Astrophysics Education and Public Outreach Update
Presented to the Astrophysics Subcommittee of the NAC

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Topics

- NASA and SMD E/PO
- Astrophysics Division Portfolio
- Astrophysics Science Education and Public Outreach Forum highlights
- Reaching audiences
  - K-12 formal education
  - Higher education
  - Informal education
  - Outreach
• NASA Portfolio Development Team
  – Determining NASA Education Priorities based on Design Team recommendations and budget realities
  – Work is in progress and SMD E/PO is providing input

• SMD EPO Issues
  – Core SMD E/PO budget reduced by 30% for FY 13
  – First priority was to honor existing funding commitments to grantees and cooperative agreements
  – Mitigation strategy
    ▪ No EPOESS call in ROSES 12
    ▪ Cancellation of E/PO supplements program for ROSES Science Awardees
    ▪ Scaling back other E/PO services
Astrophysics E/PO Portfolio

- **Astrophysics Science Education and Public Outreach Forum (SEPOF)**
- **Program Offices**: *Develop thematic initiatives reflecting the science and technology of the individual missions and the overall thematic elements of the program.*
  - PCOS and COR Program Offices are developing coordinated approach to PCOS and COR science E/PO
  - Exoplanet Exploration Program Office has an established E/PO program which has been updated to reflect the current program
  - Provide infrastructure for smaller E/PO efforts

- **Flight Missions**
  - Every mission is required to have an E/PO plan
  - Oversight provided by HQ Program Scientist, Program Executive, Astrophysics E/PO Lead

- **Education and Public Outreach for Earth and Space Science (EPOESS)**
  - Competed through ROSES and funded by SMD
  - Oversight provided by SMD and Astrophysics E/PO Lead
Astrophysics Science Education and Public Outreach (E/PO) Forum

The Astrophysics Forum helps NASA Astrophysics E/PO teams and scientists work together effectively and efficiently in sharing the science, the story, and the adventure of NASA's Astrophysics missions and research programs with educators, students, and the public.

Recent highlights include:
• **Compilation of brochure (“sampler”) and coordination of splinter meeting at AAS-Austin** to support scientists in locating and incorporating NASA Astrophysics E/PO materials into their own education and outreach activities.
• **Community retreat and follow-on meeting at AAS-Austin** to catalyze collaboration among Astrophysics E/PO teams in areas of strategic importance to SMD (online professional development for classroom educators; engaging girls in science; use of social media; use of NASA Astrophysics data in education; higher education; scientist participation in education and public outreach).
• **Coordination of NASA's Multiwavelength Universe**, a 2-week online course for classroom educators on the properties of the electromagnetic spectrum and how NASA uses a variety of telescopes to observe the universe.
• **Compilation of Cosmology Resource Guide** of materials that community college instructors (and their students) can use to learn about the latest developments in modern cosmology.
• **Coordination of Astro4Girls** activities to engage girls in science at public libraries during Women’s History Month in March in collaboration with the American Library Association.
• **Plenary session** on best practices in engaging girls and young women in science and science careers organized in collaboration with the National Girls Collaborative Project, held during the Astronomical Society of the Pacific “Connecting People to Science” national conference, July 2011.
• **Coordination of Astrophysics mission participation in the Association of Science-Technology Centers annual conference and the upcoming USA Science and Engineering Festival**.
• **Analysis of 163 educational activities** developed by NASA SMD Astrophysics E/PO programs with respect to alignment with AAAS education benchmarks.

*The Astrophysics Forum is a partnership between the Space Telescope Science Institute, Adler Planetarium, Astronomical Society of the Pacific, and Johns Hopkins University.*
Kepler Planet Candidate Data Explorer  http://184.72.55.19/kepler/  
New tools for displaying and manipulating Kepler planet candidate data  
a Kepler and Exoplanet Program E/PO collaboration  

Explorer Table: Filter set for candidates in habitable zone, less than 2 Earth radii...  

Plot of RA vs Dec, candidates in habitable zone in red...
Amateur Astronomer uses *Observing with NASA* to detect a Supernova

This summer, amateur astronomer Martin J. Fowler used the *Observing with NASA* portal to the MicroObservatory robotic telescope network to request several images of the Whirlpool galaxy. He used these observations along with several images from the image archive to create a detailed lightcurve of the progression of the Supernova event SN 2011dh. Since the MicroObservatory telescopes take images so often, his lightcurve includes the difficult to observe ‘shock-breakout,’ or the initial light given off when the core of the star collapses. He published his results in the October 2011 Journal of the British Astronomical Association. The author is now studying the recent supernova in M101 by requesting images through the *Observing with NASA* website.

http://www.MicroObservatory.org
Sonoma State University Summer High School Interns Program

September 19, 2011

Sonoma State University E/PO sponsored four summer high-school interns. The project was partially funded by the Sonoma County Office of Education and by California Space Grant.

