

## Pre-Service Educators Working Group Charter

### Rationale

“The Commission believes that the **greatest impact will come from expanding programs to train teachers of science, mathematics, and technology. Future efforts should include in-service active teachers and pre-service teachers**, i.e., those who are still in training in university and college programs. Such efforts should focus on providing engaging, state-of-the-art content aligned with existing national science and technology education standards, and emphasize approaches that allow students to experience first hand the thrill of discovery and innovation.”

*Report of the President's Commission on Implementation of United States Space Exploration Policy, 2004*

“.....America's students must improve their performance in mathematics and science if they are to succeed in today's world and if the United States is to stay competitive in an integrated global economy. ....**the most direct route to improving mathematics and science achievements for all students is better mathematics and science teaching.....**”

*- Before It's Too Late: A Report to the Nation from the National Commission on Mathematics and Science Teaching for the 21<sup>st</sup> Century, 2000*

The Office of Space Science and its Support Network has a unique opportunity to forge relationships with education faculty and others invested in pre-service teacher preparation to: 1) develop a deeper understanding of pre-service programs and needs; and 2) identify diverse ways to meet those needs relating to space science education. By identifying, enabling, and leveraging such partnerships, the Support Network can help facilitate better preparation of teachers in space science content and pedagogy, while bringing the excitement of space science directly into the classroom.

### Scope of Working Group Efforts

- 1) Collaborate with education faculty and others invested in pre-service teacher preparation to develop an understanding of programs (case studies or “snap-shots”)
- 2) Identify program needs with respect to space science content, expertise, and resources
- 3) Assess current involvement of space scientists and the education community in pre-service education
- 4) Identify opportunities for collaborations and partnerships
- 5) Communicate needs, recommendations, and opportunities to the OSS Support Network and NASA
- 6) Coordinate with the OSS Support Network to identify scientific expertise, education research, educational materials and activities for these programs
- 7) Coordinate with pre-service educator programs and invested partners to facilitate their access to these resources

### Initial Steps

#### Year 1

Assess research that has been conducted (e.g., findings of survey of Jones and Ruberg).

Identify pre-service programs in each Brokering region and select a “representative sample” of the diversity of programs to build a portfolio of case studies

For these case studies, work with education faculty involved in educator preparation, the students, and hiring districts to build an understanding of the programs, their results, and their needs with respect to space science content and pedagogy

Assess the role that space scientists and E/PO partners already occupy in support of pre-service efforts

Identify other partners invested in pre-service educator preparation (e.g., NSTA, American Association of Colleges of Teachers Education, etc.) and work with them to identify areas of collaboration

Host a conference that brings the community of researchers, education faculty involved in teacher preparation, district representatives, educators, and others together to identify issues, address questions and initiate face-to-face collaboration

#### Years 2 and 3

Continue to develop case studies that reflect the diversity of educator preparation programs and work to identify the models of teacher preparation that achieve desired outcomes (pre-service educators well qualified to teach space science)

Communicate findings to the OSS Support Network

- Case studies
- Needs assessment
- Existing involvement of the community of space scientists and educators

Based on the findings, develop a series of recommendations for the space science community

- In what ways can space scientists and space science educators be involved in a manner that leverages resources and meets the needs of the pre-service programs?

Share these findings and recommendations with the broader community (e.g., through appropriate publications and conferences)

Identify and prioritize the diverse opportunities for involvement in pre-service educator preparation by the space science community and work with the OSS Support Network and pre-service partners (e.g., faculty, organizations, etc.) to develop and implement a strategy to facilitate this investment

Work with the OSS Support Network and pre-service partners to reflect on and refine existing resources, and tools (e.g., Framework) with respect to pre-service educator needs.

Work with OSS Support Network and pre-service partners to track and evaluate facilitation efforts in terms of measurable change in the use of space science content and resources by in-service teachers trained in “space science enhanced” programs.

### **Special Interests / Initiatives:**

To be taken under consideration as they evolve.

### **Authority:**

The Pre-Service Working group will coordinate the work of the OSS Support Network but will not undertake the work that the Brokers and Forums are chartered to do.

### **Member Responsibilities**

- Attend and participate actively at all meetings. Occasionally a half-day meeting may be added to Education Council Meetings
- Accept and carry out action items in a pro-active manner
- Serve as conduits for information to other members of the OSS Support Group
- Serve for a minimum of one year

### **Membership guidelines:**

- Membership will be renewed annually
- New members may join out of cycle
- Ad Hoc members may be invited to participate for particular issues

### **Working Group Meetings**

The Pre-Service Working Group will have bi-monthly teleconferences, with additional phone and electronic communications as necessary. The Working Group will meet at Education Council meetings, and occasionally will have a half-day session before or after the Council meeting. Other meetings of opportunity may arise at pre-service and professional conferences and workshops.

### **Resources:**

- Core members' personal expertise and interest
- Support Network, colleagues, and home institutions
- NASA
- Community of faculty in science education programs
- Pre-service and in-service educators and their administrations
- Professional societies (e.g., Department of Education, National Education Association, National Science Teachers Association, etc.)

### **Dissemination of Information (Internal)**

Working Group Chairs will:

- Report to Dr. Larry Cooper

- Present updates at OSS Education Council meetings and in the OSS newsletter *Voyages in Education and Public Outreach*
- Curate a Web site for public and internal communication ([http://www.lpi.usra.edu/education/score/pre\\_service/](http://www.lpi.usra.edu/education/score/pre_service/))

Working Group members will help NASA's OSS identify opportunities to interact with the pre-service community, and coordinate and facilitate interactions (presentations, exhibits, etc.) at conferences and other appropriate venues.

### **Working Group Closure**

The need for the Pre-Service Working Group will be re-evaluated in June 2006.

### **References**

Before It's Too Late: A Report to the Nation from the National Commission on Mathematics and Science Teaching for the 21<sup>st</sup> Century, 2000 (Glenn Commission), <http://www.ed.gov/inits/Math/glenn/toc.html>.

Report of the President's Commission on Implementation of United States Space Exploration Policy Moon, Mars and Beyond, 2004 (Aldridge Commission), [http://www.nasa.gov/pdf/60736main\\_M2M\\_report\\_small.pdf](http://www.nasa.gov/pdf/60736main_M2M_report_small.pdf)