

# NASA

National Aeronautics and Space Administration

**Office of Inspector General**

**Office of Audits**

# NASA'S EDUCATION PROGRAM

**October 19, 2015**

**Report No. IG-16-001**





## **Office of Inspector General**

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# RESULTS IN BRIEF

## NASA's Education Program

NASA Office of Inspector General  
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October 19, 2015

IG-16-001 (A-14-015-00)

## WHY WE PERFORMED THIS AUDIT

Producing sufficient numbers of graduates prepared for science, technology, engineering, and mathematics (STEM) occupations is a national priority for the United States. In accordance with this goal, NASA makes available more than 1,000 internships, fellowships, and scholarships annually to students seeking hands-on experience in STEM research, aerospace education, and space exploration. In fiscal year (FY) 2014, NASA received about \$127 million in STEM education funding, which represents approximately 5 percent of the annual Federal STEM education budget.

The America COMPETES Reauthorization Act of 2010 directed NASA to develop educational programs, improve public STEM literacy, and support research-based programs and activities that increase student interest and participation in STEM. NASA's Headquarters-based Office of Education works with Offices of Education at each of the NASA Centers and with the Agency's four Mission Directorates to coordinate Agency efforts to meet these goals. The Office of Education is also responsible for implementing Objective 2.4 of NASA's Strategic Plan, which states: "Advance the Nation's STEM education and workforce pipeline by working collaboratively with other agencies to engage students, teachers, and faculty in NASA's missions and unique assets."

We initiated this audit to examine NASA's education activities and determine whether the Agency was effectively implementing its education objective and Federal STEM education priorities. As part of this review, we interviewed NASA personnel and former Associate and Deputy Associate Administrators for the Office of Education. We also reviewed NASA education policy and management oversight, budgets for the Office of Education, processes to collect and evaluate information on education activities, and relevant progress reports, strategic plans, and program and project documentation.

## WHAT WE FOUND

NASA's Office of Education has taken steps to improve its management of the Agency's diverse education portfolio by restructuring several programs and projects to better align with Federal guidance; consolidating web applications for internship, fellowship, and scholarship opportunities; and increasing collaboration with other Federal agencies. However, the Office's efforts have been hampered by an outdated strategic framework and a lack of long-term goals upon which to evaluate the success of NASA's education activities. Specifically, the Office of Education did not update a 2006 framework document to align with the priorities outlined in the Agency's 2014 Strategic Plan until July 2015. Furthermore, the updated framework did not include measurable long-term goals that address the Nation's need to increase the number of students who earn advanced degrees in preparation for STEM careers.

In addition, a lack of timely and comprehensive management information has adversely impacted the Office of Education's ability to effectively monitor program accomplishments and accurately report NASA contributions to the Administration's STEM education goals. The Office uses the Education Performance Measurement (OEPM) system to collect data related to annual and near-term performance measures, objectives, and outcomes and reports that data to

the Office of Management and Budget (OMB). We found the OEPM system was unavailable numerous times during a fiscal year, and consequently some NASA data was incomplete, rendering the information in the Agency's Annual Performance Report inaccurate. For example, approximately 4,000 students who had participated in STEM activities were omitted from NASA's Annual Performance Report because of technical and access issues relating to OEPM.

Finally, although the Office of Education has developed a competitive process for identifying effective STEM education activities that deserve funding, NASA can further improve its processes and procedures to collaborate and consolidate education activities. In response to an OMB requirement that NASA's internal projects and activities compete with one another for education funding, in FY 2015 the Office of Education initiated an internal, criteria-based competition as the basis for its funding prioritization process. We reviewed all 50 abstracts submitted to the competition and found no significant evidence of inter-Center collaboration to identify areas for joint efforts. Consequently, in contrast to Federal guidance, NASA risks funding a fragmented portfolio of activities. We believe the Office of Education could reduce this risk by emphasizing coordination and consolidation as a priority in the initial stages of the competition and subsequently engaging the Centers to identify common themes.

## WHAT WE RECOMMENDED

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In order to improve the effectiveness of the Office of Education's management of its education portfolio, we recommended that NASA's Associate Administrator for Education (1) issue an Implementation Plan that aligns and remains current with NASA's Strategic Plan, accurately reflects the Office of Education's strategic direction, and includes measures to meet long-term goals and methodologies to gauge success; (2) improve accessibility to the OEPM system to ensure project managers have an adequate and timely opportunity for data entry at the start of each fiscal year; (3) establish internal control procedures to ensure all required education activity data is collected, entered, verified, and validated in the OEPM system for accurate and reliable reporting in the Annual Performance Report; (4) establish a reasonable timeframe for project managers' data entry after completion of individual education activities and ensure it is documented in the internal control procedures; and (5) assist Center Education Offices in developing coordinated activities for future competitions prior to the Office of Education reviewing all submissions and making selections.

In response to a draft of our report, management concurred with our recommendations and described planned corrective actions. We consider management's comments responsive; therefore, the recommendations are resolved and will be closed upon completion and verification of the proposed corrective actions.

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# Acronyms

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CoSTEM	Committee on Science, Technology, Engineering, and Math Education
FY	Fiscal Year
OEIS	Office of Education Infrastructure Services
OEPM	Office of Education Performance Measurement
OMB	Office of Management and Budget
OSTP	Office of Science and Technology Policy
SAP	Systems Application Product
SEAP	STEM Education and Accountability Projects
STEM	Science, Technology, Engineering, and Mathematics

# INTRODUCTION

Producing sufficient numbers of graduates prepared for science, technology, engineering, and mathematics (STEM) occupations is a national priority for the United States. The U.S. Bureau of Labor Statistics projects that STEM-related positions will grow to more than 9 million by 2022, an increase of 1 million since 2012.<sup>1</sup>

Since the Agency's creation in 1958, education has been a fundamental part of NASA's vision to "reach for new heights and reveal the unknown for the benefit of humankind." As such, the Agency is committed to advancing and promoting STEM concepts, careers, and awareness for learners, teachers, and institutions through a variety of education programs. NASA seeks to attract and retain diverse students in STEM career fields and advance STEM research and programming by providing access to world-class research and technology facilities, mission data, and technical experts. On an annual basis, more than 1,000 NASA-funded internships, fellowships, and scholarships are made available to students seeking hands-on experience in STEM research, aerospace education, and space exploration.

We initiated this audit to examine NASA's education activities and whether the Agency was effectively implementing its strategic education objective and Federal STEM education priorities. See Appendix A for details of the audit's scope and methodology.

