

**Agreement Between**

**The National Oceanic and Atmospheric Administration**

**and**

**The National Aeronautics and Space Administration**

**for Cooperation Relating to**

**the Clouds and Earth's Radiant Energy System (CERES)**

**Flight Model (FM)-6 Instrument**

**and the Radiation Budget Instrument (RBI)**



**U.S. Department of Commerce (DOC)**  
**National Oceanic and Atmospheric Administration (NOAA)**  
**National Environmental Satellite, Data, and Information Service (NESDIS)**



**National Aeronautics and Space Administration (NASA)**

## ARTICLE 1. AUTHORITY AND PARTIES

The National Aeronautics and Space Administration (NASA), located at 300 E Street SW, Washington, DC 20546, enters into this Interagency Agreement (IAA) in accordance with the National Aeronautics and Space Act (51 U.S.C. § 20113 (e)). The National Oceanic and Atmospheric Administration (NOAA), National Environmental Satellite, Data, and Information Service (NESDIS), located at 1335 East-West Highway, Silver Spring, MD 20910, enters into this IAA in accordance with its programmatic authorities, 15 U.S.C. § 313 and 49 U.S.C. § 44720. NASA or NOAA may hereinafter be individually referred to as a "Party" and collectively referred to as the "Parties."

## ARTICLE 2. PURPOSE

The scope of this IAA encapsulates and defines the roles and responsibilities for NASA and NOAA NESDIS associated with the science data processing of Clouds and Earth's Radiant Energy System (CERES) Flight Model (FM)-6 data products from the Joint Polar Satellite System (JPSS)-1 satellite, as well as the development and build of the CERES successor instrument, the Radiation Budget Instrument (RBI), and its accommodation on the JPSS-2 satellite, along with operation and data generation. All content of this IAA is subject to the approval of annual budget appropriations.

The NASA implementing organizations are as follows: the Science Mission Directorate (SMD) Earth Science Division (ESD); and its agents - the NASA Goddard Space Flight Center (GSFC) Earth Science Data and Information System (ESDIS), and the NASA Langley Research Center (LaRC) Science Directorate; the NASA Joint Agency Satellite Division (JASD), and the NASA Joint Polar Satellite System (JPSS) Program. The NOAA implementing organizations are as follows: the NOAA NESDIS, the NOAA JPSS Program Office, the NOAA Office of Satellite and Product Operations (OSPO), the NOAA Center for Satellite Applications and Research (STAR); the NOAA National Climatic Data Center (NCDC) and the National Weather Service (NWS).

## ARTICLE 3. RESPONSIBILITIES

Consistent with the JPSS Level-1 Requirements Document (L1RD), NASA will provide the RBI in accordance with the NOAA JPSS-2 mission schedule, and NOAA will accommodate the instrument on the satellite. NASA will be responsible for the implementation and development of the RBI to the baselined interface requirements (e.g., mass, power, thermal, data volume, instrument fields of view) as specified in the RBI Interface Control Document (ICD); RBI instrument activity scheduling, long term monitoring and calibration/validation; and for the generation, archive and distribution of higher-level products once the instrument is in routine operations. NOAA shall process and deliver Raw Data Records (RDR – Level 0 Data) for the JPSS-1 and JPSS-2 missions as it does for the Suomi-National Polar-orbiting Partnership mission. NOAA will be responsible for integrating, accommodating, and operating the

instruments on the JPSS-2 mission, and for providing the appropriate instrument and spacecraft mission data to NASA for its product generation activities.

The respective organizational responsibilities relating to CERES FM-6 and RBI are similar to those for the CERES FM-5 instrument on the Suomi-National Polar-Orbiting Partnership mission and are as follows:

### **CERES FM-6 on JPSS-1**

The NASA SMD ESD will use reasonable efforts to:

- Produce, archive, and distribute CERES FM-6 data products;
- Distribute CERES FM-6, VIIRS and any other required ancillary data from the Science Data Segment (SDS) Point of Presence (PoP) interface in the NOAA Satellite Operations Facility (NSOF) to the CERES data processing facility at the NASA LaRC; and
- Utilize the CERES FM-6 Instrument Team at NASA LaRC to:
  - Operate the CERES FM-6 instrument, including the sending of CERES commands to the JPSS-1 Mission Operations team at NSOF
  - Perform the CERES FM-6 data product calibration and validation.

