



**2005
NASA ACADEMY
AT MARSHALL SPACE
FLIGHT CENTER**

**Final Presentations and
Graduation Ceremony**

August 12, 2005

NASA Marshall Space Flight Center
Building 4200, Room P110

**NASA Academy at
Marshall Space Flight Center 2005**

Graduates

Morgan B. Abney
Kamara E. Brown
Brian W. Dolan
Lisa M. Geschwill
Elizabeth D. Gregory
Michelle M. Hartwell
Michael L. Lamberty
Jessica L. Poindexter
Laura M. Seward
Julia E. Thrower
Aaron L. Westman
Katherine A. Yakubisin

Staff

Director – Dr. Frank Six
Program Manager – Dr. Gerald R. Karr
Operations and Logistics Manager – Jessica S. Culler
Academy Alumni Coordinator – Omar Mireles
Program Support and Assistant – Paula Raby
Associate Program Manager – Lisa Liever
Space Grant Consultant – Jackie Reasoner



NASA Academy Program Description

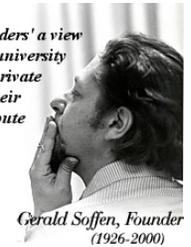
The NASA Academy is an intensive resident summer program of higher learning for college undergraduate and graduate students interested in pursuing professional and leadership careers in space-related fields.

The NASA Academy program is designed to present a comprehensive package of information and experiences about the organization of the NASA agency, some of its most important current and planned science, engineering, education, and technology enterprises, as well as a number of non-technical areas of critical significance, such as management, budgeting, safety, personnel and career development, leadership, space law, international cooperation, etc. Besides attending lectures and workshops, students are involved in supervised research in MSFC laboratories, and participate in visits to other NASA Centers and facilities and a number of space-related academic laboratories and industries.

A Brief History of the NASA Academy

The NASA Academy was founded in 1993 (as the "NASA Space Academy") at the Goddard Space Flight Center by Gerald (Jerry) Soffen, former Mars Viking project scientist, architect of the NASA Astrobiology program, and first Director of the Goddard Office of University Programs. Jerry was an accomplished scientist and a dedicated educator. He took advantage of the unusual opportunities presented to him during his career and realized the importance of mentoring in the life of young professionals. In his vision, the Academy was intended to exceed in purpose and content all the other regular internships by familiarizing its participants with as many facets of the NASA agency as possible. With his dynamic personality and unique leadership, he opened many gateways and defined a new standard of excellence.

"To give possible 'leaders' a view into how NASA, the university community, and the private sector function, set their priorities, and contribute to the success of the aerospace program."



As the reputation of the Goddard Academy widened, new NASA Academy Programs were started at the Marshall Space Flight Center (1994), the Ames Research Center (1997), and the Dryden Flight Research Center (1997). In 2005 Goddard, Glenn, and Marshall each hosted an Academy.

The name of the program changed from "NASA Space Academy" to "NASA Academy" at specific NASA Centers. A continuous effort is being made to establish or re-establish Academies at various NASA Centers, with different profiles and focus areas.

Jerry Soffen died on November 22, 2000. We honor his legacy by continuing the Academy program that he loved so well.

In 2005, the NASA Academy celebrates 13 years of successful activity. So far, around 450 Research Associates have graduated from the program.

NASA Academy at Marshall Space Flight Center 2005

Final Presentations and Graduation Ceremony

8:00 am **Opening and Welcome**

Dr. Frank Six, Director,
NASA Academy at MSFC

8:10 am **About the NASA Academy at MSFC 2005**

Jessica Culler, Student Operations Manager, NASA
Academy at MSFC 2005

Propulsion

8:20 am **Julia Thrower**

Massachusetts Institute of Technology
Aeronautics and Astronautics
*Finite Element Modeling of Advanced Propulsion
Devices*, PI: George Schmidt

8:40 am **Aaron Westman**

University of Minnesota
Aerospace Engineering
*Pump Hydrodynamics for Advanced Expander Cycle
Engines*, PI: Lisa Griffin

9:00 am **Katherine Yakubisin**

University of Virginia
Aerospace Engineering
Radiation Hardening in Nuclear Thermal Propulsion,
PI: Karl Nelson

Space Science

9:20 am **Michelle Hartwell**

University of Wyoming
Astrophysics

Laura Seward

Florida Institute of Technology
Astrophysics and Astronomy
*Construction of a Swift Data Archive and
Development and Implementation of Swift Gamma
Ray Burst Analysis Tools*, PIs: Sandy Patel and
Chryssa Kouveliotou

9:50 am **Michael Lamberty**

Sasakawa International Center for Space
Architecture at University of Houston
Space Architecture

