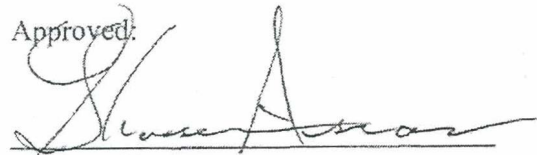
This FIA shall be effective upon the date of the last signature below, and shall remain in effect through the end of the mission life.

Concur:

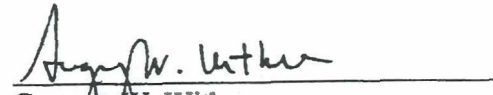


John D. Cunningham
John D. Cunningham
System Program Director
NPOESS Integrated Program Office
Date: 28 Jul 2004

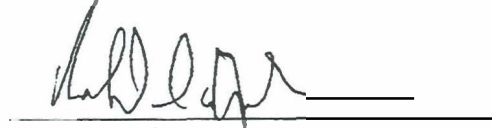
Approved:



Ghassem R. Asrar
Ghassem R. Asrar
Associate Administrator for
Earth Science,
National Aeronautics and
Space Administration
Date: 7/28/04



Gregory W. Withee
Gregory W. Withee
Assistant Administrator for
Satellite and Information Services
National Oceanic and
Atmospheric Administration
Date: 20 Aug 04



Robert S. Dickman
Robert S. Dickman
Deputy for Military Space
Office of the Under Secretary
of the Air Force
Date: 17 SEP 04

Acronyms

ADS	Archive and Distribution Segment
ATMS:	Advanced Technology Microwave Sounder
C3S:	Command Control and Communications Segment
CrIS:	Cross track Infrared Sounder instrument
EDR	Environmental Data Record
EOS:	Earth Observation System
ERBS:	Earth Radiation Budget Sensor instrument
FLA:	Final Implementation Agreement
IDPS:	Interface Data Processing Segment
IIA:	Initial Implementation Agreement
PO:	Integrated Program Office
LEO:	Launch and Early Orbit
MMC:	Mission Management Center
NASA:	National Aeronautics and Space Administration
NESDIS:	National Environmental Satellite, Data Information Service
NOAA:	National Oceanic and Atmospheric Administration
NPOESS:	National Polar-orbiting Operational Environmental Satellite System
NPP:	NPOESS Preparatory Project
OES:	Office of Earth Science
RDR:	Raw Data Record
SCA:	Satellite Control Authority
SDS:	Science Data Segment
SMD:	Stored Mission Data
VIIRS:	Visible-Infrared Imager Radiometer Suite instrument