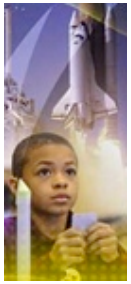
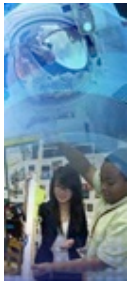
Where does SMD E/PO fit in NASA?

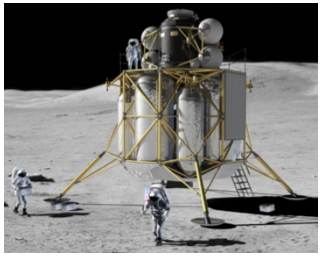
Offices of Communications & Education





4 Mission Directorates

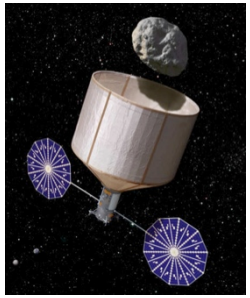
Aeronautics Research



Human Exploration

Science

Missions



Space Technology

10 Field Centers

NASA advances its goals through a wide-range of partners

Education and Public Outreach

- NASA will conduct E/PO in FY14.
  - During the period of the continuing resolution (CR), SMD projects are directed to continue planned EPO activities at the same level of effort and budget as during FY13, except where decreases were already planned.
  - **Effective 11/8/2013, authority to approve/deny SMD E/PO waivers was delegated back to SMD through the period of the FY14 CR.**
- Astrophysics projects will replan E/PO for FY14 during the CR.
  - It is anticipated that programs and projects will continue to execute approved FY14 E/PO plans during FY14 beyond the CR.
  - There is no augmentation expected for the parent program or project above the FY14 budget guidelines. Carry over funds from FY13 may be used for approved FY14 E/PO activities. The project may propose to reprogram non-E/PO FY14 funds to enable approved FY14 E/PO activities.
  - Projects are directed to submit a description of their proposal to continue or change their approved FY14 E/PO plans.

Reference: SMD memo 9/18/13; Astrophysics memo 9/20/13, NASA HQ memo of 11/5/13.

Assessment and Review

- SMD E/PO programs are expected to include evaluation plans.
- NASA convenes external review panels to evaluate SMD E/PO programs according to rigorous criteria.
  - Quality, Scope, Realism, Appropriateness
  - Connections to Other NASA E/PO Activities
  - Partnerships/Sustainability
  - Evaluation
  - Customer Needs Focus
  - Content
  - Resource Utilization
  - Pipeline
  - Diversity
- Mission E/PO plans undergo rigorous review at mission key decision points.

Scientist-Educator Partnership

The purpose of this partnership is to transform science data into useful, grade-appropriate, educational products and programming while maintaining scientific accuracy and integrity.

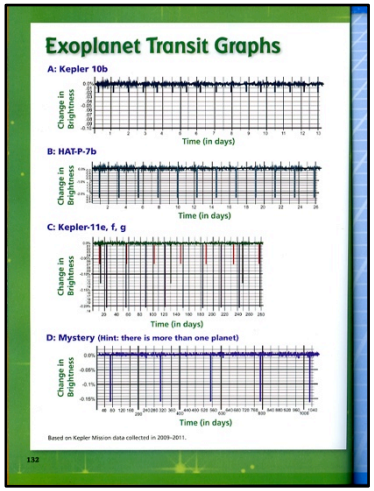
Scientists bring…

- Knowledge of astronomy/space science
- Knowledge of science research and data
- Ability to communicate science content to non-scientists

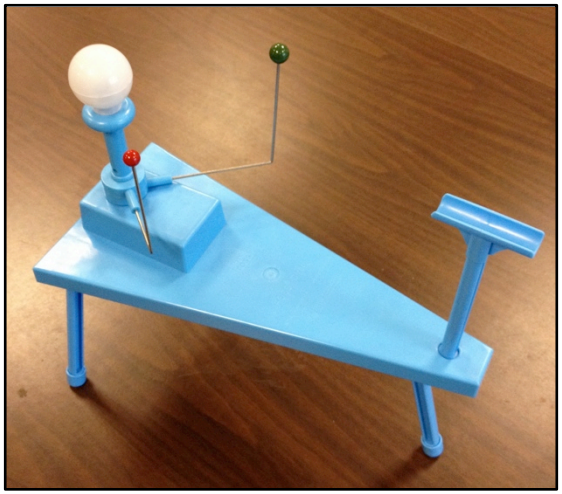
Educators bring…

- Knowledge of science education pedagogy
- Knowledge of target audience needs (student/teacher)
- Knowledge of national education standards

Bringing Current Mission Science Into the Classroom



- Strengthen specific **science process skills** and support **inquiry-based instructional approaches**
- **Hubble's Amazing Space**: Students using the Planet Impact materials demonstrated significant learning gains from pre-test to post-test.
- **Kepler**: FOSS is adopted in 50 of the 100 largest urban school districts where FOSS reaches large populations of under-served students.



