



Association of Universities for Research in Astronomy

Talking Points on EPO Reorganization

BACKGROUND¹

- As a result of the America Competes Act, the National Science and Technology Council Committee on Science, Technology, Engineering, and Mathematics (STEM) Education established a task force to examine STEM programs across the Government.²
- Coincidentally, the General Accountability Office (GAO) undertook a similar review.³
- Both reports concluded that there was excessive overlap, duplication, and fragmentation among STEM programs.
- However the GAO warned, “*..our past work has shown that program consolidation can be more expensive in the short term, and, in the long term, cost savings could be diminished if the workload associated with certain administrative activities remains the same, such as reviewing and assessing applications, providing technical assistance, and monitoring program Recipients.*”

Proposed Action by the Administration

- The Office of Management and Budget (OMB) proposed in the FY 14 budget to consolidate 90 programs and to realign ongoing STEM education activities “*...to improve the delivery, impact, and visibility of these efforts.*”
- The funding for most of these programs would be removed from the Agencies (e.g., NASA, NOAA, NIH, etc) and be transferred to other agencies including the NSF, Smithsonian, and Department of Education.
- None of these other agencies have any known plans for continuing any of the existing successful programs.

¹ All references and other materials on the AURA website at <http://www.aura-astronomy.org/news/epo.asp>

² Coordinating Federal Science, Technology, Engineering and Mathematics (STEM) Education Investments; National Science and Technology Council, 2012

³ Science, Technology, Mathematics, and Engineering Education—Strategic Planning Needed.....: General Accountability Office.

Implications For NASA

- For NASA, this reorganization (see table below) affects not only the NASA Office of Education, but more importantly the individual Education and Public Outreach (EPO) programs carried out within the Science Mission Directorate (SMD).
- These programs were created in response to a 1996 NASA mandate to set aside ~1% of every mission budget for EPO.
- The results have enormously enhanced the culture of space science outreach, promoting active efforts to place NASA-funded scientists and engineers in classrooms across the nation.
- The programs have also led to strong partnerships between missions and educators, resulting in direct and proactive engagement of forefront science in education.
- The NRC noted in its 2008 Report on STEM, *“The NASA Science Mission Directorate programs are to be commended for their close integration with the science missions of NASA and for their use of partnerships to bring educational expertise into their work.”*⁴
- NASA mission PIs, including the Space Telescope Science Institute, have had a strong documented track record of effectively engaging a large number of teachers, students, and the general public.
- Advocates for the proposed changes have pointed to the lack of exhaustive follow-up longitudinal studies, which are generally very costly and beyond the means of most NASA mission EPO programs.
- Other program evaluation methods supported by the NRC and many State Board’s of Education have resulted in consistently positive assessments of the impact and effectiveness of NASA SMD’s EPO programs, particularly those of STScI.
- Informal science education programs are designed to increase awareness, interest, and enthusiasm for science. Yet the nature of these programs makes it difficult to conduct rigorous longitudinal evaluations because: (1) the audience for these programs is diffuse and diverse; and (2) the multiple venues and audiences affected by these activities cannot be isolated for assessment.⁵
- Nevertheless, as noted by National Science Teachers Association, *“...if educators don’t capture students’ interest and enthusiasm in science by grade 7, students may never find their way back to science”*.⁶

⁴ NASA’s Elementary and Secondary Education Program, Review and Critique; National Research Council, 2008.

⁵ Framework for Evaluating Impacts of Informal Science Education Projects; National Science Foundation Workshop, 2008.

⁶ Science Education for Middle Students; National Science Teachers Association, 2003.

WHY THE EDUCATION COMMUNITY SHOULD CARE

- The proposal reorganization breaks the “social contract” NASA scientists have developed with the nation and the broad EPO community over the past 15 years. The existing programs encourage NASA-funded scientists and engineers to leverage taxpayer dollars for research to achieve a greater societal appreciation of STEM fields (as well as direct access to the work funded by the tax payers).
- Implementation of this proposal would separate scientists from the public, isolate their work, and detract from the public’s perception of the relevance of science.
- The programs eliminated within NASA’s Science Mission Directorate cannot plausibly be replicated by other agencies, which do not have direct access to a Mars Rover or the Hubble Space Telescope, or the scientists working with these missions. The exciting link between the immediacy of space science discoveries and classroom would be irreparably severed.

WHY THE NASA SCIENCE COMMUNITY SHOULD CARE

- The elimination of EPO from NASA science missions removes a major feature that the science community has used to maintain their competitiveness and communicate their relevance to broader societal goals.
- EPO science mission partnerships with diverse communities can no longer be included in mission proposals, disenfranchising constituencies who would contribute to a future, more diverse scientific community.
- Specific to the Space Telescope Science Institute, there is concern that the Hubble Science Fellowship program will eventually be eliminated. This has been widely recognized as the most prized and productive fellowship program in astronomy.

	FY 2012 Budget Estimate	Changes	FY 2014 Budget Request
\$ in Millions			
Total	202.5	(93.1)	109.4
Education	138.4	(44.2)	94.2
Aerospace Research and Career Development	58.4	(25.4)	33.0
<i>NASA Space Grant</i>	40.0	(16.0)	24.0
<i>ESPCoR</i>	18.4	(9.4)	9.0
STEM Education and Accountability	80.0	(18.8)	61.2
<i>MUREP</i>	30.0	0.0	30.0
<i>STEM Education and Accountability Projects</i>	40.0	(8.8)	31.2
<i>Formal and Informal Education</i>			
<i>Innovation in Education</i>			
<i>Evaluation, Performance, Monitoring, & Accountability</i>			
<i>Informal STEM Education</i>	10.0	(10.0)	
<i>GLOBE</i>		4.5	4.5
<i>STEM Interagency Coordination</i>		6.8	6.8
<i>STEM Facilitation</i>		19.9	19.9
Mission Directorates Subtotal	64.1	(48.9)	15.2
Science	41.9	(41.9)	0.0
Aeronautics Research	3.3	(3.3)	0.0
Space Technology	10.4	4.8	15.2
Exploration	4.4	(4.4)	0.0
Space Operations	0.0	0.0	0.0
Cross Agency Support	4.1	(4.1)	0.0