



Highlights of [GAO-10-227SP](#), a report to congressional committees

### Why GAO Did This Study

The National Aeronautics and Space Administration (NASA) plans to invest billions in the coming years in science and exploration space flight initiatives. The scientific and technical complexities inherent in NASA's mission create great challenges in managing its projects and controlling costs. In the past, NASA has had difficulty meeting cost, schedule, and performance objectives for many of its projects. The need to effectively manage projects will gain even more importance as NASA seeks to manage its wide-ranging portfolio in an increasingly constrained fiscal environment.

This report provides an independent assessment of selected NASA projects. In conducting this work, GAO compared projects against best practice criteria for system development including attainment of knowledge on technologies and design. GAO also identified other programmatic challenges that were contributing factors in cost and schedule growth of the projects reviewed. The projects assessed are considered major acquisitions by NASA—each with a life-cycle cost of over \$250 million. No recommendations are provided in this report; however, GAO has reported extensively and made recommendations on NASA acquisition management in the past. GAO has designated NASA's acquisition management as a high risk area since 1990.

To view the full product, including the scope and methodology, click on [GAO-10-227SP](#). For more information, contact Cristina Chaplain at (202) 512-4841 or [chaplainc@gao.gov](mailto:chaplainc@gao.gov).

## NASA

### Assessments of Selected Large-Scale Projects

### What GAO Found

GAO assessed 19 NASA projects with a combined life-cycle cost of more than \$66 billion. Of those 19 projects, 4 are still in the formulation phase where cost and schedule baselines have yet to be established, and 5 just entered the implementation phase in fiscal year 2009 and therefore do not have any cost and schedule growth. However, 9 of the 10 projects that have been in the implementation phase for several years experienced cost growth ranging from 8 to 68 percent, and launch delays of 8 to 33 months, in the past 3 years. These 10 projects had average development cost growth of almost \$121.1 million—or 18.7 percent—and schedule growth of 15 months, and a total increase in development cost of over \$1.2 billion, with over half of this total—or \$706.6 million—occurring in the last year. In some cases, cost growth was higher than is reported because it occurred before project baselines were established in response to the statutory requirement in 2005 for NASA to report cost and schedule baselines for projects and implementation with estimated life-cycle cost of more than \$250 million. See the table below for a summary of the 10 projects. Additionally, NASA was recently appropriated over \$1 billion through the American Recovery and Reinvestment Act of 2009.

**Cost and Schedule Growth of Selected NASA Projects in the Implementation Phase**

Project	Baseline (FY)	Development cost growth (\$ in millions)	Percent cost growth	Launch delay (Months)
Aquarius	2008	\$15.9	8.3	10
Glory	2009	\$37.0	14.3	16
Herschel	2007	\$9.7	8.3	21
Kepler	2007	\$77.5	24.8	9
LRO	2008	\$52.3	12.4	8
MSL	2008	\$662.4	68.4	25
NPP	2007	\$132.1	22.3	33
SDO	2007	\$58.9	9.4	18
SOFIA	2007	\$162.3	17.7	12
WISE	2008	\$2.8	1.5	1
<b>Average</b>		<b>\$121.1</b>	<b>18.7</b>	<b>15</b>
<b>Total cost growth</b>		<b>\$1,210.9</b>		

Source: GAO analysis of NASA project data.

Note: Shading indicates projects that exceeded their cost and/or schedule baselines.

Many of the projects GAO reviewed experienced challenges in developing new or retrofitting older technologies, stabilizing engineering designs, managing the performance of their contractors and development partners, as well as funding and launch planning issues. Reducing the kinds of problems this assessment identifies in acquisition programs hinges on developing a sound business case for a project. Based, in part, on GAO's previous recommendations, NASA has acted to adopt practices that would ensure programs proceed based on a sound business case and undertaken initiatives aimed at improving program management, cost estimating, and contractor oversight. Continued attention to these efforts and effective, disciplined implementation should help maximize NASA's acquisition investments.