SMD Science STEM Activation Perspectives and Status

Presentation to the Astrophysics Subcommittee

Kristen Erickson
Director, Science Engagement & Partnerships
Science Mission Directorate
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Science Mission Directorate Organization Reflects Increased Focus – Circa October 2015

SMD AA –
Dr. John M. Grunsfeld

SMD
Deputy Associate Administrator
for Research
– Dr. Marc Allen

- Lead for Research, M. Bernstein
- Director, Science Engagement and Partnerships, K. Erickson
  - Education, S. Stockman
  - Communications, M. Nagaraja
- Director, Science Office for Mission Assessments, C. Daniels (LaRC)
- Senior Program Executive for Suborbital Programs, D. Pierce
- Chief Technologist, M. Seablom

Included in SMD Front Office

Science Mission Directorate Organization Reflects Increased Focus - Today

SMD AA –
Dr. Thomas Zurbuchen

SMD
Deputy Associate Administrator
for Research
– Dr. Jeff Newmark

- Lead for Research, M. Bernstein
- Director, Science Engagement and Partnerships, K. Erickson
  - Education, M. Sladek
  - Communications, M. Thaller and M. Nagaraja
- Director, Science Office for Mission Assessments, C. Daniels (LaRC)
- Senior Program Executive for Suborbital Programs, D. Pierce
- Chief Technologist, M. Seablom

Included in SMD Front Office and still a Top Priority!

SMD Science STEM Activation Restructuring

- Background – FY16 Appropriation provides $37M for NASA Science STEM
- 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
- New name reflects the transition from the planning phase to the doing, or activation, phase of the restructuring
- 27 Awardees posted at: http://www.nasa.gov/press-release/nasa-selects-science-education-partners-for-stem-agreements

Status

- All 27 have been awarded, and Year 1 funding provided
- Kick-off meeting held January 2016 and monthly meetings continue
- “Collective” approach. Over 120 cross-collaboration memorandums signed by PIs
- All 27 awardees have submitted Evaluation Plans to include: descriptions/plans for audience needs assessments, logic models, reporting and top level metrics
- Meeting of Experts under contract
- Listserve established. “Science WOW!” https://www.nasa.gov/audience/foreducators/Express_Landing.html
- Baseline Review meeting scheduled for week of November 14th
  - Program Reports
  - Set priorities for upcoming year
  - Leveraging efforts
    - Planning calendar for major conferences and events
    - Toolkits
    - 2017 Total Eclipse Planning
- Updates to be posted to http://science.nasa.gov/learners

SMD Science STEM Activation Program - Summary

External Evaluator(s) (planned)

Selected through the Office of Education's Blanket Purchase Agreement

National Academy of Science: Board of Science Education

Opportunities

- Enabling of SMD content and experts into additional areas and venues
- Improved coordination across SMD science education
- Reduction in fragmentation and duplication of efforts
- Increased support of targeted audiences based on needs assessments
- Improvement in the understanding of science literacy

