



Space Science Enterprise Program Overview

Guenter R. Riegler

**Executive Director for Science
Office of Space Science
NASA Headquarters**

January 8, 2003



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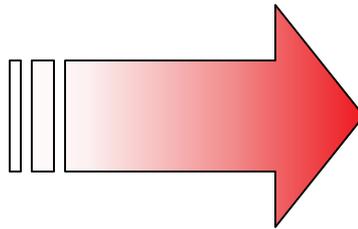
Space Science Enterprise Agency Vision and Mission

The NASA Vision: “To improve life here, to extend life to there, to find life beyond.”

The NASA Mission: “To understand and protect our home planet, to explore the universe and search for life, to inspire the next generation of explorers . . . as only NASA can.”

Space Science Vision

- How did the universe begin and evolve?
- How did we get here?
- Where are we going?
- Are we alone?



Space Science Themes

- Astronomical Search for Origins
- Structure and Evolution of the Universe
- Solar System Exploration
- Mars Exploration
- Sun Earth Connection

The Space Science Vision fully supports the NASA Mission



The New NASA Environment

- New NASA Mission and Vision
 - “One NASA”
 - New Education Mission/Enterprise
- “President’s Management Agenda” Establishes five focus areas for improvement of federal government operations
 - Strategic Management of Human Capital
 - Competitive Sourcing
 - Improved Financial Performance
 - Expanded Electronic Government
 - Budget and Performance Integration



