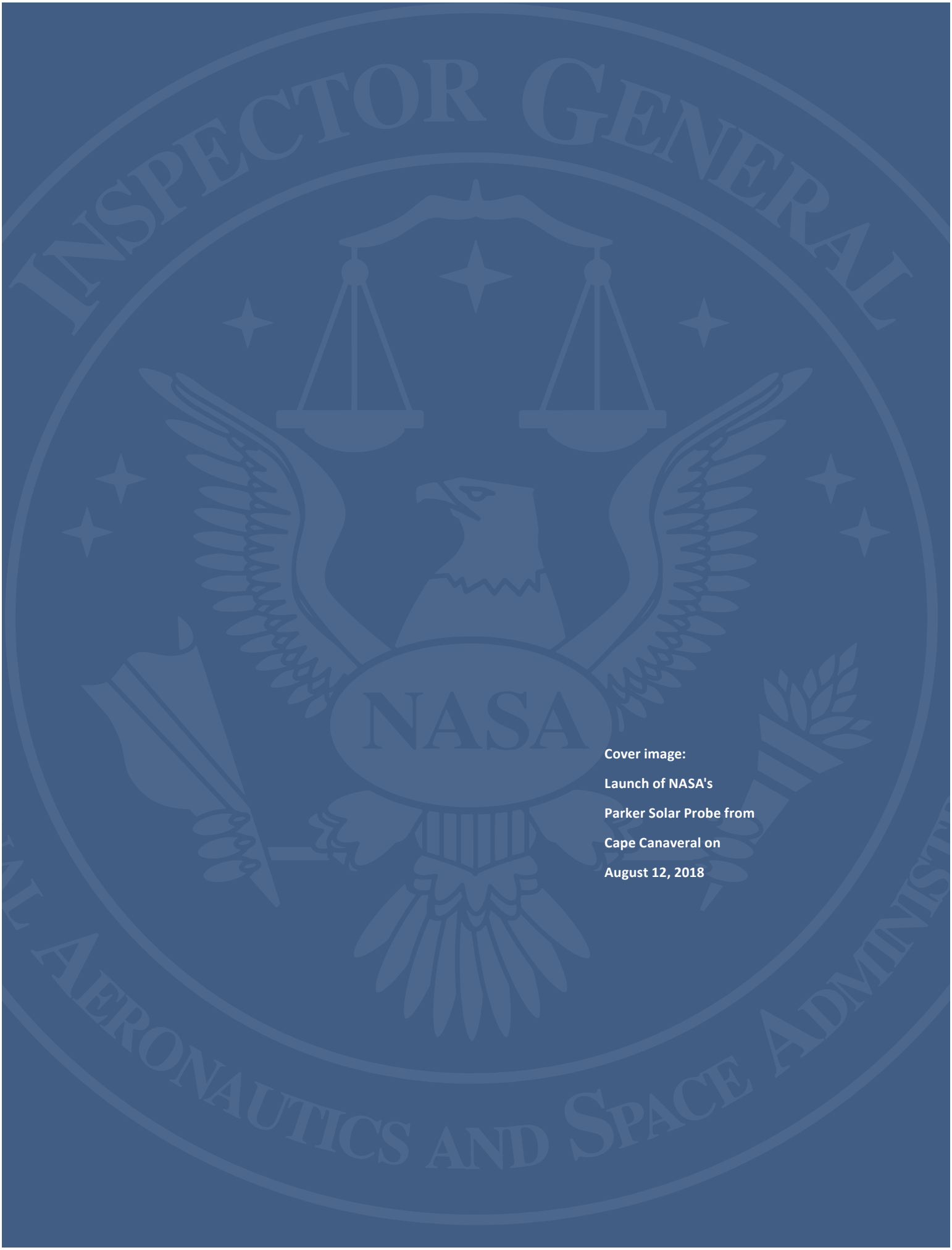
NASA OFFICE OF INSPECTOR GENERAL

SEMIANNUAL REPORT

APRIL 1–SEPTEMBER 30, 2018



Cover image:
Launch of NASA's Parker Solar Probe from Cape Canaveral on August 12, 2018

FROM THE INSPECTOR GENERAL

The Office of Inspector General (OIG) testified at two congressional oversight hearings during the reporting period on topics of longstanding interest to Congress and NASA: the International Space Station (ISS or Station) and NASA's ongoing challenge in managing its projects to avoid cost and schedule overruns.

First, a May 2018 hearing before the Senate Subcommittee on Space, Science, and Competitiveness examined NASA's utilization of the ISS and the challenges and opportunities related to the Station's post-2024 future. The OIG has issued 13 reports related to the ISS over the past 5 years, including reviews examining NASA's research efforts aboard the Station, plans to extend its operations, the status of contracts with private companies to fly cargo and eventually crew to the Station, and the Agency's coordination with international partners in supporting Station activities. In addition to the OIG's past work, the testimony drew extensively on a new OIG audit that assessed NASA's progress in maximizing utilization of the ISS, the Agency's plans to transition the Station to commercial operation in October 2024, and the Station's eventual decommission and deorbit.

The second hearing, convened by the House Subcommittee on Space in June 2018, examined the challenges NASA faces in meeting project cost, schedule, and performance goals. At this hearing, the OIG discussed the numerous reports it has issued over the past 8 years examining the historic project management challenges NASA faces and the tools the Agency has developed to address its shortcomings. In addition, the OIG's testimony highlighted the four factors it believes present the greatest challenge to successful project outcomes: NASA's culture of optimism, underestimating technical complexity, funding instability, and development and retention of new and experienced project managers.

Whether at a hearing or in the normal course of its work, the OIG continues to present timely, comprehensive, and insightful audit and investigative findings to help decision makers at the Agency and in Congress improve NASA.

Finally, during this reporting period, George A. Scott, a 30-year veteran of the Government Accountability Office who most recently served as Managing Director of its Homeland Security and Justice team, joined NASA OIG as Deputy Inspector General.

This semiannual report summarizes the OIG's activities and accomplishments between April 1, 2018, and September 30, 2018. We hope you find it informative.

Paul K. Martin
Inspector General
October 31, 2018


INSPECTOR GENERAL
NASA
AERONAUTICS AND SPACE ADMINISTRATION

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40th Anniversary

This year, we mark the 40th anniversary of the Inspector General Act of 1978 (IG Act). Over the past 4 decades, the OIG community has grown to include 73 statutory Inspectors General (IG) who collectively oversee the operations of nearly every aspect of the federal government.

Established on October 1, 1978, NASA OIG was one of the original 12 IGs created by the IG Act. Since November 30, 2009, Paul K. Martin has served as the NASA IG. Prior to IG Martin, 10 individuals have served as IG or Acting IG, including Eldon D. Taylor (pictured above, right), who was appointed by President Jimmy Carter to serve as the first NASA IG.

Since its creation, NASA OIG has conducted important investigative and audit work that has positively impacted NASA, including one of the first major investigations of procurement fraud and irregularities involving a major aerospace contractor, multiple investigations that led to the recovery of Moon rocks, and reviews of major NASA programs such as the Hubble Space Telescope. More recently, NASA OIG has conducted investigations that have led to the conviction of cybercriminals in multimillion-dollar fraud schemes, reviewed NASA's new heavy-lift rocket and crew capsule, evaluated the Agency's plans for human exploration of Mars, and reviewed NASA-contracted cargo resupply missions to the International Space Station by private companies.

Beyond our investigative and audit work, twice a year we provide Congress and the public with a report detailing our independent oversight of NASA during the previous 6-month reporting period. This report marks our 78th semiannual report. In the years to come, we look forward to continuing our efforts to provide independent oversight of NASA while working collaboratively with other OIGs and the Council of Inspectors General on Integrity and Efficiency on important cross-cutting issues.

OFFICE OF AUDITS

Artist's rendering of the Space Launch System

ACQUISITION AND PROJECT MANAGEMENT

Effective contract, grant, and project management remains an ongoing challenge for NASA. Through its audits, the OIG helps ensure NASA engages in sound procurement and acquisition practices that provide the Agency and taxpayer with the best possible value.

NASA'S MANAGEMENT OF GISS: THE GODDARD INSTITUTE FOR SPACE STUDIES

Since its establishment in 1961, NASA's Goddard Institute for Space Studies (GISS or the Institute) has collaborated with the world science community to research the structure of Earth, the Moon, and other planetary bodies; the atmospheres of Earth and other planets; the origin and evolution of the solar system; the properties of interplanetary plasma; Sun-Earth relations; and the structure and evolution of stars. In this audit, we assessed the extent to which GISS (1) supports NASA's science goals and objectives, (2) complies with NASA's standards for the public release of scientific and technical information, (3) appropriately uses appropriated and nonappropriated funds in support of its mission, and (4) coordinates its research with NASA, other federal agencies, and members of the scientific community. Although we found that GISS is a major contributor in helping NASA meet its Earth science research goals, we also found that the Institute's review process for public release of scientific and technical information could be improved, $1.63 million in GISS expenditures since 2012 were unallowable, and GISS missed opportunities to partner with other federal agencies and entities that conduct similar work. Of our eight recommendations, NASA concurred with six and partially concurred with two.

NASA's Management of GISS:
The Goddard Institute for Space Studies
(IG-18-015, April 5, 2018)

(Report)

(Video)

ONGOING AUDIT WORK

NASA's Management of Its Heliophysics Portfolio

Heliophysics is the study of the Sun's effects on the solar system. Many of NASA's 32 active heliophysics spacecraft have long outlived their original design lives, and any failure of these spacecraft would threaten the Agency's ability to continue collecting valuable data on space weather. This review will assess NASA's management of its heliophysics portfolio, including missions such as the Parker Solar Probe, Solar Dynamics Observatory, and Voyager, and examine whether the Agency is meeting its heliophysics science goals and the priorities of the National Research Council's (NRC) decadal surveys.[1]

Audit of NASA's Processes for Acquiring Service Contracts

In fiscal year 2016, NASA awarded approximately $18.3 billion in contracts. Of this amount, about 90 percent was spent on contracting for services. Because of previously identified issues with NASA's contracting process, we initiated this audit to examine the Agency's process for acquiring service contracts.

Audit of the SETI Institute

The SETI Institute is a private, nonprofit organization established to explore, explain, and understand the origin and nature of life in the universe. In fiscal year 2018, the Institute had 85 active awards with NASA totaling about $81 million. This audit will assess the Institute's use of NASA funds and the extent to which its efforts support NASA's science goals and objectives.

Audit of NASA's Technology Transfer Program

Technology transfer is the process of moving inventions from the laboratory to the marketplace, promoting commerce, encouraging economic growth, and stimulating innovation. NASA encourages the widest possible utilization of its technology by the public and private sectors to benefit the nation's economy. While technology transfer and commercialization are fundamental to NASA's mission, in a 2012 audit we found a general lack of awareness within the Agency of NASA's policy governing the technology transfer process. This follow-up audit will assess how well NASA is managing the technology transfer process in accordance with the National Aeronautics and Space Act of 1958 and Agency policy.

