

# **The Role of Education and Public Outreach (E/PO) in the Small Explorer Program (SMEX)**

**Presented at the SMEX Kickoff Meeting  
Greenbelt Marriott**

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# What is NASA Space Science Trying To Do in Education and Public Outreach?

## NASA Space Science seeks to:

- *Share the excitement of space science discoveries with the public*
- *Enhance the quality of science, mathematics and technology education, particularly at the pre-college level*
- *Help create our 21st century scientific and technical workforce*



**Addressing these 3 goals has led to the establishment of a multi-faceted portfolio of activities involving many types of partners and carried out in many types of communities across the country.**

# **OSS Education and Outreach**

## **Excerpts from the Hart-Rudman Report**

### **Education as a National Security Imperative**

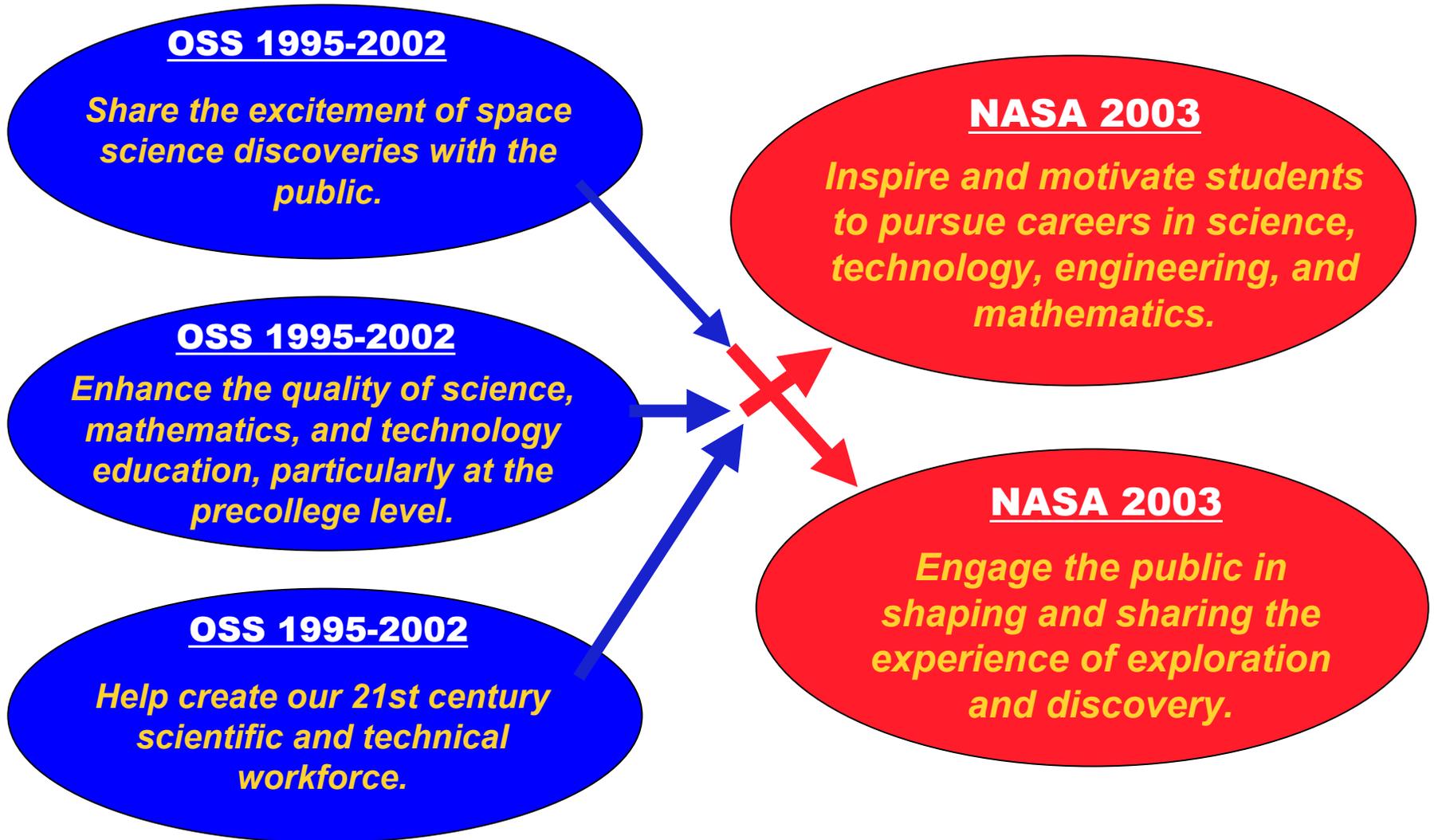
The capacity of America's education system to create a 21st century workforce second to none in the world is a national security issue of the first order. As things stand, this country is forfeiting that capacity.....

