PROPOSED ACTION BY THE ADMINISTRATION

• The President proposed in the FY14 budget to consolidate 90 EPO programs and to realign ongoing STEM education activities.

• The funding for most of these programs would be removed from the Agencies (e.g., NASA, NOAA, NIH, etc) and be transferred to NSF, Smithsonian & Department of Education.

• None of these other agencies have any known plans for continuing any of the existing programs.
<table>
<thead>
<tr>
<th>$ in Millions</th>
<th>FY2012 Budget</th>
<th>Change</th>
<th>FY2014 Budget Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>202.5</td>
<td>(93.1)</td>
<td>109.4</td>
</tr>
<tr>
<td>Education</td>
<td>138.4</td>
<td>(44.2)</td>
<td>94.2</td>
</tr>
<tr>
<td>Aerospace Res. &amp; Career Development</td>
<td>58.4</td>
<td>(25.4)</td>
<td>33.0</td>
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<tr>
<td>Space Grant</td>
<td>40.0</td>
<td>(16)</td>
<td>24.0</td>
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<tr>
<td>EPSCoR</td>
<td>18.4</td>
<td>(9.4)</td>
<td>9.0</td>
</tr>
<tr>
<td>STEM Education and Accountability</td>
<td>80.0</td>
<td>(18.8)</td>
<td>61.2*</td>
</tr>
<tr>
<td><strong>Mission Directorates</strong> Subtotal</td>
<td>64.1</td>
<td>(48.9)</td>
<td>15.2</td>
</tr>
<tr>
<td>Science</td>
<td>41.9</td>
<td>(41.9)</td>
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<tr>
<td>Aeronautics Research</td>
<td>3.3</td>
<td>(3.3)</td>
<td>0.0</td>
</tr>
<tr>
<td>Space Technology</td>
<td>10.4</td>
<td>4.8</td>
<td>15.2</td>
</tr>
<tr>
<td>Exploration</td>
<td>4.4</td>
<td>(4.4)</td>
<td>0.0</td>
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<tr>
<td>Space Operations</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cross Agency Support</td>
<td>4.1</td>
<td>(4.1)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*30 MUREP, 4.5 GLOBE, 6.8 Coordination, 19.9 Facilitation
STATUS OF SMD EPO

SMD memo giving direction for EPO Projects under Continuing Resolution – Sept 20, 2013

• SMD projects are directed to continue all EPO activities in the approved EPO plans

• Carry over funds from FY13 reserves may be used for approved FY14 EPO activities

• There is no augmentation for the projects above the FY14 budget guidelines

• No guidance for FY15 EPO yet
OPO Activities

- Presentation to the NAC Education Subcommittee
- Met with the NASA offices of Education and Communications
- Worked with the AAS in creating an SMD EPO website with metrics
- Met with the National Science Teachers Association management
- Coordinated ideas and actions with Spitzer & Chandra
- Wrote position papers including an EPO article for the Institute newsletter
A sample list of education partners that raised concerns about the STEM reorganization proposal

- IMAX Corp
- Astronomical Society of the Pacific
- Pennsylvania STEM Grant for Math and Science
- Delaware Aerospace Education Foundation
- Johns Hopkins School of Education, Center for Education and Technology
- Maryland Science Center
- STEM Innovation Project Educators in the states of California, New York, and Florida
- Maryland Business Round Table for Education
- Ohio Resource Center
News of Hubble’s discoveries

For 2013:

- 31 Science News Releases
- 2,850 online articles with total circulation ~ 3.8 billion*
- The average news release is exposed to 138 million potential readers

* Meltwater News
We are up to 205 museums and science centers using ViewSpace

Developed 3 new ViewSpace programs in 2013

50 science themes in circulation

INSTALLATION AT CLARK PLANETARIUM, SALT LAKE CITY
Formal Education

- Star Witness News – 2 stories produced in FY13
  40,000 printed each
- Partnerships (over 500 local, regional and national)
- Lithographs – 4 lithos w/ educational guides
- Inquiry Based Education Poster – Horsehead Nebula
Activities with local Baltimore Schools

- New partnership with the Dream Academy – After school program
- Astronomy & Engineering Club activities
- Community outreach events at the Institute
ONLINE OUTREACH

• 2 million visits/month

• 150 million hits/month

• Inbox Astronomy
  ~40,000 subscribers

• 160 questions/month

• HubbleSite is 10% of NASA’s online traffic
Outreach

Hubble Hangout: How To Get Comet ISON Hubble Data

Did you know you have access to Hubble observations of Comet ISON? Join our host Tony Darnell and a bevy of astronomers at 4 p.m. EDT Aug. 14 for an online discussion of how to obtain and use Hubble data on the comet. A must-see Google Hangout for both new and experienced astrophotographers, as well as people curious to see how Hubble data becomes images.

Ever wondered how to get images and original data from the Hubble Space Telescope yourself? Here's your chance, we're holding a hangout to show you how you can access and download Hubble data of the Comet ISON.

Please join Tony Darnell, Alberto Conti and Scott Lewis as they work with Zolt Levay, Max Mutchler and Bonnie Mankel to show you how to get data for the comet yourself!

Insights on ISON: A Chat with Dean C. Hines

Astronomer Dean C. Hines of the Space Telescope Science Institute is using the Hubble Space Telescope to study Comet ISON in polarized light. This technique offers new insight into ISON's structure and composition – factors that will play a key role in the comet's eventual fate. We sat down with Dean to discuss his recent results.

ISONblog: Can you briefly explain polarization?

Dean Hines: Sure. Polarization is a property of light that happens most frequently when light scatters off particles like dust or reflects off a surface. We use polarization to tell us about the scattering material or the reflective surface. Different materials will scatter or reflect light differently, and will impart different polarization signatures. If you're looking at snow with polarized sunglasses, for example, that's a lot different than looking at the surface of water. You can put on polarized sunglasses, which filter out polarized light, and see the fish in the pond without the glare from the reflected sunlight. But putting on polarized sunglasses when you're snow skiing reduces the brightness, but doesn't do much else because the snow doesn’t polarize the scattered sunlight.

When you look at a comet with polarization data, what can you see?

You can determine the particle sizes and their structure. Is it made of rocky material? Are the particles big or small? Are they round? Are they fluffly like snowflakes, or hard like little hailstones?

What does polarization show for ISON specifically?
Engaging the public, educators, and students

- Enhance understanding of light, optics, and gravity
- Convey the process of science and how science works
- Provide an accurate portrayal of the diversity of people and experiences that comprise a successful science team
- Engage students, educators, and the public in the search for the earliest galaxies, which will culminate with Webb
- Engage citizen scientists in the process of discovery
Scientific visualization of a black hole passing through Baltimore's Inner Harbor