Review of NASA's Strategic Assessment Contract

NASA's Strategic Assessment Contract supports independent cost, schedule, and technical risk assessments for the Agency's safety and mission assurance activities and life-cycle reviews. Initially awarded in February 2014 as a $30 million blanket purchase agreement, the contract's total value increased to $130 million in early 2018. This review will assess NASA's management of the contract relative to its intended objectives, cost, schedule, and scope.

[1] NRC conducts studies that present a consensus from the scientific community on key questions posed by NASA and other federal government agencies. The broadest of these studies is known as the decadal survey. Once every decade, NASA and its partners ask NRC to look 10 or more years into the future and prioritize Agency research areas, observations, and missions. NRC has published two heliophysics decadal surveys—one in 2003 and another in 2013.

Image of Jupiter's moon Europa visible against the planet in the lower left corner.

NASA's Management of the Europa Project

Beginning in fiscal year 2013, Congress provided funding to NASA for a science mission to explore Europa, a moon of Jupiter that scientists believe has a liquid ocean that could contain life. As part of this mission, NASA was directed to launch an orbiter to Europa by 2022 and a lander by 2024 using the Space Launch System (SLS), the Agency's new rocket currently under development. As of fiscal year 2018, NASA has received more than $1.2 billion in funding for these missions and estimates total life-cycle costs at more than $5 billion, excluding SLS launch costs. Our audit will assess NASA's management of the Europa project relative to achieving technical objectives, meeting milestones, controlling costs, and addressing congressional directives.

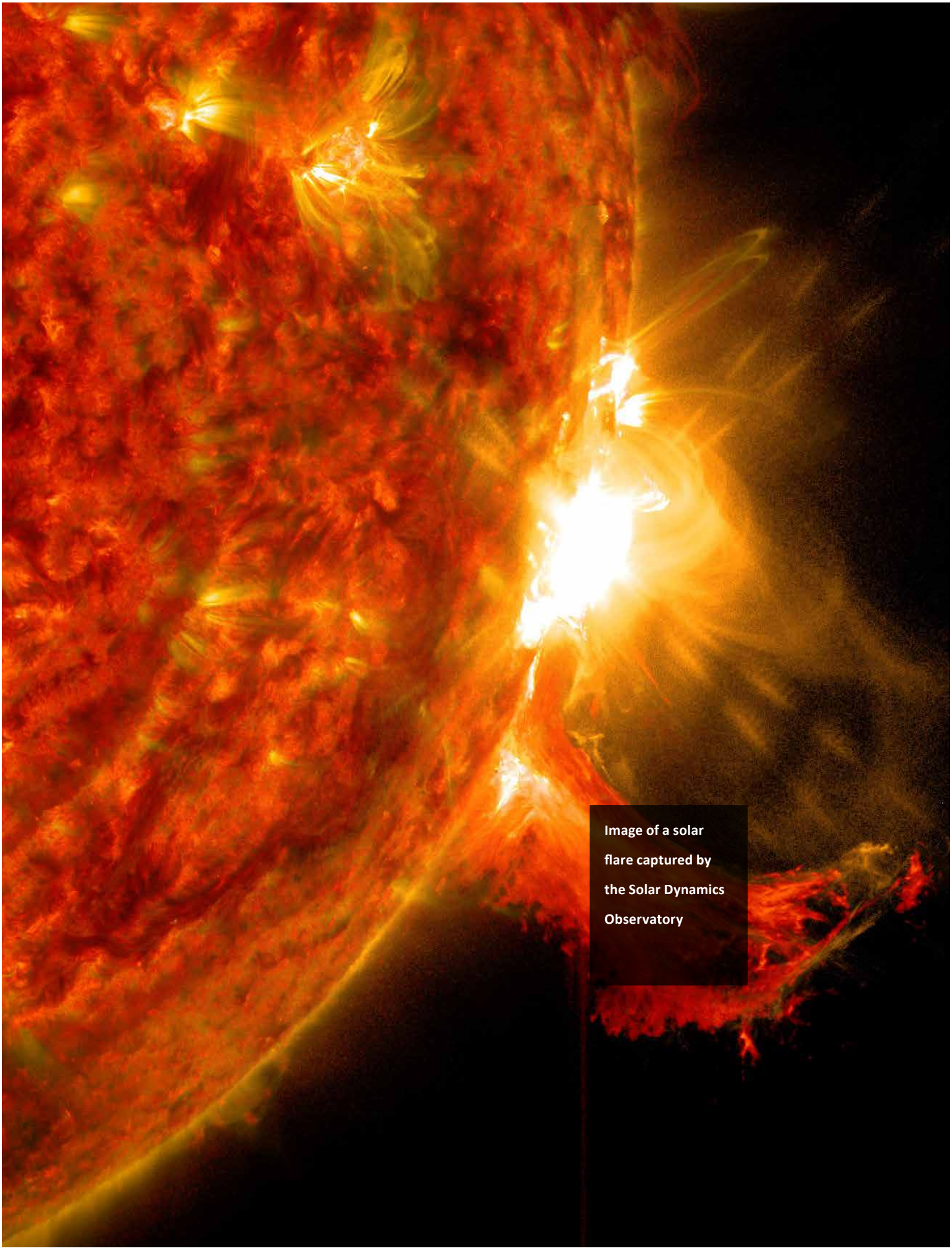


Image of a solar flare captured by the Solar Dynamics Observatory

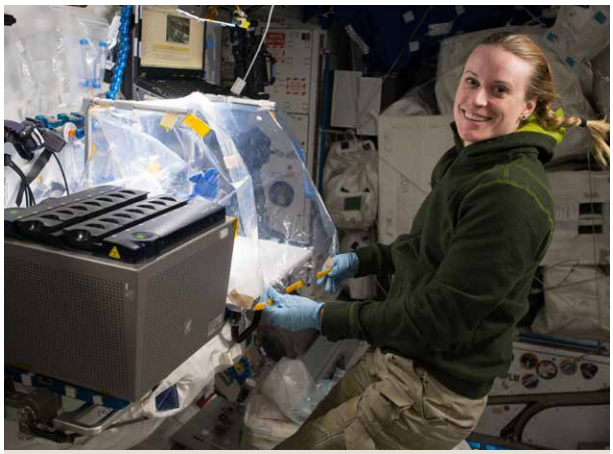
SPACE OPERATIONS AND HUMAN EXPLORATION

Space operations and human exploration are among NASA's most visible missions, with the Agency operating the ISS, managing the commercial crew and cargo programs that support the Station, and planning for future exploration beyond low Earth orbit with the SLS and Orion Multi-Purpose Crew Vehicle (Orion).

NASA'S MANAGEMENT AND UTILIZATION OF THE INTERNATIONAL SPACE STATION

For the past 20 years, NASA has used the ISS as a platform for humans to live and work in space. However, with an annual budget of $3 to $4 billion, maintaining and supporting the ISS accounts for roughly half of NASA's annual human space flight budget. Given the substantial ongoing investment, we assessed NASA's progress in maximizing ISS utilization to accomplish its human exploration objectives and evaluated the options and challenges associated with transitioning the ISS to commercial operation, extending its operational life, and eventually retiring and deorbiting all or part of the Station. We found that although NASA continues to perform well against metrics that track on-orbit research and overall use of the ISS, research into several human health risks associated with long-term space flight may not be completed before the Station's current planned retirement date of 2024. Further, current Agency plans to end direct federal funding of the Station and transition it to commercial operation beginning in 2025 are highly questionable; however, extending ISS operations beyond 2024 also carries risks and challenges. NASA management concurred with and described actions to address our five recommendations.

NASA's Management and Utilization of the International Space Station
(IG-18-021, July 30, 2018)
(Report)



Astronaut studying DNA aboard the ISS

AUDIT OF COMMERCIAL RESUPPLY SERVICES TO THE INTERNATIONAL SPACE STATION

Since the Space Shuttle's final flight in 2011, NASA has relied on private companies to deliver cargo to the ISS through Commercial Resupply Services (CRS) contracts. Cargo missions are key to the successful utilization of the ISS, and NASA continues to rely on commercial partners to provide this vital service as the Agency searches for cheaper and more efficient methods to explore space. In this audit, we examined the CRS contracts; specifically, (1) the extent to which the second round of CRS contracts (CRS-2) provide the best value to NASA, (2) the costs associated with the CRS-2 contracts, and (3) technical and schedule risks to CRS-2 contractors. We found that while the CRS-2 contracts met acquisition requirements and increased mission capabilities compared to the first round of resupply contracts

(CRS-1), NASA can realize cost savings by applying existing CRS-2 contract options and competing additional missions once the Agency buys the minimum number of guaranteed missions from its three commercial partners: Orbital ATK, Space Exploration Technologies Corporation (SpaceX), and the Sierra Nevada Corporation (Sierra Nevada). Furthermore, the CRS-2 contracts are estimated to deliver less cargo overall than CRS-1 at greater costs. Finally, all three contractors face technical and schedule challenges before their first CRS-2 missions, with Sierra Nevada's development and launch of its Dream Chaser spacecraft posing the greatest risk. NASA management concurred with and described actions to address our five recommendations.

Audit of Commercial Resupply Services to the International Space Station
(IG-18-016, April 26, 2018)

(Report)

(Video)

SpaceX Falcon 9 rocket lifts off from Cape Canaveral

ONGOING AUDIT WORK

NASA's Management of the Space Launch System Core Stage Contract

Human exploration of Mars has been a long-term goal of the United States for the past 5 decades. To achieve this goal, NASA is pursuing crewed flights beyond low Earth orbit, and key to this effort is the SLS, a two-stage, heavy-lift rocket that will launch with the Orion capsule for crewed missions. NASA has contracted with The Boeing Company (Boeing) through 2021 to build two SLS Core Stages—that is, the first stage of the rocket consisting of fuel tanks and supporting infrastructure that will integrate four RS-25 engines—and an Exploration Upper Stage (EUS)—a new and more powerful second stage designed to increase the SLS's upmass capability. This audit will examine the extent to which Boeing is meeting its cost, schedule, and performance goals as well as NASA's management of the contract.

NASA's Mobile Launcher

Located at Kennedy Space Center, NASA's mobile launcher is a critical piece of equipment required to stack, transport, and launch the SLS and Orion. Rocket components are integrated on the mobile launcher inside the Center's Vehicle Assembly Building and then transported via the Crawler Transporter to the launch site. Originally, the sole mobile launcher—now known as Mobile Launcher 1—was designed to launch the first test flight of an integrated SLS/Orion system (known as Exploration Mission-1) in 2019 or 2020, and then be upgraded to launch a larger version of the rocket for Exploration Mission-2 between 2021 and 2023. In NASA's 2018 appropriations act, Congress gave the Agency more than $350 million to build a second launcher—Mobile Launcher 2—with a delivery date of no later than 2023. This audit will examine the status of Mobile Launcher 1 as well as NASA's development plans for Mobile Launcher 2 and the extent to which NASA's Exploration Ground Systems Program is meeting cost, schedule, and performance goals related to the launchers.