## Background

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While state and local governments are predominantly responsible for funding general education programs and activities, Federal agencies routinely invest in STEM-specific education efforts. President Obama's proposed fiscal year (FY) 2016 budget provides more than \$3 billion to Federal STEM-education programs, an increase of 3.8 percent over the FY 2015 enacted level. Roughly 80 percent of Federal STEM education funding goes to three agencies – Department of Education, Department of Health and Human Services, and National Science Foundation. In FY 2014, NASA received about \$127 million in education funding, which represents approximately 5 percent of the annual Federal STEM education budget, as shown in Figure 1.<sup>2</sup> Although proportionally a small investment, NASA has a "bully pulpit" when it comes to how much the Agency can inspire by providing unique missions, state-of-the-art facilities, and research opportunities to help the Nation achieve its educational goals.<sup>3</sup>

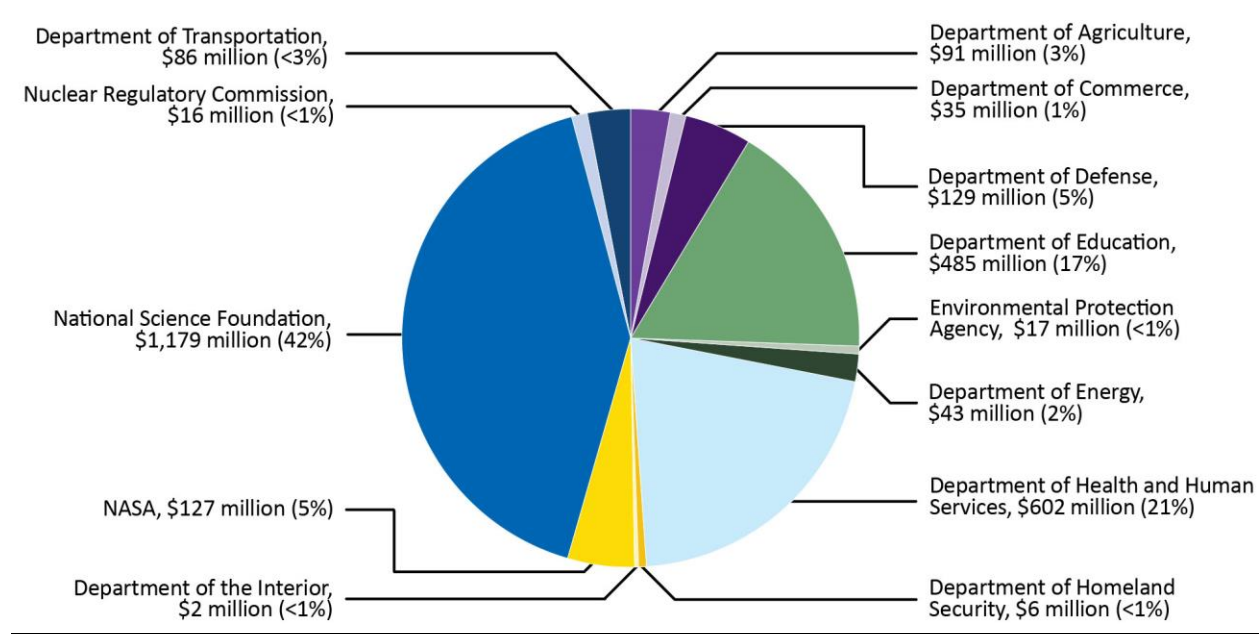
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<sup>1</sup> Bureau of Labor Statistics, "Occupational Outlook Quarterly Publication," 2014.

<sup>2</sup> Office of Science and Technology Policy, "Progress Report on Coordinating Federal Science, Technology, Engineering, and Mathematics (STEM) Education," March 2014.

<sup>3</sup> NASA Associate Administrator for Education presentation to the NASA Advisory Council, Ad Hoc Task Force on STEM Education, April 3, 2015.

**Figure 1: FY 2014 Federal STEM Education Investments by Agency**



Source: Office of Science and Technology Policy.

## Federal Education Priorities

Amid growing need in the United States for individuals to fill STEM-related jobs and to create a competitive advantage relative to the education systems and economies of other countries, improving the impact of Federal education funds has been a priority for the Obama Administration:

...leadership tomorrow depends on how we educate our students today – especially in science, technology, engineering and math. We know how important this is for our health. It’s important for our security. It’s important for our environment. And we know how important it is for our economy.<sup>4</sup>

The Office of Science and Technology Policy (OSTP) advises the President on the effects of science and technology on U.S. and international affairs, including Federal STEM education activities. As part of this responsibility, OSTP leads an interagency effort to develop and implement sound science and technology policies and budgets. The National Science and Technology Council coordinates this policy across Federal agencies with the primary objective of establishing clear national goals for Federal STEM education investments.<sup>5</sup>

<sup>4</sup> Remarks by President Barack Obama at the announcement of the "Change the Equation" Initiative, September 16, 2010.

<sup>5</sup> Exec. Order No. 12881, as amended, "Establishment of the National Science and Technology Council," November 23, 1993. The Council is chaired by the President and members include the Vice President, the Director of OSTP, Cabinet secretaries and agency heads with significant science and technology responsibilities, and other White House officials.



The America COMPETES Reauthorization Act of 2010 called for OSTP to establish, maintain, and periodically update an inventory of Federal investments in STEM education, and develop, implement, and update a 5-Year Federal STEM Education Strategic Plan (5-Year Strategic Plan).<sup>6</sup> The Act also directed OSTP to establish the Committee on Science, Technology, Engineering, and Math Education (CoSTEM) to strengthen coordination and strategic planning of STEM education programs among Federal agencies. First convened in March 2011 and including representatives from 13 Federal agencies (as listed in Figure 1), CoSTEM addresses education and workforce policy issues; research and development efforts that focus on STEM education at the pre-kindergarten through 12th grade, undergraduate, graduate, and lifelong learning levels; and current and projected STEM workforce needs, trends, and issues. The Committee performs three functions: (1) review and assess Federal STEM education activities and programs with the Office of Management and Budget (OMB), (2) coordinate STEM education activities and programs across Federal agencies, and (3) develop and implement a 5-Year Strategic Plan through the participating agencies. The Committee intends to update the plan every 5 years.

In 2013, CoSTEM prepared its first 5-Year Strategic Plan, identifying five strategic priorities and two coordination approaches to enhance the Federal investment in STEM:

- Strategic Priorities
  1. Improve kindergarten through 12th grade STEM instruction.
  2. Increase and sustain youth and public engagement in STEM.
  3. Improve undergraduate STEM education.
  4. Provide better service to groups historically underrepresented in STEM fields.
  5. Design graduate education for tomorrow's STEM workforce.
- Coordination Approaches
  1. Build new models for leveraging assets and expertise.
  2. Build and use evidence-based approaches.

In order to implement these goals more efficiently, the Obama Administration focused on reducing the fragmentation of STEM education efforts and encouraging a more coherent portfolio of investments. In response, CoSTEM proposed a cooperative effort among the 13 Federal agencies and emphasized the need for rigorous evaluation of STEM education in an effort to develop best practices for improving program effectiveness.

