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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
U.S. DEPARTMENT OF COMMERCE  
ON THE  
HEARING ENTITLED  
“SETTING NEW COURSES FOR POLAR WEATHER SATELLITES  
AND EARTH OBSERVATIONS”  
BEFORE THE  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT  
COMMITTEE ON SCIENCE AND TECHNOLOGY  
U.S. HOUSE OF REPRESENTATIVES**

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**Introduction**

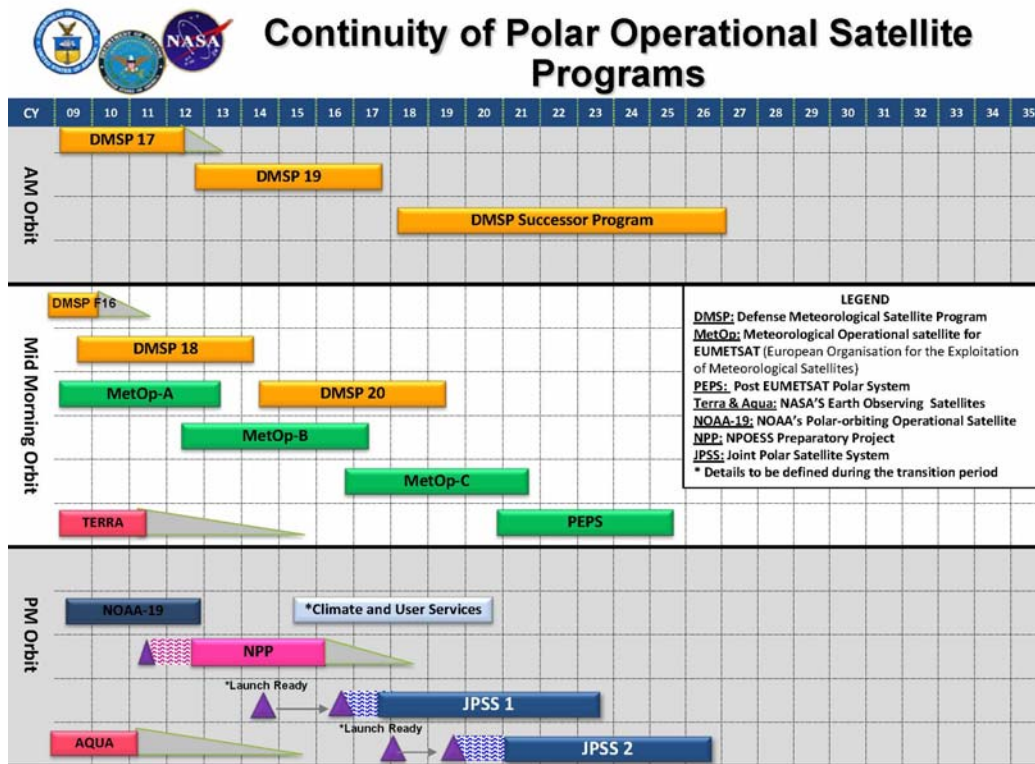
Mr. Chairman and members of the Subcommittee, I am Mary Glackin, the Deputy Under Secretary for Oceans and Atmosphere of the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce (DOC). NOAA’s mission is to understand and predict changes in Earth’s environment and conserve and manage coastal and marine resources to meet our Nation’s economic, social, and environmental needs. NOAA’s satellite systems are tremendously important for global monitoring of environmental conditions in direct support of the agency’s mission.

Data provided by NOAA’s satellites are used in its numerical weather prediction models, which are in turn used by National Weather Service forecasters to inform severe weather warnings, such as tornadoes and flooding, and to support the detection and spread of wild fires, as well as the monitoring and forecasts of hurricanes. NOAA’s satellites are also critical to providing uninterrupted climate data and information to support scientific assessments and climate change predictions. In the Gulf of Mexico, NOAA’s satellites continue to provide important data to support weather and oceanographic forecasts and oil spill response efforts. Given the importance of these satellite systems to NOAA’s mission, it was imperative that a decision be made to address the acquisition challenges within the National Polar-orbiting Operational Environmental Satellite System (NPOESS) program. I appreciate the opportunity to testify about the steps NOAA has taken to implement its responsibilities as outlined in the decision to restructure the National Polar-orbiting Operational Environmental Satellite System (NPOESS) program.

**Decision to Restructure the NPOESS Program**

On February 1, 2010, after an exhaustive review and assessment process, the Administration announced its decision to restructure the NPOESS program. This decision reaffirmed the importance of meeting the Nation’s space-based environmental needs and revised agency

responsibilities for implementation of observational assets and the sustainment of weather and climate observations from polar-orbiting satellites.