NASA's mobile launcher will assemble, process, and launch the SLS rocket

INFORMATION TECHNOLOGY SECURITY AND GOVERNANCE

Information technology (IT) plays an integral role in every facet of NASA's space, science, and aeronautics operations. In fiscal year 2018, the Agency spent approximately $1.7 billion on a portfolio of IT assets that includes hundreds of information systems used to control spacecraft, collect and process scientific data, provide security for its IT infrastructure, and enable NASA personnel to collaborate with colleagues around the world. Through its audits, the OIG has identified systemic and recurring weaknesses in NASA's IT security program that adversely affect the Agency's ability to protect the information and information systems vital to its mission. Moreover, achieving the Agency's IT security goals will require sustained improvements in NASA's overarching IT governance and management practices.

AUDIT OF NASA'S SECURITY OPERATIONS CENTER

With IT security threats at NASA increasing in number and complexity, the Security Operations Center (SOC) serves as the Agency's nerve center for detecting and monitoring security incidents and providing continuous event detection, situational awareness, and incident management and tracking. Assessing NASA's management of the SOC and its operations, capabilities, workload, and resource management, we found the SOC has fallen short of its original goal to serve as NASA's cybersecurity nerve center due in part to the Agency's failure to develop an effective IT governance structure and frequent turnover of Office of the Chief Information Officer (OCIO) leadership. Specifically, we found a lack of clarity in the SOC's oversight authority; undefined relationships between the SOC and functional areas in the OCIO, Centers, and Mission Directorates; and a lack of visibility into and data sharing between the SOC and NASA's mission networks. In addition, we found the current contract vehicle used to procure SOC services limits the Agency's operational flexibility and the ability of SOC management to measure contractor performance. NASA management concurred with and described actions to address our six recommendations.

Audit of NASA's Security Operations Center
(IG-18-020, May 23, 2018)
(Report)
(Video)

AUDIT OF NASA'S INFORMATION TECHNOLOGY SUPPLY CHAIN RISK MANAGEMENT EFFORTS

NASA's IT operations rely on global supply chains to meet mission needs. However, this reliance can pose a significant risk as foreign-developed or -manufactured technology may be counterfeit or compromised in production. The risk that IT and communications products entering the Agency's supply chain are counterfeit or contain malicious computer code presents a significant threat to NASA operations and could impair the Agency's ability to protect the confidentiality, integrity, and availability of its data, systems, and networks. In this audit, we examined the effectiveness of NASA's supply chain risk management efforts. We found that while NASA has improved its risk management efforts since the process was first mandated in 2013, pervasive weaknesses exist in the Agency's internal controls and risk management practices that lead us to question the sufficiency of its current efforts. NASA management concurred with and described actions to address our seven recommendations.

Audit of NASA's Information Technology Supply Chain Risk Management Efforts
(IG-18-019, May 24, 2018)
(Report)

ONGOING AUDIT WORK

Federal Information Security Modernization Act: Fiscal Year 2018 Evaluation

In this required annual review, we will evaluate NASA's IT security program against the 2018 Federal Information Security Modernization Act (FISMA) metrics. Specifically, we will review a sample of NASA- and contractor-owned information systems to assess the effectiveness of information security policies, procedures, standards, and guidelines. Additionally, we will evaluate whether NASA has addressed the deficiencies we identified in our prior FISMA reviews.

Audit of the Jet Propulsion Laboratory's Network Security

Protecting NASA's technical information housed at the Jet Propulsion Laboratory (JPL) is dependent in part on the strength of JPL's system and application control environment and its system configuration and patching process. This audit will assess whether JPL has adequate processes in place to identify, control, and protect its IT systems and whether personnel responsible for those applications have the necessary training and expertise.

INFRASTRUCTURE

NASA's real property includes more than 5,000 buildings and other structures, such as wind tunnels, laboratories, launch pads, and test stands, that occupy 44 million square feet and are valued at more than $34 billion. However, over 70 percent of NASA's facilities are more than 50 years old and reaching the end of their design life spans. Managing its expansive portfolio is an ongoing challenge for the Agency and one we continue to monitor.

ONGOING AUDIT WORK

NASA's Management of Historic Property

Since NASA's inception in 1958, much of the real property used to accomplish the Agency's mission has been identified as historical property under the Historic Preservation Act of 1966. Additionally, NASA has many other historically significant assets that it is preserving for future generations. In this audit, we will examine the Agency's management of its historic property, including the processes used to identify, account for, and maintain real and personal property; determine the extent to which historic property is being used to further NASA's current missions; and identify the challenges faced by the Agency in managing its historic property.

Audit of NASA's Security Management

NASA provides security and protection for employees, contractors, subcontractors, tenants, and visitors at its facilities. The Office of Protective Services is the Agency's focal point for policy formulation, oversight, coordination, and management of Agency security, fire, and medical services. In this audit, we will assess NASA's management of security across the Agency.

Audit of NASA's Environmental Remediation Activities at the Santa Susana Field Laboratory

Located on 2,850 acres in Ventura County, California, and opened in 1948, the Santa Susana Field Laboratory was used by a variety of government agencies as a research site for nuclear and rocket testing. These activities continued until the early 1980s and resulted in radiological and chemical contamination of soil and groundwater at the site. NASA is responsible for remediating 451.2 acres in two areas of the site where the Agency conducted rocket testing. As we reported in February 2013, NASA signed an agreement with the state of California to remediate the soil to the most extensive level at a cost estimated at the time to be $209 million; however, since our 2013 report, the expected remediation costs have risen to more than $500 million. This follow-up audit will examine the status of NASA's cleanup efforts.

Historical Building 17 at Ames Research Center, with the Hangar One deskinning project visible in the background

FINANCIAL MANAGEMENT

The OIG continues to assess NASA's efforts to improve its financial management practices and make recommendations to assist the Agency in addressing weaknesses.

NASA'S MANAGEMENT OF REIMBURSABLE AGREEMENTS

To advance its science, spaceflight, and aeronautics missions, NASA regularly enters into reimbursable agreements with academic, government, industry, international, and nonprofit entities. In fiscal year 2017, about 13 percent of NASA's spending authority, or $2.3 billion, came from funds collected through reimbursable agreements. In light of their significance to NASA's budget, prior audit concerns, and congressional interest, we examined the Agency's management of reimbursable agreements. We found that although NASA has improved the way it manages reimbursable agreements, not all of the Centers have fully implemented these improvement efforts; consequently, the Agency lacks a consistent oversight process to ensure data integrity and transparency for these activities. Moreover, NASA is unable to provide Congress and other stakeholders with full and accurate insight into the composition, performance, and projections for the more than $2 billion in reimbursable agreement funds the Agency receives annually from its partners. We also identified internal control concerns that could indicate additional problems with reimbursable agreement approval and execution processes. NASA management concurred with and described actions to address our 11 recommendations.

NASA's Management of Reimbursable Agreements (IG-18-018, May 29, 2018)

(Report)

NASA'S COMPLIANCE WITH THE IMPROPER PAYMENTS INFORMATION ACT FOR FISCAL YEAR 2017

As mandated by the Improper Payments Elimination and Recovery Act, we assessed NASA's compliance with the Improper Payments Information Act (IPIA) in fiscal year 2017, evaluated the completeness and accuracy of the Agency's IPIA reporting, and reviewed the Agency's implementation of recommendations made in our prior IPIA reports. While we found that NASA complied with IPIA in fiscal year 2017, we noted that the Agency could improve its risk assessment process and expand the scope of its recapture audit program. In addition, we found that NASA did not adequately use available data to determine certain risk ratings, excluded cost-type contracts, and did not report certain payments that should have been identified and recaptured through sources other than payment recapture audits. NASA management concurred with and described actions to address our three recommendations.

NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2017 (IG-18-017, May 14, 2018)

(Report)

ONGOING AUDIT WORK

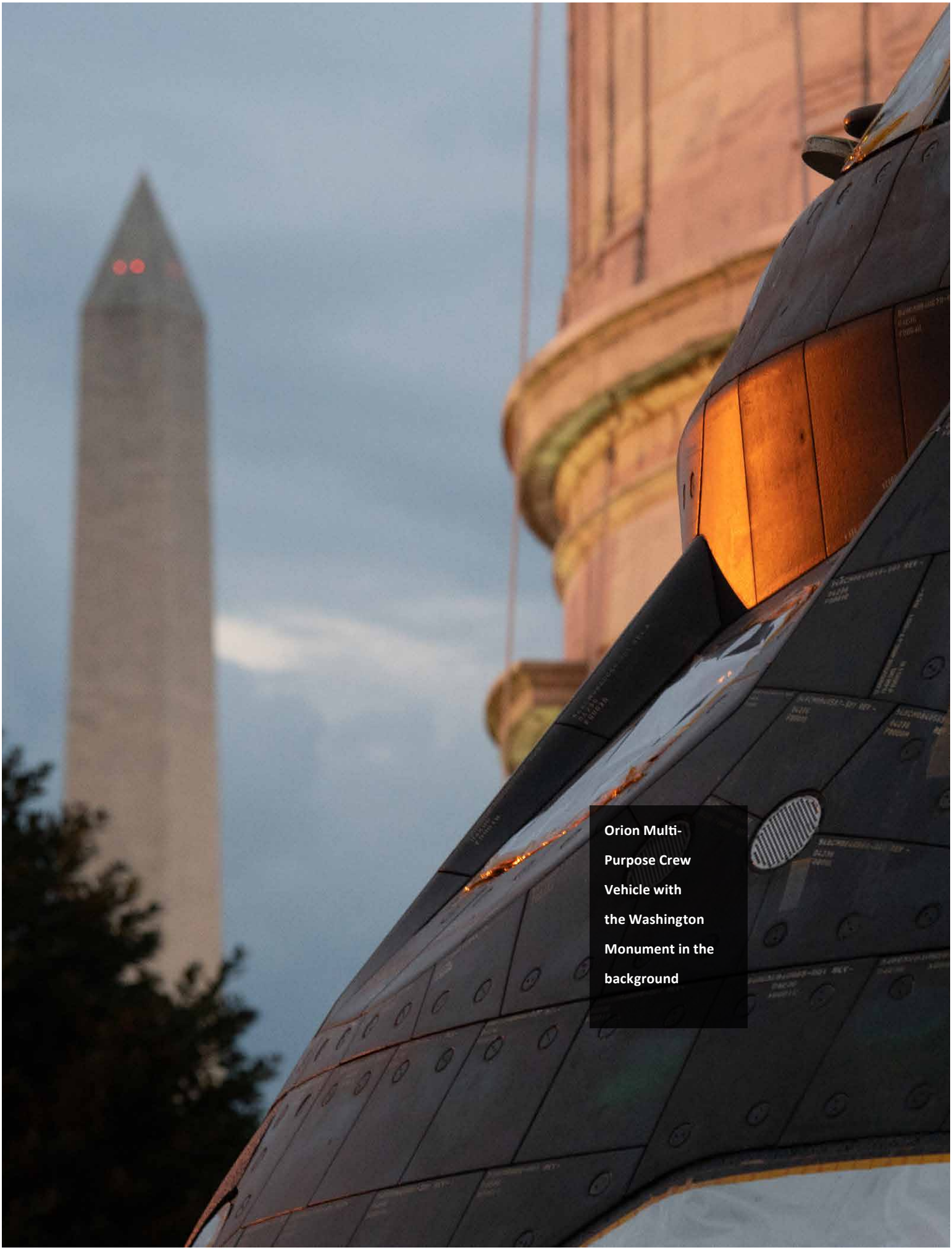
Audit of NASA's Fiscal Year 2018 Financial Statements

The Chief Financial Officers Act of 1990, as amended by the Government Management Reform Act of 1994, requires an annual audit of NASA's consolidated financial statements. We will oversee the fiscal year 2018 audit conducted by the independent public accounting firm CliftonLarsonAllen LLP.