## **NASA's Education Governance and Portfolio Participants**

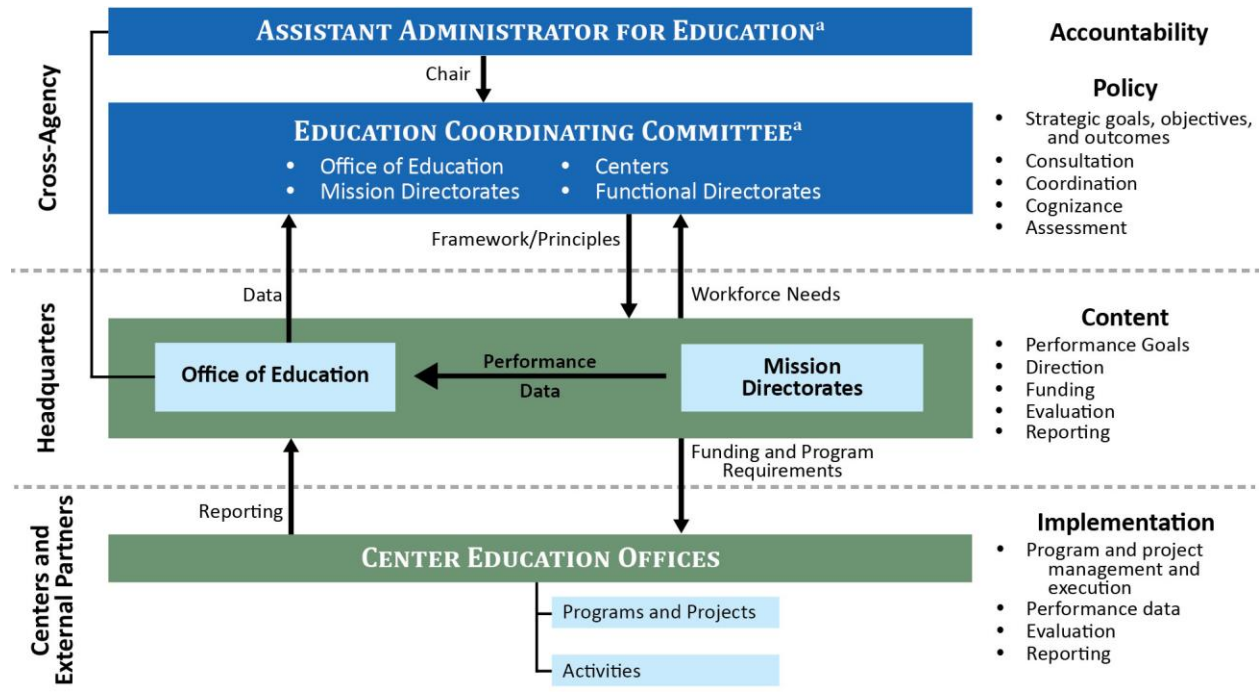
In response to a May 2005 report by the National Academies addressing the United States' ability to compete globally in the areas of science and technology, the NASA Headquarters Office of Education published a coordination framework for its activities that focused on a portfolio approach to guide strategic planning and management (see Figure 2).<sup>7</sup> The framework highlighted the significance of creating a coordinated effort among organizations across the Agency that contributes to NASA's education portfolio, including the Office of Education, Mission Directorates, and Centers.

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<sup>6</sup> Pub. L. No. 111-358, January 4, 2011.

<sup>7</sup> National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, "Rising Above the Gathering Storms: Energizing and Employing America for a Brighter Economic Future," May 2005.

**Figure 2: Education Portfolio Coordination Framework**



Source: NASA Office of Education Strategic Coordination Framework, February 2006.

<sup>a</sup> NASA later changed the title to Associate Administrator and Education Coordinating Council.

### ***Office of Education***

The Office of Education, located at NASA Headquarters and led by the Associate Administrator for Education, implements and monitors Agency-wide educational efforts, ensures compliance with external requirements and laws, and tracks outcomes relative to NASA’s strategic objective and the Office’s performance goals.

### ***Education Coordinating Council***

The Education Coordinating Council serves as NASA’s senior decision-making body for strategic direction and planning related to education. In addition, the Council assesses Agency progress toward achieving NASA’s educational vision and works to ensure NASA has an integrated education portfolio. The Council also assesses the performance of NASA education projects and programs, Mission Directorate education portfolios, and Center education portfolios to ensure successful outcomes that support the achievement of the Agency’s strategic education goals and the efficient use of resources.

## ***Mission Directorates***

NASA's four Mission Directorates – Aeronautics Research, Human Exploration and Operations, Science, and Space Technology – and other Headquarters organizations that fund education efforts are encouraged to integrate education components into their research and development programs and flight missions. In addition, the Mission Directorates administer content-specific activities for which they provide funding and ensure meaningful collaboration among the NASA science, engineering, and education communities.<sup>8</sup>

Mission Directorates develop partnerships specific to their disciplines and needs, including coordination with other Federal agencies. Each Mission Directorate identifies an Education Lead who represents their Associate Administrator to the Office of Education and the Education Coordinating Council. The Education Leads work for the Mission Directorates and are responsible for program coordination with the Office of Education and the Centers, program evaluation using Education Coordinating Council criteria, and data distribution to the central Agency education database.

## ***Center Education Offices***

NASA Center Education Offices are responsible for implementing education programs, projects, and activities for the Office of Education and the Mission Directorates, as well as planning and implementing education projects unique to and funded by their Centers. The Center Education Offices provide expertise in state standards and requirements in their area of geographic responsibility for kindergarten through 12th grade education and field-based input into education program planning.

Center Education Offices work closely with their regional customer base in support of formal education, assist with generation and communication of knowledge for their unique research and technology development requirements by involving colleges and universities across the country, and establish links to informal education networks in support of Agency and national STEM education initiatives. They maintain cognizance of all NASA-funded education efforts that take place in their geographic region and programmatic areas of responsibility. Center Education Leads are functionally responsible for all Center education efforts and report administratively to their Center management and functionally to the Office of Education at NASA Headquarters. They also receive programmatic direction from the Headquarters organizations that provide education funding to the Centers.

## **Education Funding**

The Office of Education and the Science Mission Directorate provide the majority of funds for NASA's education activities (see Table 1).

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<sup>8</sup> The Aeronautics Research Mission Directorate explores early-stage innovative ideas, develops new air vehicle technologies and air traffic operational procedures, and demonstrates the new vehicles, operations, and safety technology. The Human Exploration and Operations Mission Directorate manages NASA's space operations related to human exploration in and beyond low Earth orbit. The Science Mission Directorate conducts scientific exploration of the Earth from space, other bodies in the solar system, and beyond. The Space Technology Mission Directorate develops crosscutting, new technologies needed to achieve NASA missions.

**Table 1: NASA’s Education Budget (dollars in millions, rounded)**

Organization	FY 2012	FY 2013	FY 2014	FY 2015
Office of Education	\$136	\$116	\$117	\$119
Science Mission Directorate	23	23	10	42
<b>Total</b>	<b>\$159</b>	<b>\$139</b>	<b>\$127</b>	<b>\$161</b>

Source: NASA Office of Inspector General analysis of NASA education budget.

Note: Budget data is from multiple sources and therefore, funding for FYs 2012–2014 may not be complete as education and outreach dollars were often combined and could not be separated for purposes of this review.

Prior to FY 2015, the Aeronautics Research and Human Exploration and Operations Mission Directorates and several NASA Centers allocated small portions of their budgets to education activities, but were not primary contributors to the Agency’s education budget. Therefore, education activities embedded within research and development programs of the four Mission Directorates and Center programs were funded directly from the applicable Directorate or Center budgets. For example, in FY 2014 the Aeronautics Research Mission Directorate allocated approximately \$2 million toward the aeronautics academy and scholarship activities and the Human Exploration and Operations Mission Directorate spent approximately \$1.2 million on exploration and operations education activities. Additionally, Glenn Research Center, Johnson Space Center, Langley Research Center, and Marshall Space Flight Center allocated portions of Center funding towards educational activities. However, in line with the Administration’s education coordination efforts across the Government and desire for agencies to consolidate internal education activities, for FY 2015 NASA restructured its education investments into a coordinated education program funded primarily through the Office of Education. For example, the Office of Education developed an internal, criteria-based competition to maximize the education funding opportunities it can offer within its limited fiscal resources.

## NASA’s Education Portfolio

The America COMPETES Reauthorization Act of 2010 directed NASA to develop and maintain educational programs, including administer and support research-based programs and activities designed to increase student interest and participation in STEM, and improve public STEM literacy. NASA’s Office of Education is responsible for coordinating Agency efforts to meet these goals. In an effort to help maintain the United States’ global competitiveness, NASA’s education programs are structured to support the growth of the diverse STEM workforce across NASA and the Nation, help develop STEM educators, engage and establish partnerships with institutions, and inspire and educate the public.