NOAA was assigned responsibility for the afternoon orbit and for fielding of the shared ground system. The NOAA Joint Polar Satellite System (JPSS) will support this effort by delivering observations in the afternoon orbit. The Department of Defense (DOD) was assigned responsibility for the early morning orbit. Responsibility for the mid-morning observations remains unchanged, and will be provided by the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) which operates the MetOp polar-orbiting satellites. NOAA is also responsible for cooperative activities with international partners who will assist with implementation of the NPOESS restructure. This coordination involves close contact with EUMETSAT, the Japan Aerospace Exploration Agency, the Centre National d'Études Spatiales, and the Department of National Defence-Canada.

The February 1 decision addresses three major recommendations of an independent review of expert satellite executives that are required for the program to be successful:

- Alignment with a proven acquisition center**  
 NOAA will work with its long standing partner, the National Aeronautics and Space Administration (NASA), as its acquisition agent for JPSS. NOAA and NASA have aligned the JPSS program with the Goddard Space Flight Center, which has very successfully implemented NOAA's Geostationary Operational Environmental Satellite

and Polar-orbiting Operational Environmental Satellite programs. JPSS will benefit from the technical and programmatic resources of NASA, as well as its rigorous acquisition processes.

- **Realistic cost confidence at the 80 percent level**

The NPOESS Integrated Program Office was often forced by near term funding limitations into decisions that were not cost efficient. A budget that realistically reflects the complexity of the program affords NOAA with sufficient resources to address issues that may arise during the development of JPSS without adding risk to overall life cycle cost or delays to launch readiness dates. A higher confidence cost estimate benefits JPSS by improving NOAA's ability to manage the program more effectively. The President's FY 2011 Budget requests \$1.060 billion to implement the JPSS program within a life cycle cost of \$11.9 billion.

- **Clear lines of authority and responsibility**

The division of orbits and observations provides clear accountability to a single agency responsible for each acquisition. Decision authority for JPSS lies within the Department of Commerce/NOAA, rather than multiple agencies (DOD, DOC/NOAA, and NASA). The NOAA Program Management Council, which I chair, is NOAA's management oversight mechanism for the JPSS Program. Membership is comprised of Senior Executives at NOAA and NASA. Similarly, decision authority for DOD acquisitions will be handled within DOD.

### **Status of NOAA's Implementation of the February 1, 2010 Decision**

Notwithstanding the acquisition challenges that the NPOESS program faced, we appreciate the hard work of the many persons who have worked on the NPOESS program since its inception in 1994. All the agencies recognize that transition is a very difficult period. We believe that the transition process related to the February 1, 2010 decision to restructure the NPOESS program may take many months to be fully implemented, but in the long run, the decision to transition to JPSS will be the right one for the United States and its need for uninterrupted, reliable weather and climate data from space.

#### Transition Team

NOAA has established a Transition Team which includes members from DOC, NOAA, and NASA, with participation from DOD. The three agencies have made significant progress and are moving forward in implementing the transition. Concurrent with the Transition Team's activities, NOAA has asked the Office of the Federal Coordinator for Meteorology to ensure that NPOESS requirements for the afternoon orbit are appropriately translated into program level requirements for JPSS. This requirements review team also maintains membership from all three agencies.

## **NPOESS Components being Transitioned to JPSS**

### **Space Segment - Instruments**

NOAA's JPSS afternoon orbit will maintain the observations that were planned for NPOESS in the afternoon orbit. The JPSS Program will consist of:

- Visible/Infrared Imager/Radiometer Suite
- Cross-track Infrared Sounder
- Advanced Technology Microwave Sounder (ATMS)
- Ozone Mapping and Profiler Suite (OMPS) Nadir
- Advanced Data Collection System (A-DCS)
- Satellite-assisted Search and Rescue (SARSAT)

We anticipate that NASA will assume management control of these sensor acquisitions in early FY 2011. NOAA and NASA continue to coordinate with DOD and the NPOESS prime contractor, Northrop Grumman Aerospace System (NGAS) to transition the management of these instrument contracts from NGAS to NASA management control.

With respect to the other measurements that had been part of the NPOESS Program:

- DOD responsibilities under the restructure of the NPOESS program defines the Defense Meteorological Satellite Program (DMSP) successor sensor suite to include a Space Environment Monitor package.
- Observations for microwave imaging and sounding are planned to be provided by international partnership. NOAA has initiated discussions with the Japan Aerospace Exploration Agency to collaborate in its Global Change Observation Mission (GCOM) missions. The GCOM's Advanced Microwave Scanning Radiometer (AMSR) instrument will satisfy the Key Performance Parameters that the Microwave Imager Sounder instrument would have supported and, along with the JPSS ATMS, will continue the legacy microwave capability in the afternoon orbit established by the Polar-orbiting Operational Environmental Satellite sounders and the AMSR on the NASA Earth Observing System (EOS) Aqua mission. DOD's June 22, 2010 Acquisition Decision Memorandum also provides for a to-be-determined microwave sensing capability for the DMSP successor.

