

Why GAO Did This Study

The GOES-R series is a set of four satellites intended to replace existing weather satellites that will likely reach the end of their useful lives in about 2015. NOAA estimates the series to cost \$10.9 billion through 2036. Because the transition to the series is critical to the nation's ability to maintain the continuity of data required for weather forecasting, GAO reviewed NOAA's management of the GOES-R program.

Specifically, GAO was asked to (1) assess NOAA's progress in developing the GOES-R satellite program, (2) evaluate whether the agency has a reliable schedule for executing the program, and (3) determine whether the program is applying best practices in managing and mitigating its risks.

GAO analyzed program management, acquisition, and cost data; evaluated contractor and program-wide schedules against best practices; analyzed program documentation including risk management plans and procedures; and interviewed government and contractor staff regarding program progress and challenges.

What GAO Recommends

GAO is making recommendations to NOAA to assess and report reserves needed over the life of the program, improve the reliability of its schedules, and address identified program risks. NOAA concurred or partially concurred with GAO's recommendations.

View [GAO-12-576](#). For more information, contact David A. Powner at (202) 512-9286 or pownerd@gao.gov.

GEOSTATIONARY WEATHER SATELLITES

Design Progress Made, but Schedule Uncertainty Needs to be Addressed

What GAO Found

The Geostationary Operational Environmental Satellite-R series (GOES-R) program has made progress by completing its early design milestones and is nearing the end of the design phase for its spacecraft, instrument, and ground system components. While the program continues to make progress, recent technical problems with the instruments and spacecraft, as well as a significant modification to the ground project's development plan, have delayed the completion of key reviews and led to increased complexity for the development of GOES-R. The technical and programmatic challenges experienced by the flight and ground projects have led to a 19-month delay in completing the program's preliminary design review. Nevertheless, program officials report that its planned launch date of October 2015 for the first satellite has not changed. While the program reports that approximately \$1.2 billion is currently in reserve to manage future delays and cost growth, significant portions of development remain for major components. As a result, the program may not be able to ensure that it has adequate resources to cover ongoing challenges as well as unexpected problems for the remaining development of all four satellites.

The success in management of a large-scale program depends in part on having a reliable schedule that defines, among other things, when work activities and milestone events will occur, how long they will take, and how they are related to one another. To its credit, the program has adopted key scheduling best practices and has recognized certain scheduling weaknesses. It has also recently instituted initiatives to automate its integrated master schedule, correct integration problems among projects, and assess schedule confidence based on risk. However, unresolved schedule deficiencies remain in its integrated master schedule and the contractor schedules that support it, which have contributed to a re-plan of the schedule of the ground system and to the potential for delays to satellite launch dates. The program recently determined that the likelihood of the first satellite meeting its planned October 2015 launch date is 48 percent. Based on this planned launch date, the program reports that there is a 37 percent chance of a gap in the availability of two operational GOES-series satellites, which could result in the need for the National Oceanic and Atmospheric Administration (NOAA) to rely on older satellites that are not fully functional. Until its scheduling weaknesses are addressed, it will be more difficult for the program to know whether its planned remaining development is on schedule.

NOAA has established policies and procedures that conform with recognized risk management best practices. For example, the program has documented a strategy for managing risks that includes important elements, such as relevant stakeholders and their responsibilities and the criteria for evaluating, categorizing, and prioritizing risks. However, while the program has a well-defined risk management process, it has not been fully implemented. For example, the program has not provided adequate or timely evaluations for potential risks, did not always provide adequate rationale for the decision to close a risk, and has at least two critical risks in need of additional attention. Until all defined risk management practices are diligently executed and critical risks adequately mitigated, the GOES-R program is at risk of exceeding cost and schedule targets, and launch dates could slip.