NOAA/NASA Joint Polar Satellite System

Management Control Plan

Version 3.0
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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)

Approved by:

NOAA, Deputy Under Secretary for Operations	**Date** 11/15/16
Delegated to the SMD AA per the Delegation of Authority Memo dated February 18, 2016	
NASA, Associate Administrator	**Date**
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Change History Log
NOAA/NASA JPSS Management Control Plan

This document and subsequent versions of this document are maintained under NOAA JPSS Office (NJO) configuration control. Proposed changes to this document are presented for review and approval to the NOAA JPSS Program Control Board. Subsequently, concurrence is sought from the NESDIS AA, GSFC Director, the SMD AA, and the NOAA Observing Systems Council before it is submitted to the NOAA Deputy Under Secretary for Operations.

VERSION	DATE	PAGES AFFECTED	DESCRIPTION
1.0	January 2012	n/a	Final
2.0	January 2013	No CCR, updates reflect change of the program leading up and through KDP I	Update
3.0	October 2016	Per CCR NJO-2016-016, Rev A, updates capture the Polar Follow On extension of the JPSS Program, the planned transition of the ground project from NASA to NOAA, and the NESDIS reorganization of 2014	Update

The document version number identifies whether the document is a working copy, final, revision, or update, defined as follows:

- **Working copy or Draft:** a document not yet finalized or ready for distribution; sometimes called a draft. Use 0.1A, 0.1B, etc. for unpublished documents.
- **Preliminary:** a document which contains accurate, reviewed information but which is not yet complete or could change though is usable in its current state. Identified as Version 1.0 Preliminary.
- **Final:** the first definitive edition of the document. The final is always identified as Version 1.0.
- **Revision:** an edition with minor changes from the previous edition, defined as changes affecting less than one-third of the pages in the document. The version numbers for revisions 1.1 through 1.9, 2.1 through 2.9, and so forth. After nine revisions, any other changes to the document are considered an update. A revision in draft, i.e. before being re-baselined, should be numbered as 1.1A, 1.1B, etc.
- **Update:** an edition with major changes from the previous edition, defined as changes affecting more than one-third of the pages in the document. The version number for an update is always a whole number (Version 2.0, 3.0, 4.0, and so forth).

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1.0 PLAN OVERVIEW

1.1 PURPOSE AND INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA), a bureau of the Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) have more than 40 years of successful partnership developing the United States' operational civil environmental satellite systems. This plan documents the continuation of that partnership for the success of the Joint Polar Satellite System (JPSS) to which NOAA and NASA are mutually dedicated for the successful planning, implementation and management. NOAA has partnered with NASA to implement the JPSS Program, using NASA's space acquisition expertise and acquisition authority. JPSS is being implemented by an integrated NOAA-NASA team. NASA is the acquisition agent for the flight systems (e.g., satellites, instruments and launch vehicles) and components of the ground segment (e.g., space/ground communications; ground network; tracking, telemetry, and control system; data processing system; and field terminal support) and leads program systems engineering, program safety, mission assurance, and end-to-end system verification. NOAA is the acquisition agent for components of the ground segment (e.g., data exploitation; product distribution and access; data archive and dissemination; facility upgrades). There is a framework for the transition of the ground project from NASA to NOAA. Post transition of the NASA components of the ground segment, NOAA will have acquisition and sustainment responsibility for all components of the ground segment operations, science, and infrastructure. NOAA has the responsibility and authority for the development and operations of the total JPSS. This includes defining requirements, integrating user systems, integrating partner contributions, integrating NASA-developed products in the NOAA architecture, developing the science necessary to deliver measurement products, storing, delivering and archiving the satellite data, operating the space and ground segments, and representing the system to all entities internal and external to the government including international partners.

The overall efforts of NOAA and NASA will be referred to herein as the "JPSS Program" and the system as "JPSS." The JPSS Program is led by a single executive, the NOAA JPSS Director, who is responsible for all planning and execution of JPSS. NOAA-implemented efforts for JPSS will be led by the NOAA JPSS Technical Director and implemented by staff in the NOAA JPSS Office (NJO) and NOAA NESDIS line organizations. The NASA-managed development effort, referred to herein as the "NASA JPSS Program," will be led by the NASA Joint Agency Satellite Division (JASD) Director and will be implemented by the NASA JPSS Program Manager and staff in the NASA JPSS Program Office.

NASA has delegated primary implementation of its JPSS responsibility to Goddard Space Flight Center, which serves as the acquisition and systems engineering and integration center providing its people, procedures, experience, facilities, and institutional checks and balances to assure JPSS Program success. NOAA funds all JPSS activities and provides requirements and full reimbursement to NASA for executing their role.

This plan serves to document the roles and responsibilities of each agency and the NOAA / NASA interface for JPSS management control. In meeting this purpose, this Management Control Plan (hereinafter referred to as "this document") describes the NOAA and NASA governance structure, program authorities, working relationship and management commitments in the development, implementation, and operation of the JPSS. This document is an agreement among the NOAA Deputy Under Secretary for Operations (DUS/O), NASA Associate Administrator (NASA AA), NASA JPSS Program Manager, NOAA JPSS Director, NASA Goddard Space Flight Center (GSFC) Center Director, NOAA Assistant Administrator for Satellite and Information Services (NESDIS AA), NASA Associate Administrator for the Science Mission Directorate (SMD AA), and the Director of the NASA Joint Agency Satellite Division (JASD).

The JPSS is the successor to the Polar-orbiting Operational Environmental Satellite (POES) Program. The JPSS consists of a series of independent missions, organized as a program under a common management and requirements structure. These missions will typically manifest operational instruments that may have flown on previous spacecraft, or may fly on multiple JPSS spacecraft.

The JPSS Program was established in February 2010, when the Executive Office of the President provided direction for the restructure of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) Program. The administrative direction required the NPOESS Program to be divided into two separate programs with the Department of Defense (DoD) taking responsibility for the early morning orbit satellites[1] and NOAA taking responsibility for the afternoon orbit satellites now referred to as JPSS. NOAA, with NASA as its acquisition agent, is developing operational capabilities for the JPSS as well as a ground system.

The JPSS will be developed and implemented in accordance with NASA best practices and standards, including NASA Procedural Requirement (NPR) 7120.5. As such, the initial signed version of this Management Control Plan (MCP) represented the initial baseline of this document prior to the Program Systems Requirements Review (P/SRR). Version 2.0 of the MCP reflected the management of the program leading up to and through Key Decision Point I (KDP I). This version (3.0) addresses the addition of the Polar Follow-On (PFO) extension to the JPSS Program, adding the JPSS-3 and JPSS-4 missions to the program, as well as the *Framework for the Transfer of Roles, Responsibility, Accountability, and Authority (RRAA) of the JPSS Ground Project from NASA to NOAA.* It will be reviewed and updated prior to subsequent program and project KDPs during the program life cycle or as warranted. Additional updates may be warranted by changes to the overarching Interagency Agreement (IAA) between NASA and NOAA for the JPSS Program. Any conflict between the provisions of the current versions of the IAA or the Level 1 Requirements Document (L1RD), and this document will be resolved by the NESDIS AA, GSFC

[1] DoD's successor program was known as the Defense Weather Satellite System, but the FY2012 Department of Defense Appropriations Act and the National Defense Authorization Act directed the termination of the program.

CD, and SMD AA by consulting the letter and intent of those documents. In the event these officials are unable to resolve the conflict, the issue will be elevated to the NOAA DUS/O and the NASA AA for resolution. The NOAA DUS/O has final decision authority.

The contents of the JPSS MCP satisfy the 'Policy on Commerce Acquisition Project Management,' dated November 6, 2012, which requires major systems to institute a formal requirements process, institute formal program management discipline, and ensure proper DOC oversight and insight of these programs. The MCP outlines the specific implementation of the 'Policy on Commerce Acquisition Project Management', as it applies to JPSS.

Program nomenclature is to refer to all agency headquarters activities as "Level 1." All GSFC-hosted NASA JPSS program activities and NOAA JPSS program level activities will be referred to as "Level 2." All project level activities will be referred to as "Level 3."

This document refers to a NASA JPSS Program Plan and a NOAA JPSS Implementation Plan. The NASA JPSS Program Plan is developed and maintained in accordance with NASA and GSFC standards for program plans and is the top level document defining how the NASA JPSS Program is organized and operates. It describes the Level 2 function that supports this Level 1 Plan. In parallel, the NOAA JPSS Implementation Plan is developed in accordance with NOAA standards and incorporates NASA standards as appropriate and is the top level document defining how the NOAA JPSS Office is organized and operates to fulfill its functions and executes the NOAA-implemented aspects of JPSS. Both the NASA JPSS Program Plan and the NOAA JPSS Implementation Plan refer to each other and are linked to provide definition of a mutually effective and efficient approach to managing the JPSS across NOAA and NASA.

The NJO Program Control Board (PCB) approves changes proposed to the MCP. This includes allowance to exercise its rights to make minor changes that do not affect the basic management construct (roles and responsibilities, program authority, and governance structure) of the JPSS program, subject to NOAA JPSS Director approval. The MCP is under NJO Configuration Management (CM) control per the NJO Configuration Management Plan.

1.2 GOALS AND OBJECTIVES

The JPSS implements NOAA's requirements to provide global environmental data from low Earth-orbiting satellites in support of NOAA's mission to understand and predict changes in weather, climate, oceans and coasts that support the Nation's economy, and protect lives and property. The overarching System objectives are to sustain continuity of, and enhance NOAA's Earth observation in support of:

- Weather situational awareness and forecasting;
- Environmental monitoring; and
- Climate monitoring.

The JPSS will also fulfill NOAA's obligation under the Joint Transition Activities (JTA) Agreement, an agreement between NOAA and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) to collect and exchange environmental data from the polar orbit to users in support of operational meteorological and environmental forecasting and global climate monitoring, and the Joint Polar System (JPS) Agreement. The JTA and JPS Agreement continues the long-standing cooperation between NOAA and EUMETSAT.