Education is the foundation of America's future.... Education in science, mathematics, and engineering has special relevance for the future of U.S. national security, for America's ability to lead depends particularly on the depth and breadth of its scientific and technical communities.

The health of the U.S. economy, therefore, will depend not only on professionals who can produce and direct innovation in a few key areas, but also on a populace that can effectively assimilate a wide range of new tools and new technologies.

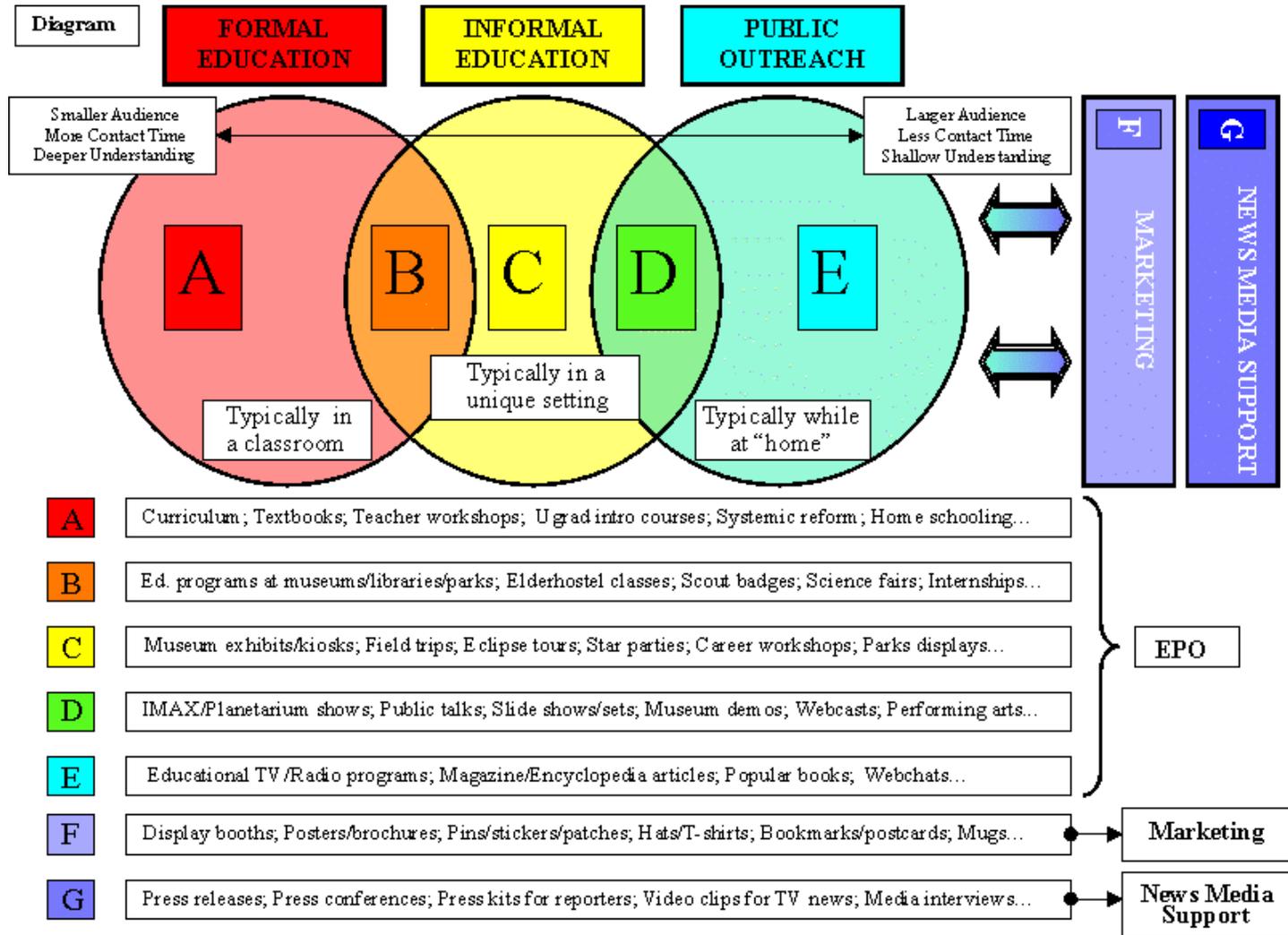
The American educational system does not appear ready for such challenges...