In alignment with national priorities, NASA’s 2014 Strategic Plan outlines the Agency’s strategic direction, goals, and priorities to accomplish its mission; provides a long-term direction for NASA’s activities; and serves as the foundation upon which NASA measures the success of programs and projects.<sup>9</sup> The Office of Education is responsible for Strategic Objective 2.4 of the Plan, which states:

Advance the Nation’s STEM education and workforce pipeline by working collaboratively with other agencies to engage students, teachers, and faculty in NASA’s missions and unique assets.

To help achieve this objective, the Office of Education established four performance goals, as shown in Table 2.

**Table 2: NASA’s STEM-related Performance Goals**

Performance Goal	Description
2.4.1	Assure that students participating in NASA higher education projects are representative of the diversity of the Nation.
2.4.2	Continue to support STEM educators through the delivery of NASA education content and engagement in education professional development opportunities.
2.4.4	Continue to provide opportunities for learners to engage in STEM education through NASA-unique content provided to informal education institutions designed to inspire and educate the public.
2.4.5	Continue to provide opportunities for learners to engage in STEM education engagement activities that capitalize on NASA-unique assets and content.

Source: NASA FY 2014 Annual Performance Report and FY 2016 Annual Performance Plan.

The Office of Education works to implement Strategic Objective 2.4 by (1) aligning efforts to national priorities and NASA’s vision and mission; (2) involving students, educators, and institutions in NASA’s missions; and (3) impacting the public’s use of NASA’s unique content, people, and facilities. The education portfolio is currently organized into four “lines of business” that connect students, educators, and institutions with NASA’s unique missions and programs:

1. *STEM Engagement* provides opportunities for participatory and experiential learning activities to connect learners to NASA-unique resources.
2. *Educator Professional Development* prepares STEM educators and leaders to deliver quality STEM instruction utilizing unique NASA assets and content.
3. *NASA Internships, Fellowships, and Scholarships* utilizes NASA’s facilities and assets to provide work experiences and research and educational opportunities to improve retention in STEM and prepare students for employment in STEM jobs.
4. *Institutional Engagement* focuses on improving the capacity of U.S. institutions to deliver effective STEM education.

<sup>9</sup> NASA Strategic Plan 2014, available at [https://www.nasa.gov/sites/default/files/files/FY2014\\_NASA\\_SP\\_508c.pdf](https://www.nasa.gov/sites/default/files/files/FY2014_NASA_SP_508c.pdf) (accessed September 2, 2015).

# IMPROVED PROGRAM MANAGEMENT AND REDUCED FRAGMENTATION COULD INCREASE EFFECTIVENESS

NASA's Office of Education has taken steps to improve its management of the Agency's diverse education portfolio by realigning several programs and projects, establishing a centralized recruitment system, and increasing collaboration with other Federal agencies. However, the Office's efforts have been hampered by an outdated strategic framework and a lack of long-term goals upon which to evaluate the success of NASA's education activities. In addition, a lack of timely and comprehensive management information has adversely impacted the Office's ability to effectively monitor program accomplishments and accurately report Agency contributions to the Administration's STEM education goals. Finally, despite the development of a competitive process for identifying and supporting the most effective STEM education activities across the Agency, the Office of Education can further improve its processes and procedures to consolidate its education activities.

## **NASA Needs to Develop a Comprehensive Strategic Framework for Future Education Efforts**

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In 2012, the Office of Education revised its portfolio to better align NASA's STEM investments and activities with OMB and OSTP guidance. Specifically, the Office realigned its programs and projects; consolidated web applications for internship, fellowship, and scholarship opportunities; and worked with other Federal agencies to coordinate STEM activities. However, until July 2015, the Office had not created an up-to-date, comprehensive strategic framework to guide management of its portfolio; established reasonable but challenging goals; or determined long-term measures of success. Reliance on a strategy that is nearly a decade old and inconsistent with NASA's current goals falls short of aligning the Agency's education efforts with National priorities.

## **Restructured Programs and Projects Better Align with Federal Guidance**

Several efforts have contributed to the restructuring of NASA's education portfolio. In 2011, an Education Design Team chartered by the NASA Administrator in May 2010 made six recommendations to improve the education program's effectiveness, including focusing the program to improve its impact on areas of greatest national need and establishing a structure to allow the Office of Education, Mission Directorates, and Centers to implement a strategically integrated portfolio. In December 2011, the Associate Administrator for Education initiated a review and redesign of NASA's education portfolio in response to both internal and external requests for modifications to the Office's existing business

model.<sup>10</sup> The Associate Administrator stressed the importance of having each activity align with the Agency's strategic goals, outcomes, and objectives and the need for increased Agency-wide coordination. A Portfolio Development Team, which was created by the Associate Administrator and included representatives from Headquarters and each Center, completed its review in April 2012 and restructured the education portfolio under two programs:

- The *Aerospace Research and Career Development Program* supports national STEM research and education efforts for the advancement of NASA's scientific and technical priorities. To help manage this effort, the Program was subdivided into two projects:
  1. The Experimental Program to Stimulate Competitive Research aims to achieve research and technology development for its Mission Directorates and overall research infrastructure. For example, in June 2015 NASA announced \$11.25 million in awards to universities in 15 states for basic research and technology development in areas critical to the Agency's mission.
  2. The National Space Grant College and Fellowship Program supports state-based consortia of academia, industry, and education organizations. The Program enables collaboration across NASA education projects, and provides students with hands-on engineering experiences. For example, in August 2014 NASA awarded more than \$17.3 million in grants and fellowships to several community colleges and technical schools across the United States to increase student and faculty engagement in STEM.
- The *STEM Education and Accountability Program* provides learners, researchers, and educators access to NASA facilities, people, and resources in support of the Agency's strategic objectives and the Nation's STEM education priorities. This Program is further divided into two projects:
  1. The Minority University Research Education Project provides multi-year grants and cooperative agreements for students of minority-serving institutions that focus on the recruitment and retention of underrepresented and underserved students, including women and persons with disabilities. For example, in June 2014 NASA announced the selection of 13 undergraduate teams from minority-serving U.S. institutions to test science experiments in microgravity conditions.
  2. The STEM Education and Accountability Projects (SEAP) support NASA's consolidation efforts in response to the Federal Government's overall goal of restructuring STEM education programs within the various agencies. SEAP funds grants and cooperative agreements to formal and informal education institutions, as well as internships, fellowships, and scholarships for student and educator professional development. In addition, in accordance with OMB and OSTP guidance, NASA developed a competitive process to identify the best education activities of the Mission Directorates and Centers for inclusion in SEAP.

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<sup>10</sup> The Associate Administrator for Education wrote: "The current budgetary environment; congressional direction; a charge from the NASA Administrator; the NASA Education Design Team recommendations; and the White House's Office of Science and Technology Policy's Committee on Science, Technology, Engineering, and Mathematics (CoSTEM) education have all signaled that a change is required in the way NASA Education does business."

By consolidating the activities into two clearly defined programs, NASA hoped to (1) better ensure that its education portfolio was structured to make the greatest impact possible given NASA's limited education resources, (2) strategically leverage its resources within the education community, and (3) better align its education portfolio with the CoSTEM 5-Year Strategic Plan.