Dillon Jackson was sponsored by the Sonoma County Office of Education. He analyzed AGN data from GORT, our robotic telescope.

Adrian Chan and Anna Aaronson were volunteers (as they were rising juniors) working with Dr. Kevin McLin. They also learned how to use our analyze data from GORT.

Dominic Nicholson worked with Kevin John, and wrote a Flash computer interactive for the online Cosmology curriculum.

http://www.sonoma.edu/scitech/hs
As part of a long-term partnership between STScI’s Office of Public Outreach (OPO) and Stevenson University, OPO’s Education team was invited to participate in Stevenson University’s “Expanding Your Horizons: Career Discovery Day” that took place on October 2nd. The purpose of this one-day conference is to bring together middle school girls to participate in engaging and challenging hands-on science, technology, math, and engineering (STEM) activities led by women in STEM professions. OPO’s Jessica Harris, in partnership with Education Specialist Dan McCallister, developed and presented an astronomy-related workshop entitled “Exploring the Universe Beyond Our Eyes.” In this workshop students, participated in inquiry-based activities that led them to discover that there is more to light than meets the eye. Students also learned how light and space telescopes are used as tools in astronomy to further our understanding of the universe. This annual event is sponsored by Stevenson University and the Baltimore branch of the American Association of University Women. The EYH Network, is a non-profit membership organization of educators, scientists, mathematicians, parents, community leaders, and government and corporate representatives. Currently Expanding Your Horizons conferences are held in 31 states and in Europe.
The bilingual (English/Spanish) NASA EPOESS-funded From Earth to the Solar System (FETTSS) traveling exhibit was on display at a library in Puerto Rico for October 2011.

Throughout October supporting FETTSS activities organized by/with Universidad de Puerto Rico included:

- A film series and a conference series, including visiting astronomer Dr. Amelia Ortiz Gil from Spain.
- A "Planet Festival" with daytime observing (October 15)
- Visiting local school groups
- Volunteer college students (including two visually impaired students) assisting at the exhibit and talking with visitors.
- Exhibit guide/handouts in Spanish

-Chandra X-ray Center/SAO
Joint Forces Base Andrews, NASA, and the White House collaborated on September 22 to provide an outreach event for military families and students in the Washington area, featuring NASA's Stratospheric Observatory for Infrared Astronomy (SOFIA). NASA Deputy Administrator Lori Garver, Associate Administrator for Education Leland Melvin, SMD Chief Scientist & SOFIA Program Scientist Paul Hertz, and SOFIA Airborne Astronomy Ambassador Mary Blessing (a high school teacher who flew on SOFIA in May 2011) spoke regarding SOFIA's importance as a national education & public outreach asset as well as a national and international research facility. Later during the day, NASA Administrator Charlie Bolden visited SOFIA and helped entertain the crowd during a security lock-down. The Joining Forces event was attended by 200 children and teachers from the school at Marine Corps Base Quantico, as well as some Andrews, NASA and German Aerospace Center (DLR) staff, families, and friends.
NASA’s Multi-wavelength Universe

July 11-22, 2011

Sonoma State University E/PO hosted the website for this online two-week professional development course for teachers.

This course was developed through a collaboration organized by the Astrophysics Forum. Lynn Cominsky and Mary Dussault were the primary instructors.

There were four “live” synchronous sessions and four independent-study asynchronous sessions in the course.

23 teachers participated: 8 for academic credit, 7 for continuing education credit, and 8 as auditors. Credits were offered through SSU’s Education department.

The live sessions were captured and posted for viewing at later times.

http://universe.sonoma.edu/cosmo/course/view.php?id=2
18 NASA SMD Astrophysics E/PO community members and 2 SMD E/PO program officers hosted a “splinter session” at the Austin AAS meeting to engage attendees in SMD E/PO. Nearly 40 astronomers and educators learned about NASA SMD-funded Astrophysics E/PO resources, SMD E/PO funding opportunities, and specific possibilities to collaborate with Astrophysics mission/programs, and SMD ROSES E/PO activities. Attendees evaluated the session strongly as meeting their expectations, indicated they would like to have follow-up contact with organizers, and plan to use at least one E/PO resource from the session. The session was coordinated by the SMD Astrophysics Science E/PO Forum.
Back-Up Slides
Astrophysics Science Education and Public Outreach Forum:

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