The NOAA NESDIS will use reasonable efforts to:

- Integrate, test, launch, checkout and conduct in-orbit operations for CERES FM-6;
- Provide for Command, Control, and Communication and Sustainment services to the NASA LaRC interface for CERES FM-6 operations;
- Deliver CERES RDR's, selected VIIRS data, and other ancillary data required for existing NASA data processing to the SDS interface and
- Work with NASA LaRC, NOAA NCDC and the NWS to identify opportunities for NASA LaRC support to and collaborate with NWS and NCDC on the use and application of CERES data to further mutual goals.

### **RBI on JPSS-2**

The NASA SMD ESD will use reasonable efforts to:

- Provide the RBI instrument for integration on the JPSS-2 mission consistent with the terms in Article 4;
- Provide post-delivery support for the RBI instrument including integration and test, launch and early orbit checkout, and in-orbit operations;
- Fund risk mitigations associated with the potential de-manifest of RBI to protect JPSS-2 schedules, as an example, instrument mass simulators as necessary;
- Fund any modifications to interfaces as a result of RBI accommodation exceeding the allowances identified in the JPSS-2 RBI Interface Control Document;
- Fund any increase to nominal spacecraft integration and test efforts to address RBI issues and anomalies if required to satisfy RBI mission success;
- Provide RBI instrument management interface to the JPSS-2 Project to facilitate overall JPSS mission development, including RBI-specific support in the areas of systems engineering, safety and mission assurance and other aspects of execution necessary for

- programmatic and technical integration;
- NASA and NOAA will coordinate and come to an agreement on the appropriate JPSS representation for the RBI milestone reviews in order to assure understanding of the RBI status. Review presentation materials will be provided to JPSS and may be further distributed by NOAA to support service contractors or consultants, consistent with Federal and Agency policy and guidance.
  - Keep the JPSS Director apprised of RBI status with the normal monthly project review materials, and make available to JPSS all current management information and documentation associated with schedules, risks, issues, technical performance measures, anomalies / problem reports, including performance reviews, earned value management reports, risk management reports and risk registry, providing monthly status reports to ensure the JPSS program understands RBI status through normal project / program management processes.
  - Conduct a thorough development and verification program to assure the RBI meets all accommodations requirements as designed and as built with integrity demonstrated so that it does not pose any significant threat to the JPSS-2 mission whether flown fully functional, impaired or inert.
  - Notify the JPSS Director, consistent with NASA defined protocols of any event, anomaly, failure, or finding that would normally trigger special reporting to ESD or Performing Center Senior Management.
  - Distribute RBI, VIIRS and any other required ancillary data from the SDS PoP in the NSOF to the CERES data processing facility at the NASA LaRC;
  - Produce, archive, and distribute RBI data products;
  - Provide the RBI Instrument operations team, located at NASA LaRC;
  - Operate the RBI instrument, including the sending of RBI commands and loads to the JPSS-2 Mission Operations team at NSOF; and
  - Perform the RBI instrument and data product calibration and validation.

The NOAA NESDIS will use reasonable efforts to:

- Accommodate RBI on JPSS-2;
- Provide detailed technical and programmatic interface requirements;
- Provide status of JPSS-2 acquisition and development efforts;
- Provide Command, Control, and Communication and Sustainment services to NASA LaRC interface for RBI operations;
- Make RBI RDR's, selected VIIRS or other instrument science data, and other ancillary data required for NASA data processing available at the JPSS to SDS interface; and
- Work with NASA LaRC, NCDC and NWS to identify opportunities for NASA LaRC support to and collaboration with NWS and NCDC on the use and application of CERES data to further mutual goals.

#### ARTICLE 4. SCHEDULE AND MILESTONES

NASA will develop and deliver the RBI on a timeline that is tied to JPSS-2 mission milestones as documented in the JPSS Program Integrated Master Schedule (IMS), however it evolves over

time, and in a manner that does not interfere with, or add consequential risk to the overall JPSS-2 mission development and timely launch. If problems occur in the RBI development that are projected to impact the planned RBI delivery schedule to the JPSS-2 spacecraft, NASA will notify NOAA within 30 days of their awareness of the schedule change. RBI considerations shall not drive any JPSS planning or baselined schedules other than to allow for nominal integration to the spacecraft if RBI is delivered prior to the last weather instrument delivered plus nominal integration time. In order to positively ensure that RBI will not impact the JPSS-2 schedule, it must be ready for integration with the spacecraft before the last JPSS-2 instrument is delivered for integration. The JPSS-2 mission, and the associated schedule, could also evolve to be a gap-filler mission to mitigate a catastrophic loss of space-based weather prediction capability, in which case RBI might not be accommodated on JPSS-2. If the RBI cannot meet the JPSS-2 schedule NOAA may choose to fly a suitable mass model, or fly the RBI in an inert state or ‘as is.’