Audit of NASA's Use of Extended Temporary Duty Travel

NASA is a geographically diverse agency with 10 Centers located throughout the United States. To accomplish their work, NASA employees may be required to travel for extended periods of time. If an employee travels from their permanent duty station for longer than 30 days, the employee is considered to be in extended temporary duty status and is subject to special rules regarding reimbursement for travel expenses. In this audit, we will review NASA's management of extended temporary duty travel and evaluate whether the Agency is effectively and efficiently implementing federal and Agency policy.

Mars parachute testing at Ames Research Center's National Full-Scale Aerodynamic Complex



Orion Multi-Purpose Crew Vehicle with the Washington Monument in the background

STATISTICAL DATA

TABLE 1: AUDIT PRODUCTS AND IMPACTS

Report No. and Date Issued	Report Title	Impact
Acquisition and Project Management		
IG-18-015, 4/5/2018	NASA's Management of GISS: The Goddard Institute for Space Studies	Provided recommendations to improve NASA's release of GISS scientific information, its use of appropriated funds, and collaboration efforts with other agencies
Space Operations and Human Exploration		
IG-18-021, 7/30/2018	NASA's Management and Utilization of the International Space Station	Provided recommendations to ensure NASA is positioned to complete or develop viable alternatives to critical human health research and technology demonstration projects, and to provide for a safe transition and disposition of the ISS
IG-18-016, 4/26/2018	Audit of Commercial Resupply Services to the International Space Station	Provided recommendations to enable NASA to obtain the best value for cargo resupply missions and to mitigate technical risks
Information Technology Security and Governance		
IG-18-019, 5/24/2018	Audit of NASA's Information Technology Supply Chain Risk Management Efforts	Provided recommendations to strengthen security controls over the Agency's supply chain risk management
IG-18-020, 5/23/2018	Audit of NASA's Security Operations Center	Provided recommendations to ensure the SOC is best positioned to serve as the Agency's front line of cyber defense and better monitor, detect, and mitigate cyber incidents across NASA
Financial Management		
IG-18-018, 5/29/2018	NASA's Management of Reimbursable Agreements	Provided recommendations to increase NASA's accuracy, transparency, accountability, and oversight of its reimbursable agreements
IG-18-017, 5/14/2018	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2017	Provided specific areas of focus to ensure the Agency complies with the Improper Payments Information Act of 2002, as amended

TABLE 2: AUDIT PRODUCTS ISSUED AND NOT DISCLOSED TO THE PUBLIC, CURRENT SEMIANNUAL REPORT

Report No. and Date Issued	Title	Impact
ML-18-002, 6/6/2018	Desk Review of Fiscal Year 2016 Audit Report on Lowell Observatory Issued by BeachFleischman PC	Based on our review of the fiscal year 2016 Lowell Observatory single audit reporting package, we determined that BeachFleischman's reports met generally accepted government auditing standards and the Uniform Guidance but contained quality deficiencies that should be brought to the attention of the auditor and auditee for correction in future audits

TABLE 3: AUDIT RECOMMENDATIONS YET TO BE IMPLEMENTED, CURRENT SEMIANNUAL REPORT

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date	Potential Cost Savings
			Open	Closed		
Acquisition and Project Management						
IG-18-015, 4/5/2018	NASA's Management of GISS: The Goddard Institute for Space Studies	4/5/2018	5	3	12/31/2018	$1,617,744
Space Operations and Human Exploration						
IG-18-021, 7/30/2018	NASA's Management and Utilization of the International Space Station	7/30/2018	5	0	12/31/2020	$0
IG-18-016, 4/26/2018	Audit of Commercial Resupply Services to the International Space Station	8/9/2018	1	4	1/31/2020	$4,384,395
Information Technology Security and Governance						
IG-18-019, 5/24/2018	Audit of NASA's Information Technology Supply Chain Risk Management Efforts	5/24/2018	6	1	5/31/2019	$142,875
IG-18-020, 5/23/2018	Audit of NASA's Security Operations Center	6/5/2018	6	0	9/16/2019	$0
Financial Management						
IG-18-018, 5/29/2018	NASA's Management of Reimbursable Agreements	5/29/2018	8	3	6/30/2019	$0
IG-18-017, 5/14/2018	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2017	5/14/2018	3	0	5/31/2019	$0

TABLE 4: AUDIT RECOMMENDATIONS YET TO BE IMPLEMENTED, PREVIOUS SEMIANNUAL REPORTS

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date	Potential Cost Savings
			Open	Closed		
Acquisition and Project Management						
IG-18-011, 1/17/2018	NASA's Surface Water and Ocean Topography Mission	1/17/2018	2	4	10/31/2018	$0
IG-18-010, 1/11/2018	NASA's Management of the Center for the Advancement of Science in Space	5/30/2018	3	4	10/31/2019	$0
IG-18-001, 10/5/2017	NASA's Management of Spare Parts for its Flight Projects	10/5/2017	6	1	12/31/2021	$0
IG-17-025, 9/18/2017	NASA's Research Efforts and Management of Unmanned Aircraft Systems	9/18/2017	6	0	12/31/2018	$17,308
IG-17-016, 3/29/2017	NASA's Parts Quality Control Process	3/29/2017	7	1	12/31/2018	$0
IG-17-003, 11/2/2016	NASA's Earth Science Mission Portfolio	11/2/2016	1	1	6/30/2019	$0
IG-16-017, 5/5/2016	Audit of NASA's Engineering Services Contract at Kennedy Space Center	9/30/2016	1	3	3/29/2019	$462,612
IG-16-013, 2/18/2016	Audit of NASA Space Grant Awarded to the University of Texas at Austin	2/18/2016	2	2	1/31/2019	$325,028
Space Operations and Human Exploration						
IG-18-012, 2/1/2018	Audit of the National Space Biomedical Research Institute	7/26/2018	2	2	12/31/2018	$7,841,788
IG-17-017, 4/13/2017	NASA's Plans for Human Exploration Beyond Low Earth Orbit	8/10/2017	4	2	10/1/2018	$0
IG-17-012, 3/9/2017	NASA's Management of Electromagnetic Spectrum	3/9/2017	1	1	11/30/2019	$0
IG-16-025, 6/28/2016	NASA's Response to SpaceX's June 2015 Launch Failure: Impacts on Commercial Resupply of the International Space Station	10/17/2016	2	4	5/30/2019	$0

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date	Potential Cost Savings
			Open	Closed		
IG-16-015, 3/28/2016	Audit of the Spaceport Command and Control System	3/28/2016	1	0	9/30/2018	$0
IG-16-014, 3/17/2016	NASA's Management of the Near Earth Network	8/10/2016	2	12	12/31/2018	$0
IG-15-023, 9/17/2015	NASA's Response to Orbital's October 2014 Launch Failure: Impacts on Commercial Resupply of the International Space Station	12/2/2015	1	6	12/31/2018	$89,000,000
IG-15-013, 3/26/2015	NASA's Management of the Deep Space Network	3/26/2015	3	9	11/30/2018	$0
IG-14-031, 9/18/2014	Extending the Operational Life of the International Space Station Until 2024	9/29/2014	1	2	9/30/2018	$0
IG-14-026, 7/22/2014	Audit of the Space Network's Physical and Information Technology Security Risks	7/22/2014	1	3	10/28/2019	$0
Information Technology Security and Governance						
IG-18-002, 10/19/2017	NASA's Efforts to Improve the Agency's Information Technology Governance	12/14/2017	4	1	4/30/2019	$0
IG-17-011, 2/8/2017	Industrial Control System Security within NASA's Critical and Supporting Infrastructure	2/8/2017	5	1	9/30/2020	$0
IG-17-010, 2/7/2017	Security of NASA's Cloud Computing Services	6/9/2017	5	1	6/28/2019	$0
IG-16-016, 4/14/2016	Review of NASA's Information Security Program	4/14/2016	1	0	12/6/2019	$0
IG-14-015, 2/27/2014	NASA's Management of its Smartphones, Tablets, and Other Mobile Devices	2/27/2014	1	1	1/24/2019	$0
IG-12-017, 8/7/2012	Review of NASA's Computer Security Incident Detection and Handling Capability	8/7/2012	2	1	3/27/2019	$0

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date	Potential Cost Savings
			Open	Closed		
Infrastructure						
IG-17-021, 5/17/2017	Construction of Test Stands 4693 and 4697 at Marshall Space Flight Center	10/5/2017	3	0	7/31/2019	$17,115,009
IG-17-015, 3/21/2017	NASA's Efforts to "Rightsize" Its Workforce, Facilities, and Other Supporting Assets	3/21/2017	3	1	10/31/2018	$0
IG-13-008, 2/12/2013	NASA's Efforts to Reduce Unneeded Infrastructure and Facilities	2/12/2013	2	3	3/31/2019	$0
Financial Management						
IG-18-014, 2/28/2018	Review of NASA's Purchase and Travel Charge Card Programs	2/28/2018	5	0	2/1/2019	$0
IG-18-009, 12/20/2017	Final Report, Vulnerability Assessment and Penetration Testing of NASA's Financial Network, Prepared by CliftonLarsonAllen, in Connection with the Audit of NASA's Fiscal Year 2017 Financial Statements	12/20/2017	6	6	12/31/2018	$0
IG-18-008, 12/14/2017	FY 2017 Financial Statement Audit—Financial Management Letter	12/14/2017	34	0	12/31/2018	$0
IG-18-007, 12/4/2017	FY 2017 Financial Statement Audit—IT Management Letter	12/4/2017	11	13	12/31/2018	$0
IG-18-005, 11/15/2017	Audit of NASA's Fiscal Year 2017 Financial Statements	11/15/2017	9	0	11/30/2018	$0
IG-17-020, 5/15/2017	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2016	11/7/2017	4	5	5/31/2019	$0
IG-16-021, 5/12/2016	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2015	10/28/2016	2	3	5/31/2019	$0
IG-15-015, 5/15/2015	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2014	5/15/2015	2	8	5/31/2019	$0
Other Audit Matters						
IG-16-001, 10/19/2015	NASA's Education Program	10/19/2015	1	4	6/30/2019	$0

TABLE 5: AUDITS WITH QUESTIONED COSTS

	Number of Audit Reports	Total Questioned Costs	Total Unsupported Costs
Management decisions pending, beginning of reporting period	1	$7,800,000	$7,800,000
Issued during period	3	$6,145,014	$0
Needing management decision during period	4	$13,945,014	$7,800,000
Management Decision Made During Period			
Amounts agreed to by management	0	$0	$0
Amounts not agreed to by management	2	$12,184,395	$7,800,000
No Management Decision at End of Period			
Less than 6 months old	2	$1,760,619	$0
More than 6 months old	—	$0	$0

Notes: Questioned costs (the Inspector General Act of 1978, as amended) are costs questioned by the OIG because of (1) alleged violation of a provision of a law, regulation, contract, grant, cooperative agreement, or other agreement or document governing the expenditure of funds; (2) a finding that, at the time of the audit, such cost is not supported by adequate documentation; or (3) a finding that the expenditure of funds for the intended purpose is unnecessary or unreasonable.