*Autonomous Sequentially-Fed Scanning Electron
Microscope Sample Chamber*, PIs: Brian Ramsey,
Jessica Gaskin

10:10 am [10-minute intermission]

Engineering

10:20 am **Lisa Geschwill**

University of North Dakota
Mechanical Engineering
Autonomous Assembly of Modular Space Structures,
PI: Dean Alhorn

10:40 am **Elizabeth Gregory**

University of Kansas
Aerospace Engineering
*Development of Improved Damage Tolerance
Capabilities of the Core/Facesheet Bond in
Composite Honeycomb Sandwich Structures*, PI:
Alan Nettles

11:00 am **Kamara Brown**

The George Washington University
Electrical Engineering and Mathematics
*An Assessment of Artificial Intelligence Technologies
for Vehicle Management Systems*
PIs: Mike Watson and Luis Trevino

Materials Science

11:20 am **Brian Dolan**

University of Wisconsin-Madison
Materials Science and Engineering
*High Tensile Strength Amalgams for In-Space
Fabrication and Repair*, PI: Richard Grugel

11:40 am **Jessica Poindexter**

University of Idaho
Physics
*High Temperature Performance of Commercially
Available LEDs*, PI: Ching Hua Su

12:00 pm **Morgan Abney**

University of Kentucky
Chemical Engineering
*Preparation of Test Requirements for a Solid Amine
Reactor, Correlation Development for Square Mesh
Screens, and Testing and Geometry Analysis of
Monoliths*, PI: Jim Knox

12:15 pm Photo opportunity in front of Building 4200
[Break for lunch]

Group Project Presentation

1:30 pm *Improving the Space Camp Experience*

Graduation Ceremony

2:00 pm **Presentation of certificates**
Dr. Frank Six, Dr. Gerald Karr

Awards

Jackie Reasoner

Special Presentations

Induction into the NASA Academy Alumni Association

Omar Mireles

Farewell

Recipient of the Werner Von Braun NASA Academy at MSFC Leadership Award 2005

Closing Remarks



Special Thanks from the Academy to the following:

NASA Marshall Space Flight Center
National Space Science Technology Center
University of Alabama in Huntsville
National Space Grant program and the Space Grants in the following states: Alabama, Florida, Idaho, Kansas, Kentucky, Minnesota, North Dakota, Oklahoma, Pennsylvania, Texas, Virginia, Washington D.C., Wisconsin, and Wyoming
NASA Academy programs, directors, staff, and Research Associates at Goddard Space Flight Center and Glenn Research Center
NASA-MSFC Center Director David King
NASA-KSC Center Director Jim Kennedy
NASA-JSC Center Director General Jefferson Howell
US Space and Rocket Center
Space Camp and Dr. Phil
The very special "fireside chat" speakers: Robin Henderson, Jim Bilbro, Diane DeTroye, JM Wersinger, Ann Whitaker, Bob Schwinghamer, Jim Snider, and Owen Garriott
The MSFC speakers throughout the summer: Tom Markusic, Kamesh Sankaran, Mike Houts, Shannon Bragg Sittin, Harold Gerrish, Monsi Roman, Mike Fiske, David Wagner, Martin Weisskopf, Daniel Irwin, Marilyn Lewis
Wednesday afternoon seminar speakers
Tour guides at the Marshall laboratories
NASA Academy Alumni at MSFC:
Stephen Grenade, Ruth Jones, Omar Mireles, Zine Smith
Von Braun Astronomical Society
Sunlake Apartments
The MSFC Building 4203 cafeteria staff
NASA Johnson Space Center: Chris Hadfield, Tony Antonelli, Leroy Chiao, Milt Heflin, Holly Ridings, Todd Schneider, Paul Gosling, Wayne Jermstad, PAO, and all of the wonderful tour guides and speakers
NASA Headquarters: Debbie Ladwig, Angela Diaz, Al Diaz, Garvey McIntosh, Loretta Hidalgo
NASA Goddard Space Flight Center: Laura Burns, James Green, Mary Kicza, Paul Lowman, Jim Garvin, Jonathan Gardner, Brian Roberts
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NASA Kennedy Space Center:
Florida Space Authority: Winston Scott, Pete Gunn, and Jennifer Skaja
Florida Institute of Technology Campus Services
NASA Academy Alumni at the Jet Propulsion Laboratory
NASA Academy Alumni Association: Will Pomerantz
Past NASA Academy directors and staff at NASA Ames Research Center
Mentors and additional support for the RAs: Claude Irvine, Dallias Pearson, Dr. Katherine Chavis, John Wiley, Valentin Korman, Amanda Duffell, Linda Brewster, Dr. Tamara Rogers, Witold Palosz, Charlie Cooper, Chris Randall, Mike McCormick, Ken Fredrick, Dan Dorney, John Peugeot