## **One-Stop Shopping Initiative Consolidates Student Opportunities**

The Office of Education first conceived its One-Stop Shopping Initiative in FY 2008 in response to feedback from students, mentors, and other NASA stakeholders. Prior to implementation of the Initiative, NASA's recruitment efforts were decentralized, geographically oriented to the individual Centers, and largely unmeasured. Specifically, students would identify internship, fellowship, and scholarship opportunities by accessing various Mission Directorate or Center websites. The multiple access points and lack of a single, centralized system for all internships, fellowships, and scholarships required students to complete separate applications for each opportunity, often on different deadlines. To help simplify this process, the One-Stop Shopping Initiative, deployed in 2010, offers a single point of entry for all NASA internship and fellowship opportunities and a single application process. The Initiative is available both to students looking for opportunities and to the NASA personnel who rank and select applicants. For 2015, the application pool consisted of 30,780 applications with 1,162 opportunities awarded.

## **Coordination with Other Federal Agencies Supports National Goals**

The Office of Education is working with the 12 other Federal agencies receiving Federal STEM funding in support of the Administration's five STEM education priorities. For example, from July 2013 through July 2014, NASA and the Department of Education entered into a reimbursable Space Act Agreement aligned with Federal priorities to increase and sustain youth and public engagement in STEM. In addition, the two agencies supported STEM objectives and activities within the Department of Education's 21st Century Community Learning Center Program.<sup>11</sup> NASA customized online STEM research projects and activities along with the associated curriculum materials to align to the Program's objectives and implemented them in Colorado, Michigan, and Virginia. NASA and the Department of Education are using the results from this pilot activity to draft a framework for additional Federal agencies to participate in the Program.

## **Consolidation of Funding within the Office of Education**

In line with the Administration's efforts to consolidate STEM education programs across the Government, beginning in FY 2015 NASA restructured its STEM education investments into a single, coordinated education program through which the Mission Directorates and Centers compete for education funding. Previously, Mission Directorates supported NASA's education portfolio by providing discipline-specific content, Directorate funding, and human resources to plan and implement education programs, projects, and activities. As a component of its internal consolidation of activities – once

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<sup>11</sup> The 21st Century Community Learning Center Program provides enrichment experiences to students during non-school hours, particularly those from under-resourced communities.



funded by NASA Centers, the Aeronautics Research Mission Directorate, and the Human Exploration and Operations Mission Directorate – the Office of Education prepared a criteria-based competition in FY 2015 to maximize the opportunities it can offer within SEAP’s limited fiscal resources. Eligible applicants in the SEAP competition included projects and activities previously funded by NASA Centers, Mission Directorates, and the Office of Education. The Office of Education structured the competition to emphasize “evidence of effectiveness” and prioritize funding among selected activities.

## **Need for an Up-to-Date Strategic Plan with Long-term Goals**

Prior to initiation of our audit, the Office of Education had not updated its 2006 framework document to align with the education priorities outlined in the Agency’s 2014 Strategic Plan, particularly the focus on interagency collaboration.<sup>12</sup> Office of Education staff referred to the 2006 document as “historic” and confirmed it was outdated and inconsistent with the goals in the Agency’s current strategy and should be revised. As such, Office of Education personnel indicated they relied on other documents, such as the CoSTEM 5-Year Strategic Plan, to help guide management of the Office’s portfolio.

Given the Administration’s collaboration and coordination efforts and the Office of Education’s intention to align with the CoSTEM Strategic Plan, an Office of Education official said updating the framework document was not a priority. However, we believe maintaining an updated document would have been helpful, particularly given the history of significant turnover in the Associate Administrator position. From 2007 through 2015, five different individuals served in this capacity, with two serving less than 7 months each.<sup>13</sup> This turnover of leadership led to frequent changes in priorities and direction, and a roadmap reflecting current operations would assist both management and employees through transitions while still allowing management to make adjustments as necessary.

During the course of our audit, the Office of Education began updating its framework document to better align with NASA’s 2014 Strategic Plan and the CoSTEM 5-Year Strategic Plan. We reviewed a final version of this document – NASA Education Implementation Plan 2015–2017 – and found it aligns with all NASA education activities, incorporates the four lines of business currently in the education portfolio, describes how the Office conducts operations and collaborates with other government agencies, and includes both near-term performance goals and annual performance indicators.<sup>14</sup> For example, relative to the performance goal of providing opportunities for students to engage in STEM education activities that capitalize on NASA-unique assets and content (2.4.5), the Office of Education is aiming to engage with at least 600,000 and 750,000 elementary and secondary students in FY 2015 and FY 2016, respectively.

Although we are encouraged that the Office has updated its framework document, we noted that it does not include measurable long-term goals that address the Nation’s need to increase the number of students who earn advanced degrees in preparation for entering STEM career fields critical to the Nation and NASA. We reviewed Education Performance Reports for FY 2013 and found the reports for

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<sup>12</sup> NASA, "Strategic Coordination Framework: A Portfolio Approach," February 2006.

<sup>13</sup> The five Office of Education’s Associate Administrators served from August 2007 through April 2010, April 2010 through October 2010 (Acting Associate Administrator), October 2010 through February 2014, February 2014 through September 2014 (Acting Associate Administrator), and September 2014 through the present.

<sup>14</sup> The Office of Education, in late July 2015, published a hard copy of the Implementation Plan and, in August 2015, posted the Plan on its website at [http://www.nasa.gov/sites/default/files/atoms/files/nasa\\_education\\_implementation\\_plan\\_2015-2017.pdf](http://www.nasa.gov/sites/default/files/atoms/files/nasa_education_implementation_plan_2015-2017.pdf) (accessed September 10, 2015).

the National Space Grant College and Fellowship Program contained longitudinal tracking data the Office of Education could use to develop such long-term goals. For example, the Florida Space Grant Consortium reported that out of 55 students who in FY 2013 took the next step in their careers, 7 students were pursuing advanced degrees in STEM disciplines, 1 was seeking a STEM position, 13 accepted STEM positions at NASA contractors, 1 accepted a position at NASA, 12 accepted STEM positions in industry, 5 accepted STEM positions in academia, and 16 went on to positions in non-STEM disciplines. Although the reports were not completely standardized and the methods of tracking varied, the information showed student progress toward entering the STEM workforce.<sup>15</sup> Conversely, the reports for the Minority University Research Education Project and SEAP were not standardized and with the exception of a few reports, did not contain longitudinal tracking information. We believe NASA could better evaluate the success of its education activities by requiring projects to develop longitudinal tracking methodologies, standardize reporting requirements, and establish long-term goals with regard to increasing the number of students moving toward and entering STEM career fields.

## **Timely and Comprehensive Management Information Needed to Effectively Monitor and Report on Agency-wide Education Activities**

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A lack of timely and comprehensive management information regarding Agency-wide education activities adversely impacts the Office of Education's ability to effectively monitor program accomplishments and accurately report program statistics to OMB. OMB requires CoSTEM agencies to submit STEM activity data for inclusion in the agency's Annual Performance Report, which provides information on an agency's progress in achieving the goals and objectives described in its Strategic Plan and Annual Performance Plan.<sup>16</sup> The data NASA submits is incomplete and based on information that is at least 1 year behind the most recently completed year.<sup>17</sup> We believe NASA could improve its reporting by addressing flaws in its reporting system.

As part of the Agency's initiative to improve performance measurement of its diverse education portfolio, NASA developed the Office of Education Performance Measurement (OEPM) system as the official system for capturing and organizing the required performance data on NASA education programs.<sup>18</sup> The Office of Education Infrastructure Services (OEIS) manages the OEPM system, which

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<sup>15</sup> Tracking methods included Kansas using Facebook, New Jersey requiring that students agree to provide 10 years of information regarding their career progression, and New Hampshire using the National Space Grant Foundation Longitudinal Tracking System.