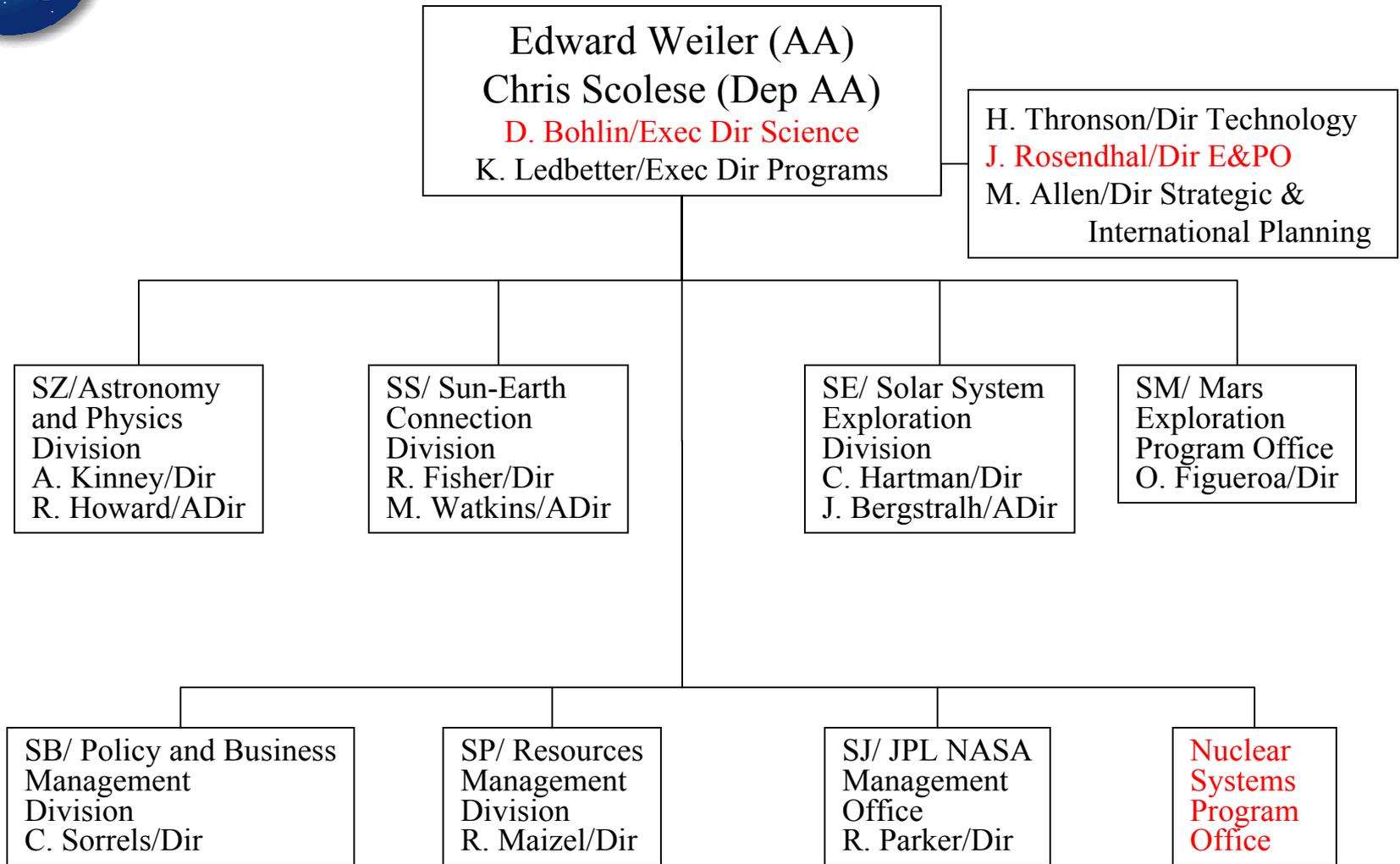
The New NASA Environment

- Full-Cost Accounting is Here!
- Deep Space Network
 - OSS assuming management & budget responsibility
- Agency Adoption of Exploration Framework
 - Life-centric concept; expansion of astrobiology
- NASA Exploration Team
 - Cross-enterprise analysis effort to coordinate future robotic and human space flight programs



Space Science Enterprise: Changes

Space Science Enterprise

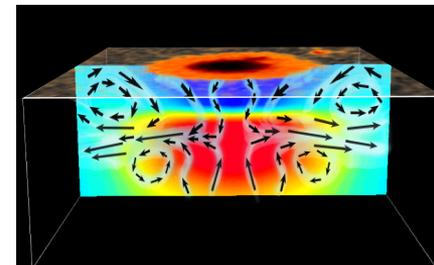




Science Highlights

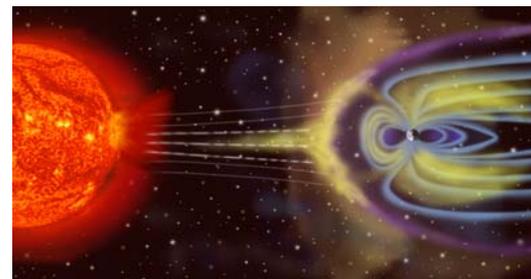
- **Looking Below the Solar Surface:**

Solar physicists have developed the ability to see all the way through the Sun and image the emergence of new active regions on the far side



- See <http://soi.stanford.edu/data/farside>

- **Seeing the System Behavior from the Sun to Earth's Atmosphere:**



RHESSI & TIMED complete the observational chain, tracing the flow of energy first within flares and then at Earth, where we can now image the resulting equatorial plasma depletions in the upper atmosphere that disrupt communications.