# OSS Education and Public Outreach Goals



# OSS Education and Public Outreach:

## Some Important Definitions

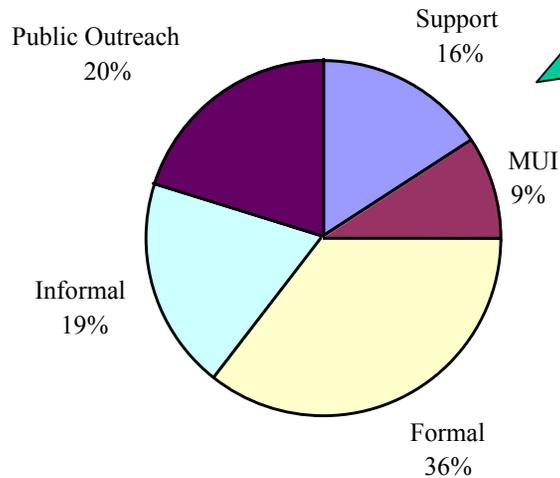


# OSS Education and Public Outreach

## Where Are We Now?

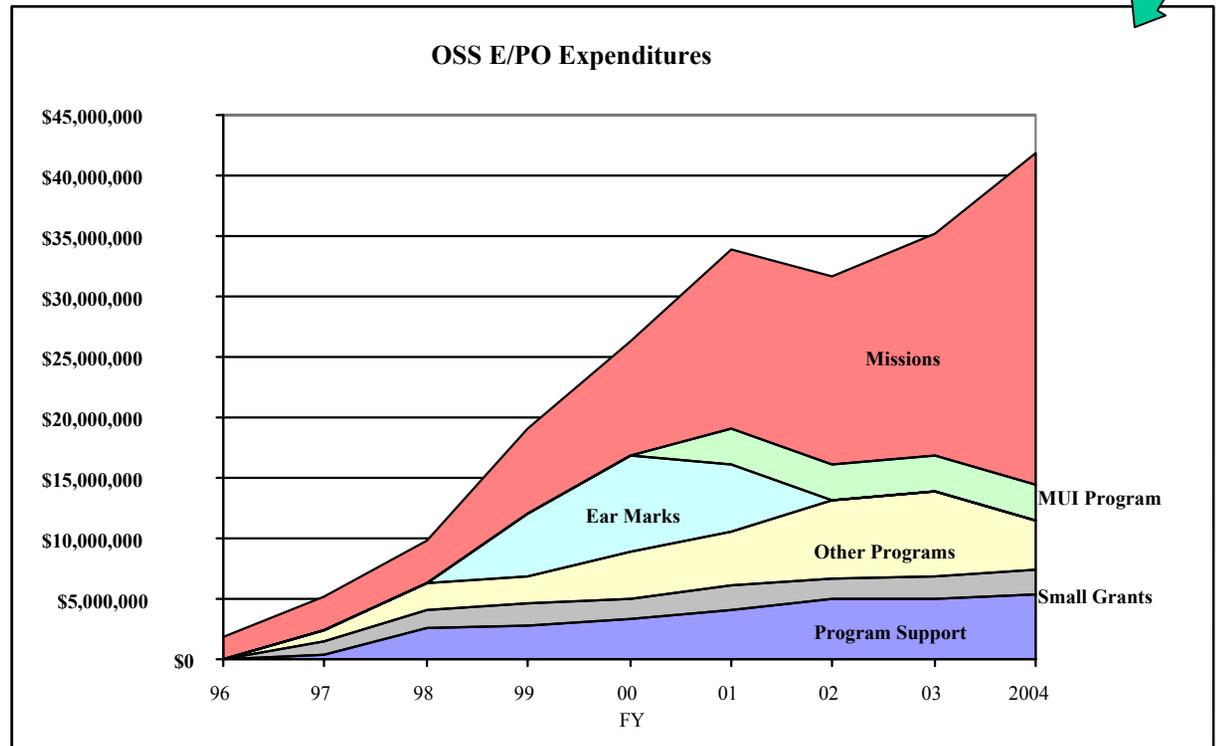
- OSS is firmly committed to making a substantive contribution to pre-college education and the broad public understanding of science, mathematics, and technology.
- E/PO is an integral part of every mission and research program.
- A major national program of space science education is underway. For further information see the OSS E/PO Homepage [<http://spacescience.nasa.gov/education>] for:
  - The OSS FY 2002 E/PO Annual Report (January 2003)
  - The OSS E/PO Newsletters (9 published to date)
  - SScAC E/PO Task Force Report