The JPSS Program will also fly instruments that are being procured with funds from the NOAA Climate Sensor Program:

- Cloud and Earth Radiant Energy System and the follow-on Earth's Radiation Budget Sensor
- Total Solar and Spectral Irradiance Sensor (TSIS)
- OMPS-Limb

## **Space Segment - Spacecraft**

In order to ensure the lowest risk of an observational gap, NASA, at the request of NOAA, will procure a clone of the NPOESS Preparatory Project (NPP) spacecraft bus to support the JPSS-1 launch readiness date of 2014. NOAA believes an NPP-clone that will carry the same suite of instruments and collect the same data as NPP provides a proven solution for placing core weather and climate sensors on-orbit in the afternoon. This will allow us to meet a launch readiness date in 2014 that minimizes the potential of a data gap. This decision was made after careful analysis and consideration of technical, cost, schedule, and programmatic risks, which included input and advice from NASA. NOAA is seeking an alternate platform to carry the TSIS instruments, and international partnerships to provide SARSAT, and A-DCS data since they will not fit on the NPP-clone. NOAA is still working with NASA and DOD regarding the spacecraft decision for the JPSS-2 spacecraft bus which will support a 2017 launch readiness date.

## **Ground segment**

NOAA, via the JPSS program, will continue the development and fielding of the ground system network that was to support NPOESS and its users. The JPSS ground system allows us to implement an enterprise solution rather than the current stovepiped ground systems.

The President's FY 2011 budget for JPSS provides adequate resources to support NOAA's efforts for complete development of the ground system which will be used by DOD and NOAA for both the morning and afternoon orbits. NOAA believes the challenges that remain to field and deploy the ground system are manageable. There will be a period of time when NOAA and DOD will operate legacy satellites that are ending their useful life, while at the same time operating the JPSS satellites. NOAA's ground system network will support these legacy systems and JPSS satellites, and will be able to ingest and utilize all sources of data. Having access to data from legacy and JPSS systems at the same time will allow for calibration and validation activities of the new data to occur in a measured and deliberate manner and will support enhancement of numerical weather prediction models and climate models.

The advanced observational capabilities planned for the JPSS satellites will provide significantly improved data that will benefit all users. The more accurate JPSS data will support improved weather forecasts and alerts, and will further our understanding of climate to enable informed decisions to mitigate or adapt to climate change.

## **Risk of Data Gaps In the Afternoon Orbit Remains**

NOAA recognizes that the risk of data gap in the afternoon orbit still exists and will likely continue until we have recovered lost schedule and rebuilt critical spares for the afternoon constellation. NOAA's final satellite in its Polar Operational Environmental Satellite series, NOAA-19, was launched in February 2009 and is the primary operational satellite in the afternoon orbit. NOAA also operates, at the request of DOD, the Air Force's Defense

Meteorological Satellite Program satellites. By the end of the year, NOAA will have delivered to EUMETSAT all the NOAA instruments that will fly on the MetOp A, B, and C satellites. The NPP satellite, which NASA expects to launch in 2011, had originally been planned as a demonstration of the key NPOESS instruments. NOAA has included funds in the JPSS budget to support use of the NPP data for operational purposes and as a mitigation measure for a data gap in the afternoon orbit.

I would like to now address the Government Accountability Office (GAO) recommendations.

### **GAO Recommendations for Executive Action**

There are two GAO reports that are the subject of this hearing. The report entitled “*Environmental Satellites: Strategy Needed to Sustain Critical Climate and Space Weather Measurements*” contains a number of recommendations directed at the Executive Office of the President’s Office of Science Technology Policy (OSTP) to initiate high-level coordination of earth and space weather observations across the Executive Branch. NOAA agrees with the recommendations and its general comments were included in the report’s Appendix. I would be remiss if I did not acknowledge the tremendous effort that OSTP has undertaken over the years to address the importance of continuing critical space-based climate observations in 2006 after the Nunn-McCurdy certification of the NPOESS program. Again in 2009, OSTP was a major driver of the review and decision-making that supported the February 1, 2010 announcement to restructure the NPOESS program. Balancing these critical space-based observations is complex, and NOAA is ready to support OSTP in its task.

With respect to the report that GAO is releasing at this hearing, “*Polar-orbiting Environmental Satellites: Agencies Must Act Quickly to Address Risks that Jeopardize the Continuity of Weather and Climate Data*,” NOAA appreciates the perspective GAO professionals have provided during its regular reviews of the NPOESS program. NOAA has met with GAO and provided information and feedback on its most recent report.

