Great Midwestern Regional Space Grant Meeting
Chicago, Illinois
November 4-6, 2004

NASA’s Office of Education
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Director, Division of Higher Education
January 14, 2004: President Bush announced a new vision for the Nation’s space exploration program

- Advance US scientific, security, and economic interests through a robust space exploration program
- Long-term human and robotic program to explore the solar system
- Return to moon and ultimate exploration of Mars and other destinations

“Mankind is drawn to the heavens for the same reason we were once drawn into unknown lands and across the open sea. We choose to explore space because doing so improves our lives and lifts our national spirit.”

-- President George W. Bush
Transformed Structure

Office of Education

Administrator

Deputy Administrator (Chief Operating Officer)

Inspector General

Chief Safety & Mission Assurance Officer

Chief Education Officer

Advisory
- NASA Advisory Council
- Aerospace Safety
- Advisory Panel

Chief of Staff

Staff
- ADA Systems Integration
- Chief Scientist
- Chief Health and Medical Officer
- Director of Advanced Planning

MISSION DIRECTORATES

Exploration Systems
- Johnson
- Kennedy
- Marshall
- Stennis

Space Operations

Science
- Ames
- Goddard
- Jet Propulsion Laboratory

Aeronautics Research
- Dryden
- Glenn
- Langley

MISSION SUPPORT OFFICES

Chief Financial Officer

Chief Information Officer

Chief Engineer

Independent Technical Authority

Institutions & Management
- Human Capital Management
- Infrastructure, Management, and Headquarters Operations
- Diversity and Equal Opportunity
- Security and Program Protection

General Counsel

Chief of Strategic Communications

Procurement

Small & Disadvantaged Business Utilization*

Public Affairs**
- Legislative Affairs
- External Relations

* In accordance with law, the Offices of Diversity and Equal Opportunity and Small and Disadvantaged Business Utilization maintain reporting relationships to the Deputy and the Administrator.

** Including a new emphasis on internal communications.
A core component of NASA’s education strategy is to embed education in all research and program activities

- The educational efforts within the Mission Directorates contribute to the Agency education goals, objectives, and outcomes
- The Office of Education is responsible for unifying all NASA-sponsored education program activities in the Mission Directorates and the NASA Field Centers, while supporting national and state education goals and objectives

NASA education programs will be centered around and draw upon NASA’s unique assets:

- Missions
- People
- Facilities
Goals & Objectives

Office of Education

To inspire the next generation of explorers
...as only NASA can

Goal 6 – Inspire and Motivate Students to pursue careers in STEM

Goal 7- Engage the Public in shaping and sharing the experience of exploration and discovery

Education Strategic Objectives

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<td>•Elementary and Secondary Participation</td>
<td>•Higher Education Capability</td>
<td>•Under-represented and Underserved Participation</td>
<td>•e-Education</td>
<td>•Informal Education</td>
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### Operating Principles

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<th><strong>Customer Focus:</strong></th>
<th>Programs have been designed to respond to a need identified by the education community, a customer, or a customer group.</th>
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<tr>
<td><strong>Content:</strong></td>
<td>Programs make direct use of NASA content, people, or facilities to involve educators, students, and/or the public in NASA science, technology, engineering, mathematics.</td>
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<td><strong>Pipeline:</strong></td>
<td>Programs make a demonstrable contribution to attracting diverse populations to careers in science, technology, engineering, mathematics.</td>
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<td><strong>Diversity:</strong></td>
<td>Programs reach identified targeted groups.</td>
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<td><strong>Evaluation:</strong></td>
<td>Programs implement an evaluation plan to document outcomes and demonstrate progress toward achieving objectives.</td>
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<td><strong>Partnerships/ Sustainability:</strong></td>
<td>Programs achieve high leverage and/or sustainability through intrinsic design or the involvement of appropriate local, regional, or national partners in their design, development, and dissemination.</td>
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Priorities