1.3 PROGRAM ARCHITECTURE

The JPSS succeeds NOAA's POES satellites and ground systems by leveraging investments made in NOAA POES and NASA's Earth Observing System (EOS) to maintain continuity of global, operational, space-based observations. The JPSS delivers an operational polar-orbiting satellite system that exceeds NOAA POES capabilities in terms of quality, volume, accuracy and timeliness of environmental data products and services. The JPSS minimizes gaps with existing POES and NASA's EOS capabilities of similar environmental data.

The JPSS system consists of satellites in the 1330 Local Time of the Ascending Node (LTAN) polar orbit with the DoD planning to maintain continuity in the 1730 LTAN orbit. The overall JPSS system architecture is described in detail in the L1RD.

The ground and flight elements of the JPSS Program will be integrated into individual missions that will be managed by NASA on behalf of NOAA through development and commissioning, and the subsequent handover to NOAA for operations. The current operating mission is Suomi National Polar-orbiting Partnership (S-NPP), and the planned missions are JPSS-1, JPSS-2, JPSS-3, and JPSS-4. The formal projects for the JPSS program, for which external NASA commitments and milestones to NOAA will be established, will be the JPSS-1, JPSS-2, JPSS-3, and JPSS-4 missions. A cost commitment will be made at the program level by NOAA, as well as by NASA for the flight elements of each mission, since the operational ground system is a multi-mission system, completing re-development before JPSS-1 and update for JPSS-2, JPSS-3, and JPSS-4 spacecraft differences. Each project will have formal milestone reviews and key decision points in accordance with NPR 7120.5 as documented in the JPSS Review Plan. Each project will consist of spacecraft, instruments, and launch services, and will have a defined set of capabilities to meet a subset of the requirements identified in the L1RD. These flight elements will be managed by the NASA JPSS Flight Project Office. NASA JPSS Ground Project is responsible for ground system development, sustainment, and maintenance prior to transition of RRAA for Ground Project from NASA to NOAA. NOAA will manage maintenance and sustainment following transition.

The JPSS Program architecture was changed per direction in an April 12, 2013 Decision Memo from Secretary Blank. These changes went into effect in FY2014, and during FY 2013, JPSS was responsible for facilitating the transfer of the program management and funding for the Free Flyer-1 mission and Advanced Data Collection System (A-DCS)-2 instrument to the Cooperative Data and Rescue Services (CDARS) program within the NESDIS Office of Projects, Planning & Analysis (OPPA). In addition, JPSS was responsible for transferring the responsibility for Total

Solar Irradiance Sensor-2 (TSIS-2), Ozone Mapping and Profiler Suite Limb Profiler (OMPS-L2), and Radiation Budget Instrument (RBI) instruments to NASA. JPSS remains responsible for providing accommodations for the OMPS-L2 and RBI instruments as part of the JPSS-2 mission. In FY2013, JPSS was also responsible for closing out all activity on the Free Flyer-2 mission and the SARSAT-2 instrument. The NOAA JPSS Director's letter dated November 3, 2014 provided the Polar Follow-On (PFO) extension to the JPSS Program, comprised of the JPSS-3 and JPSS-4 missions. JPSS-3 and JPSS-4 will accommodate the OMPS-L and RBI instruments as required and documented in Inter Agency Agreements (IAA).

2.0 ORGANIZATIONAL ROLES AND RESPONSIBILITIES

2.1 DEPARTMENT OF COMMERCE

DOC provides policy, oversight and guidance to NOAA for successful acquisition and operation of the JPSS. DOC provides approval for Department of Commerce Milestone decisions and is the approval authority for KDP-I. Nothing in this MCP should be construed to limit the inherent responsibility of the Department to conduct effective oversight of the JPSS Program.

The DOC, through the Chief Financial Officer/Assistant Secretary for Administration (CFO/ASA), is the DOC acquisition executive, and is responsible for overall DOC budget formulation and execution. The DOC provides consolidated oversight, review and input on JPSS program plans, including the MCP, Cost Estimates, and Acquisition Strategy. DOC also provides review and approval of budget submissions to Office of Management and Budget (OMB) and Congress and the execution of that budget.

2.1.1 National Oceanic and Atmospheric Administration

The NOAA is responsible for managing the Nation's operational environmental satellite enterprise, which consists of all NOAA space-based observation platforms, ground systems, infrastructure, capabilities, and data partnerships.

The NOAA, through the DUS/O, is the final authority for the NOAA satellite enterprise, including JPSS, and cross-NOAA line office institutional readiness and interface control. The DUS/O has the responsibility and authority to approve the milestones, budget submissions, Level 1 Requirements, and all official actions related to the Level 1 Requirements for the NOAA satellite enterprise. Systemic and programmatic direction related to the Level 1 Requirements are established by the DUS/O and are flowed to the NESDIS AA. Likewise monetary resources are allocated by the DUS/O to NESDIS who in turn allocates monetary resources to JPSS. The DUS/O ensures direction is consistent with the direction provided by the NOAA Assistant Secretary of Commerce for Environmental Observation and Prediction (ASEOP), who is responsible for the executive oversight and direction with regard to weather, water, climate, and ocean observations system architectures and related procurements, including JPSS. The DUS/O in

consultation with the ASEOP is responsible for recommending approval of KDPs to the NOAA Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator, who is responsible for providing the final approval of all program and project-level KDPs with the exception of those KDPs further delegated and KDP-I, whose approval authority lies with the Deputy Secretary of Commerce. KDP decision authority is detailed in Section 3.1.3.

2.1.1.1 National Environmental Satellite, Data, and Information Service

The NESDIS is dedicated to providing timely access to global environmental data from satellites and other sources to promote, protect, and enhance the Nation's economy, security, environment, and quality of life. To fulfill its responsibilities, NESDIS:

- Acquires and manages the Nation's operational environmental satellites,
- Operates the NOAA Centers for Environmental Information;
- Provides data and information services including Earth system monitoring;
- Performs official assessments of the environment; and
- Conducts related research.

The NESDIS AA is responsible for implementing NOAA's satellite enterprise per the guidance and direction of the DUS/O. The NESDIS AA delegated the responsibility for overseeing the implementation of the NOAA satellite enterprise to the NESDIS Deputy Assistant Administrator for Systems (DAAS). The NESDIS DAAS delegated the responsibility to the NOAA JPSS Director for JPSS.

The NESDIS Deputy AA serves as the Information Technology (IT) security Authorizing official (AO) in concert with the NOAA Chief Information Officer as the co-AO. Together these roles are responsible for:

- Approving Federal Information Processing Standard (FIPS) 199 security categorizations, FIPS 200 security control requirements baselines, and interconnection security agreements;
- Appointing a system owner to carry out the Federal Information Security Management Act (FISMA) Risk Management Framework process in daily operation of the JPSS systems;
- Authorizing operation or interim authorization to test, or denying authorization to operate;
- Accepting and managing IT security risk for the JPSS systems; and
- Approving corrective action plans to remediate IT security vulnerabilities related to these systems.

The NESDIS Assistant Chief Information Officer-Satellite supports Security Assessment & Authorization (A&A) related activities including serving as the JPSS AO's Designated Representative (AODR) and independently assessing JPSS compliance with IT security requirements annually. The AODR approves system security plans and contingency plans as well as monitors timely and effective completion of IT security A&A continuous monitoring activities in accordance with DOC and NOAA IT security policies for the A&A process.

The NESDIS AA has responsibility for participating in NASA acquisition and contract execution activities, including providing assessments to the NASA Fee Determination Official (FDO) on the

intended award fee decision prior to award fee decisions. For the ground system contract, prior to a final fee decision, the NASA FDO will provide rationale for the fee determination to the NESDIS AA. The NESDIS AA will be given reasonable opportunity to provide a written or verbal assessment on the intended award fee decision to the FDO prior to the award fee decision. For instruments, the NOAA JPSS Director will be given reasonable opportunity to provide a written or verbal assessment on the intended award fee decision to the FDO prior to the award fee decision. In all cases, a written NESDIS assessment will be provided.

2.2 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The NASA, through the NASA AA, is responsible for providing top-level oversight to reimbursable missions, including the JPSS.

2.2.1 NASA Science Mission Directorate

NASA's Science Mission Directorate (SMD), through the SMD AA, is responsible for providing programmatic oversight of NASA-developed, reimbursable satellite programs, including the JPSS Program.

2.2.1.1 Joint Agency Satellite Division

The Joint Agency Satellite Division (JASD) Director, on behalf of NASA, is responsible for ensuring the NASA Program is being executed consistent with NASA's policies and practices and consistent with direction and guidance from the NOAA JPSS Director. The NASA JASD Director will, in coordination with the NOAA JPSS Director, provide programmatic direction to the NASA JPSS Program Manager at GSFC to implement Level-1 Requirements, conduct strategic planning, formulate and execute budget, assess constellation architecture, establish launch dates, etc. The JASD provides Agency-level coordination for launch services; support to JPSS NASA institutions and Centers; technical authority appeals; procurement strategy; and oversight to NASA's budget formulation and execution processes. Should a conflict between NOAA and NASA policies and practices occur, the conflict would be adjudicated between the NASA JASD Director and the NESDIS DAAS.

JASD will provide the leadership and oversight to NASA centers for the financial management processes and procedures for NOAA reimbursable programs. JASD will ensure NASA budgetary and accounting practices for the reimbursable program under its direction are conducted in accordance with generally accepted accounting principles and facilitate delivery of business data required by its NOAA customers.

2.2.2 Goddard Space Flight Center

The GSFC, through the GSFC Director, is assigned implementation responsibility for the NASA JPSS Program by NASA Headquarters. NASA GSFC implements and executes the NASA JPSS

Program requirements that flow from NOAA through SMD/JASD. The GSFC Director is responsible for providing Administrative Direction to the Program as well as ensuring that GSFC engineering standards and processes are followed. GSFC serves as the acquisition and systems engineering and integration center providing its people, procedures, experience, facilities, and institutional checks and balances to assure NASA JPSS Program success. This includes oversight, mentoring of project management teams as well as access to specific specialty and systems engineering teams, and access to business performance data, such as property, monthly cost performance and budget execution data.

