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ENVIRONMENTAL SATELLITES

Polar-orbiting Satellite Acquisition Faces Delays; Decisions Needed on Whether and How to Ensure Climate Data Continuity

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Highlights

Highlights of GAO-08-518, a report to the Subcommittees on Energy and Environment and Investigations and Oversight, Committee on Science and Technology, House of Representatives

Why GAO Did This Study

The National Polar-orbiting Operational Environmental Satellite System (NPOESS) is a tri-agency acquisition—managed by the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), the Department of Defense (DOD), and the National Aeronautics and Space Administration (NASA)—that has experienced escalating costs, schedule delays, and technical difficulties. These factors led to a June 2006 decision to restructure the program by reducing the number of satellites and sensors, increasing estimated costs to $12.5 billion, and delaying the first two satellites by 3 to 5 years.

Among other objectives, GAO was asked to evaluate progress in restructuring the acquisition, assess the status of key program components and risks, and assess NASA's, NOAA's, and DOD's plans for obtaining the data originally planned to be collected by NPOESS sensors, but eliminated by the restructuring. To do so, GAO analyzed program and contractor data, attended program reviews, and interviewed agency officials.

What GAO Recommends

GAO recommends that Commerce, NASA, and DOD coordinate to develop plans on whether and how to restore climate and space weather sensors removed from the NPOESS program. GAO is also reemphasizing a prior recommendation for agency executives to finalize acquisition documents. Agency officials agreed with both recommendations.

To view the full product, including the scope and methodology, click on GAO-08-518. For more information, contact David Powner at (202) 512-9286 or pownerd@gao.gov.

What GAO Found

The program office has completed most of the major activities associated with restructuring the NPOESS acquisition, but key activities remain to be completed. In the past year, the program redefined the program's deliverables, costs, and schedules, and renegotiated the NPOESS contract. However, agency executives have not yet finalized selected acquisition documents (including the tri-agency memorandum of agreement). Without the executive approval of key acquisition documents, the program lacks the underlying commitment needed to effectively manage a tri-agency program.

Over the past year, the NPOESS program has continued to make progress in completing development activities, but key milestones have been delayed and multiple risks remain. Specifically, poor workmanship and testing delays caused an 8-month slip in the expected delivery of a technologically complex imaging sensor that is critical to weather and climate observations. This later delivery caused a corresponding 8-month delay in the expected launch date of a demonstration satellite, called the NPOESS Preparatory Project (NPP). This demonstration satellite is intended to provide on-orbit experiences that can be used to reduce risks on NPOESS satellites and to provide interim weather and climate observations should predecessor weather and climate satellites begin to degrade or fail. Moving forward, risks remain in completing the testing of key sensors, integrating them on the NPP spacecraft, and ensuring sufficient system security. The program office is aware of these risks and is working to mitigate them, but continued problems could affect the program's overall schedule and cost.

When the NPOESS restructuring decision removed four climate and space environment sensors from the program and reduced the functionality of four others, the program was directed to restore a limited version of one sensor and to restore the seven others if funded by entities outside the program office. NOAA, NASA, and DOD have taken preliminary steps to restore the capabilities of selected sensors by prioritizing the sensors, assessing options for restoring them, and making decisions to mitigate near-term data gaps by adding two sensors to the NPP satellite. However, the agencies have not yet developed plans to mitigate the loss of these and other sensors on a long-term basis. Until such a plan is developed, the agencies may lose windows of opportunity for selecting cost effective options or they may resort to an ad hoc approach to restoring these sensors. Almost 2 years have passed since key sensors were removed from the NPOESS program; further delays in establishing a plan could result in gaps in the continuity of climate and space environment data.