Management decision (the Inspector General Act of 1978, as amended) is the evaluation by management of the findings and recommendations included in an audit report and the issuance of a final decision by management concerning its response to such findings and recommendations, including actions that management concludes are necessary.

TABLE 6: AUDITS WITH RECOMMENDATIONS THAT FUNDS BE PUT TO BETTER USE

	Number of Audit Reports	Funds To Be Put to Better Use
Management decisions pending, beginning of reporting period	0	$0
Issued during period	0	$0
Needing management decision during period	0	$0
Management Decision Made During Period		
Amounts agreed to by management	0	$0
Amounts not agreed to by management	0	$0
No Management Decision at End of Period		
Less than 6 months old	0	$0
More than 6 months old	0	$0

Notes: Recommendation that Funds Be Put to Better Use (the IG Act of 1978 definition) is a recommendation by the OIG that funds could be more efficiently used if management took actions to implement and complete the recommendation, including (1) reductions in outlays; (2) deobligation of funds from programs or operations; (3) withdrawal of interest subsidy costs on loans or loan guarantees, insurance, or bonds; (4) costs not incurred by implementing recommended improvements related to the operations of the establishment, a contractor, or grantee; (5) avoidance of unnecessary expenditures noted in pre-award reviews of contract or grant agreements; or (6) any other savings that are specifically identified. (Dollar amounts identified in this category may not always allow for direct budgetary actions but generally allow the Agency to use the amounts more effectively in the accomplishment of program objectives.)

TABLE 7: OTHER MONETARY SAVINGS

Report	Title	Description	Amount
IG-18-016, 4/26/2018	Audit of Commercial Resupply Services to the International Space Station	In April 2018, the NASA OIG recommended the Associate Administrator for Human Exploration and Operations Mission Directorate ensure the ISS Program incorporates, to the extent practicable, the ISS Program Planning and Control Office's proposed mission cadences into the planning, programming, budgeting, and execution process for fiscal year 2020 to take advantage of contractor discounts for multiple missions through 2024. The OIG also recommended the Associate Administrator ensure the ISS Program negotiates monetary discounts, as required by the CRS contracts, in the event contractors use an alternate launch vehicle or a previously flown vehicle. Changes based upon these analyses will result in projected savings of approximately $309.22 million through 2024.	$309,220,000

Note: Savings resulting from actions taken by NASA due to conclusions or information disclosed in an OIG audit report that were not identified as questioned costs or funds to be put to better use in Tables 5 and 6, respectively.

TABLE 8: STATUS OF SINGLE AUDIT FINDINGS AND QUESTIONED COSTS RELATED TO NASA AWARDS

Audits with Findings	7	
Findings and Questioned Costs		
	Number of Findings	**Questioned Costs**
Management decisions pending, beginning of reporting period	15	$0
Findings added during the reporting period	23	$619
Management decisions made during reporting period	(19)	
Agreed to by management	—	$619
Not agreed to by management	—	$0
Management decisions pending, end of reporting period	19	$0

Note: The Single Audit Act, as amended, requires federal award recipients to obtain audits of their federal awards. The data in this table is provided by NASA.

DEFENSE CONTRACT AUDIT AGENCY AUDITS OF NASA CONTRACTORS

The Defense Contract Audit Agency (DCAA) provides audit services to NASA on a reimbursable basis. DCAA provided the following information during this period on reports involving NASA contract activities.

DCAA AUDIT REPORTS ISSUED

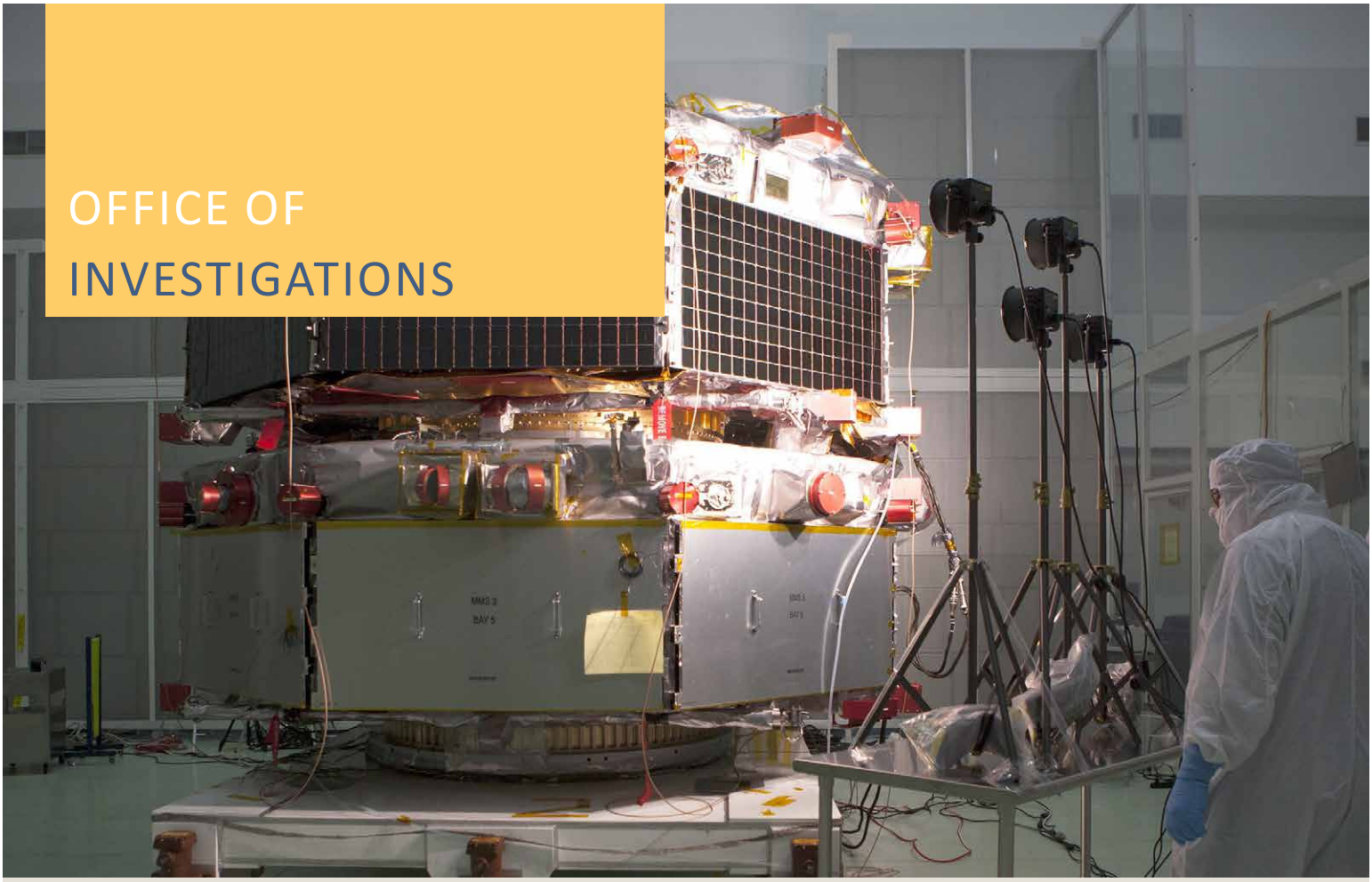
During this period, DCAA issued 57 audit reports on contractors who do business with NASA. Corrective actions taken in response to DCAA audit report recommendations usually result from negotiations between the contractors doing business with NASA and the government contracting officer with cognizant responsibility (e.g., the Defense Contract Management Agency and NASA). The cognizant agency responsible for administering the contract negotiates recoveries with the contractor after deciding whether to accept or reject the questioned costs and recommendations for funds to be put to better use. The following table shows the amounts of questioned costs and funds to be put to better use included in DCAA reports issued during this semiannual reporting period and the amounts that were agreed to during the reporting period.

TABLE 9: DCAA AUDIT REPORTS WITH QUESTIONED COSTS AND RECOMMENDATIONS THAT FUNDS BE PUT TO BETTER USE

	Amounts in Issued Reports	Amounts Agreed To
Questioned costs	$60,290,000	$5,530,000
Funds to be put to better use	$0	$2,862,000

Note: This data is provided to NASA OIG by DCAA and may include forward pricing proposals, operations, incurred costs, cost accounting standards, and defective pricing audits. Because of limited time between availability of management information system data and legislative reporting requirements, there is minimal opportunity for DCAA to verify the accuracy of reported data. Accordingly, submitted data is subject to change based on subsequent DCAA authentication. The data presented does not include statistics on audits that resulted in contracts not awarded or in which the contractor was not successful.

OFFICE OF INVESTIGATIONS



A solar array illumination test of the upper stack of the Magnetospheric Multiscale spacecraft

As the law enforcement arm of NASA OIG, the Office of Investigations is responsible for investigating fraud, waste, abuse, mismanagement, and misconduct involving NASA programs, personnel, and resources. Typically, the Office refers its findings to the Department of Justice for prosecution or to NASA management for corrective action.

PROCUREMENT, ACQUISITION, AND GRANT FRAUD

Texas Business Owner Charged

As the result of an investigation conducted by NASA OIG, the president of a Houston, Texas, software company was charged with one count of major fraud, six counts of false statements, and one count of false claims for inflating costs and double-billing against several NASA contracts, resulting in damages in excess of $2.6 million. On August 21, 2018, the indictments against the company were dismissed after its president agreed to resign.

Small Business Owner Sentenced

Following a joint investigation by NASA OIG, the Defense Criminal Investigative Service (DCIS), and the Naval Criminal Investigative Service, the owner of a Wilmington, Delaware, company was sentenced to 3 years of imprisonment, sentenced to 3 years of supervised release, and ordered to pay more than $1.4 million in restitution for falsifying information on NASA and U.S. Navy research contracts.

