SMD Science Education Status to National Council of NASA Space Grant Directors

"Education is not the filling of a pail, but the lighting of a fire…and NASA is the spark"

Kristen Erickson
Director, Science Engagement & Partnerships
Science Mission Directorate
March 4, 2016

Map of NASA Science Mission Directorate Science Education Selections, including Co-Is

SMD Science Education Restructuring

- Background – FY16 Appropriation provides $37M for NASA Science Education
- Why Restructure? To further enable NASA science experts and content into the learning environment more effectively and efficiently with learners of all ages. SMD will no longer have minimum of 1 percent set-asides through our missions, or issue disparate 3-year grants. But we are taking a strategic approach, building on our science-disciplined based legacy, and looking for new approaches given Stakeholder priorities

- Objectives?
  - Enable STEM Education
  - Improve US Scientific Literacy
  - Advance National Educational Goals
  - Leverage Through Partnerships
- How? Through the competitive selection of organizations that utilize NASA data, products, or processes to meet education objectives; and by enabling our scientists and engineers with education professionals, tools, and processes to better meet user needs. SME's continue to be funded within the Divisions, where appropriate
- Selections posted at: http://www.nasa.gov/press-release/nasa-selects-science-education-partners-for-stem-agreements

Office of Education and SMD - Each Has Unique Role and Leverages!

NASA Education

- NASA Strategic Objective 2.4 and Education Implementation Framework
- External Coordination with Other Agencies
- External Evaluation for NASA
- Reporting
  - External Reports
  - OEPM
- NASA Internships, Fellowships, and Scholarships (NIFS)
- Educator Professional Development (EPD)
- Internal Competitions
- Leveraged Center Infrastructure

NASA SMD Supports OEd Processes and Has:

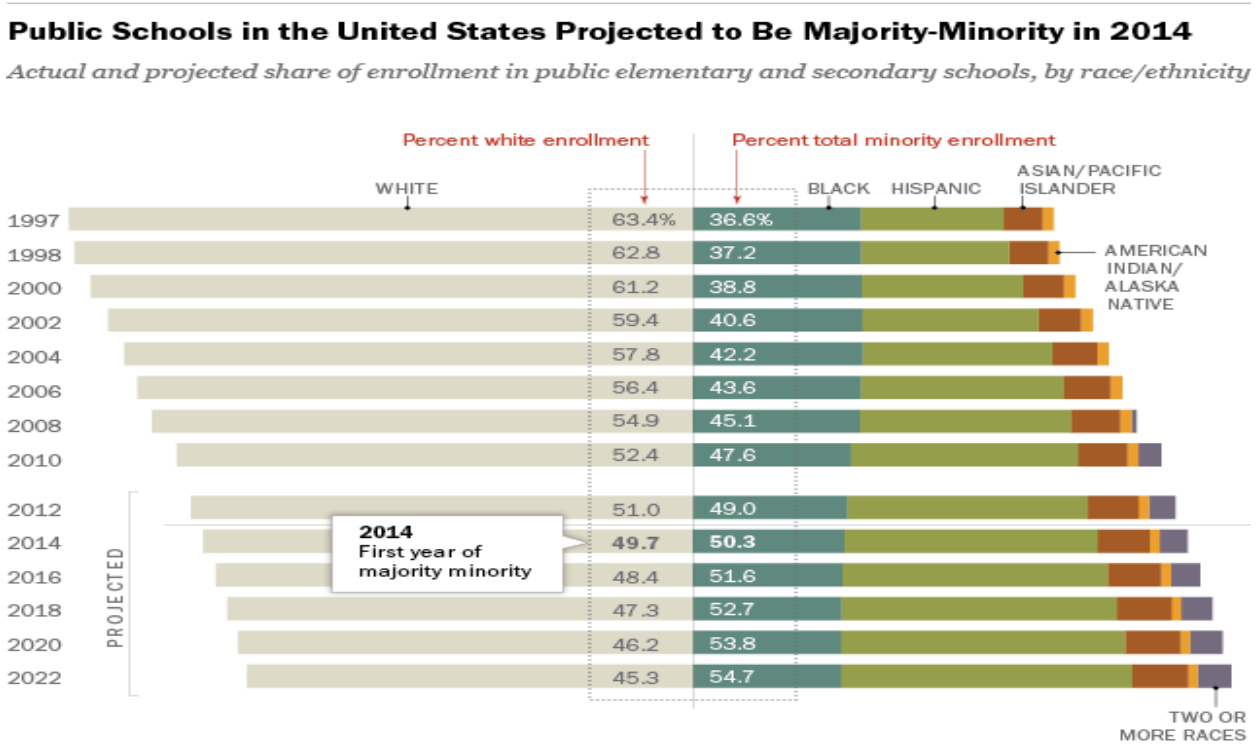
- Science Discipline Subject Matter Experts
- Science and Engineering Content
  - Audience-based
  - Education Technology
- Authentic Experiences
- Relationship Managers
- Leveraged SMD Infrastructure