Risks/Areas of Concern

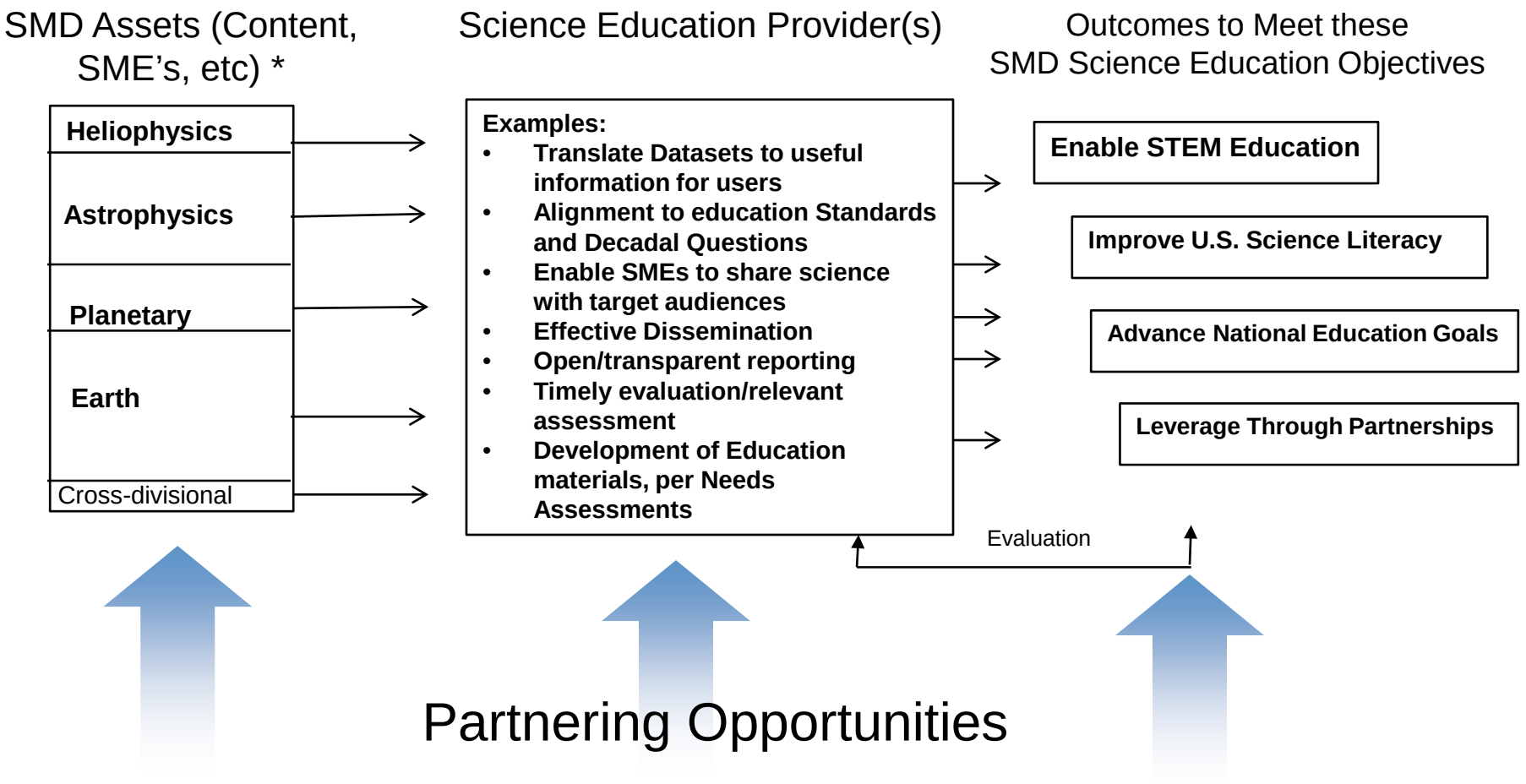
- More Dynamic Education environment post ESSA
- Budget uncertainty until restructuring progress is demonstrated. Need $42M/year to successfully restructure
- Stakeholders disconnecting Science and combining with Education
- Identification of milestones to fill gaps in Formal and Underserved areas

Measurable Achievement

- Progress towards CoSTEM goals by 2020
- Statistical Improvement in applicable S&E Indicators by 2020
- Statistical improvement in scientific literacy surveys by 2020
- Budgets increase reflect progress towards Desired Outcome (Goal is $50M/year by 2020)

Back-up

SMD Science STEM Activation Model



* Divisions responsible for science content datasets, Infrastructure/Tools (e.g. Eyes, GSFC Visualizations), SME selection, and enabling flight opportunities

SMD Science STEM Activation Awardees: Cross- Discipline

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 – Lead: Hashima Hasan

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 – Lead: Ming Ying Wei

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 – Lead: Vacant

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 – Lead: Lika Guhathakurta

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"