Research Opportunities for Educators and Students

SOFIA
Stratospheric Observatory for Infrared Astronomy

CHANDRA
X-RAY OBSERVATORY

NITARP

The Impact

- Space Telescope Science Institute education materials are used in all 50 states and **incorporated into more than half of the U.S. state departments of education** (http://outreachoffice.stsci.edu).

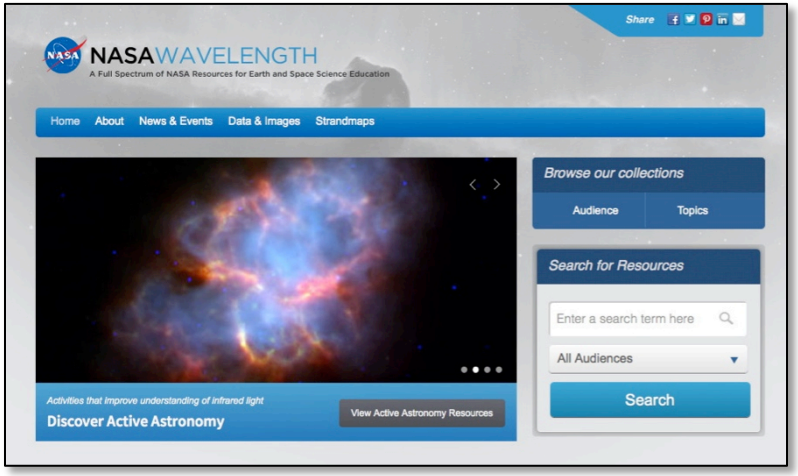
- Chandra-Rutgers Astrophysics Summer Institute: **83% enrolled in or completed a degree program reported majoring or minoring in a STEM subject.** Concentrations included astronomy, physics, aerospace engineering, information systems, computer engineering, bio-medical and biological sciences, microbiology, immunology and medical school (http://chandra.si.edu/impact/).

- “My NITARP experience has made me **rethink my entire approach** to science education.”

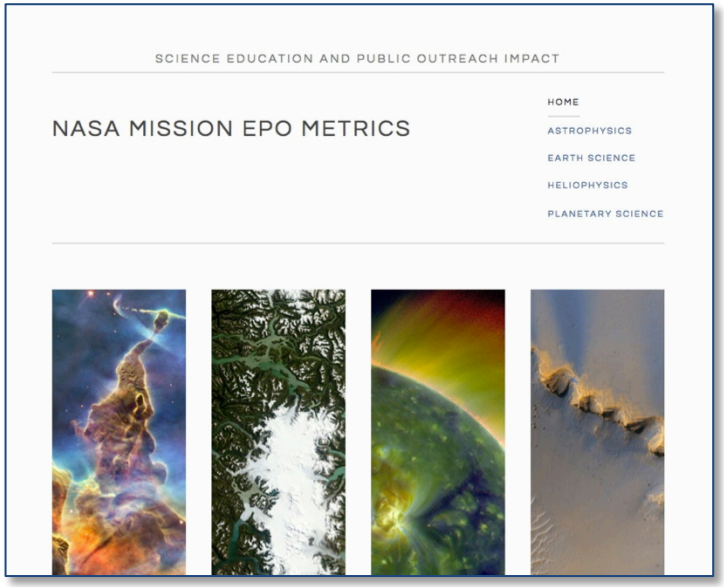
- "As a SOFIA Airborne Astronomy Ambassador **I learned to try something new in the STEM field, and to lead my students** to do the same.”

Aerospace Valley Science Olympiad

Science Education and Public Outreach Forums Increase Program Cohesion, Effectiveness, and Efficiency



http://nasawavelength.org/



http://nasamissionepometrics.org/

Forums:

- **Organize collaborations** between programs
  - Places **science in context**
  - Engages **new & diverse audiences**
  - **Reduces duplication**.
- Enable sharing of **best practices**.
- Map peer-reviewed products to **education standards**.
- Create and maintain single **digital library**.
- Help disseminate program **metrics and evaluation findings**.

NASA SMD E/PO Supports the 5-year Federal STEM Education Strategic Plan

Do What We Know Works

- Partner scientists and science educators
- Build programs on audience needs and educational research findings
- Use strategic partnerships to cost-effectively reach broad and diverse audiences
- Recognize one size does not fit all in engaging a nation of diverse learners

Learn More About and Share What Works

- Grounded in rigorous reviews, evaluation, and data-driven decisions
- Gather and disseminate findings on audience needs
- Professional development for E/PO practitioners

Increase Efficiency and Cohesion

- Minimize duplication and fragmentation
- Maximize collaboration and return on investment

Identify and Focus on Priority Issues

- Broaden and deepen the STEM experience in K-12 STEM Teacher Education, STEM Engagement, Undergraduate STEM Education, and Serving Groups Traditionally Underrepresented in STEM.