<sup>16</sup> Annual Performance Report performance reporting requirements under the Government Performance and Results Modernization Act of 2010, Section 4; OMB Circular A-11 (2014), Section 260.

<sup>17</sup> NASA's performance compares favorably to other Federal agencies, many of which report on older data. For example, the Department of Education also reports on prior year data and the National Science Foundation reports on data from 4 to 5 years prior.

<sup>18</sup> The OEPM system is a centralized, web-based system that collects and reports STEM education activity performance, including programmatic goals and objectives, project activity costs, student award data, projected contributions to annual performance goals, organizations or institutions associated with the project activity, and total number of direct and indirect attendees reached by the activity.

allows the Office of Education to collect performance data related to annual and near-term performance measures, objectives, and outcomes and report them in the Agency's Annual Performance Report.<sup>19</sup>

We found that OEIS closes the OEPM system for data entry numerous times during a fiscal year – most notably for annual project updates at the start of each fiscal year – causing project managers to delay, postpone, and perhaps forget to enter data into the system. For example, at the start of both FYs 2013 and 2014, the OEPM system was unavailable due to system updates for new projects and other programmatic changes. In addition to the fiscal year closures, we were informed by project managers that the OEPM system was often inaccessible for extended periods of time – sometimes for many months – without adequate explanation. Further, the Secure Nomadic Access application used by non-NASA (external) project managers to access the OEPM system was unavailable for 20 months between FYs 2014 and 2015, rendering the system inaccessible to some external project managers.<sup>20</sup> Along with other system outages, this lack of access presented a significant barrier to some project managers for completing their transactions and contributed to late reporting.

In addition, a lack of coordination and support among OEPM personnel, OEIS personnel, and project managers may be contributing to incomplete OEPM data. For example, one Project Manager pointed to two issues in March 2015 that limited FY 2014 data entry: (1) FY 2014 projects were not yet updated in the system and (2) issues with the Secure Nomadic Access application. As a “work around,” the Office of Education asked project managers to input FY 2014 data into an Excel spreadsheet using a format OEIS would provide. However, OEIS never provided the format and project managers were still unable to enter their data into the system. As of May 2015, project managers were finally able to access the OEPM system and identify their FY 2014 projects; however, all FY 2014 data had not yet been entered into the system.

As a result of incomplete entry of education activity data, some information in NASA's Annual Performance Report is inaccurate. For FY 2013, we found that 4 percent (119 of 2,941) of NASA education activities in the OEPM system were incomplete. Specifically, 28 of the 119 entries contained no data and were not included in the Annual Performance Report statistics, while others failed to upload data in all required fields. We surveyed seven education activity project managers and all noted they had encountered access and technical issues when attempting to input data into the OEPM system. For example, due to access and technical issues, a Science Mission Directorate Project Manager and an Education Center Project Manager did not fully complete all required data entry fields for their education project activities. These and other omissions resulted in the projects reporting an “incomplete” status in OEPM, which then caused the Office of Education to omit approximately 4,000 students who had participated in STEM activities from NASA's Annual Performance Report.

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<sup>19</sup> The Annual Performance Report builds upon the framework laid out in NASA's Strategic Plan, which is based on requirements of the Government Performance and Results Modernization Act of 2010. This document integrates reporting of NASA's prior year performance with its updated performance plan for the current fiscal year, as well as its proposed performance plan for the requested budget fiscal year.

<sup>20</sup> The Secure Nomadic Access application was an Agency website that allowed authorized users access to NASA's network and applications when working external from Agency infrastructure. The application was decommissioned effective August 6, 2015. External users now access the OEPM system via a secure public website, <https://oedc.nasa.gov> (last accessed September 17, 2015).

## The Office of Education Can Improve Efforts to Avoid Fragmentation across NASA

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Despite development of a competitive process for identifying and supporting effective STEM education activities, NASA can further improve its processes and procedures to consolidate education activities within SEAP. We reviewed all 50 abstracts submitted to the SEAP competition and found no significant evidence of inter-Center collaboration to identify areas for joint efforts. Consequently, in contrast to OMB and OSTP guidance, NASA risks funding a fragmented portfolio of activities for its SEAP efforts.

Following a \$20 million reduction in education funding between FYs 2012 and 2013, the Office of Education restructured its education portfolio in an effort to streamline and consolidate its activities. In addition, in July 2014 OMB required NASA's internal projects and activities to compete with one another for funding in order to support the best application of the Agency's education assets and to achieve greater consolidation across the Agency. In response to OMB's requirement, in FY 2015 the Office of Education initiated an internal, criteria-based competition as the basis for its prioritization process for SEAP funding. This competition required respondents to provide information on how their approach aligned with Strategic Objective 2.4, related performance indicators, and the five priorities and two approaches listed in the 5-Year Strategic Plan. Respondents were required to identify expected outcomes and the existence of an evaluation plan for the effort. NASA's Mission Directorates and Centers submitted information for their activities, which provided the Office of Education a universe of priorities SEAP should consider funding in FY 2015 and beyond.

The competition represented a culture change in the development of NASA's education portfolio and achieving its intended outcomes proved difficult. Previously, NASA sometimes selected activities within kindergarten through 12th grade, formal STEM education for funding based on leadership preferences and perceived gaps or needs in the Agency's portfolio as opposed to basing the decision on established criteria or evaluations. OMB established Agency consolidation as a key outcome of the competition; however, our review of the 50 abstracts submitted did not identify any significant evidence of inter-Center collaboration to achieve this result. An official in the Office of Education agreed with our assessment that little or no collaboration among Centers takes place.

Although the Office of Education subsequently instructed selected FY 2015 awardees to propose work-plans that reduce STEM-education program fragmentation and duplication within NASA, we believe NASA could reduce the risk of funding a fragmented portfolio by emphasizing coordination and consolidation as a priority in the initial stages of the competition and subsequently engaging the Centers upon receiving proposals to identify common themes and propose a single activity for rigorous evaluation. Furthermore, the Office of Education can reduce fragmentation by initially selecting competition ideas ready for consolidation and then assisting Center Education Offices in developing a single coordinated activity.

# CONCLUSION

Improving the impact of Federal education funds remains a priority amid growing concerns about meeting the Nation's STEM workforce needs and maintaining a competitive advantage relative to the education systems and economies of other countries. In order to implement education goals more efficiently, the Administration has focused on reducing the fragmentation of STEM education efforts and encouraged a more coherent portfolio of investments.

Although NASA has made strides over the past several years to improve the management of its diverse education portfolio and align with national priorities, weaknesses that undermine the Agency's progress continue to exist. The lack of an updated strategic plan that includes long-term goals, timely and comprehensive management information, and efficient processes to reduce fragmentation and increase consolidation of activities hinder the Agency's ability to manage and accurately portray the value and outcomes of its education programs. Addressing these issues will improve NASA's effectiveness and ability to focus the Agency's education efforts to support a goal of improving the impact of Federal education funds and providing greater numbers of graduates prepared for STEM occupations.