To fulfill Center responsibilities, the GSFC Director of Flight Projects provides infrastructure support to the NASA JPSS Program. The GSFC is also responsible for providing co-located accommodations for the NJO to enhance communications and mission success. This co-location provision is limited by the JPSS facility capacity and requires balancing with accommodation needs of GSFC for NASA JPSS personnel.

2.3 JPSS OFFICE AND PROGRAM ROLES AND RESPONSIBILITIES

2.3.1 NOAA JPSS Office

The roles and responsibilities for the key functions within the NOAA JPSS Office (NJO), an organizational element of NESDIS, co-located at GSFC, are detailed below. The NJO implements NESDIS DAAS Level 1 oversight responsibilities, maintains insight into implementation of the NASA JPSS Program, and manages NOAA-implemented elements of JPSS.

2.3.1.1 NOAA JPSS Director

NOAA management responsibility for implementation of JPSS has been assigned to the NJO. The NOAA JPSS Director leads the NJO. The NOAA JPSS Director has the responsibility and authority to direct all elements of the JPSS program. This includes, but is not necessarily limited to, implementation of the program within the approved scope, cost, and schedule, and management of top level planning, acquisition, development, commissioning and transition to operations of the program's satellites and supporting ground systems. The NOAA JPSS Director will work directly with NASA's Joint Agency Satellite Division Director to direct the coordination of efforts between NOAA and NASA.

The NOAA JPSS Director is responsible for ensuring that the JPSS Program is executed in a manner consistent with U.S. Government, DOC, and NOAA policies and governing agreements, including this document. The NOAA JPSS Director reports to the NESDIS DAAS. The NOAA JPSS Director is accountable to NOAA/NESDIS management for all aspects of the JPSS Program, including financial, technical, information security, programmatic, and operational performance. The NOAA JPSS Director prepares, defends and executes the JPSS budget, represents JPSS to external organizations and is the focal point and principal interface with internal NESDIS

components, Congress, external agencies, and Mission Partners. Relative to the NOAA JPSS partnership with NASA, the NOAA JPSS Director has primary responsibility to:

- Provide executive management of the JPSS, including all JPSS elements outside of the NASA JPSS Program Office.
- Develop and direct JPSS:
    - Formulate programmatic direction and support formulation of strategic goals for the JPSS.
    - Prepare, defend and execute the JPSS budget in accordance with the NOAA Strategy, Execution and Evaluation (SEE) process and generally accepted accounting practices including funds transferred to NASA.
    - Work with JASD to manage the JPSS Program budget formulation, execution, and interagency fund transfers.
    - Work with the stakeholders, NESDIS, and NASA HQ to develop and maintain Level 1 Requirements.
- Provide management oversight of JPSS:
    - Direct NOAA JPSS resources.
    - Work with NASA to develop budget, schedule and technical plans and baselines.
    - Maintain insight of, and assess and report on the performance against budget, schedule and technical plans baselines; monitor integrated cost and schedule to maintain cognizance of critical paths and significant financial commitments.
    - Provide interpretation of Level 1 direction.
    - Approval authority for risk acceptance and risk management approach.
    - Work with the NASA JPSS Program to evaluate and manage program risk.
    - Participate as a member of the JPSS Program Risk Board.
    - In close consultation with the NASA JPSS Program Office, direct joint NOAA /NASA JPSS Program Studies, NOAA / NASA interface decisions below Level 1when not resolved at lower levels, and mitigations for risks below Level 1 if not resolved at lower levels.
    - Manage NOAA's institutional risk as it relates to the JPSS.
    - Participate as a member of the NASA Program Level Configuration Control Board (CCB).
    - Serve as a voting member of the Performance Evaluation Boards (PEBs), which will make recommendations to the NASA Fee Determination Officials (FDOs).
    - Manage the activities of the NJO and provide oversight to NESDIS components that interface with, contribute to, or are embedded with the NASA JPSS Program.
    - In coordination with NESDIS Office of Satellite and Product Operations, oversee transition of JPSS satellites and supporting ground systems to operations.
    - Participate in source evaluation and selection for NASA JPSS contracts.
    - Ensure JPSS is implemented consistent with DOC and NOAA IT security policies.
- Represent JPSS to all entities:
    - Act as single JPSS Point of Contact for all interactions, with other NOAA line offices and with the external community (e.g., Congress, OMB, Office of Science and Technology Policy (OSTP), the media, etc.). It is understood that NASA may

be approached independently; in such case, NASA will coordinate all formal external communications related to JPSS through NOAA.
- Develop and negotiate domestic and international agreements (e.g., Japanese Aerospace Exploration agency (JAXA), EUMETSAT, U.S. Air Force Space and Missile Systems Center (SMC)) in coordination with the NESDIS International and Interagency Affairs Office.
- Facilitate interfaces with other NOAA organizations and stakeholders.

At the NOAA JPSS Director's discretion, any of these responsibilities can be delegated to NOAA staff or, if appropriate, NASA staff.

2.3.1.2 Technical Responsibilities

The NJO will maintain a system technical staff that has enterprise knowledge of JPSS, Polar-orbiting, Climate and Service Missions in order to support fulfillment of NOAA JPSS Director's responsibilities at a strategic and tactical level in all aspects of the NOAA JPSS Program. The system technical staff will be managed by the NOAA JPSS Technical Division Chief. At the strategic level, the system technical personnel will:

- Advise and report to the NOAA JPSS Director on strategic technical and programmatic matters to support executive management of the JPSS Program;
- Work with the NASA JPSS Program Chief Systems Engineer, JPSS Program Scientist and stakeholders to develop and maintain the Level 1 Requirements and understand JPSS system performance against the Level 1 Requirements, evaluate Level 1 waivers, risks and request for changes;
- Support the NOAA JPSS Director in developing and implementing strategic requirements and goals for NESDIS;
- Coordinate with the JPSS Program, other NESDIS organizations and stakeholders to work technical, integration and programmatic issues that arise implementing JPSS; and
- Perform delegated duties such as contribute to source selection evaluation processes for NASA's JPSS contracts.

The NOAA JPSS Office and other NESDIS offices/centers will have technical staff assigned to the different areas in the NASA JPSS Flight and Ground Projects to work with NASA JPSS Project staff to:

- Execute, under the programmatic direction of the NASA JPSS Program Manager, JPSS work assignments;
- Have insight into the design, development, test, operations, processes, cost, budget and schedule of JPSS in order to advise, report to, and support the NOAA JPSS Director and NESDIS in the oversight of the JPSS Program; to enable NOAA to successfully assimilate and operate the products of the NASA JPSS Program; and perform or participate in analysis and planning for JPSS and Polar satellite systems;
- Have insight into, and review and evaluate, engineering changes, risks, proposals, technical issues, plans, and performance against program requirements;

- Participate as members in JPSS Level 2/ 3 engineering change and risk boards (as delegated); and
- Work with other NESDIS and NOAA organizations to ensure NOAA institutional and administrative capabilities are being delivered as planned for JPSS.

NOAA staff embedded in the NASA JPSS Projects will receive day-to-day programmatic direction from the established chain of command and will support interpretation and implementation of requirements consistent with NOAA strategic and policy guidance as well as applicable procedural guidance (e.g., for IT security). Line supervision of the embedded staff is provided via the NESDIS offices/centers line chain of command. Performance plans are developed and evaluated by the line supervision in close coordination with the programmatic chain of command. Embedded staff participates in the NESDIS office/center activities to provide status and information, but do not directly receive programmatic direction from the NESDIS office/center. If a member of the embedded technical staff cannot resolve a technical issue within the established NASA management structure, the individual may elevate to the appropriate NESDIS office/center Director, who will resolve the issue in conjunction with the appropriate official in either agency.

In addition, the NOAA JPSS Technical Director is responsible for working across all the components involved in creating and implementing JPSS (e.g., NASA Headquarters, NASA JPSS Program, NESDIS Offices/Centers, and the NJO) to develop plans and address issues within JPSS.

2.3.1.3 NOAA JPSS Program Scientist

The NOAA JPSS Program Scientist is the science authority providing the link between the NOAA/ NESDIS operational user community and the NOAA JPSS Office to ensure that user requirements and the program constraints, appropriate to the mission, are captured in the JPSS L1RD. The Program Scientist position reports to the NESDIS DAAS. In this capacity, the Program Scientist chairs the Low-earth Orbiting Requirements Working Group (LORWG), suggests revisions of the system requirements for senior management, and reviews Program accomplishments in coordination with flight, ground and enterprise projects.

The JPSS Program Scientist has responsibility to:

- Provide support as key scientific adviser to the NOAA JPSS Director in decisions that trade among performance, cost and schedule as well as decisions that trade among competing instrument suites and operational constraints on the spacecraft;
- Serve as a member of the NOAA senior science staff and provide recommendations to NESDIS Management;
- Support the formulation of the mission-level architecture of spacecraft and instruments to optimize scientific return and communicate with Program and users on matters of inter-agency and international scientific coordination;
- Work in coordination with the NASA JPSS Senior Project Scientist to provide scientific guidance to the NASA JPSS Program Manager throughout the lifecycle of the Program;

- Collaborate with the NOAA and JPSS user community to define the users' needs, operational requirements, and science data product requirements for the JPSS mission;
- Provide the link between the JPSS operational user community and the JPSS Program;
- Convene science and application working groups to recommend potential revisions of the system requirements for senior management review and to review Program accomplishments in coordination with Projects; and
- Support algorithm development and enhancement, calibration and validation (Cal/Val) activities, outreach and training, and JPSS product demonstrations to ensure algorithm and user readiness.

2.3.1.4 NOAA JPSS Budget Officer

The NOAA JPSS Budget Officer serves as the sole senior Financial Management Officer with direct oversight of all JPSS Program funds, policy and procedures.

The NOAA JPSS Budget Officer has responsibility to:

- Provide strategic budget planning, programming, and execution guidance to the NOAA JPSS Director and staff to meet or exceed the organization's strategic planning goals;
- Provide Program fiscal oversight, audit compliance, and internal control oversight;
- Act as the direct interface with the JPSS Program Business Manager; and
- Act as the Construction Work in Progress (CWIP) Project Manager.