# OSS Education and Public Outreach Budget History and Allocations



Funding Allocations (FY 2002—\$32M total)

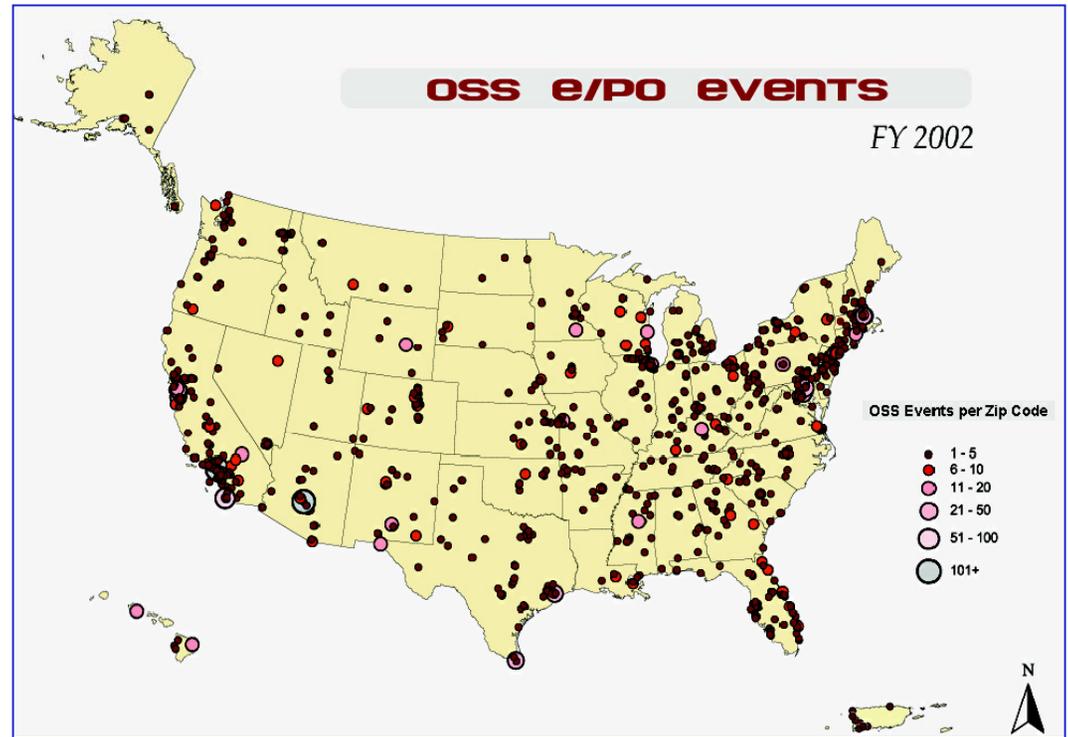
Funding History/Projections (FY 1996-2004)



Note that the OSS E/PO program is also drawing upon significant resources from outside of NASA.