In the event NASA misses its milestones for development and delivery of RBI to the JPSS-2 spacecraft, or the JPSS-2 mission is reprioritized, the NOAA Administrator shall be the sole decision authority for accommodation of RBI on JPSS-2. The planned major milestones for the activities defined in the "Responsibilities" clause are to be defined in the JPSS Program configuration controlled IMS. The dates below for the deliveries and Life Cycle Reviews are drawn from the November 2013 release of the IMS.

RBI procurement and development schedule:

Request for proposal (RFP) released	June 2013
Proposals received	July 26, 2013
Planned contract award	April 2014
RBI Delivery to JPSS-2 spacecraft	no later than (NLT) April 2019

Following contract award, intermediate development milestones (including System Requirements Review, Preliminary Design Review, Critical Design Review, Pre-Environmental Review and Pre-Ship Review) for the RBI will be defined.

JPSS Flight Project schedule milestones:

JPSS-2 Preliminary Design Review (PDR)	March 2016
JPSS-2 Critical Design Review (CDR)	March 2017
JPSS-2 Integration Readiness Review (IRR)	November 2018

Following contract award for the JPSS-2 spacecraft, the milestones above will be confirmed and additional integration and test milestones will be defined. The agreed to integration and test milestones will serve as trigger points to comprehensively review RBI and JPSS-2 status, and on which to recommend reconsideration of the decision to accommodate RBI on JPSS-2 should changes to either the RBI instrument or the JPSS-2 schedule cause RBI to be predicted to be on the critical path. If any of the trigger criteria or milestones, developed after the RBI and JPSS-2 spacecraft contracts are awarded, is breached, the JPSS Director will call for an assessment to determine whether to demanifest RBI from JPSS-2. NASA ESD and the RBI Project shall support any assessment of meaningful threat to the JPSS-2 mission and provide a recommended course of action. Assessments will be made by JPSS, evaluating the likelihood and

consequences of the risk, utilizing Flight, and Program JPSS risk management criteria and processes, quantify the threat, and will then report up through the NESDIS DAAS and AA, a recommendation to the NOAA Administrator.

Normal management decision-making processes will be utilized where possible to vet the assessment and recommendation to the NOAA Administrator. NASA ESD and the RBI Project will be represented in these processes, and if consensus not reached, dissenting opinions will be carried forward through the boards to the decision authority. Once RBI is integrated to the JPSS-2 spacecraft, threats to the JPSS mission will likely require resolution on an urgent basis. If so, special sessions will be called / and boards combined where possible, to ensure rapid decision-making. Once launch preparations have begun, the decision-making will follow launch campaign decision-making processes.

#### ARTICLE 5. FINANCIAL OBLIGATIONS

This IAA does not envision any exchange of funds between the Parties. Each Agency will fund its own participation as described herein. Separate and specific funding agreements/documents shall be established for the transfer of funds for any reimbursable activities.

#### ARTICLE 6. PRIORITY OF USE

Any schedule or milestone in this IAA is estimated based upon the Parties' current understanding of the projected availability of its respective goods, services, facilities, or equipment. In the event that either Party's projected availability changes, NASA or NOAA, respectively, shall be given reasonable notice of that change, so that the schedule and milestones may be adjusted accordingly. The Parties agree that NASA's and NOAA's use of its own goods, services, facilities, or equipment shall have priority over the use planned in this IAA.

#### ARTICLE 7. LIABILITY AND RISK OF LOSS

The Code of Federal Regulations (14 C.F.R. § 1266.104) establishes a cross-waiver of liability between the parties to agreements for science or space exploration activities unrelated to the International Space Station, which involve a launch, and requires that such cross-waiver be flowed down to the parties' related entities. In furtherance of this requirement, the Parties agree to ensure that their respective applicable Related Entities are subject to the cross-waiver as set forth in 14 C.F.R. § 1266.104.

#### ARTICLE 8. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

NASA and NOAA agree that the information and data exchanged in furtherance of the activities under this IAA will be exchanged without use and disclosure restrictions unless required by national security regulations (e.g., classified information) or as otherwise provided in this IAA or agreed to by NASA and NOAA for specifically identified information or data (e.g., information or data specifically marked with a restrictive notice).

**ARTICLE 9. INTELLECTUAL PROPERTY RIGHTS - INVENTION AND PATENT RIGHTS**

Unless otherwise agreed upon by NASA and NOAA, custody and administration of inventions made (conceived or first actually reduced to practice) under this IAA will remain with the respective inventing Party. In the event an invention is made jointly by employees of the Parties (including by employees of a Party's contractors or subcontractors for which the U.S. Government has ownership), the Parties will consult and agree as to future actions toward establishment of patent protection for the invention.