2.3.1.5 Construction Work In Progress (CWIP) Activity and Project Managers

The NOAA JPSS program is required to comply with NOAA CWIP Policy and Procedures governing CWIP and the designation of CWIP Activity and Project Managers. Accounting for CWIP assets represents a significant portion of the NOAA and DOC annual Property, Plant and Equipment balance in the annual audited financial statement. Proper recording of CWIP assets is essential for DOC to pass the annual financial audit.

The NOAA JPSS Budget Officer serves as the CWIP Project Manager. The CWIP Activity Manager is a designated analyst on the staff of the NOAA JPSS Budget Division.

The DOC has implemented the following responsibilities of CWIP Activity and Project Managers:

- Adhere to the roles and responsibilities established in the NOAA CWIP policy and procedures
- Complete mandatory annual training
- CWIP Project Manager:
    - Ensure financial management actions are conducted in accordance with CWIP policy
    - Provide construction management schedules and CWIP documentation to the CWIP Activity Manager
    - Approve cost reconciliation reports
- CWIP Activity Manager:

- Establish and maintain budget codes for recording CWIP and non-CWIP activities
- Ensure overall responsibility for accuracy of the CWIP asset valuation
- Prepare cost reconciliation reports and internal policies

Compliance with the DOC CWIP Policy requires obtaining and maintaining detailed financial and property information associated with the development (construction) of all components of the JPSS program, to enable NOAA to correctly capture and allocate all costs necessary to capitalize individual JPSS assets as they are placed in service for operational use. Detailed financial and property data is also required for any assets that become subject to impairment (i.e., CWIP activity that is discontinued during the life cycle of the program). JPSS assets to be capitalized include the Ground System, the S-NPP, VIIRS, CrIS, and OMPS instruments, JPSS-1, JPSS-2, JPSS-3, and JPSS-4.

Organizations using JPSS CWIP funds will support the NOAA JPSS CWIP process by providing the invoices and supporting documentation necessary to complete quarterly and annual CWIP reporting requirements and program capitalization requirements.

2.3.2 NASA JPSS Program Office

The roles and responsibilities for the key functions within the NASA JPSS Program Office at GSFC are detailed below. All NASA Program and Project managers will be certified in accordance with direction to NASA from the OMB.

2.3.2.1 NASA JPSS Program Manager

NASA program management responsibility for implementation of JPSS has been assigned to the JPSS Program Office, located at GSFC. The GSFC Associate Director for the NASA JPSS Program is the NASA JPSS Program Manager and will lead the implementation of the Program efforts. The NASA JPSS Program Manager serves as the single point of contact at GSFC for the JPSS Program. The NASA JPSS Program Manager has established two project offices within the Program for the purpose of development of its components – JPSS Flight Project Office and JPSS Ground Project Office. The Flight Project Office will manage the JPSS-1, JPSS-2, JPSS-3, and JPSS-4 projects, and the Ground Project Office will manage the Ground Project up until the transition of the ground system to NOAA. The NASA JPSS Program Manager, working with the SMD, may establish additional project offices for the JPSS Program as necessary.

The NASA JPSS Program Manager provides management oversight of the JPSS Flight and Ground Project Offices, advances the Program system concepts, manages the NASA JPSS Program resources (e.g., cost, schedule, and workforce) needed to fulfill NOAA requirements, and executes implementation of the Program Plan consistent with NASA's best program practices. The Program Manager has primary responsibility to:

- Formulate the NASA Program:
  - Carry out NASA Program planning, including establishing Program objectives, requirements, implementation guidelines, budget and milestones.
  - Prepare NASA Program documentation, and support JASD in the development of Program documentation.
  - Implement the Program
- Plan, monitor, and control authorized Program resources:
  - Control Program changes within the scope of the Program Plan.
  - Develop annual Planning, Programming, Budgeting, and Execution (PPBE) requirements
  - Review and report Program/project performance on a regular basis.
  - Assess and resolve inadequacies in resources needed to support Program and project requirements.
  - Establish and maintain a Program engineering capability.
- Oversee Project pre-formulation, formulation and implementation:
  - Approve project performance metrics.
  - Allocate budget to projects.
  - Integrate the planning and execution of individual projects into a coherent approach at the Program-level.
  - Assess project performance (e.g., technical, schedule, and cost with related risk parameters).
  - Control Program reserves
- Work with NOAA JPSS Office:
  - Ensure NASA has full understanding of NOAA requirements.
  - Ensure NASA activities fulfill NOAA requirements.
  - Provide NASA input to information, budget and data calls.
  - Ensure general coordination and information distribution.

2.3.2.2 Technical Responsibilities

The JPSS Program Chief Systems Engineer (PCSE) is the assigned NASA Engineering Technical Authority (ETA) for communicating technical excellence and exercising technical authority for the JPSS Program. The JPSS PCSE manages the integrated NOAA-NASA Program Systems Engineering Team and has end-to-end responsibility and authority for requirements and performance of the entire JPSS system. The JPSS PCSE, in partnership with the NOAA JPSS Director, the NASA JPSS Program Manager, and the NESDIS Line Office Directors, ensures "checks and balances" to ensure the technical integrity for the Program and within the JPSS-related NOAA Enterprise elements. The ETA for NASA projects within the Program is delegated from the NASA Office of Chief Engineer to the GSFC ETA to the PCSE.

The JPSS PCSE has the technical responsibility to:

- Develop the JPSS Program Systems Engineering Plan to guide technical aspects of the Program;

- Ensure JPSS compliance with, or waivers from, requirements from NPR 7120.5 and the JPSS L1RD;
- Develop and maintain the hierarchy, flow down and traceability of Program requirements to projects within the Program and to JPSS-related NOAA projects;
- Integrate project-level requirements verification to establish verification of Program requirements;
- Implement a Program Risk Management Process, develop the Program significant risk list and examine and update this list on a regular basis;
- Implement a technical assessment process to monitor progress of the Program technical effort throughout the life cycle to ensure that:
    - Technical goals of the Program are being achieved
    - Issues are identified and resolved in a timely manner
    - Provide inputs to all program reviews;
- Monitor project execution and issue resolution;
- Authorize approval or disapproval of waivers to all Program ETA-owned requirements;
- Serve as a review team member for ad hoc technical reviews, as appropriate;
- Identify and utilize technical expertise from across NASA, NOAA, industry and academia to support risk-based insight and resolve technical issues;
- Seek resolution of project issues. If resolution of an issue is not achieved at lower levels, the PCE is responsible for communicating it to the next level of Center or Agency technical authority;
- Work with NOAA JPSS Office and assigned staff for purposes of information exchange and status updates; and
- Investigation and resolution of on-orbit anomalies, development of workarounds, and feedback to development work in progress.

The JPSS Program Systems Engineering Team, led by the PCSE, will draw upon GSFC and NESDIS standard program/project engineering capabilities to maintain the capability to:

- Continually assess and facilitate maturation of key enabling technologies, and identify technological alternatives;
- Continually explore, identify, and define alternative measurement and mission concepts to reduce cost and risk of meeting Program objectives; and
- Establish and implement plans and processes necessary to carry out overall JPSS processes, such as Program-level requirements management and Program-level Risk Management.

2.3.2.2.1 Technical Authority Management

The Technical Authority (TA) process outlined in NPR 7120.5 is explicitly adapted herein to suit the unique inter-agency structure of the JPSS Program. The JPSS TA Model establishes a system of checks and balances to provide independent oversight of programs and projects in support of safety and mission success through the selection of specific individuals at delegated levels of

authority. The TA process allows the designated TA to elevate technical disagreements having significant impact on the JPSS Program or Projects to the appropriate level of technical oversight.

The responsibilities of a program or project manager are not diminished by the implementation of a TA process. The program or project manager is ultimately responsible for the safe conduct and successful outcome of the program or project in conformance with governing requirements. This includes meeting programmatic, institutional, technical, safety, cost, and schedule requirements.

There are three distinct types of TA—Engineering Technical Authority (ETA), Safety and Mission Assurance Technical Authority (SMATA), and Science Technical Authority (STA). These technical authorities are separate entities, focused on different aspects of requirements as described in this document.

Engineering Technical Authority

For the JPSS Program, PCSE exercises ETA. For each project, the ETA is the Project Mission Systems Engineer (MSE). Oversight of the TA process for the JPSS Program is by the Applied Engineering and Technology Directorate (AETD).

ETA appeals raised by a Project MSE are raised to the PCSE and NASA JPSS Program Manager for resolution. ETA appeals that remain at the program-level are appealed to the GSFC Director of AETD for resolution. The NOAA JPSS Office Director will be invited to attend.

Safety and Mission Assurance Technical Authority

For the JPSS Program, the Program Chief Safety Officer (CSO) exercises SMATA. For each Project, the SMATA is the Project CSO. The GSFC Office of Systems Safety and Mission Assurance (OSSMA) will provide oversight of the SMATA process for both projects.

SMATA appeals raised by a Project Mission Assurance Manager are raised to the Program Mission Assurance Manager and NASA JPSS Program Manager for resolution. SMATA appeals that remain at the program-level are appealed to the GSFC Director of OSSMA for resolution. The Director of the NOAA JPSS Office will be invited to attend.

Science Technical Authority

For the JPSS Program the Program Scientist exercises STA. STA oversight will be NESDIS with support from the NOAA Observing Systems Council (NOSC).

STA appeals raised by the Project Science Lead are raised to the Program Scientist, NASA JPSS Program Manager, and NOAA JPSS Director for resolution. STA appeals that remain at the program-level are appealed to the NOSC for resolution.

Technical Authority Appeal Paths

If the issue is not resolved in the above forums, respective program appeal authorities will brief the NESDIS DAAS, the NASA JASD Director, and the GSFC Deputy Director regarding the facts, details, and impacts of the technical disagreement between the PCSE, the Program Scientist, CSO, NOAA JPSS Director, or the NASA JPSS Program Manager. The NESDIS DAAS, the NASA JASD Director, and the GSFC Deputy Director will meet to resolve the issue.