Science Culture – Inquiry-based methods best suited to 21st Century Learning. Creativity Matters!

NASA Inspires Learners of All Ages!

A Note on Underserved Interests

- We MUST do better. Period.



http://www.pewresearch.org/fact-tank/2014/08/18/u-s-public-schools-expected-to-be-majority-minority-starting-this-fall/

Opportunities in addition to the Space Grant Solicitation due March 29, 2016

- **NSF INCLUDES** - Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science Solicitation for 40 five-year grants at ~ $300K each Deadline: **April 15, 2016** **http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505289**
- **NASA ROSES** Research Opportunities in Space and Earth Sciences 2016 through **June 1, 2017** http://solicitation.nasaprs.com/ROSES2016
- **NASA** For non-exchange of funds: NASA Announcement for High Impact / Broad Implementation STEM Education Partnerships (EDUCATION01SP16) Submissions accepted on a Rolling Basis through **Dec. 31, 2017** http://go.nasa.gov/1RZwWCi

SMD Science Education Awardees: Cross- Discipline

(Space Grant Members shown in Blue)

Alabama Space Science Exhibit Commission –Huntsville, AL. Scott Harbour, Principal Investigator for "Space Racers: Educating the Next Generation of Explorers about NASA's Missions"

Southern Illinois University, Edwardsville –Edwardsville, IL. Pamela Gay, "CosmoQuest: Engaging Students & the Public through a Virtual Research Facility"

Space Science Institute – Boulder, CA. Paul Dusenbery, Principal Investigator for "NASA@ My Library: A National Earth and Space Science Initiative that Connects NASA, Public Libraries and their Communities"

University Of Washington, Seattle –Seattle, WA. Robert Winglee, Principal Investigator for "Northwest Earth and Space Sciences Pipeline (NESSP)"

Science Museum of Minnesota – Saint Paul, MN. Paul Martin, Principal Investigator for "NASA Space and Earth Informal Science Education Network (SEISE-Net)"

University of Michigan, Ann Arbor –Ann Arbor, MI. Jon Miller, Principal Investigator for "Demonstration of the Feasibility of Improving Scientific Literacy and Lifelong Learning through a Just-in-Time Dissemination Process"

University Of Colorado, Boulder – Boulder, CO. Douglas Duncan, Principal Investigator for "Enhancement of Astronomy and Earth Science Teaching Using High Resolution Immersive Environments"

WGBH Educational Foundation – Boston, MA. Rachel Connolly, Principal Investigator for "NASA and WGBH: Bringing the Universe to America's Classrooms"

American Museum of Natural History - New York City, NY. Rosamond Kinzler, Principal Investigator for "OpenSpace: An Engine for Dynamic Visualization of Earth and Space Science for Informal Education and Beyond"

National Institute of Aerospace Associates – Hampton, VA. Shelley Spears, Principal Investigator for "NASA eClips 4D Multi-Dimensional Strategies to Promote Understanding of NASA Science: Design, Develop, Disseminate and Discover"

Astrophysics

SETI Institute - Mountain View, CA. Edna DeVore, Principal Investigator for "Reaching for the Stars: NASA Science for Girl Scouts"

SETI Institute –Mountain View, CA. Dana Backman, Principal Investigator for "Airborne Astronomy Ambassadors (AAA)"