Contractor Agrees to Civil Settlement

As the result of a joint investigation by NASA OIG, the Department of Health and Human Services OIG, and the National Science Foundation (NSF) OIG, a Maryland contractor agreed to pay $1.9 million in a civil settlement to resolve allegations that the company obtained Small Business Innovative Research (SBIR) contracts from government agencies for which the company was not eligible. The investigation developed information that over a 7-year period the contractor falsified claims, representations, and certifications to NASA and other federal agencies regarding its SBIR awards.

Companies and Their Owner Plead Guilty to Fraud

Following a joint investigation by NASA OIG, NSF OIG, and the Department of Energy OIG, four small businesses and their owner were charged with wire fraud and conspiracy to commit wire fraud for obtaining separate federal funding to conduct the same research on multiple SBIR contracts. On September 5, 2018, the owner and three of the companies pled guilty to the charges and agreed to pay restitution of nearly $1.1 million.

California Company Agrees to Civil Settlement

As the result of a joint investigation by NASA OIG and the General Services Administration (GSA) OIG, a Burlingame, California, contractor agreed to a civil settlement of $965,579 to resolve allegations that the company overcharged NASA and a New Mexico security firm between February 2008 and June 2013 by improperly inflating labor rates. Additionally, the contractor allegedly overcharged NASA $116,545 between May 2008 and December 2013 by failing to

provide a contractual volume discount on an $11.7 million task order for engineering and support services.

Individual Indicted for Defrauding the Computers for Learning Program

Following a joint investigation by NASA OIG, the Department of Homeland Security OIG, and GSA OIG, a Peoria, Illinois, grand jury returned a seven-count indictment charging an Athens, Alabama, computer store owner with mail fraud, wire fraud, theft, and interstate transportation of stolen property. Over a decade-long scheme, the subject allegedly made false representations to GSA in order to obtain computer systems intended to support the Computers for Learning program, then diverted them for retail sale. The program facilitates the transfer of computers and related equipment owned and excessed by the federal government directly to schools and some educational nonprofit organizations at no cost. Over an 8-year period, the store owner received approximately 830 electronic items from NASA valued at $929,791.

Research Foundation Settles Fraud Claims

Based on a Qui Tam filed with the Department of Justice and a joint investigation by NASA OIG, NSF OIG, the Department of Transportation OIG, and the Department of Energy OIG, a university research foundation agreed to a civil settlement of $750,000 to resolve claims it mischarged costs related to overcharges on salaries, longevity pay, and other non-grant expenses against multiple federal grants.

Company Agrees to Civil Settlement

As the result of a joint investigation by NASA OIG, the Department of Commerce OIG, DCIS, the Defense Contract Management Agency, and the U.S. Air Force Office of Special Investigations, a Yreka, California, company agreed to pay $300,000 in a civil settlement to resolve allegations that it fraudulently obtained multiple government contracts by misrepresenting itself as a small business.

Chicago Contractor Convicted for Defrauding NASA's SBIR Program

Following a joint investigation by NASA OIG and NSF OIG, a contractor pled guilty to theft relating to SBIR program fraud. The investigation revealed the contractor knowingly converted $200,000 in grant funds from NASA and NSF to his personal use and attempted to obtain additional grant funds via fraudulent claims regarding the financial condition of his company. Pursuant to his plea agreement in May 2018, the contractor was ordered to pay the federal government $200,000 in restitution.

Former Production Manager Charged and Former Lab Supervisor Sentenced

As the result of a joint investigation by NASA OIG, DCIS, and the Federal Bureau of Investigation, a former production manager at a Portland, Oregon, aluminum extrusion manufacturing facility was charged with two counts of major fraud for his participation in a decade-long scheme to defraud NASA and the Missile Defense Agency by fraudulently certifying parts for use in rockets and military hardware. A former lab supervisor at the same facility pled guilty to mail fraud for directing technicians to falsify test results and was sentenced to 37 months of imprisonment, sentenced to 2 years of supervised release, and ordered to pay $170,000 in restitution.

Ohio Business Owner Sentenced

Following a joint investigation by NASA OIG, DCIS, and the U.S. Air Force Office of Special Investigations, the co-owner of a Beavercreek, Ohio, firm was sentenced to 3 years of probation and fined $100,000 for her involvement in a conspiracy to convert federal funds for personal use. The investigation found that the co-owner

and her business partner falsely claimed disabled veteran status to improperly secure subcontract work at NASA. Both the owners and their company were debarred from receiving future federal contracts.

Company Agrees to Civil Settlement

As the result of an investigation conducted by NASA OIG, a Los Alamos, New Mexico, company agreed to pay $80,514 in a civil settlement to resolve allegations that the principal investigator of its SBIR contract was out of the country for substantial intervals during the contract's period of performance and that the company failed to execute an agreement with and pay a proposed subcontractor.

COMPUTER CRIMES

Former Contractor Employee Pleads Guilty to Child Pornography

A NASA OIG investigation into a former Armstrong Flight Research Center contractor employee revealed the subject had downloaded child pornography. On July 12, 2018, the employee pled guilty to a misdemeanor and was sentenced to 3 years of summary probation and 1 year of sex offender treatment.

Former Contractor Employee Charged for Child Pornography

A NASA OIG investigation into a former Kennedy Space Center contractor employee revealed the subject had downloaded and viewed child pornography. As a result, the subject was charged in August 2018 with possession of child pornography and is currently awaiting trial.

Contractor Arrested for Child Sex Abuse

As the result of a joint investigation by NASA OIG and the Huntsville, Alabama, police department, a NASA contractor employee at Marshall Space Flight Center was arrested on charges stemming from child sex abuse.

EMPLOYEE MISCONDUCT

Senior Leader Retires in Lieu of Termination

A NASA OIG investigation revealed that a senior manager at the Wallops Flight Facility improperly granted staff access to several of her NASA online accounts, improperly promoted an employee, inappropriately monitored a NASA employee's email account, and directed a contractor employee to provide personal services for her benefit over an extended period of time. In August 2018, the senior manager retired in lieu of termination.

NASA Employee Resigns in Lieu of Termination

As a result of a NASA OIG investigation, a senior NASA Headquarters civil servant resigned in lieu of termination based upon a finding that the employee overcharged NASA approximately 1,413 work hours, totaling $109,983.

NASA Employee Suspended and Ordered to Reimburse NASA

A NASA OIG investigation found that a NASA employee wrongfully claimed more than 300 work hours. The subject was identified by management as having a pattern of leaving work early some days and not working at all on others. The employee was suspended for 10 days and ordered to pay $3,676 to the federal government.

Former NASA Employee Pleads Guilty

As the result of a NASA OIG investigation, a former NASA employee pled guilty to one count of acts affecting a personal financial interest by negotiating employment with contractors he managed while employed as a civil servant at the Agency. Prior to seeking post-retirement counseling from NASA Office of the General Counsel, the employee interviewed with

two companies for which he was managing contracts. The former employee pled guilty to a one-count misdemeanor violation of 18 U.S.C. Section 208 and was ordered to pay a $1,000 fine.

Contractor Charged with Violation of NASA Regulations

A contractor employee was charged with violating NASA regulations for transferring International Traffic in Arms Regulations and Export Administration Regulation data from his NASA-issued laptop to his personal computer and allowing a computer repair company access to the data. As a result of the violation, the contractor employee entered into a federal diversion program, which will defer prosecution for 6 months provided he serves 6 months of probation and pays a $500 fine. After 6 months and good behavior, the charges will be dismissed.

Former Contractor Charged with Stalking

As the result of a NASA OIG investigation conducted in cooperation with the NASA Office of Protective Services, a former contractor employee pled no contest to harassment for stalking a NASA employee after he trespassed at her residence on multiple occasions, including peering through second-floor windows from the home's rear deck. Due to his actions, the former contractor was bound by a protective order and sentenced to 2 years of probation.

Contractor Employees Charged with Theft

As the result of a NASA OIG investigation conducted in cooperation with the NASA Office of Protective Services, two former contractor employees were charged with stealing two industrial-grade rolls of copper from Marshall Space Flight Center.

Contractor Sentenced for Theft

A former Goddard Space Flight Center contractor pled guilty in June 2018 to the theft of a laptop computer, which NASA OIG later recovered. The contractor was sentenced to 364 days of probation and 40 hours of community service.

Two Charged with Drug Possession

Two individuals were charged with possession of cannabis in separate incidents at Kennedy Space Center. A contract food service worker was charged after a security officer smelled cannabis emanating from a vehicle as it approached the Center's security gate. The second individual was stopped for speeding on NASA property and was charged after cannabis was discovered during a consensual vehicle search. One of the defendants entered into a diversion program, and the other pled guilty to possession of cannabis.

TABLE 10: OFFICE OF INVESTIGATIONS COMPLAINT INTAKE DISPOSITION

Source of Complaint	Zero Files[a]	Administrative Investigations[b]	Management Referrals[c]	Preliminary Investigations[d]	Total
Hotline	5	11	5	10	**31**
All others	30	16	1	63	**110**
Total	**35**	**27**	**6**	**73**	**141**

[a] Zero files are those complaints for which no action is required or that are referred to NASA management for information only or to another agency.

[b] Administrative investigations include non-criminal matters initiated by the Office of Investigations as well as hotline complaints referred to the Office of Audits.

[c] Management referrals are those complaints referred to NASA management for which a response is requested.

[d] Preliminary investigations are those complaints where additional information must be obtained prior to initiating a full criminal or civil investigation.

TABLE 11: FULL INVESTIGATIONS OPENED THIS REPORTING PERIOD

Full Criminal/Civil Investigations[a]	20

[a] Full investigations evolve from preliminary investigations that result in a reasonable belief that a violation of law has taken place.

TABLE 12: INVESTIGATIONS CLOSED THIS REPORTING PERIOD

Full, Preliminary, and Administrative Investigations	114

Note: NASA OIG uses closing memorandums to close investigations. Investigative reports are used for presentation to judicial authorities, when requested.

TABLE 13: CASES PENDING AT END OF REPORTING PERIOD

Preliminary Investigations	52
Full Criminal/Civil Investigations	144
Administrative Investigations	67
Total	**263**

TABLE 14: QUI TAM INVESTIGATIONS

Qui Tam Matters Opened this Reporting Period	—
Qui Tam Matters Pending at End of Reporting Period	3

Note: Number of Qui Tam investigations is a subset of the total number of investigations opened and pending.

TABLE 15: JUDICIAL ACTIONS

Total Cases Referred for Prosecution[a]	46
Individuals Referred to the Department of Justice[b]	41
Individuals Referred to State and Local Authorities[b]	5
Indictments/Informations[c]	24
Convictions/Plea Bargains	15
Sentencing/Pre-Trial Diversions	12
Civil Settlements/Judgments	4

[a] This includes all referrals of individuals and entities to judicial authorities.

[b] Number of individuals referred to federal, state, and local authorities are a subset of the total cases referred for prosecution.