If no resolution is achieved at this level, the NESDIS DAAS, the NASA JASD Director, and the GSFC Deputy Director will brief the NESDIS AA, SMD AA, the NASA Chief Engineer (for technical issues), and the NASA Chief Safety and Mission Assurance Officer (for mission assurance issues) regarding the facts, details and impacts of the technical disagreement.

The NOSC will provide a forum to hear appeals of the Program Scientist.

If no resolution is achieved at this level, the issue will be presented to NOAA DUS-O, and the NASA AA regarding the facts, details and impacts of the technical disagreement. The NOAA DUS-O has ultimate authority to resolve the disagreement.

2.3.2.3 Business Responsibilities

The NASA JPSS Program Business Manager (PBM), with the Business Office staff, develops, integrates, and provides direction and exercises control over budget, schedules and procurements, at the program level in accordance with NOAA guidance received though JASD. For many program analysis and risk management processes, the PBM works closely with the program management team in order to integrate cost and technical data and analyses. Similarly, for many programmatic and budget related questions and processes, the PBM provides integrated budget and cost data. The PBM has primary responsibility to:

- Exercise financial management to ensure appropriate acquisition and distribution of funding to NASA JPSS program elements as NOAA reimbursable funding is received;
- Provide the key program financial interface with NASA HQ and the NOAA JPSS Budget Officer;
- Provide business performance data and management reporting information to support
- NASA JPSS cost accruals and invoices;
- Provides budget and cost impacts in response to program and budget questions and excursions;
- Provide leadership in developing and maintaining the annual PPBE submittal, integrating the efforts and inputs of the various JPSS projects and activities;
- Provide leadership in developing budget requirements for alternative missions; and
- Provide CWIP invoices and documentation necessary to complete NOAA CWIP reconciliation.

3.0 PROGRAM AUTHORITY AND GOVERNANCE STRUCTURE

NOAA and NASA have agreed to follow NPR 7120.5, NASA Space Flight Program and Project Management, Processes and Requirements for program and project management for the JPSS Program, with specific tailoring as identified in this document to identify each agency's roles and responsibilities. NASA and NOAA jointly chair each of the management councils, for which NOAA serves as the ultimate customer and decision authority, with the exception of the GSFC/NESDIS Center Management Council.

The JPSS Program is a collaborative effort between NOAA and NASA with NOAA having overall responsibility, and NASA acting as NOAA's acquisition agent and system integrator. The partnership requires open communication and a clear definition of responsibilities and authority for each agency.

3.1 PROGRAM DIRECTION, ADMINISTRATIVE, AND OVERSIGHT AUTHORITY

3.1.1 Strategic Direction, Communications and Issue Elevation

The NOAA JPSS Director serves as the single NOAA source of strategic direction and programmatic guidance to NASA, with the NASA JASD Director serving as the single NASA point of receipt for JPSS. The NOAA JPSS Director and NASA JASD Director work directly together to assure planning and implementation activities are coordinated. NOAA direction and guidance flow within NASA from the NASA JASD Director to GSFC, with the NASA JPSS Program Manager serving as the single GSFC point of receipt for the JPSS Program. Direction from JASD to the JPSS Program Manager will be shared with the NESDIS DAAS and the NOAA JPSS Director. The NOAA JPSS Director will share NOAA budget elements and direction for interfacing elements within NOAA. Strategic direction includes Level 1 Requirements, launch dates, constellation architecture, and programmatic guidance includes budget, reporting, and planning requirements.

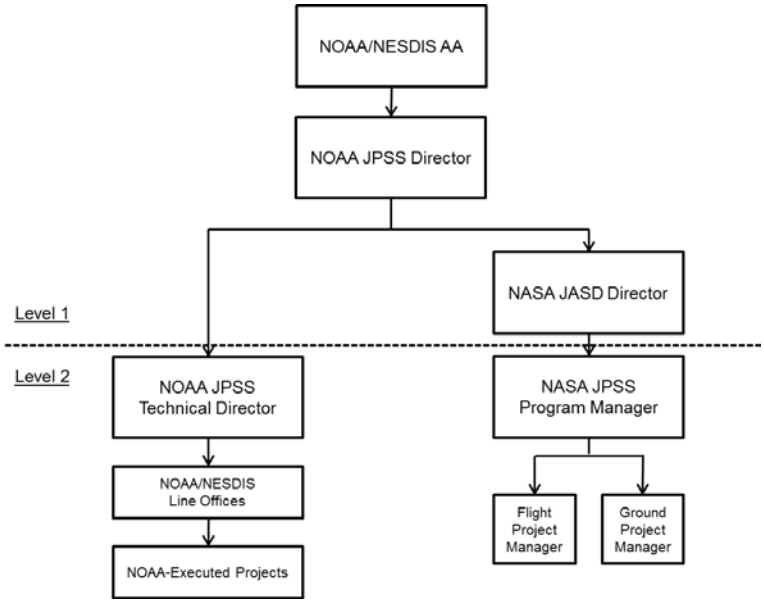


Figure 1: JPSS Level 1/2 Program Direction Flow

To maintain insight into the activities and decisions, timely communications and reporting, the NOAA JPSS Office and NASA Program Office are free to request and flow information between the organizations. Should the information requests place an undue burden on either organization, the requests will be adjudicated by the NOAA JPSS Director and NASA JASD Director. Requests for information will include contextual information regarding the ultimate purpose and recipient of the information. As a courtesy, each organization will share the end product in which the information is utilized. This does not apply to information used locally within the JPSS Program Office and the NOAA JPSS Office.

Definitions of information, direction and guidance are provided below:

- Strategic Direction – Given joint strategic planning efforts in alignment with NOAA's mission and vision, NOAA will provide NASA top-level strategic direction. NASA, in issuing specific programmatic direction to its implementing field centers, will incorporate this strategic direction, as well as any specific programmatic guidelines received from NOAA.
- Programmatic Guidelines –NOAA guidance provided to NASA, which is specific to a program or project, and outlines funding and/or schedule guidance to be adhered to by NASA in implementing NOAA reimbursable programs and projects. NASA, in turn, provides programmatic direction to its implementing field centers, and delivers back to NOAA the corresponding guidelines responses.
- Programmatic Direction – specific funding, schedule, technical or coordination direction that requires action by a program, project or office.

- Administrative Direction – non-programmatic policy, procedural and/or standards direction associated with the personnel, property, facilities, reporting and accounting standards, etc.
- Insight and Oversight - Insight is defined as the capacity to discern the true nature of the JPSS Programs efforts to design, develop, test and operate all of the spacecraft and ground systems associated with JPSS. It is the ability to penetrate into the process, design, development, test and operations in an effort to improve the safety of operations and mission success. Oversight is the watchful and responsible care and management of the development, test and operations efforts. This is accomplished through overseeing the performance of the design, development and test efforts and their ability to certify the systems. The elements of oversight require approval and/or direction.

Consistent with NPR 7120.5, if one part of the program hierarchy has an issue with a decision taken by their counterpart, and cannot resolve it at their level (i.e., either accept the decision or convince the decision maker to change the decision), it is expected that the issue will be elevated to the next level for resolution. While resolution is undertaken, the deciding party can proceed at risk until higher authority renders a decision. Final resolution of any conflict, which cannot be resolved at a lower level, will be elevated to the DUS/O and NASA AA, with the DUS-O the final authority.

Table 1: Summary of the high-level roles and responsibilities and implementing mechanisms.

Individual	Responsibility/Authority	Implementing Mechanism
Deputy Secretary of Commerce	Responsible for policy, oversight, approval, and guidance to NOAA for successful acquisition and operation of the JPSS. Responsible for approval of KDP-I and approval of DOC Milestone Decisions	DOC Decision Memorandum
DOC Chief Financial Officer/Assistant Secretary for Administration	Responsible for overall DOC acquisition and budget process to include the planning, formulation and execution, including JPSS.	Milestone Reviews, Monthly Program Summaries and Quarterly Program Reviews to include but not limited to cost estimates, enterprise decisions, and acquisition strategy. Execution of DOC Acquisition / Budget Process
Under Secretary & NOAA Administrator	Approval of program and project KDPs (with the exception of KDP-I and those KDPs further delegated)	NOAA Decision Memorandum

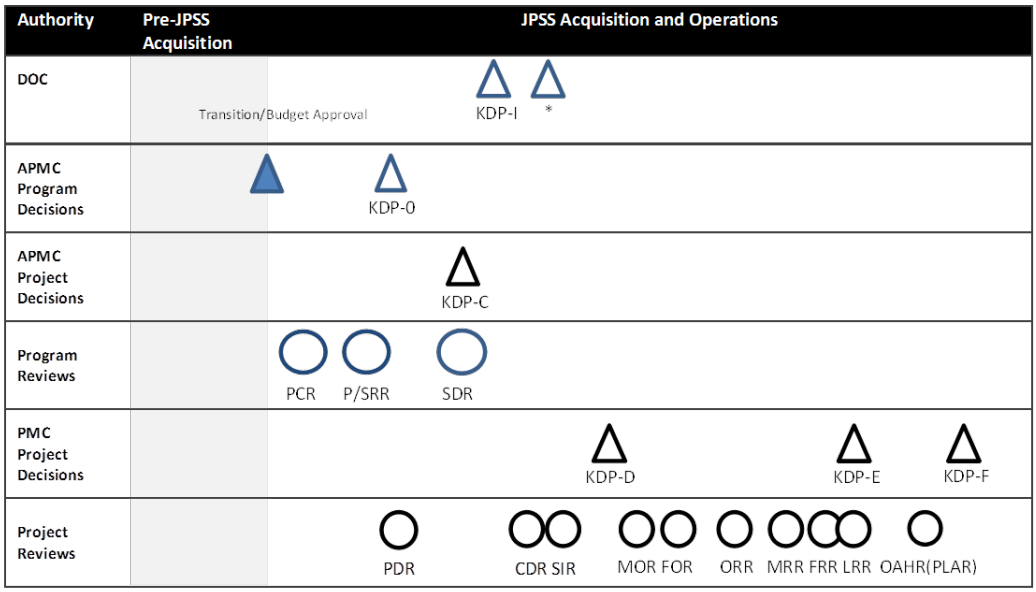
Individual	Responsibility/Authority	Implementing Mechanism
Assistant Secretary for Environmental Observation and Prediction/Deputy Administrator, NOAA	Provides executive oversight and direction with regard to weather, water, climate, and ocean observations, system architectures and related procurements including JPSS. Recommends approval of KDP.	Major Program Monthly Chair, NOAA Observing Systems Council Agency-level Program Management Council (APMC) – Co-chair
Deputy Under Secretary for Operations/NOAA	Final Authority for NOAA Satellite Enterprise as well as cross-NOAA line institutional readiness and interface control. Final Authority for Level 1 Requirements, Level 1 Milestones and budget submissions. In consultation with NASA AA, final resolution of any conflict which cannot be resolved at a lower level. Recommends KDP approval to NOAA Administrator.	NOAA Decision Memorandum
NESDIS Assistant Administrator	Execute delegated programmatic authority and responsibility for implementing NOAA's Satellite Enterprise, including JPSS Ensures required NESDIS resources including personnel and facilities are provided and that NOAA / NESDIS standards and practices are fully implemented. Provides administrative direction to the JPSS Office. Recommends readiness for KDPs to DUS. Responsible for ensuring Level 1 requirements are implemented.	APMC – Member NESDIS/SMD PMC – Co- chair
NESDIS Deputy Assistant Administrator for Systems	Execute delegated authority to oversee implementation of the Satellite Enterprise to ensure the entire portfolio including JPSS, meets its objectives efficiently and reliably.	GSFC Center Management Council (CMC) – co-chair for NOAA Programs including JPSS
NOAA JPSS Director	Responsible for executing the JPSS in a manner consistent with US Government, Department of Commerce, and NOAA policies and governing agreements including this document. As ultimate authority and responsible official for executive management of JPSS, maintain insight and provide day-to-day oversight of	Chair, NOAA JPSS Program Boards Member NASA JPSS Program Boards Spend plan formulation