# Extent of FY 2002 OSS E/PO Program

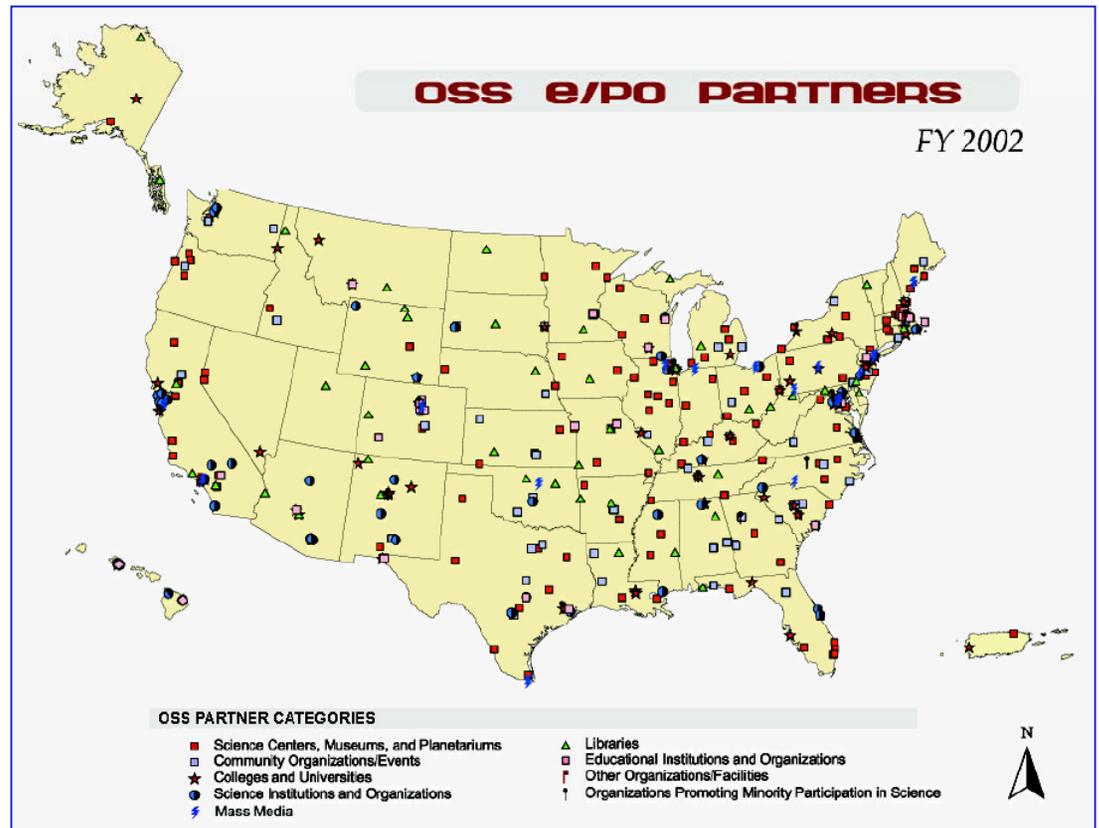
- 330 E/PO activities and 70 new products.
- More than 3,500 discrete E/PO events.
- Presence in all 50 states, DC, and PR.
- Presence at more than 20 national and 30 regional E/PO conferences.
- 30 awards and other forms of public recognition received.
- Estimated participants:



- Over 360,000 direct participants in workshops, community and school visits, and other interactive special events.
- Over 1.6 million visitors for museum exhibitions, planetarium shows, public lectures, and special events
- Over 6 million Internet participants for web casts, web chats, and other web events.
- Accessible to 200 million through conference exhibits, radio and television broadcasts, newspaper columns, and other forms of public media.

# Contributors to FY 2002 OSS E/PO Program

- Over 100 OSS Missions and Programs.
- Over 1,000 OSS-affiliated scientists, technologists, and support staff.
- Over 500 institutional partners, including:
  - ~ 150 science centers, museums, and planetariums.
  - ~ 20 precollege educational organizations, school districts and boards.
  - ~ 175 science institutions and organizations, colleges and universities (including 29 minority institutions).
    - 12 professional societies of minority scientists and organizations promoting minority participation in science.
  - ~ 120 libraries and community organizations.
- Over 1500 institutions participating as host sites for OSS exhibits and events.



# OSS Education and Public Outreach

## What Are We Looking For In The SMEX CSRs?

- A full E/PO proposal giving a credible story containing specifics and commitments/reality (not rhetoric).
  - See Appendix A of Guidelines and Criteria for the Phase A Concept Study
  - A good case can be laid out in 4 pages.
  - Letters of support/commitment from E/PO partners are important and can be used to expand upon the partner roles in the E/PO program.
- A program that is aligned to the OSS E/PO Strategy and E/PO Implementation Plan
  - The content of both these documents is directly reflected in the E/PO Evaluation Criteria contained in Appendix A of the Concept Study Guidelines
- A commitment to adequately fund the proposed E/PO program
  - OSS Guideline: 1-2% of the total mission cost through all phases excluding launch vehicles