[c] This includes indictments/informations on current and prior referrals.

TABLE 16: ADMINISTRATIVE ACTIONS

Referrals to NASA Management for Review and Response	10
Referrals to NASA Management—Information Only	12
Referrals to the Office of Audits	1
Referrals to Security or Other Agencies	6
Total	**29**
Recommendations to NASA Management for Disciplinary Action	
Involving a NASA Employee	9
Involving a Contractor Firm	—
Involving a Contractor Employee	1
Other	—
Recommendations to NASA Management on Program Improvements	
Matters of Procedure	3
Total	**13**
Administration/Disciplinary Actions Taken	
Against a NASA Employee	25
Against a Contractor Employee	6
Against a Contractor Firm	1
Procedural Change Implemented	10
Total	**42**
Suspensions or Debarments from Government Contracting	
Involving an Individual	**3**
Involving a Contractor Firm	3
Total	**6**

TABLE 17: INVESTIGATIVE RECEIVABLES AND RECOVERIES

Judicial	$7,652,151
Administrative[a]	$1,523,906
Total	**$9,176,057**
Total NASA	**$4,045,239**

[a] Includes amounts for cost savings to NASA as a result of investigations.

TABLE 18: SENIOR GOVERNMENT EMPLOYEE INVESTIGATIONS REFERRED FOR PROSECUTION

Case Number	Allegation	Referral Date	Disposition
18-0163-P	Time and attendance fraud	4/3/2018	Declined—employee resigned in lieu of termination
18-0227-P	Insider trading	6/19/2018	Pending

TABLE 19: SENIOR GOVERNMENT EMPLOYEE CASES NOT DISCLOSED TO THE PUBLIC

Case Number	Allegation	Closure Date	Disposition
17-0143-O	Theft	6/27/2018	Employee repaid funds and retired in lieu of termination

CONGRESSIONAL TESTIMONY

The Solar Dynamics Observatory captures its 100 millionth image of the Sun

EXAMINING THE FUTURE OF THE INTERNATIONAL SPACE STATION

On May 16, 2018, IG Martin testified before the Senate Subcommittee on Space, Science, and Competitiveness, Committee on Commerce, Science, and Transportation, regarding NASA's utilization of the ISS and the challenges and opportunities related to the Station's post-2024 future. In his testimony, IG Martin foreshadowed the findings of an audit that assessed NASA's progress in maximizing utilization of the ISS to accomplish its human exploration objectives.[2] Specifically, IG Martin discussed the feasibility of extending ISS operations beyond 2024, NASA's plans to transition the Station to commercial operation, and its eventual decommission and deorbit. IG Martin concluded: "Each of the options for extending, transitioning, or retiring the ISS presents NASA with significant challenges that will require it to balance cost, feasibility, and risk…the sooner Congress and the Administration decide on a path forward for the future of the ISS, the better NASA will be able to plan."

Examining the Future of the International Space Station

(Testimony)

(Video)

NASA COST AND SCHEDULE OVERRUNS: ACQUISITIONS AND PROGRAM MANAGEMENT CHALLENGES

On June 14, 2018, IG Martin testified before the U.S. House of Representatives Subcommittee on Space, Committee on Science, Space, and Technology, regarding the challenges NASA faces in meeting project cost, schedule, and performance goals. During the hearing, IG Martin reiterated that over the past 8 years, the OIG has issued numerous reports (1) examining the historic challenges NASA faces and the project management tools the Agency has developed to address its shortcomings and (2) assessing the effectiveness of these tools. IG Martin noted four factors that present the greatest challenge to successful project outcomes: NASA's culture of optimism, underestimating technical complexity, funding instability, and development and retention of new and experienced project managers.
IG Martin also highlighted three initiatives that the Agency has implemented with mixed success to help avoid cost and schedule overruns: the Joint Cost and Schedule Confidence Level process, utilizing a variety of contracting mechanisms to acquire goods and services, and leveraging domestic and international partnerships. IG Martin stated: "Articulating a clear, unified, and sustaining vision for the Agency and providing the necessary resources to execute that vision is critical to ensuring that project managers are best positioned to complete projects within cost and on schedule."

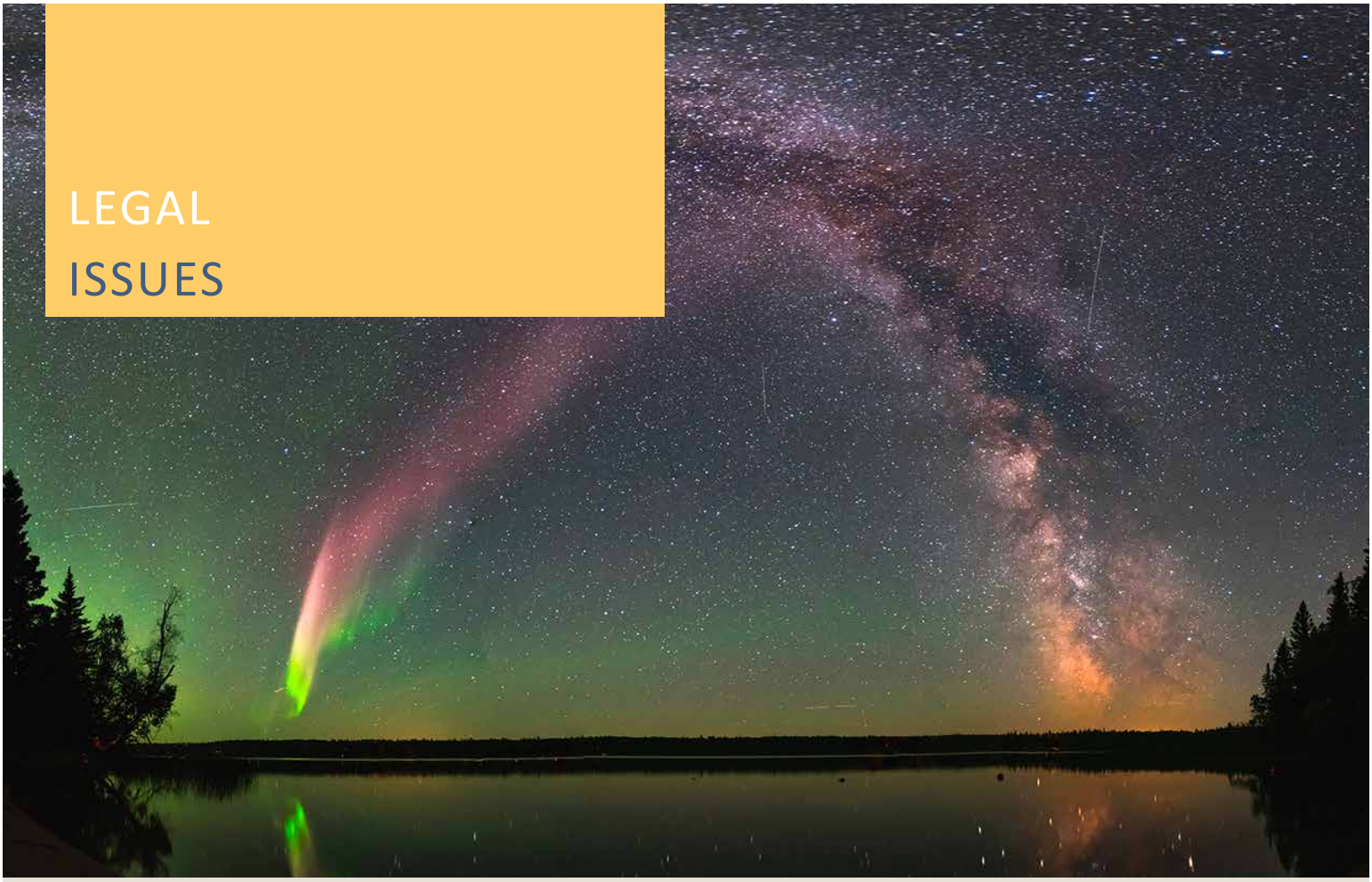
NASA Cost and Schedule Overruns: Acquisitions and Program Management Challenges

(Testimony)

(Video)

[2] Since delivery of this testimony, the OIG issued the audit report: NASA OIG, *NASA's Management and Utilization of the International Space Station* (IG-18-021, July 30, 2018).

LEGAL ISSUES



Aurora borealis over Regina, Saskatchewan, Canada, captured by citizen scientists

WHISTLEBLOWER CASES

In our last semiannual report, we made note of a case in which we found a whistleblower was retaliated against for disclosing safety concerns to the Agency. After reviewing our report on the matter, the Agency determined that there was clear and convincing evidence the employee would have been terminated apart from his whistleblower allegation and declined to issue an order in his favor.

In another case, two OIG employees were deposed in connection with a lawsuit filed by two whistleblowers under the retaliation provisions of the civil False Claims Act. The OIG employees testified on their report of findings in an administrative whistleblower investigation under 10 U.S.C. 2409.

GOVERNMENT ACCOUNTABILITY OFFICE WHISTLEBLOWER PROTECTION AUDIT

In April 2018, the Government Accountability Office (GAO) released its audit of NASA's implementation of the contractor employee whistleblower protection program under 10 U.S.C. 2409. GAO found that from 2008 to June 2017, NASA OIG addressed whistleblower reprisal complaints within required time frames. At the time of the GAO review, the OIG's internal guidance for handling reprisal complaints had been updated to reflect most statutory changes; however, it did not include guidance regarding sub-grantees. During the course of GAO's review, the OIG updated its investigation guidance to reflect the coverage for sub-grantee employees. The GAO report can be found at ***https://www.gao.gov/products/GAO-18-262.***

REGULATORY REVIEW

During this reporting period, we reviewed 11 NASA regulations and policies under consideration by the Agency. Significant regulations reviewed included NASA Policy Directive 1387.2, *Loan of Lunar Samples or Public Display*; NASA Policy Directive 2800.1E, *Managing Information Technology*; NASA Interim Directive 2830, *Enterprise Protection Program*; and NASA Procedural Requirements 1600.2A, *NASA Classified National Security Information*.