Space Telescope Science Institute - Baltimore, MD. Denise Smith, Principal Investigator for "NASA's Universe of Learning: An Integrated Astrophysics STEM Learning and Literacy Program"

Earth Science

Gulf of Maine Research Institute- Portland, ME. Leigh Peake, Principal Investigator for "Real World, Real Science: Using NASA Data to Explore Weather and Climate"

Institute for Global Environmental Strategies –Arlington, VA. Theresa Schwerin, Principal Investigator for "NASA Earth Science Education Collaborative"

University of Alaska, Fairbanks –Fairbanks, AK. Elena Sparrow, Principal Investigator for "Impacts and Feedbacks of a Warming Arctic: Engaging Learners in STEM using NASA and GLOBE Assets"

University of Texas, Austin –Austin, TX. Wallace Fowler, Principal Investigator for "STEM Enhancement in Earth Science"

University of Toledo –Toledo, OH. Kevin Czajkowski, Principal Investigator for "Mission Earth: Fusing GLOBE with NASA Assets to Build Systemic Innovation in STEM Education"

Wayne County Intermediate School District –Wayne, MI. David Bydlowski, Principal Investigator for "AEROKATS and ROVER Education Network (AREN)"

Planetary Science

Arizona State University –Tempe, AZ. Linda Elkins-Tanton, Principal Investigator for "NASA SMD Exploration Connection"

Challenger Center for Space Science Education--Washington, DC Robert Piercey, Principal Investigator for "CodeRed: My STEM Mission"

Jet Propulsion Laboratory –Pasadena, CA. Michelle Viotti, Principal Investigator for "NASA Active and Blended Learning Ecosystem (N-ABLE)"

Northern Arizona University—Flagstaff, AZ. Joelle Clark, Principal Investigator for "PLANETS (Planetary Learning that Advances the Nexus of Engineering, Technology, and Science)"

Heliophysics

Association of Universities for Research in Astronomy, Inc. – Tucson, AZ. Matthew Penn, Principal Investigator for "Geographically Distributed Citizen Scientist Training for the 2017 Citizen CATE Experiment"

Exploratorium – San Francisco, CA. Robert Semper, Principal Investigator for "Navigating the Path of Totality"

NASA Goddard Space Flight Center - Greenbelt, MD. C. Alex Young, Principal Investigator for "Heliophysics Education Consortium: Through the Eyes of NASA to the Hearts and Minds of the Nation"

Southwestern Community College –Sylva, NC. Matt Cass, Principal Investigator for "Smoky Mountains STEM Collaborative: Bridging the Gaps in the K-12 to Post-Secondary Education Pathway"

ED43A-0871

The NASA 2017 Eclipse Education Program

Bringing the Great American Eclipse of 2017 to Audiences across the Nation

C. Young, L. Mayo, C. ng, T. Cline, B. Stephenson

The August 21, 2017 eclipse across America will be seen by an estimated 500 million people from northern Canada to South America as well as parts of western Europe and Africa. Through This "Great American Eclipse" NASA in partnership with Google, the American Parks Network, American Astronomical Society, the Astronomical League, and numerous other science, education, outreach, and public communications groups and organizations will develop the approaches, resources, partnerships, and technology applications necessary to bring the excitement and the science of the August 21st, 2017 total solar eclipse across America to formal and informal audiences in the US and around the world. This effort will be supported by the highly visible and successful Sun Earth Days program and will be the main theme for Sun-Earth Days 2017.

Dance Across America

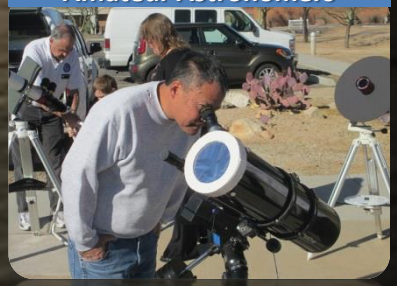
Eclipse and Event Maps

Tips for Safe Observing

Live Interviews from the Path

Certificates of Participation

Observing Challenges for Amateur Astronomers



Eclipses Through Time

Awesome NASA Science

http://eclipse2017.nasa.gov

Eclipse 2017