

Why GAO Did This Study

Environmental satellites provide critical data used in forecasting weather and measuring variations in climate over time. NPOESS—a program managed by NOAA, DOD, and the National Aeronautics and Space Administration—was planned to replace two existing polar-orbiting environmental satellite systems. However, 8 years after a development contract for the NPOESS program was awarded in 2002, the cost estimate had more than doubled—to about \$15 billion, launch dates had been delayed by over 5 years, significant functionality had been removed from the program, and the program’s tri-agency management structure had proven to be ineffective. In February 2010, a presidential task force decided to disband NPOESS and, instead, to have NOAA and DOD undertake separate acquisitions.

GAO was asked to evaluate (1) efforts to transfer responsibilities from the NPOESS program to the separate NOAA and DOD programs, (2) NOAA’s progress in developing its satellite system, and (3) NOAA’s efforts to mitigate key project risks. To do so, GAO analyzed program management, contract, cost, and risk data, attended executive program reviews, and interviewed agency and contractor officials.

What GAO Recommends

GAO is making a recommendation to NOAA to establish mitigation plans to address the risk of satellite data gaps. NOAA agreed with GAO’s recommendation and noted that the agency is developing a report to address the risk of data gaps.

View [GAO-12-604](#). For more information, contact David Powner at (202) 512-9286 or pownerd@gao.gov.

POLAR-ORBITING ENVIRONMENTAL SATELLITES

Changing Requirements, Technical Issues, and Looming Data Gaps Require Focused Attention

What GAO Found

Following the decision to disband the National Polar-orbiting Operational Environmental Satellite System (NPOESS) program in 2010, both the National Oceanic and Atmospheric Administration (NOAA) and the Department of Defense (DOD) made initial progress in transferring key management responsibilities to their separate program offices. Specifically, NOAA established a Joint Polar Satellite System (JPSS) program office, documented its requirements, and transferred existing contracts for earth-observing sensors to the new program. DOD established its Defense Weather Satellite System program office and modified contracts accordingly. However, recent events have resulted in major program changes at both agencies. NOAA plans to revise its program requirements to remove key elements, including sensors and ground-based data processing systems, to keep the program within budget. Further, in early 2012, DOD decided to terminate its program and reassess its requirements.

Over the past year, NOAA has made progress in developing its satellite system, but critical decisions and milestones lie ahead. In October 2011, the JPSS program office successfully launched a satellite originally called the NPOESS Preparatory Project (NPP). Data from the satellite are currently being calibrated and validated, and NOAA meteorologists started using selected satellite data products in their weather forecasts in May 2012. Further, the three major components of the JPSS program (the flight, ground, and free-flyer projects) are at different stages of development. Within the flight project, development of the sensors for the first JPSS satellite is well under way; however, selected sensors are experiencing technical issues. The ground project is currently in operation supporting NPP and NOAA is planning to upgrade parts of the ground system infrastructure to increase its security and reliability. The free-flyer project, intended to integrate and launch key instruments that could not be accommodated on the JPSS satellites, is still in a planning stage because NOAA has not yet decided which satellites will host the instruments or when these satellites will launch.

The JPSS program office has implemented elements of an effective risk management process; however, the program still faces significant risks. It does not yet have a cost and schedule baseline in place, the program office is not yet fully staffed, and there will likely be a gap in satellite data lasting 17 to 53 months from the time NPP is projected to cease operations and the first JPSS satellite begins to operate. There are also potential satellite data gaps in the DOD and European polar satellite programs, which provide supplementary information to NOAA forecasts. The JPSS program office is managing the first two risks, but NOAA has not established plans to mitigate potential satellite gaps. Until these risks are mitigated and resolved, civilian and military satellite data users may not have the information they need for timely weather forecasting, thereby risking lives, property, and commerce.