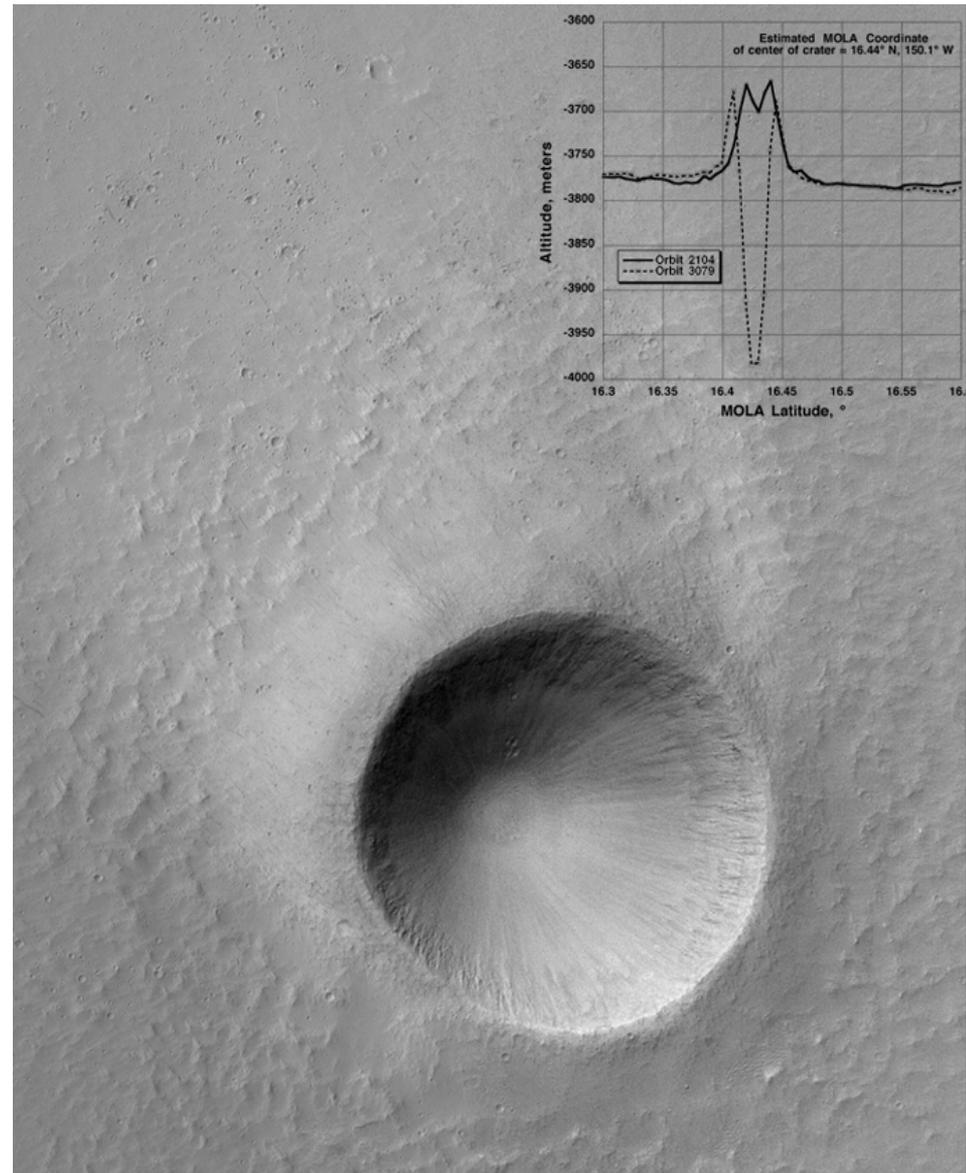


Science Highlights

Craters on Mars--Meteorites in Antarctic?

This 2.7 km diameter crater lies in the plains of Amazonis on Mars.

Meteorites in Antarctic could ultimately be linked to craters like this one, as we learn more about chemical traces.





Education and Public Outreach: Getting Results



Voyage: A Scale Model Solar System on the National Capitol Mall

Share the excitement with the public . . .



Enhance the quality of education . . .