# RECOMMENDATIONS, MANAGEMENT'S RESPONSE, AND OUR EVALUATION

In order to improve the effectiveness of the Office of Education's management of its education portfolio, we made the following five recommendations to NASA's Associate Administrator for Education:

1. Issue an Implementation Plan that aligns and remains current with NASA's Strategic Plan and accurately reflects the Office of Education's strategic direction and management of the education portfolio, including measures to meet long-term goals and methodologies to gauge success.
2. Improve accessibility to the OEPM system to ensure project managers have an adequate and timely opportunity for data entry beginning at the start of each fiscal year.
3. Establish internal control procedures to ensure all required education activity data is collected, entered, verified, and validated in the OEPM system for accurate and reliable reporting in the Annual Performance Report.
4. Establish a reasonable timeframe for project managers' data entry after completion of individual education activities and ensure it is documented in the internal control procedures.
5. Assist Center Education Offices in developing coordinated activities for future SEAP competitions prior to the Office of Education reviewing and evaluating all submissions, and making selections.

We provided a draft of this report to NASA management, who concurred with our recommendations and described planned corrective actions. Because we consider management's comments responsive to our recommendations, the recommendations are resolved. We will close the recommendations upon completion and verification of the proposed corrective actions. Management's full response to our report is reproduced in Appendix B. Technical comments provided by management have also been incorporated, as appropriate.

Major contributors to this report include Raymond Tolomeo, Science and Aeronautics Research Director; Diane Choma, Project Manager; and Theresa Becker, Cyrus Geranmayeh, Todd Rose, and Gary Weishaar. Additional support was provided by Sarah McGrath.

If you have questions about this report or wish to comment on the quality or usefulness of this report, contact Laurence Hawkins, Audit Operations and Quality Assurance Director, at 202-358-1543 or [laurence.b.hawkins@nasa.gov](mailto:laurence.b.hawkins@nasa.gov).

Handwritten signature of Paul K. Martin in black ink.

Paul K. Martin  
Inspector General

## APPENDIX A: SCOPE AND METHODOLOGY

We performed this audit from October 2014 through September 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In September 2014, we announced an audit of NASA's education program and activities, and initiated field work in October 2014 to examine NASA's implementation of its strategic education objective and Federal STEM education priorities. To evaluate the extent that the Office of Education is positioned to meet current and future commitments, we reviewed Agency education policy and management oversight, approved budgets for the Office of Education and other organizations contributing to NASA's education portfolio, and processes to collect and evaluate information on education activities across the Agency in addressing congressional direction for consolidation of education programs.

In addition, we interviewed management and personnel from NASA's Office of Education, Mission Directorates, and Center Education Offices. We also interviewed former Associate Administrators for the Office of Education, as well as the former Deputy Associate Administrator for the Office of Education. Further, we reconciled and traced the Office of Education's FYs 2013 and 2014 Systems Application Product (SAP) budget data to Directorate- and Center-provided budget data.

To evaluate how the Office of Education implemented and managed education activities, we reviewed relevant CoSTEM progress reports, NASA strategic plans, and relevant program and project documentation. We also reviewed relevant Federal and NASA mandates, standards, guidance, and policy documents related to education activities, including the following:

- CoSTEM 5-Year Strategic Plan, May 2013
- Executive Order 12881, "Establishment of the National Science and Technology Council," as amended, November 23, 1993
- Government Performance and Results Modernization Act, 2010
- "America COMPETES Reauthorization Act of 2010," Pub. L. No. 111-358, 2011
- OMB Circular A-11, Section 260, "Annual Performance Reporting," 2014
- OSTP CoSTEM Education Progress Reports, February 2012, March 2014, and March 2015
- NASA Advisory Council Presentation, Ad Hoc Task Force on STEM Education by the Associate Administrator for Education, April 3, 2015
- NASA Education Coordinating Council Charter, January 2012
- NASA's Annual Performance Report, 2015
- NASA Center education budget data for Goddard Space Flight Center, Johnson Space Center, Langley Research Center, and Marshall Space Flight Center, FYs 2013 and 2014
- NASA Education Implementation Plans (Draft), March 31, 2015 and June 24, 2015
- NASA Education Strategic Coordination Framework: A Portfolio Approach, February 2006



- NASA FY 2014 Strategic Plan
- NASA Mission Directorate education budget data for Aeronautics Research, Human Explorations and Operations, Science, and Space Technology Mission Directorates, FYs 2013 and 2014
- NASA Policy Directive 1388.1, “Employee Participation in NASA Education and Communications Activities,” May 21, 2012
- National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, “Rising Above the Gathering Storms: Energizing and Employing America for a Brighter Economic Future,” May 2005
- Office of Education budget data, FYs 2013, 2014, and 2015
- Office of Education Performance Evaluation Reports, FYs 2013 and 2014

## Use of Computer-Processed Data

Computer-processed data was used to complete our audit work. To verify budget data for FYs 2013 and 2014, we relied on SAP data provided by the Office of Education. We compared the SAP data to that presented in the March 2014 CoSTEM report. We completed the comparison by verifying the Office of Education’s submission to CoSTEM by determining what the Mission Directorates and Centers expended on education for FYs 2013 and 2014. Inconsistencies in the data provided were adequately explained by officials, so no further review was necessary. We also obtained the total number of education activities and the number of incomplete activities from OEPM.

## Review of Internal Controls

We performed an assessment of the internal controls associated with NASA’s education programs and activities. Throughout the audit, we reviewed controls associated with the audit objectives and determined that NASA’s internal controls need improvement in the areas of strategic planning, database management, and procedures for conducting competition. The control weaknesses we identified are discussed in the report. Our recommendations, if implemented, should correct the identified control weaknesses.

## Prior Coverage

During the last 5 years, the Government Accountability Office has issued two reports of significant relevance to the subject of this report: “Assessing the Relationship between Education and the Workforce” (GAO-14-374, May 2014) and “Strategic Planning Needed to Better Manage Overlapping Programs across Multiple Agencies” (GAO-12-108, January 2012). Unrestricted reports can be accessed at <http://www.gao.gov>.

# APPENDIX B: MANAGEMENT'S RESPONSE

National Aeronautics and Space Administration  
**Headquarters**  
 Washington, DC 20546-0001



October 8, 2015

Reply to Attn of:

Office of Education

TO: Assistant Inspector General for Audits

FROM: Associate Administrator for Education

SUBJECT: Response to OIG Draft Report "NASA's Education Program" (A-14-015-00)

NASA appreciates the opportunity to review and comment on the Office of Inspector General (OIG) draft report entitled "NASA's Education Program" (A-14-015-00).

NASA recognizes this audit as a progress report on the Agency's ongoing restructuring of its Education portfolio, including performance measurement reporting conducted by the Office of Education (OE). NASA also appreciates that the OIG's draft report documents NASA's education investment and ways that investment contributes to the Federal Science, Technology, Engineering and Mathematics (STEM) Education 5-Year Strategic Plan, a priority for the Administration.

In the draft report, the OIG makes the following five recommendations addressed to the Associate Administrator for Education, intended to improve the effectiveness of OE's management of its education portfolio:

**Recommendation 1:** Issue an Implementation Plan that aligns and remains current with NASA's Strategic Plan and accurately reflects the Office of Education's strategic direction and management of the education portfolio, including measures to meet long-term goals and methodologies to gauge success.

**Management's Response: Concur.** The NASA Office of Education complied with this recommendation to produce an Implementation Plan prior to the release of this report. As noted in the draft report, the NASA Education Implementation Plan 2015 - 2017 "*aligns with all NASA education activities, incorporates the four lines of business currently in the Education portfolio, describes how the Office conducts operations and collaborates with other government agencies, and includes both near-term performance goals and annual performance indicators*" (p. 11 of the draft report). Since the implementation plan was posted in July 2015, OE also has published an electronically enhanced edition that can handle periodic updates at: [http://www.nasa.gov/sites/default/files/atoms/files/nasa\\_education\\_implementation\\_plan\\_ve3\\_2015-2017.pdf](http://www.nasa.gov/sites/default/files/atoms/files/nasa_education_implementation_plan_ve3_2015-2017.pdf).