STATISTICAL DATA

TABLE 20: LEGAL ACTIVITIES AND REVIEWS

Freedom of Information Act Matters	17
Appeals	1
Inspector General Subpoenas Issued	38
Regulations Reviewed	11


INSPECTOR GENERAL
NASA
AERONAUTICS AND SPACE ADMINISTRATION

APPENDIXES

Appendixes

APPENDIX A. INSPECTOR GENERAL ACT REPORTING REQUIREMENTS

Inspector General Act Citation	Requirement Definition	Cross Reference Page Numbers
Section 4(a)(2)	Review of legislation and regulations	36–37
Section 5(a)(1)	Significant problems, abuses, and deficiencies	4–15
Sections 5(a)(5) and 6(b)(2)	Summary of refusals to provide information	—
Section 5(a)(6)	OIG audit products issued—includes total dollar values of questioned costs, unsupported costs, and recommendations that funds be put to better use	18–23
Section 5(a)(8)	Total number of reports and total dollar value for audits with questioned costs	22
Section 5(a)(9)	Total number of reports and total dollar value for audits with recommendations that funds be put to better use	22
Section 5(a)(10)	Summary of audit, inspection, and evaluation reports	4–15
Section 5(a)(10)(A)	Summary of prior audit products for which no management decision has been made	18–21
Section 5(a)(10)(B)	Reports for which no Agency comment was provided within 60 days	—
Section 5(a)(10)(C)	Unimplemented recommendations and associated potential cost savings	18–21
Section 5(a)(11)	Description and explanation of significant revised management decisions	—
Section 5(a)(12)	Significant management decisions with which the IG disagreed	—
Section 5(a)(13)	Reporting in accordance with Section 5(b) of the Federal Financial Management Improvement Act of 1996 Remediation Plan	—
Section 5(a)(14)	Peer review conducted by another OIG	41
Section 5(a)(15)	Outstanding recommendations from peer reviews of NASA OIG	—
Section 5(a)(16)	Outstanding recommendations from peer reviews conducted by NASA OIG	—
Section 5(a)(17)(A)	Summary of investigations	26–29
Section 5(a)(17)(B)(C) and (D)	Matters referred to prosecutive authorities	31
Section 5(a)(18)	Descriptions of table metrics	—
Section 5(a)(19)(A) and (B)(i)(ii)	Summary of investigations involving senior government employees	32
Section 5(a)(20)(A) and (C)(iv)	Summary of whistleblower investigations and any resulting findings	—
Section 5(a)(21)(A) and (B)	Agency attempts to interfere with OIG independence	—
Section 5(a)(22)(A)	Closed inspections, evaluations, and audits not disclosed to the public	18
Section 5(a)(22)(B)	Closed investigations of senior government employees not disclosed to the public	32

APPENDIX B. PEER REVIEWS

The Dodd-Frank Wall Street Reform and Consumer Protection Act requires the OIG to include in its semiannual reports any peer review results provided or received during the relevant reporting period. Peer reviews are required every 3 years. In compliance with the Act, we provide the following information.

OFFICE OF AUDITS

During this reporting period, the U.S. Office of Personnel Management (OPM) OIG completed its peer review of our Office of Audits' quality control system in place between April 1, 2015, and March 31, 2018. The OPM OIG review concluded that our quality control system was suitably designed and provided us with reasonable assurance of performing and reporting in conformity with applicable professional standards in all material respects. Federal audit organizations can receive a rating of pass, pass with deficiencies, or fail. OPM OIG assigned the Office of Audits a peer review rating of "pass" for the period reviewed. We have implemented OPM OIG's recommendations for process and policy improvements, and there are no outstanding recommendations from this or any previous peer reviews of the Office of Audits.

During this semiannual reporting period, we performed a peer review examining the system of quality control of the Department of Commerce (Commerce) OIG in effect for the period of October 1, 2016, through September 30, 2017. We assigned a rating of "pass" for the period reviewed. We also communicated additional findings and recommendations that required attention by Commerce OIG managers but were not considered of sufficient significance to affect the opinion expressed in our report. Commerce OIG has informed us that it has implemented or will implement the recommendations we made in our review. We have no outstanding recommendations related to this or past peer reviews that we have conducted.

OFFICE OF INVESTIGATIONS

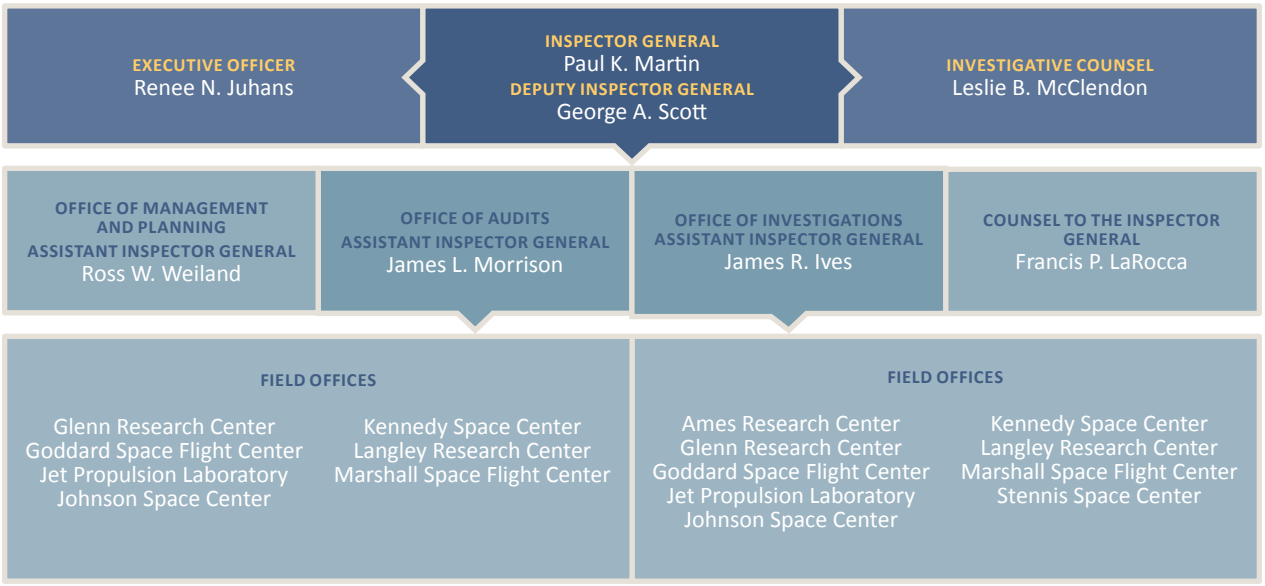
No external peer reviews were performed by the Office of Investigations during this semiannual period. In October 2017, the Office of the Special Inspector General for the Troubled Asset Relief Program reviewed NASA OIG's Office of Investigations and found the office to be in compliance with all relevant guidelines. There are no unaddressed recommendations outstanding from this review.

APPENDIX C. ACRONYMS

CRS	Commercial Resupply Services
DCAA	Defense Contract Audit Agency
DCIS	Defense Criminal Investigative Service
FISMA	Federal Information Security Modernization Act of 2014
GAO	Government Accountability Office
GISS	Goddard Institute for Space Studies
GSA	General Services Administration
IG	Inspector General
IPIA	Improper Payments Information Act
ISS	International Space Station
IT	Information Technology
JPL	Jet Propulsion Laboratory
NRC	National Research Council
NSF	National Science Foundation
OCIO	Office of the Chief Information Officer
OIG	Office of Inspector General
OPM	U.S. Office of Personnel Management
SBIR	Small Business Innovative Research
SLS	Space Launch System
SOC	Security Operations Center

APPENDIX D. OFFICE OF INSPECTOR GENERAL ORGANIZATIONAL CHART

The OIG's fiscal year 2019 appropriation request of $39.3 million supports the work of approximately 184 OIG full-time equivalent employees. Presently, the OIG is operating under a continuing resolution, which provides funding at fiscal year 2018 levels of $39 million through December 7, 2018.



THE NASA OFFICE OF INSPECTOR GENERAL conducts audits, reviews, and investigations of NASA programs and operations to prevent and detect fraud, waste, abuse, and mismanagement and to assist NASA management in promoting economy, efficiency, and effectiveness.

THE INSPECTOR GENERAL provides policy direction and leadership for the NASA OIG and serves as an independent voice to the NASA Administrator and Congress by identifying opportunities for improving the Agency's performance. The Deputy Inspector General assists the IG in managing the full range of the OIG's programs and activities and provides supervision to the Assistant Inspectors General and Counsel in the development and implementation of the OIG's diverse audit, investigative, legal, and support operations. The Executive Officer serves as the OIG liaison to Congress and other government entities, conducts OIG outreach both within and outside NASA, and manages special projects. The Investigative Counsel serves as a senior advisor for OIG investigative activities and conducts special reviews of NASA programs and personnel.

THE OFFICE OF AUDITS conducts independent and objective audits and reviews of NASA programs, projects, operations, and contractor activities. In addition, the Office of Audits oversees the work of an independent public accounting firm in its annual audit of NASA's financial statements.

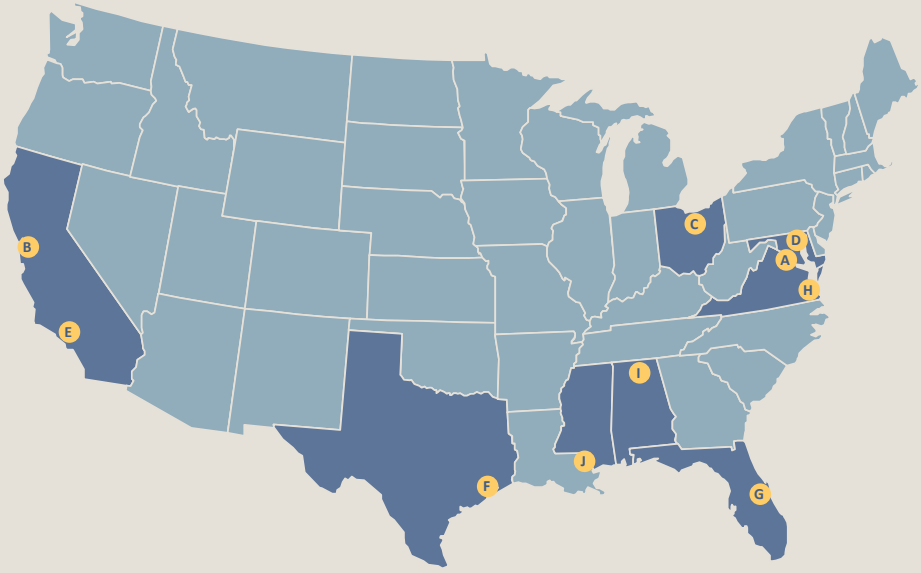
THE OFFICE OF COUNSEL TO THE INSPECTOR GENERAL provides legal advice and assistance to OIG managers, auditors, and investigators. The Office serves as OIG counsel in administrative litigation and assists the Department of Justice when the OIG participates as part of the prosecution team or when the OIG is a witness or defendant in legal proceedings. In addition, the Office of Counsel is responsible for educating Agency employees about prohibitions on retaliation for protected disclosures and about rights and remedies for protected whistleblower disclosures.

THE OFFICE OF INVESTIGATIONS investigates allegations of cybercrime, fraud, waste, abuse, and misconduct that may affect NASA programs, projects, operations, and resources. The Office refers its findings either to the Department of Justice for criminal prosecution and civil litigation or to NASA management for administrative action. Through its investigations, the Office develops recommendations for NASA management to reduce the Agency's vulnerability to criminal activity and misconduct.

THE OFFICE OF MANAGEMENT AND PLANNING provides financial, procurement, human resources, administrative, and information technology services and support to OIG staff.

APPENDIX E. MAP OF FIELD OFFICES

NASA OIG OFFICES OF AUDITS AND INVESTIGATIONS



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