Expand the Science, Technology, Engineering, and Mathematics (STEM) pipeline

(Pre-college)

Increase the Science, Technology, Engineering, and Mathematics (STEM) workforce

(Post-secondary)
Build education into all aspects of the President’s Initiative

- Lunar Missions
- Expanded Mars Program
- Project Prometheus
- Crew Exploration Vehicle
- More focused Life Sciences Program

Reexamine all other education programs and redirect as appropriate
Section V

Inspiring Current and Future Generations

Finding 8

The Commission finds that the space exploration vision offers an extraordinary opportunity to stimulate mathematics, science, and engineering excellence for America’s students and teachers—and to engage the public in a journey that will shape the course of human destiny.

Space exploration captures the imaginations of America’s children and adults. The challenge before us is to leverage the journey to the space frontier to engage learners of all ages and interests. In addition, we must focus on training the workforce needed for the success of the long-term exploration program. The education community, working with NASA, must aggressively educate and train a new generation of explorers—there is perhaps no greater imperative for ensuring successful and sustainable space exploration by this nation.
Recommendation 8-1

The Commission recommends the Space Exploration Steering Council work with America’s education community and state and local political leaders to produce an action plan that leverages the exploration vision in support of the nation’s commitment to improve math, science, and engineering education. The action plan should:

- increase the priority on teacher training;
- provide for better integration of existing math, science, and engineering education initiatives across governments, industries, and professional organizations; and
- explore options to create a university-based “virtual space academy” for training the next generation technical work force.

In explaining points 2 & 3, the Aldridge Commission made a strong plea for much greater “hands-on training”.
Higher Education

• Institutional Science, Engineering and Technology Awards
• Principal Investigator Awards
• Partnership / Consortium Awards
• Mathematics and Science Education Awards
• Fellowship and Scholarship Awards

Pathfinder Initiative

S&T Scholarship Program (STSP)

National Space Grant College and Fellowship Program

Graduate Student Researchers Program
Underrepresented and Underserved

Minority University Research and Education Programs (MUREP)

• To increase the agency's responsiveness to Federal mandates related to Historically Black Colleges and Universities (HBCUs) and Other Minority Universities (OMUs), including Hispanic Serving Institutions and Tribal Colleges and Universities.
NASA’s Physical Assets

NASA Field Centers (<11 Locations>)
NASA Educator Resource Center Network (<69 Locations>)
Space Science Support Network (<12 Locations>)
Space Grant Consortium Network (<835 Affiliates>)
Goal:
Contribute to the nation's science and technology enterprise by funding education, research, and public service projects through a national network of university-based Space Grant consortia.

Objectives:
1. Establish and maintain a national network of universities.
2. Encourage cooperative programs among universities, aerospace industry, and Federal, state, and local governments.
3. Encourage interdisciplinary education, research, and public service programs related to aerospace.
5. Promote a strong science, mathematics, and technology education base from elementary through secondary levels.
National Space Grant College and Fellowship Program

NASA’s Mission Directorates
- Aeronautics
- Science
- Space Operations
- Exploration Systems

Education
Research
Public Service

NASA Space Grant/EPSCoR Network
- 52 Space Grant Consortia
- > 800 Affiliates
  - Colleges & Universities
  - Community Colleges
  - Business & Industry Partners
  - State/Local/Tribal Gov’t Agencies
What does Space Grant do for NASA?

- Builds human capital and research expertise to support NASA programs and missions
- Expands NASA’s expertise and educational networks
- Brings knowledge and awareness of space to a broad range of constituents in every state

What does Space Grant do for the state?

