



Report In Brief

APRIL 26, 2016

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Background

NOAA's Joint Polar Satellite System (JPSS) program is planning two additional missions, JPSS-3 and JPSS-4. Introduced in NOAA's fiscal year (FY) 2016 budget submission as the Polar Follow-On (PFO) program, the missions would be integrated with and extend the JPSS program from 2025 out to 2038. Meanwhile, the program is working to complete the JPSS-1 satellite, a major upgrade of its ground system, and launch by end of March of 2017. The program has also begun acquisitions of instruments and a spacecraft for JPSS-2, which is slated to launch in 2021.

In late 2013, the (then-Acting) NOAA Administrator and Director of the National Weather Service together issued a statement that concluded "that a lack of JPSS-quality data" from the afternoon polar orbit "would erode everyday weather forecasts and expose the nation to a 25 percent chance of missing extreme event forecasts that matter most." An independent review team (IRT) recommended that NOAA establish, as a national priority, a robust JPSS program.

Why We Did This Review

The objectives of this review were to (1) determine the progress of Polar Follow-On program planning, (2) monitor ongoing JPSS acquisition and development (i.e., JPSS-1 and JPSS-2 missions), and (3) assess the extent of potential data gaps. We have conducted oversight of the JPSS program since its inception; this is our fourth report on the program and related activities.

The Joint Polar Satellite System: Further Planning and Executive Decisions Are Needed to Establish a Long-term, Robust Program

OIG-16-026-I

WHAT WE FOUND

We found that

PFO plans needed further development to support the establishment of program cost, schedule, and performance baselines. In reviewing PFO planning efforts, we found that the program had to postpone formulation milestones that will support the establishment of cost, schedule, and performance baselines. Until such baselines are established, the ultimate cost and schedules of the JPSS-3 and JPSS-4 missions will remain uncertain. Additionally, the program was planning to evolve the JPSS ground system and faced a significant management challenge in transitioning its management from National Aeronautics and Space Administration (NASA) to NOAA.

Satellite and ground system development challenges posed risk to the JPSS-1 launch schedule. Our monitoring of ongoing JPSS development efforts found that the JPSS-1 mission had maintained its schedule to meet its launch commitment date of no later than March 2017. However, the satellite will be completed later than planned and must undergo final environmental testing. Further, a major upgrade of the ground system has been delayed, and as a result, satellite compatibility testing may either be compromised or cause a schedule slip. As a result, there is risk to the mission schedule that requires the continued attention of senior management.

The potential for polar satellite data gaps requires leadership's sustained attention. Until JPSS-1 is operational, NOAA will not have full backup capabilities for those provided by Suomi National Polar-orbiting Partnership (NPP) and is therefore at risk of a data gap. Our updated assessment found that the potential data gap between Suomi NPP and JPSS-1 has decreased to a period of 7–10 months, beginning in November 2016. Beyond this near-term condition, we found that the long-term plans for the JPSS program (including PFO) would notionally meet NOAA's criteria for a robust satellite architecture for only a 10-year period within its life cycle, which extends to 2038. However, the program's ability to launch a satellite within 1 year of an on-orbit failure is uncertain. Further, NOAA lacks plans for managing the development of, and integrating, new satellite technology.

WHAT WE RECOMMEND

We made the following recommendations to NOAA leadership:

1. Coordinate with the Deputy Secretary to determine who will be Milestone Decision Authority for establishing PFO program cost, schedule and performance baselines, and plan activities supporting a PFO baseline establishment key decision point.
2. Ensure the program's transition plan framework is subjected to expert, independent review.
3. Direct the JPSS program, on a regular basis, to report trends of schedule metrics for ground system development and JPSS-1 mission preparations to provide insight into issues, sufficiency of resources, and mission readiness.
4. Direct the completion of a study of JPSS Block 2.0 common ground system development to capture lessons learned and apply them to plans for the Segment3.0/Block 3.0 system and NOAA's Ground Enterprise Architecture System development.
5. Ensure that NWS completes its contingency plan for JPSS-1 data assimilation and communicates it to users and stakeholders by end of the third quarter of FY 2016.
6. Provide Department, OMB, and Congressional stakeholders with a list of key activities for operationalizing JPSS-1 data that NOAA will undertake during the potential data gap.
7. Provide stakeholders with the results of its study of launch-on-need versus launch-on-schedule strategies, as well as the implications for PFO plans.
8. Incorporate NOAA's robust architecture criteria into formal NOAA policy.
9. Include new satellite technology insertion as part of NOAA's strategic and tactical plans.