**E/PO may play a role in the selection process**

**Evaluation will be done as part of the TMCO process**

# **OSS Education and Public Outreach**

## **What Should The SMEX CSRs Discuss?**

- E/PO Objectives, planned activities, implementation plans, evaluation plans, PI and science team members involvement, educational personnel involvement, partnerships and collaborations with education and outreach organizations.
- Organization, management, budget and implementation schedule. The level of detail required for schedule and budget should be (a) sufficient to allow an evaluation of whether the resources planned are adequate to accomplish the proposed program and (b) at a level of detail commensurate with the level of detail for the rest of the project.
- Plans for developing and disseminating education/outreach products and materials, for contributing to the training of underserved and/or underutilized groups in science and technology, and for coordination of the planned E/PO program with the existing OSS E/PO program.
- Letters of support/commitment from partners and resumes of key E/PO personnel should be included in the appendices to the proposal.

# How Will We Judge Quality?

## General Evaluation Criteria

The general criteria to be applied to the evaluation of the E/PO component of all SMEX CSRs are:

- the quality, scope, realism, and appropriateness of the proposed E/PO program, including the general intellectual linkage to the science objectives of the parent research proposal or mission;
- the adequacy, appropriateness, and realism of the proposed budget, including demonstration of effective use of funds;
- the capabilities and commitment of the proposer and the proposer's team to carry out the proposed E/PO program, including the direct involvement of one or more science team members in overseeing and carrying out the proposed E/PO program, as well as the establishment or continuation of effective partnerships with institutions and/or personnel in the fields of education and/or public outreach as the basis for and as an integral element of the proposed E/PO program; and
- the appropriateness of plans for evaluating the effectiveness and impact of the proposed education/outreach activity.

# How Will We Judge Quality?

## Specific Evaluation Criteria

To ensure that the goals and objectives of the OSS E/PO strategy are realized in practice, proposals will also be evaluated using the following specific criteria as appropriate. The specific E/PO criteria are:

- when dealing directly or strongly affecting the formal education system (e.g. teacher workshops or student programs carried out in public institutions, such as science museums and planetariums), the degree to which the proposed E/PO effort is aligned with and linked to nationally recognized and endorsed education reform efforts and/or efforts at the state or local levels;
- the degree to which the proposed E/PO effort contributes to the training, involvement, and broad understanding of science and technology by underserved and/or underutilized groups; and
- the potential for the proposed E/PO activity to expand its scope by having an impact beyond the direct beneficiaries (e.g., reaching relatively large audiences, being suitable for replication or broad dissemination, and/or drawing on resources beyond those directly requested in the proposal).

# How Will We Judge Quality?

## Mission Criterion

The mission criterion to be explicitly considered as part of the evaluation is:

- **The general intellectual linkage of the planned E/PO program to any unique scientific or technical aspects of the SMEX mission.**

Plans for coordination of the proposed activities with other ongoing OSS E/PO efforts will also be explicitly considered in the evaluation process.