**ARTICLE 10. RELEASE OF GENERAL INFORMATION TO THE PUBLIC AND MEDIA**

NASA or NOAA may, consistent with Federal law and this Agreement, release general information regarding its own participation in this IAA as desired. Insofar as participation of the other Party in this IAA is included in a public release, NASA and NOAA will seek to consult with each other prior to any such release, consistent with the Parties' respective policies.

**ARTICLE 11. TERM OF AGREEMENT**

This IAA becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect for 5 years from the effective date.

**ARTICLE 12. RIGHT TO TERMINATE**

Either Party may unilaterally terminate this Agreement by providing 180 calendar days written notice to the other Party. In the event of such termination, the parties will agree to the terms of the termination, including costs attributable to each party and the disposition of awarded and pending actions. (See the Department of the Treasury's, Intragovernmental Business Rules, section IV.A. "Intragovernmental Business Rules", Treasury Financial Manual, Vol. 1, Bulletin 2011-04 (November 8, 2010), or superseding guidance.

**ARTICLE 13. CONTINUING OBLIGATIONS**

The rights and obligations of the Parties that, by their nature, would continue beyond the expiration or termination of this Agreement, e.g., "Liability and Risk of Loss" and "Intellectual Property Rights" and related clauses and "Financial Obligations" shall survive such expiration or termination of this Agreement.

#### ARTICLE 14. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Agreement.

Management Points of Contact:

National Aeronautics  
and Space Administration  
Headquarters

Steven Clarke  
Director, Joint Agency Satellite Division  
Mail Stop: HQ:3N19  
300 E Street SW  
Washington, DC 20546  
Phone: 202-358-0379  
[steven.w.clarke@nasa.gov](mailto:steven.w.clarke@nasa.gov)

National Oceanic  
and Atmospheric Administration

Harry Cikanek  
Director, Joint Polar Satellite Systems  
10210 Greenbelt Road  
Suite 8003/8th Floor  
Lanham, MD 20706  
Phone: 301-713-4782  
[Harry.Cikanek@noaa.gov](mailto:Harry.Cikanek@noaa.gov)

Michael Freilich  
Director, Earth Science Division  
Mail Stop: HQ:3N19  
300 E Street SW  
Washington, DC 20546  
Phone: 202-358-3708  
[mhf@nasa.gov](mailto:mhf@nasa.gov)

#### ARTICLE 15. DISPUTE RESOLUTION

Should disagreements arise on the interpretation of the provisions of this agreement or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. Specifically, disputes associated with the conditions of this Agreement shall be addressed first by NASA and NOAA Program/Project management and then by the NASA SMD and NOAA NESDIS management.

If agreement is not reached within 30 days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution. If a dispute related to funding remains unresolved for more than 30 calendar days after the parties have engaged in an escalation of the dispute, the dispute will be resolved in accordance with instructions provided in the Treasury's Financial Manual, Volume 1, Part 2, Chapter 4700, Appendix 10, or superseding guidance available at <http://www.fms.treas.gov/tfm/index.html>.

ARTICLE 16. INVESTIGATIONS OF MISHAPS AND CLOSE CALLS

In the case of a close call, mishap or mission failure, the Parties agree to provide assistance to each other in the conduct of any investigation. For all NASA mishaps or close calls, Partner agrees to comply with NPR 8621.1, "NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping".

ARTICLE 17. MODIFICATIONS

This Agreement shall be reviewed biannually to determine the need for its continuation, modification, or termination. Any modification to this IAA shall be executed, in writing, and signed by an authorized representative of NASA and NOAA.

ARTICLE 18. APPLICABLE LAW

U.S. Federal law governs this IAA for all purposes, including, but not limited to, determining the validity of the IAA, the meaning of its provisions, and the rights, obligations and remedies of the Parties.

ARTICLE 19. SIGNATORY AUTHORITY

Approved and Authorized on Behalf of Each Party by:

National Aeronautics And Space  
Administration  
Science Mission Directorate

National Oceanic And Atmospheric  
Administration  
National Environmental Satellite, Data, And  
Information Service

BY: \_\_\_\_\_  
John M. Grunsfeld  
Associate Administrator,  
Science Mission Directorate

BY: \_\_\_\_\_  
Mark S. Paese  
Acting Assistant Administrator  
for Satellite and Information Services

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_