- Provides access to NASA education and research opportunities, and research and development results
- Provides a vehicle for collaboration and cooperation among academia, government, and industry entities
- Contributes to the state’s education, economic development, and research and development agendas
Faculty Opportunities

Faculty Awards for Research (FAR)

Goal: To expand NASA’s research base at HBCUs and OMUs by involving faculty and students in the Agency’s sponsored research community

• Three-year awards of up to $100,000 per year
• Research must focus on area relevant to one of NASA’s research enterprises and of interest to a NASA Center or JPL
• Proposed research can support/leverage NASA related research conducted at other universities (both majority and minority), national labs, and/or NASA contractors.
• Up to 25% of funds can go to student support

Next FAR announcement
December 2004
NFFP as a program ended in 2004, but NASA will continue offering summer faculty research opportunities through other programs

http://www.asee.org/resources/fellowships/nffp/general.cfm
Postdoctoral Opportunities

Resident Research Associateship Program (RRAP)

Goal: To provide postdoctoral opportunities at NASA Centers in cutting edge Science and Technology areas.

- Two-year awards of $50,000 - 80,000 per year
- Research must focus on area relevant to one of NASA's research enterprises and of interest to a NASA Center or JPL
- Junior level and senior level awards
- Highly competitive
- Strong international component
- Program currently managed by the National Research Council. Applications are made directly to NRC.
Graduate Student Opportunities

http://fellowships.hq.nasa.gov/gsrp/home/fellowships.cfm
Graduate Student Opportunities

NASA Harriett G. Jenkins
Predoctoral Fellowship Program (JPFP)

https://www.uncfsp.org/NASA/Jenkins
Undergraduate Student Research Program (USRP)

Target Audience: Rising Junior and Rising Senior Undergrads

- Provide hands-on, challenging research experiences to stimulate continued student interest in the disciplines aligned with NASA’s research mission
- Attract undergraduates with demographic and geographic diversity
- Encourage and facilitate STEM student interest in professional opportunities with NASA and its partner organizations
- Extend and strengthen NASA’s commitment to academic and university research
- 8-10 week Summer internships at NASA Centers

http://education.nasa.gov/usrp
Our Higher Education Pathfinder Initiative

• **Science and Technology Scholarship Program (STSP)**
  • Designed to recruit and prepare students for careers with NASA in STEM fields of study by providing financial assistance to students in exchange for a commitment to work for NASA.

• **STSP Program Elements**
  • Included in NASA Workforce Flexibility Act of 2003
  • Competitive selection process primarily based on academic merit
  • Eligible full-time student at institution of higher education in academic field or discipline relevant to NASA (limit of 4 years of scholarship unless waiver granted by NASA Administrator)
  • 24 months of service for each academic year of scholarship assistance with a 4 year cap on service
Science and Technology Scholarship Program – Primary Features

- Eligibility limited to U.S. Citizens and Permanent Residents
- Scholarship eligibility for up to 4 academic years
- Scholarship recipients will receive up to $20,000 tuition support per year (tuition, fees, and other expenses)
- Scholarship recipients will receive up to $10,000 stipend support for annual research internship (mandatory) at a NASA Center/Installation and NASA-related research activities at home academic institution
- Scholarship recipient’s academic programs approved and progress reviewed/approved annually by NASA
- Scholarship recipients must maintain an overall academic standing as required by the college/university, including a cumulative 3.0 GPA in all major coursework, to remain in the scholarship program.
- Financial need, as determined by the academic institution, may be considered
e-Education: “Next Generation Learning Support System”

Build technology infrastructure to support delivery of and increase access to NASA content, programs, and projects to students, educators, and public

NASA Portal and Education Enterprise

Digital Learning Network

NASA (Digital) TV Education File
Partnerships & Alliances

Federal Agencies (i.e. DoEd and NSF)
National/State/Local Education Professional Associations
National/State/Local Science and Engineering Professional Associations
Business and Industry
National/State/Local Associations/Organizations Serving the Underrepresented/Underserved
Networks of Informal Education Organizations
State and Local Entities
In summary, the NASA Office of Education

• Promotes education as an integral component of every major NASA research and development mission

• Unifies all NASA-sponsored educational activities to contribute to Agency education goals, objectives, and outcomes

• Supports national and state education goals and objectives

• Expands the pool of human capital to meet workforce needs
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