# OSS Education and Public Outreach

## Sources of Information

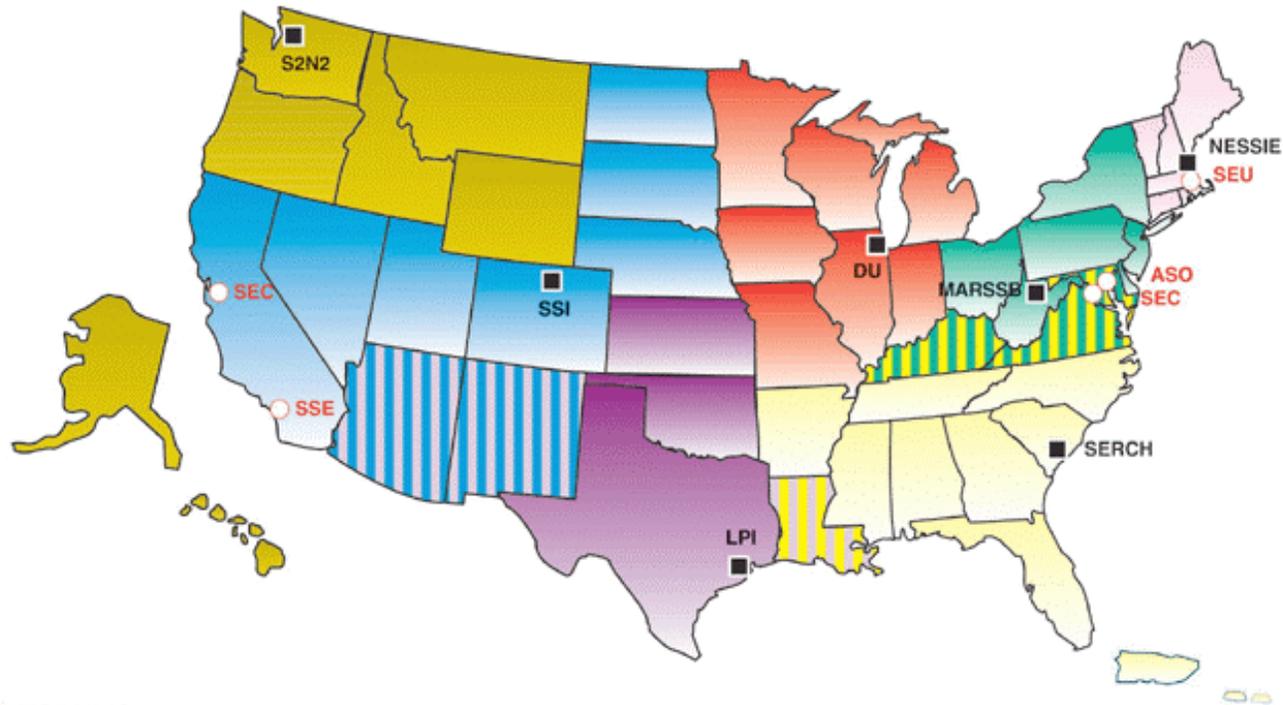
- A Short Reading List:
  - OSS Education and Public Outreach Strategy
  - OSS Education and Public Outreach Implementation Plan
  - OSS Explanatory Guide for the Education/Public Outreach Evaluation Criteria
  - OSS FY 2000-2002 Education and Public Outreach Annual Reports
  - SScAC E/PO Task Force Report
- The OSS “Explanatory Guide”
  - Describes in more detail what the Evaluation Criteria mean
  - Contains answers to “Frequently Asked Questions”
  - Was developed to ensure that E/PO efforts are prepared and evaluated on a consistent basis
  - “Guide” Version 2.0 will be applied to this SMEX CSR evaluation.  
[The “Guide” is being updated for future AO’s]

# OSS Education and Public Outreach

## Sources of Assistance

- Call your local Broker/Facilitator or the appropriate OSS Education Forum
  - The Support Network is there to help, but is not responsible for preparing the E/PO portion of your Investigation
- In accord with the operating principles developed by the Support Network, discussions with individual Teams developing proposals will be treated as proprietary
- Contact information is available through the OSS E/PO Homepage
- Questions about the OSS E/PO Program may be directed to the Office of Space Science E/PO Program Office.

# OSS E/PO Support Network



○ FORUMS

- Astronomical Search for Origins and Planetary Systems (ASO)
- Structure and Evolution of the Universe (SEU)
- Solar System Exploration (SSE)
- Sun-Earth Connection (SEC) (East Coast)
- Sun-Earth Connection (SEC) (West Coast)

■ BROKER/FACILITATORS

- DePaul University (DU)
- Lunar and Planetary Institute (LPI)
- Mid-Atlantic Region Space Science Broker (MARSSB)
- New England Space Science Initiative in Education (NESSIE)
- SouthEast Regional ClearingHouse (SERCH)
- Space Science Institute (SSI)
- Space Science Network Northwest (S2N2)

# OSS Education and Public Outreach

## Some Summary Observations

- OSS is serious about education and public outreach
  - A major national program is now underway
- E/PO will be an integral element of the SMEX evaluation and selection process
  - E/PO has made a difference in past selections
- OSS has seen a significant evolution in the level of maturity, ambition and sophistication in mission E/PO programs over the past several years
  - We have high expectations for SMEX E/PO.
- Resources are available to help the PI's in developing their proposals
  - Contact the Forums and Broker/Facilitators for help
  - Read the “Explanatory Guide” and other available documentation
- Treat E/PO with the same rigor and professionalism that you treat the science and engineering aspects of your Concept Study Report.