The draft GAO report states, “In order to ensure that the transition from [the National Polar-orbiting Operational Environmental Satellite System (NPOESS)] to its successor programs is efficiently and effectively managed, we recommend that the Secretaries of Defense and Commerce take the following four actions:”

**Recommendation 1:** *Direct their respective NPOESS follow-on programs to expedite decisions on the expected cost, schedule, and capabilities of their planned programs.*

NOAA agrees with this recommendation. A transition team has been formed to manage the activities of transitioning the NPOESS activities to the Joint Polar Satellite System (JPSS) program. This team includes representatives from NOAA, NASA, and DOD, who are working together to transition the NPOESS activities to JPSS and DOD (U.S. Air Force) no later than December 31, 2010. NOAA and NASA have signed a memorandum of understanding (MOU) to begin transition activities, which will focus on the cost, schedule and performance capabilities of the JPSS program. As I mentioned

earlier, our ability to make final decisions are still coupled with DOD during this transition phase. Pending the adjudication of all the NPOESS elements into the successor programs, a level of uncertainty will remain regarding resolution of the NGAS contract. Until the NGAS contract is resolved, NOAA will continue to be exposed to additional procurement, schedule and cost risk.

**Recommendation 2:** *Direct their respective NPOESS follow-on programs to develop plans to address key transition risks, including the loss of skilled staff, delays in contract negotiations and setting up new program offices, loss of support for the other agency's requirements, and oversight of new program management.*

NOAA agrees with this recommendation. Under the NOAA NASA Transition MOU, the agencies will define the system concept for JPSS, set the level-1 requirements, establish the acquisition plans, determine the organization and staffing needed to run the program and establish a schedule and cost baseline. These will all be subject to internal program management councils and to external independent review teams. NOAA and NASA are working to ensure that the high performing teams that worked on the NPOESS program are provided an opportunity to continue with the JPSS program. Placement of the civil workforce among the three agencies is being finalized. The transition team is still carefully assessing the skill mix and capabilities that the contractor task support must possess to support the government in its efforts to make JPSS program a success.

**Recommendation 3:** *Direct the NPOESS program office to develop priorities for work stoppage to allow the activities that are most important to maintaining launch schedules to continue.*

NOAA agrees with this recommendation. On March 17, 2010, DOD signed the ADM, "National Polar-orbiting Operational Satellite System (NPOESS) Program Restructure" with a revised ADM which was signed on June 22, 2010 that directs the Air Force to "maximize use of the Government's investment in NPOESS, and (to do so) in a manner that offers maximum opportunities for collaboration with the NOAA JPSS program." In turn, the NPOESS Program Executive Officer (PEO) provided ADM implementation guidance to the NPOESS System Program Director (SPD) on March 26, 2010. This guidance outlines priorities for work stoppage and provides transition guidance for those activities most important to maintaining launch schedules. Subsequently, the PEO and SPD have worked to refine the specifics of implementing the ADM. The Integrated Program Office oversight has been assigned to the Air Force Space and Missile Systems Center (SMC) at Los Angeles AFB, California. A NOAA senior engineer with significant experience in satellite acquisition has been assigned to liaise with SMC to ensure close coordination. This coordination complements ongoing coordination among NOAA, NASA, and DOD.

**Recommendation 4:** *Direct NOAA and DOD officials to develop timeframes for making key decisions on—or accepting the risks related to—the timeliness of [NPOESS Preparatory Project's (NPP's)] data.*

NOAA agrees with this recommendation. The NPP data will be collected once per orbit and provided to users with timeliness comparable to the data from the current Polar-orbiting Operational Environmental Satellites and MetOp satellites. NOAA continues its preparation to use NPP data on an operational basis. NOAA is also working to increase the number of products, from 19 to 54, that will be available to users within the first 18 months from launch. Notwithstanding the NPOESS restructure, all the instruments have been delivered for integration onto the NPP satellite and NOAA is supporting NASA's efforts for the launch of NPP.

## **Conclusion**

NOAA appreciates the Committee's continued interest in the success of the agency's satellite programs. It is widely acknowledged that satellites are very complicated and difficult systems to design, build, and operate. However, their capabilities play a key role in NOAA's mission to observe and predict the Earth's environment and to provide critical information used in protecting life and property. NOAA is acting quickly to support the February 1, 2010 decision to restructure the NPOESS program. While significant risk exists, NOAA is confident that the restructured program offers greater chances for success than the NPOESS program provided. DOC and NOAA remain committed to pursuing a program that will provide continuity of data for the Nation's weather and climate prediction needs. I would be happy to answer any questions you may have.