In April 2015, the Associate Administrator for Education convened an Education Coordinating Council (ECC) subcommittee on Performance Assessment that advises on the development of new long-term or outcome-focused measures. Also in the spring of 2015, OE performance personnel consulted with members of the Office of the Chief Financial Officer (OCFO) on OE's proposed FY 2017 performance goals and annual performance indicators. Working together, both offices expect to introduce more outcome-focused measures in the NASA FY 2018 Performance Plan.

**Estimated Completion Date:** OE expects to update the NASA Education Implementation Plan at least once a year, including incremental improvements related to NASA's current performance measures. The NASA Education Implementation Plan will be updated to reflect measurable long-term, outcome-based goals within six months of the Agency's public release of the 2018 Strategic Plan.

**Recommendation 2:** Improve accessibility to the Office of Education Performance Management (OEPM) system to ensure project managers have an adequate and timely opportunity for data entry beginning at the start of each fiscal year.

**Management's Response:** Concur. The Office of Education Performance Management Systems is an online software tool that allows the Office of Education to collect performance data related to annual and near-term performance measures, objectives, and outcomes and report them in the Agency's Annual Performance Report. As of August 2015, the OE has made significant strides in making the OEPM system accessible for adequate and timely opportunity for data entry. One effort resulted in OE ensuring that the FY 2016 section of the OEPM system opened prior to October 1, 2015, i.e., the start of the 2016 fiscal year. OEPM opened for FY 2016 portfolio updates and data entry in September 2015, which should ensure project managers have an adequate and timely opportunity for data entry beginning at the start of this fiscal year, October 2015.

**Estimated Completion Date:** To further improve OEPM system access by internal- and external-to- NASA users, OE will draft specialized guidance for both user types that outlines computer processing and other requirements needed to use the OEPM system by the end of the second quarter of FY 2016.

**Recommendation 3:** Establish internal control procedures to ensure all required education activity data is collected, entered, verified, and validated in OEPM for accurate and reliable reporting in the Annual Performance Report.

**Management's Response:** Concur. OE uses several processes, including verification and validation, to ensure the quality of performance data. The accuracy and reliability of OE reporting will benefit from reviewing and documenting internal

control procedures (ICP). Documented internal control procedures should help ensure that actions are taken to address risks associated with performance data reporting and to improve accountability for NASA investments in educational activities. OE has already begun to document its procedures for verifying and validating performance data and will use an ECC subcommittee for guidance.

**Estimated Completion Date:** To ensure all required education activity data is collected, entered, verified, and validated in OEPM for accurate and reliable reporting, OE will draft procedures by the end of the first quarter of FY 2017.

**Recommendation 4:** Establish a reasonable timeframe for project managers' data entry after completion of individual education activities and ensure it is documented in the internal control procedures.

**Management's Response:** Concur. Since the completion of educational activities varies across programs and projects, OE performance personnel will consult program leaders at Headquarters and OE activity and project managers at the Centers and the Jet Propulsion Laboratory (JPL) to establish appropriate data entry deadlines. This consultation will help align data entry deadlines with the activities' different requirements and accommodate unique funding cycles and reporting requirements for grants and cooperative agreements. The timeframe for data entry, including deadline notifications for activity managers, will be incorporated into the internal control procedures.

**Estimated Completion Date:** The consultative process will be adopted for the FY 2017 data collection, with the establishment and communication of annual data entry deadlines and related internal control procedures in place by the end of the first quarter of FY 2017.

**Recommendation 5:** Assist Center Education Offices in developing coordinated activities for future STEM Education and Accountability Projects (SEAP) competitions prior to the Office of Education reviewing and evaluating all submissions, and making selections.

**Management's Response:** Concur. SEAP's multi-year competitive process is changing the OE's portfolio at Headquarters, JPL, and the Centers. During the 12-month audit, the OIG observed the FY 2015 - FY 2016 internal-to-NASA Request for Information (i-RFI). SEAP's i-RFI solicited evidence-based funding priorities for OE's STEM Engagement, Educator Professional Development; Institutional Engagement; and Internships, Fellowships and Scholarships business lines.

The draft report cites three times (Results in Brief 2; p. 13, 14) that the OIG's review of the 50 abstracts submitted to SEAP's i-RFI "found no significant evidence of inter-Center collaboration to identify areas for joint efforts." Additionally, OE's

review of the full i-RFI submissions, including multiple-choice items, found that 56 percent of SEAP submitters planned to collaborate with another Center, while 44 percent chose “not applicable.” Since the end of the SEAP i-RFI, HQ OE, assisted by several Centers, has drafted and is implementing Estimated Price Report Requirements Guidance (EPRRG). To assist Centers to prepare for the next competition and to document the FY 2015 - FY 2016 changes in OE’s portfolio development and implementation, SEAP’s i-RFI and EPRRG are published at: <http://www.nasa.gov/offices/education/about/seap-overview.html>.

Any future internal-to-NASA SEAP competition also may involve the ECC’s Performance Assessment or another subcommittee to assist the Offices of Education at the Centers and JPL to develop coordinated activities prior to submission, review, and selection. Headquarters OE has begun assisting the Centers to coordinate FY 2015 and FY 2016 SEAP activities via telecon debriefs and face-to-face meetings with both selected and non-selected i-RFI submitters. This is a key action NASA is taking in response to this recommendation – working directly with Center education teams to help them understand the expectations for future education competitions. For example, in September 2015 Headquarters hosted the NASA Internships, Fellowships, and Scholarships (NIFS) face-to-face strategic planning working group that included all Centers and JPL.

**Estimated Completion Date:** OE plans for the SEAP internal-to-NASA competition to run every other fiscal year. Meanwhile, assistance to the Centers’ and JPL’s Education Offices in developing coordinated activities for the next SEAP competition will continue through the implementation of FY 2015 and FY 2016 funding with such assistance fully implemented by the end of first quarter FY 2018.

We have reviewed the draft report for information that we believe should not be publicly released. We have not communicated any concerns regarding the public release of information contained in your report.

Again, thank you for the opportunity to review and comment on the subject draft report. If you have any questions or require additional information regarding this response, please contact Mary Sladek on 202-358-0861.



Donald G. James

# APPENDIX C: REPORT DISTRIBUTION

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## National Aeronautics and Space Administration

Administrator  
Deputy Administrator  
Associate Administrator  
Chief of Staff  
Associate Administrator for Education

## Non-NASA Organizations and Individuals

Office of Management and Budget  
Deputy Associate Director, Energy and Space Programs Division  
Government Accountability Office  
Director, Office of Acquisition and Sourcing Management

## Congressional Committees and Subcommittees, Chairman and Ranking Member

Senate Committee on Appropriations  
Subcommittee on Commerce, Justice, Science, and Related Agencies  
Senate Committee on Commerce, Science, and Transportation  
Subcommittee on Space, Science, and Competitiveness  
Senate Committee on Homeland Security and Governmental Affairs  
House Committee on Appropriations  
Subcommittee on Commerce, Justice, Science, and Related Agencies  
House Committee on Oversight and Government Reform  
Subcommittee on Government Operations  
House Committee on Science, Space, and Technology  
Subcommittee on Oversight  
Subcommittee on Space

(Assignment No. A-14-015-00)