Individual	Responsibility/Authority	Implementing Mechanism
	NOAA and NASA JPSS element execution including risk management, requirements, schedule and budget; and provide program management for NOAA elements of JPSS. Work directly with NASA/JASD to direct the coordination of efforts between NOAA and NASA Formulate Level 1 direction (requirements, budget, schedule, programmatic guidance) for transmittal to NASA JASD Director. In consultation with NASA JPSS PM, NOAA JPSS Director can direct: • Joint NOAA / NASA JPSS Program Studies; • NOAA / NASA interface decisions below Level 1 when not resolved at lower levels; and • Mitigations for risks below level 1 if not resolved at lower levels.	
NASA Associate Administrator	Provides top-level oversight to all NASA mission and reimbursable programs including JPSS.	APMC – Co-chair
Science Mission Directorate Associate Administrator	Provides programmatic oversight of NASA's Science Mission Directorate including all earth-orbiting reimbursable satellite programs Represents NASA, for resolving with the NOAA NESDIS AA, any conflicts that may arise between the provisions of the IAA, the MOU or the L1RD.	APMC Member NESDIS/SMD PMC – Co- chair
NASA JASD Director	Responsible for ensuring that the program is being executed consistent with NASA's policies and practices and consistent with direction and guidance from the NOAA JPSS Director. Provides NASA JPSS programmatic oversight.	APMC Member Member of NOAA JPSS Program Control Board
GSFC Deputy Director	Responsible for successful implementation of the NASA JPSS Program at GSFC ensuring required resources, including personnel and facilities, are provided, and that GSFC engineering, mission assurance, and science standards and practices are fully implemented. Provides administrative direction to the JPSS	GSFC CMC Chair

Individual	Responsibility/Authority	Implementing Mechanism
	Program.	
NASA JPSS Program Manager	Responsible for implementing the NASA JPSS Program consistent with NASA's best program practices to fulfill NOAA requirements for Flight and Ground Projects. Includes: development of Level 2 and lower requirements, program formulation, implementation and management of the NASA JPSS Program resources (cost, schedule, and workforce), and execution of the Program Plan. Advances the Program system concepts.	Chairs NASA JPSS Program Boards Manages Prime Contracts for Flight and Ground Member NOAA JPSS Program Boards

3.1.2 Assessment Review, Milestones, and their Decision Authorities

JPSS progress is marked by Key Decision Points (KDPs) at the System / Program Level and at the Project levels. At each KDP, management examines the maturity of the Program, including whether the resources (e.g., staffing and funding) are sufficient for the planned technical effort, whether the technical maturity has evolved, what the technical and nontechnical internal issues and risks are, and whether the stakeholder expectations have changed. If the technical and management aspects are satisfactory, including the implementation of corrective actions, then approval to proceed to the next phase can be granted. Figure 2 provides the sequence for assessment reviews and execution of Program authorities. The JPSS Review Plan provides details of the lifecycle reviews.



CDR	Critical Design Review	**ORR**	Operational Readiness Review
FOR	Flight Operations Review	**PCR**	Program Concept Review
FRR	Flight Readiness Review	**PDR**	Preliminary Definition Review
KDP	Key Decision Point	**PLAR**	Post Launch Assessment Review
LRR	Launch Readiness Review	**SDR**	System Definition Review
MOR	Mission Operations Review	**SIR**	System Integration Review
MRR	Mission Readiness Review	**SRR**	System Requirements Review
OAHR	Operational Acceptance and Handover Review		

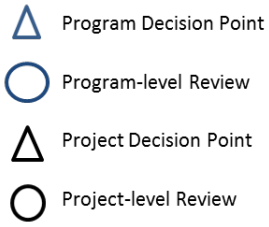


Figure 2: Program/Project Assessment Reviews, Milestones, and their Decision Authorities

3.1.3 Key Decision Points

The DOC scalable acquisition framework provides requirements for executing program reviews and defines minimum standards for documentation of program maturity necessary at Key Decision Points. NPR 7120.5 provides consistent and more stringent requirements for KDP review products. Descriptions of the requirements for the KDP review products are found in the JPSS Review Plan. Unless delegated, the Deputy Secretary of Commerce is the designated Milestone Decision Authority for Department of Commerce Milestone Decisions and is the approval authority for KDP-I and adding missions to the JPSS Program. The Secretary may delegate the authority to the NOAA Administrator (Under Secretary for Oceans and Atmosphere). The NOAA Administrator is the delegated approval authority for all program- and project-level KDPs with the exception of those further delegated.

Program KDPs are:

- KDP-0 Successful completion of Program SRR, approval to proceed to system definition, culminating in SDR. The NOAA Administrator is the MDA for KDP-0; and

- KDP-I Successful completion of Program SDR, approval to baseline the Program and proceed into implementation. The Deputy Secretary of Commerce is the MDA for KDP-I.[2]

Project KDPs are:

- KDP-A Completion of concept studies and approval to proceed to concept and technology development. Culminates in SRR and Mission Definition Review. The NOAA Administrator is the MDA for KDP-A;

- KDP-B Completion of concept and technology development, and approval to proceed to preliminary design and technology completion. Culminates in Preliminary Design Review. The NOAA Administrator is the MDA for KDP-B;

- KDP-C Successful completion of Mission Preliminary Design Review, and supporting maturity in Flight and Ground; and approval to baseline the mission and proceed to final design and integration. Culminates in Critical Design Review\ and System Integration Review (SIR) respectively. The NOAA Administrator is the MDA for KDP-C;

- KDP-D Successful completion of SIR, approval to proceed to system assembly, integration, test and launch. Culminates in operational and launch readiness reviews. The NESDIS Assistant Administrator is the MDA for KDP-D;

- KDP E Approval to proceed with launch, and flight/mission. Upon completion of successful mission operations, culminates in decommissioning review. The NESDIS Assistant Administrator is the MDA for KDP-E; and

- KDP-F Approval to dispose / closeout (Phase F). Culminates in retirement. The NESDIS Assistant Administrator is the MDA for KDP-F.

3.2 GOVERNANCE STRUCTURE

A tiered structure (Figure 3) with well-defined responsibilities provides governance of JPSS.

[2] KDP-I satisfies the DOC requirements for a Milestone 2 and 3, per the Commerce Policy on Acquisition Project Management.

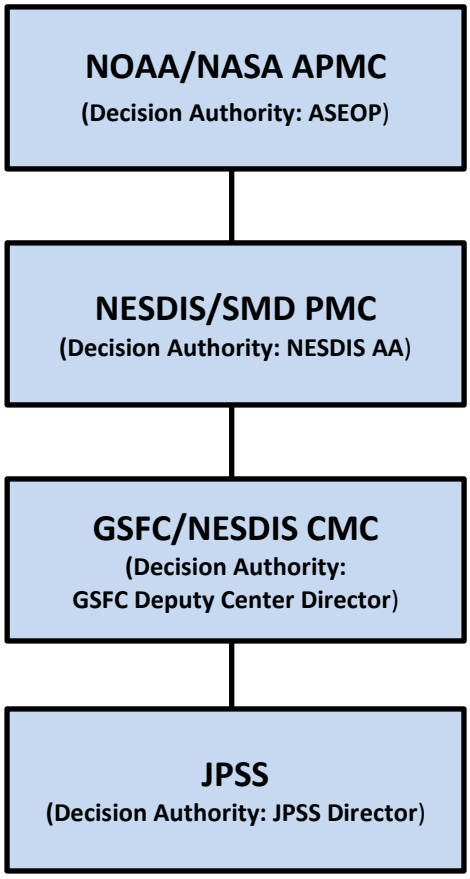


Figure 3: JPSS Governance, Administrative and Oversight Authorities

3.2.1 Agency-Level Program Management Council

Purpose: The Agency-level Program Management Council (APMC) provides executive and strategic oversight of selected NOAA Programs being implemented in partnership with NASA and in accordance with section 6.5 of NASA Policy Directive (NPD) 1000.3D, The NASA Organization.

