Report on:

“Sharing the Adventure with the Student: Exploring the Intersections of NASA Space Science and Education Workshop”

Held on December 2-3, 2014

Co-chairs: Brett Moulding and Philip Christensen

Philip Christensen

SSB Meeting

Nov. 4, 2015
Statement of Task Key Elements

• Promote dialogue between education specialists, NASA education staff, scientists and engineers, and science content generators to maximize the effectiveness of the transfer of knowledge from the scientists to K-12 students and teachers.
  • What can NASA space science provide and what do education providers want and need?

• Focus on effectiveness and evaluation of models for transferring science content practices to students
  • How is it determined if a program has been successful?

• Hear from education specialists on how the science can be translated to education materials and directly to students, and from teachers on their experiences of space science in their classrooms.

• Discuss the connection between the SMD efforts and the implementation of the CoSTEM Strategic Plan.

• A workshop summary will be prepared by a rapporteur (Dwayne Day) but it will not present consensus conclusions or recommendations
Workshop Implementation

- A committee of 11 members was established under the oversight of the NRC Space Studies Board and the Board on Science Education.
- 2-day public workshop was held in December 2014 in Washington D.C.
- Approximately 100 participants.
  - These participants included individuals who create, execute, and evaluate K-12 education efforts.
- Workshop consisted of keynote talks, discussion panels, audience discussion, and poster session with a focus on partnerships.
- Workshop Sessions:
  1) A New Vision for K-12 Science and Engineering Education and NASA SMD Education
  2) Space Science Education Curriculum and Materials
  3) Collaboration Among NASA SMD and K-12 Districts, Schools, and Teachers
  4) Supporting Science and Engineering Teachers through Professional Development
  5) Evaluation of Education and Evaluation in Practice within NASA SMD

These slides represent a personal assessment of the issues discussed during the Dec. 2014 NRC Education Workshop. This document should not be cited or quoted because the views expressed do not necessarily reflect those of the SSB or the NRC.
Summary Thoughts: (1 of 3)

• Big changes in science education are already here
  • Vision for science education clearly described in the NRC Framework for K-12 Science Education

• Curriculum development
  • A key role for NASA SMD could be in organizing curriculum materials
  • In order to do that it is essential to understand the science education described in the Framework
    • Align materials to Framework and use this as an opportunity
  • Move away from basic content elements to units, lessons, activities
    • Will help make materials accessible to teachers
  • Expand from mission-specific messages to cross-cutting concepts and core ideas
  • Move away from NASA as content provider to NASA as partner

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Summary Thoughts: (2 of 3)

• Partnerships
  • Program scalability is a critical problem
  • Partnerships can help address this issue with creative solutions
  • Help scientists reach a broader audience
  • STEM associations such as NSTA, ISTE, ITEEA, ASEE and NCTM have large reach into the education communities
  • Must recognize that effective partnerships take a long time to develop
  • Requires stable funding and support
  • Partnerships must be on equal, mutual need basis
  • A key element of effective partnerships are the education professionals that connect scientists to teachers
  • Need to maintain existing partners, but assure that programs align to the standards and the Framework
Summary Thoughts: (3 of 3)

- Key role for NASA could be in professional development

- It is essential that SMD’s education programs use rigorous evaluation methods