Co-Chairs: NOAA DUS/O and NASA AA. NOAA DUS/O has final decision authority

Membership: See Appendix 2

Authorities: The APMC is the forum to:

- Provide review preparation for KDP;
- Approve Program/Project entry into subsequent phases, including all major events such as major contract award, preliminary design reviews (PDR), critical design reviews (CDR), test readiness reviews, launch readiness reviews, operational readiness reviews, etc.;
- Commission independent assessments and cost benefit analysis as needed, and reviewing both the results of the independent assessment, as well as reviewing and approving the Program/Project's proposed response plan; and
- Recommend alternative actions, including termination of programs/projects or activities within programs/projects, when appropriate.

Reporting: APMC reviews (in accordance with above authorities, control milestones and decision points for a subset of membership shown in Appendix 2):

- Integrated assessment of performance versus plan in terms of overall cost, schedule and technical achievement to date, specifically examining:
    - Technical Performance – actual vs. planned performance, risk identification and mitigation strategies
    - Budget Performance – actual vs. planned costs (Earned Value), status of funds, budget threats, and budget reserve posture
    - Schedule Performance – critical path analysis, changes since last month, schedule threats, schedule reserves posture
- Proposed new activities and/or scope to ensure risk, schedule, integration and budget impacts to existing programs are understood and realistic.

3.2.2 NESDIS/SMD Program Management Council

Purpose: The NESDIS/SMD PMC provides oversight of NOAA Satellite and Information Systems, including JPSS implementation responsibilities, to include major milestones, reviews, Key Decision Points, and below Level 1 decisions affecting the Satellite Enterprise. The NESDIS AA holds Monthly Status Reviews (MSRs) to provide across NESDIS, oversight of financial performance, and oversight of integration of NOAA Satellite and Information Systems into the NESDIS enterprise.

Co-Chairs: NESDIS AA and SMD AA. The NESDIS AA has final decision authority.

Membership: See Appendix 3

Authorities: Approves Program and Project proceeding to the APMC, and may serve as the governing authority for projects as assigned by the APMC. Approves readiness of NOAA-managed and integrated products and NASA-managed products that impact NOAA programs beyond JPSS to higher-level reviews.

Reporting:

NESDIS/SMD PMC recommends:

- Program and Project categorization to establish oversight requirements;
- Risk categorization;
- Commissioning independent assessments;
- Corrective or alternative actions; and
- Readiness to enter subsequent phases at major events.

NESDIS/SMD PMC reviews:

- Integrated assessment of performance versus plan in terms of overall cost, schedule and technical achievement to date, specifically examining:
    - Technical Performance – actual vs. planned performance, risk identification and mitigation strategies
    - Budget Performance – actual vs. planned costs (Earned Value), status of funds, budget threats, and budget reserve posture
    - Schedule Performance – critical path analysis, changes since last month, schedule threats, schedule reserves posture;
- Proposed new activities and/or scope to ensure risk, schedule, integration, and budget impacts to existing programs are understood and realistic; and
- NESDIS support and compliance to NOAA / NESDIS standards.

3.2.3 GSFC/NESDIS Center Management Council

Purpose: Provides oversight and advice regarding JPSS Program conduct for the Flight and Ground segment responsibilities being implemented by NASA, and oversight of Center institutional functions that support JPSS.

Co-Chairs: For NOAA Programs the CMC is co-chaired by the Deputy Center Director, GSFC and NESDIS DAAS. The Deputy Center Director, GSFC has final decision authority.

Membership: NESDIS Office Directors, and the NOAA JPSS Director, will participate.

Authorities: Approves / directs required Center resources including personnel and facilities provided to the JPSS Program and approves engineering, mission assurance, science and program/ project standards and application to JPSS. Notwithstanding decisions that impact programs beyond JPSS, approves readiness of NASA-managed products for higher-level reviews.

Reporting:

- Technical status and issues
- Contractual status and issues
- Programmatic and financial performance of each JPSS Project
- Risk status and issues

- Resource utilization status and issues
- Schedule status and issues

3.2.4 Program and Project Configuration Control Boards

Purpose: Review and approve configuration-controlled items including establishing baselines and controlling changes thereto at the level of hierarchy to which the control is applied. The configuration control process is governed by associated Configuration Management Plans. See JPSS Program Plan and NOAA JPSS Implementation Plan for details.

3.2.5 Standing Review Board

Purpose: Provide the convening authorities with an expert judgment concerning the adequacy of the program/project technical and programmatic approach, risk posture, and progress against the management baseline and the readiness against criteria in this NPR 7120.5. See JPSS Program Plan for details.

3.2.6 Source Selection Boards

Purpose: Support Source Selection Official (SSO), a senior NASA management official, in executing decision authority for selection of competitively selected sources for defined products as governed by individual approved procurement plans. Includes participation by the NESDIS AA in all Source Evaluation Board (SEB) briefings to the SSO concerning this acquisition or the source selection. See JPSS Program Plan for details.

3.2.7 Performance Evaluation Board

Purpose: Evaluates the performance of contracts consistent with negotiated Award Fee plans. See JPSS Program Plan for details.

3.2.8 Risk Boards

Purpose: Identify and assess program level risks and determine and implement mitigation pathways. See JPSS Program Plan and NOAA JPSS Implementation Plan for details.

3.2.9 Safety and Mission Assurance

Purpose: Enhances the success of the JPSS activities through the implementation of Agency-wide safety, reliability, maintainability, and quality assurance (SRM&QA) policies and procedures.

3.2.10 Major Program Monthly

Purpose: Provide general oversight of the NOAA satellite enterprise.

3.2.11 Quarterly Program Review

Purpose: Provide general oversight of the NOAA satellite enterprise with a focus on risk management.

3.2.12 Council/Board Summary Table

Table 2: Council/Board Summary

Council/Board	NOAA		NASA	
	Role	Final Decision Authority (Explicitly stated)	Role	Final Decision Authority (Explicitly stated)
APMC	ASEOP Co-chair	Y	AA Co-chair	N
NESDIS/SMD PMC	NESDIS AA Co-chair	Y	SMD AA Co-chair	N
CMC	NESDIS AA Co-chair	N	GSFC Deputy Center Director Co-chair	Y
Program and Project Level Configuration Control Board	Vote	N	Chair	Y
SRB	Selects Chair	Y	Selects Chair	Y
Source Selection Boards	Participant	N	Chair	Y
Performance Evaluation Boards	Vote	N	Chair	Recommendation
Risk Board	Vote	N	Chair	Y
Major Program Monthly	ASEOP	N	None	
Quarterly Program Review	DOC Deputy Secretary, DOC CFO/ASA, DOC CIO	N	None	

3.3 ORGANIZATIONAL INTERDEPENDENCIES SUMMARY

The table below summarizes the organizational interdependencies and decision authorities.

Table 3: Organizational Interdependencies Summary

Function	Organization						
	NOAA	**NESDIS/HQ**	**NESDIS/NJO**	**NASA HQ**	**NASA GSFC**	**NASA JPSS Program Level 2**	**NASA JPSS Project Level 3**
Program Initiation (Center Assignment and FAD)		Concur on FAD		Initiate new programs via FAD Approve assignment of programs to Centers Approve appointment of Program Managers Approve Program Chief Engineers	Recommend Program Managers to MDAA Appoint Program Chief Engineers (Technical Authority) in consultation with and after approval by OCE Appoint Center Lead Discipline Engineers (LDEs)	Establish the program office and structure to direct/monitor projects within Program	
Concept and trade studies	APMC to approve all Level 1 trade studies	Provide Authority to Proceed on concept and trade studies	Initiate concept and trade studies Execute concept and NOAA trade studies as appropriate Support concept and trade studies	Formally request Program Office support to NOAA trade studies	Provide technical management of concept and trade studies	Perform architecture studies Develop and execute trade studies Develop cost and schedule of the trade studies	Support and conduct concept and trade studies Support development of cost and schedule associated with trade studies
Development of Program Level Requirements	Approve Level 1 Requirements	Concur Level 1 Requirements Approve allocation of Level 1 Requirements to JPSS Program Plan	Develop Level 1 Requirements Oversee execution of Level 1 Requirements	Concur Level 1 Approve allocation of Level 1 Requirements to JPSS Program Plan Oversee JPSS Program execution of Level 1 Requirements	Concur Level 1 Oversee JPSS Program execution of Level 1 Requirements	Execute level 1 Approve Level 2 Requirements	Execute Level 2 Requirements Approve level 3 Requirements
Resource management (Program Budget)	Conduct annual budget submission reviews	Approve JPSS Budget	Develop JPSS budget Execute the JPSS budget Account for all JPSS Plant, Property and Equipment (PPE) and CWIP	Approve JPSS Program budget submits to NOAA Distribute reimbursable funding authority to Centers Oversee JPSS Program cost and schedule execution	Approve annual submission of NASA project budgets Provide management of NOAA resources applied to the JPSS Program	Develop JPSS Program budget for fiscal year and life cycle Implement Program consistent with budget Provide annual budget submission input Manage Program resources	Provide project budget requirements Execute project budget
NOAA, NASA Agreements related to JPSS Implementation		Sign agreement for NOAA	Negotiate agreements Sign agreements as delegated	Sign for NASA as required		Negotiate and Concur on agreements as needed	
International and Inter- Government Agreements		Sign agreement for NOAA	Negotiate agreements Sign agreements as delegated	Concur on agreements as needed		Negotiate and Concur on agreements as needed	

Function	Organization						
	NOAA	**NESDIS/HQ**	**NESDIS/NJO**	**NASA HQ**	**NASA GSFC**	**NASA JPSS Program Level 2**	**NASA JPSS Project Level 3**
Staffing Management			Establish and manage NESDIS civil servant staffing	Establish Agency commitments for JPSS Program staffing	Provide staff in accordance with annual staffing plan	Develop program staffing plans Implement staff plans	Develop project staffing plans Implement staffing plans
Program Plans	Approve MCP	Approve Program Plan, Implementation Plan, and MCP	Develop and approve Program Plan, Implementation Plan, and MCP	Approve Program Plan, Implementation Plan, and MCP	Approve Program Plan, Implementation Plan, and MCP	Develop and approve Program Plan, Implementation Plan, and MCP	
Program / Project Performance Assessment	Co-Chair APMC	Co-chair SMD-NESDIS PMC Review Program and Projects Co-chair CMC	Coordinate Monthly Reports with NASA JPSS Program Manager	Co-Chair APMC Co-Chair SMD-NESDIS PMC	Review Program and Projects Co-chair CMC	Report monthly at APMC and CMC	Report Monthly at CMC
Program/Project Performance Issues			Monitor program and project performance issues and risks Assist in issue and risk resolution.	Communicate program and project performance issues and risks to Agency management and present plan for mitigation or recovery	Provide support and guidance to programs and projects in resolving technical and programmatic issues and risks Communicate program and project technical performance and risks to Mission Directorate and Agency management and provide recommendations for recovery	Communicate program and project performance issues and risks to Center and Mission Directorate management and present recovery plans	Communicate project performance, issues and risks to Program, Center, and Mission Directorate management and present recovery plans
Independent Reviews	Approve IRT membership Determines SRB scope & chairmanship Receive reports from IRT & SRB	Approve SRB membership Approve System Review Plan Receive reports from IRT and SRB	Support of the IRT Review and respond to SRB results as appropriate	Determines SRB scope & chairmanship Approve SRB membership Manage SRB infrastructure	Approve SRB membership Approve System Review Plan	Support IRT Review and respond to SRB results	Support SRB
Procurement		Concur on strategy Receives briefing from NASA Award FDO on decision and rationale for Award fees	Concur on strategy Member of SSB and PEB	Concur on strategy	Approve strategy Serve as Selecting Official for NASA Contracts Serve as Award FDO	Concur on Strategy Provide support and oversight of source selection process Chair PEB for all major contracts Concur with Award Fee Plan	Formulate Strategy Manage and execute contracts Execute Source Selection process Chair PEBs as delegated by JPSS Program
Acquisition	Approves acquisition strategy	Concur on strategy	Formulate and recommend strategy	Concur on strategy	Concur on strategy	Support formulation of strategy	Support formulation of strategy
Decision Authority for Reviews	Approval authority for program and project-level KDPs (except for KDP-I)	KDPs readiness concurrence		KDPs readiness concurrence	KDPs readiness concurrence		

Function	Organization						
	NOAA	**NESDIS/HQ**	**NESDIS/NJO**	**NASA HQ**	**NASA GSFC**	**NASA JPSS Program Level 2**	**NASA JPSS Project Level 3**
Certification and Accreditation Organization	Perform C&A related authorizing official activities		Perform C&A related authorizing and system owner activities				

4.0 WAIVERS OR DEVIATIONS LOG

No waivers or deviations exist at the time of the original signing of this document. Should any waivers or deviations be approved, a log of such will be maintained.

APPENDIX 1

A-DCS	Advanced Data Collection Systems
A&A	Assessment and Authorization
AETD	Assessment and Authorization
AFWA	Air Force Weather Agency
AMMC	Alternate Mission Management Center
AO	Authorizing Official
AODR	Authorizing Official Designated Representative
APMC	Agency-level Program Management Council
ASEOP	Assistant Secretary of Commerce for Environmental Observation and Prediction
ATMS	Advanced Technology Microwave Sounder
C3S	Command, Control and Communications Segment
Cal/Val	Calibration/Validation
CCB	Configuration Control Board
CDR	Critical Design Review
CERES	Clouds and Earth Radiant Energy System
CGS	Common Ground System
CMC	Center Management Council
CrIS	Cross-track Infrared Sounder
CSO	Chief Safety Officer
CWIP	Construction Work in Progress
DAAS	(NESDIS) Deputy Assistant Administrator for Systems
DMSP	Defense Meteorological Satellite Program
DOC	U.S. Department of Commerce
DoD	U.S. Department of Defense
DWSS	Defense Weather Satellite System
EOS	NASA's Earth Observing System
ESH	Environmental, Safety, and Health
ETA	Engineering Technical Authority
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
FAD	Formulation Authorization Document
FAR	Federal Acquisition Regulation
FDO	Fee Determination Official
FF	Free Flyer
FIPS	Federal Information Processing Standard
FISMA	Federal Information Security Management Act
FNMOC	Fleet Numerical Meteorology and Oceanography Center
FT	Field Terminal
GCOM	Global Change Observation Mission
GSFC	Goddard Space Flight Center
IAA	Interagency Agreement
ICE	Independent Cost Estimate

IDPS	Interface Data Processing Segment
IJPS	Initial Joint Polar-orbiting Satellite System
ILCR	Independent Life-Cycle Review
IRT	Independent Review Team
ISC	Interagency Security Committee
IT	Information Technology
IUSD	Internal Use Software in Development
JASD	Joint Agency Satellite Division
JAXA	Japanese Aerospace Exploration Agency
JPS	Joint Polar System
JPSS	Joint Polar Satellite System
JPSS-1	The first JPSS satellite
JTA	Joint Transition Activities
KDP	Key Decision Point
L1RD	Level 1 Requirements Document
LSS	Launch Support Segment
LTA	Long Term Archive
LTAN	Local Time of the Ascending Node
MCP	Management Control Plan
MDA	Milestone Decision Authority
MMC	Mission Management Center
MOU	Memorandum of Understanding
MRB	Milestone Review Board
MS	Milestone
MSE	Mission Systems Engineer
MSR	Monthly Status Review
NASA	National Aeronautics and Space Administration
NASA AA	NASA Associate Administrator
NAVO	Naval Oceanographic Office
NESDIS	National Environmental Satellite, Data, and Information Service
NESDIS AA	NOAA Assistant Administrator for Satellite and Information Services
NID	NASA Interim Directive
NJO	NOAA JPSS Office
NOAA	National Oceanic and Atmospheric Administration
NOAA DUS/O	NOAA Deputy Under Secretary for Operations
NOSC	NOAA Observing Council
NPOESS	National Polar-orbiting Operational Environmental Satellite System
NPR	NASA Procedural Requirement
OMB	Office of Management and Budget
OMPS	Ozone Mapping and Profiler Suite
OSSMA	Office of Safety and Mission Assurance
PBM	Program Business Manager
PCE	Program Chief Engineer
PDR	Preliminary Design Review

PEB	Performance Evaluation Board
PEP	Performance Evaluation Plan
POES	Polar-orbiting Operational Environmental Satellite
PPBE	Planning, Programming, Budgeting, and Execution
RF	Radio Frequency
SARSAT	Search and Rescue Satellite Aided Tracking
SATCON	Satellite Controller
SDS	Science Data Segment
SEB	Source Evaluation Board
SEE	Strategy, Execution and Evaluation
SMA	Safety and Mission Assurance
SMC	Space and Missile Systems Command
SMD AA	NASA Associate Administrator for Science Mission Directorate
SN	NASA's Space Network
S-NPP	Suomi National Polar-orbiting Partnership
SRB	Standing Review Board
SRM&QA	Safety, reliability, maintainability, and quality assurance
SS	Space Segment
SSO	Source Selection Official
STA	Science Technical Authority
TA	Technical Authority
TSIS	Total Solar Irradiance Sensor
VIIRS	Visible Infrared Imaging Radiometer Suite

APPENDIX 2

Membership of the Joint Agency-Level Program Management Council (APMC)

NASA Principle Membership:[3]
The NASA membership of the APMC shall include the following positions:
Associate Administrator (NASA co-chair)
Associate Administrator, Science Mission Directorate (SMD)
Deputy Associate Administrator for Programs, SMD
Division Director, Joint Agency Satellite Division
GSFC Center Director
GSFC Director for Flight Projects

For KDP APMCs, additional NASA membership includes the following positions:
Assistant Administrator, Office of Safety and Mission Assurance
Chief Engineer
General Counsel

Additional NASA invitees to the APMC shall be included as needed.

NOAA Membership:[4]
The NOAA membership of the APMC shall include the following positions:
Deputy Under Secretary for Operations (NOAA co-chair)
Assistant Administrator for Satellite and Information Services (Alternate NOAA co-chair)
NOAA Chief Financial Officer
NOAA Chief Information Officer
Director, Acquisition and Grants Office
Chief Contracts Law Division, DOC Office of General Counsel
Director, JPSS

Additional NOAA or DOC invitees to the APMC shall be included as needed.

[3] NASA membership tailored from the Charter for a NASA APMC for a NOAA reimbursable program.

[4] NOAA membership tailored from PMC Terms of Reference last updated in DUS/O memo, "Modifications to the Program Management Council in Response to Dr. Lubchenco's September 18, 2012 Decision Memo," dated November 1, 2012; on March 18, 2015, the NOAA Administrator verbally delegated the NOAA co-chair role to the ASEOP.

APPENDIX 3

Membership of the NESDIS/SMD Program Management Council (PMC)

NASA Membership:
The NASA membership of the NESDIS/SMD PMC shall include the following positions:
SMD Deputy Associate Administrator for Programs (DAAP) (NASA co-chair)
SMD Deputy Associate Administrator (alternate NASA co-chair)
SMD Associate Administrator
Director of Joint Agency Satellite Division
Director of the Heliophysics Division
Director of the Planetary System Division
Director of the Astrophysics Division
Director of the Earth Science Division
Director of the Resource Management Division
Director of Strategic Integration and Management Division
Deputy Associate Administrator for Management
SMD Chief Scientist
Chief of Safety and Mission Assurance
NASA Chief Engineer

NOAA Membership:
The NOAA membership of the NESDIS/SMD PMC shall include the following positions:
NOAA Assistant Administrator for Satellite and Information Services (NOAA co-chair)
NOAA Deputy Assistant Administrator for Satellite and Information Services (Alternate NOAA co-chair)
NOAA Deputy Assistant Administrator, Systems
NESDIS Chief Financial Officer
NESDIS Assistant Chief Information Officer - Satellites (ACIO-S)
NESDIS Chief of Staff
Director, JPSS
Director, Office of System Architecture & Advanced Planning
Director, Office of Satellite Ground Services
Director, Office of Projects, Planning & Analysis
Director, Office of Satellite and Product Operations
Director, Center for Satellite Applications and Research
Director, National Centers for Environmental Information
Director, Office of International and Interagency Affairs
Director, Commercial Remote Sensing Regulatory Affairs Office
Director, Acquisition and Grants Office
National Weather Service (NWS) Chief Engineer