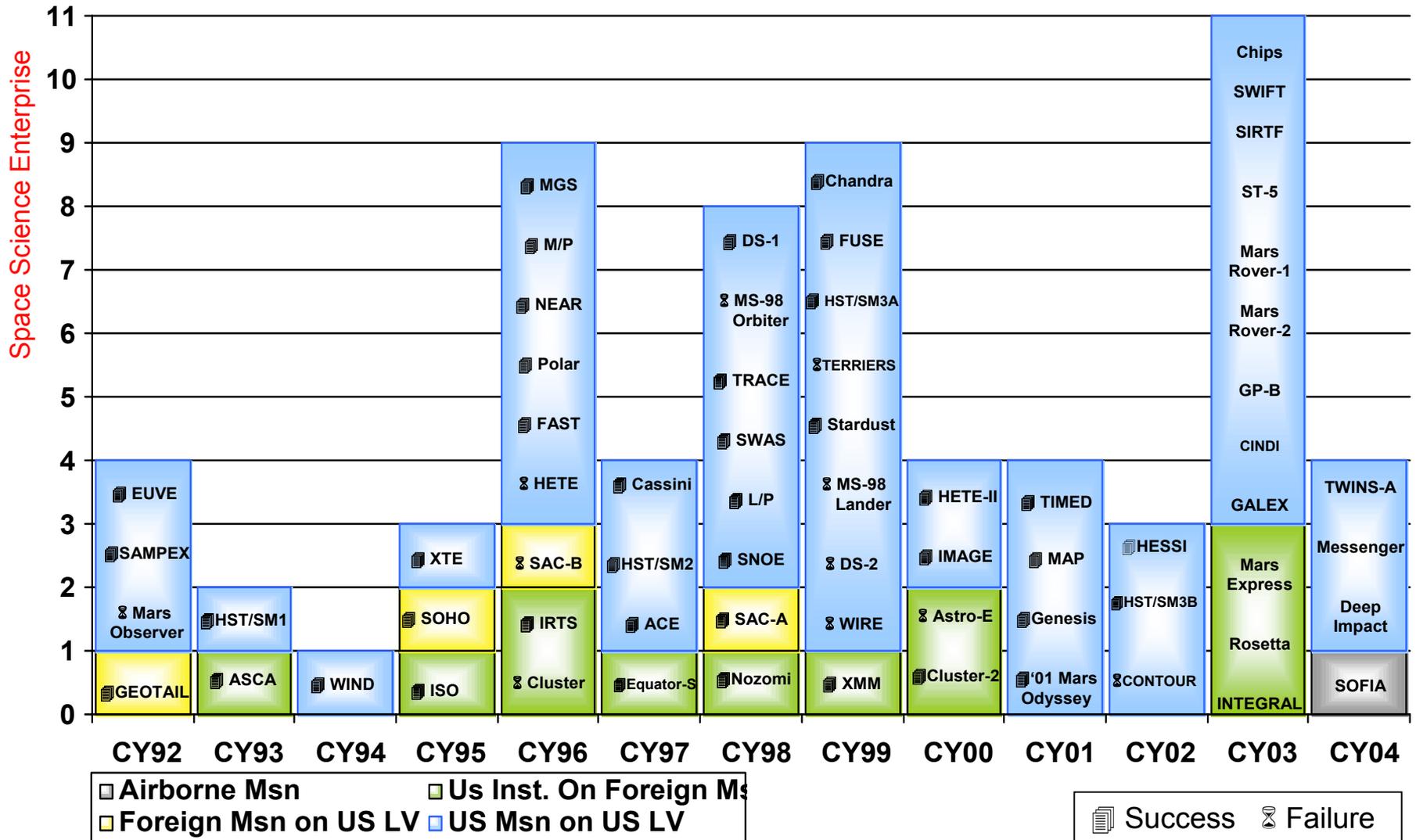
A braille book of astronomy

. . . Help create the 21st century workforce





Major NASA Space Science Launches (CY92-CY04)





New Technology: In-Space Propulsion

Develop in-space propulsion technologies for near- and mid-term space science missions

High-priority technologies under development:

- Aerocapture
- Solar Sails
- Solar Electric Propulsion
- Nuclear Electric Propulsion (transfers to NSI in FY03)

Development focus: intermediate maturity (TRL 3-6)

Fully competed through NRA's

- 2nd Q FY02 -- 4th Q FY02 -- 2nd Q FY03

Total Funding (FY02 - FY07): \$347.7M



New Technology: Nuclear Systems Initiative

Develop advanced power sources to provide:

- Energy for science, mobility, playback
- Time for surface reconnaissance and discovery
- Accessibility to planets (latitude and terrain)
- Resiliency and adaptability

Development focus: Radioisotope Power Systems

- Multi-mission RTG (potential for Mars '09 mission)
- Purchase of Russian plutonium-238
- Stirling radioisotope generator
- Technology NRA for power conversion

Development focus: Nuclear Propulsion

- Requirements definition through systems analysis
- Architecture assessments (competitively awarded and in-house)
- Technology re-capture in long lead-time, selected areas
- Coordination with Interagency Nuclear Safety Review Panel

Fully and openly competed

Total Planned Funding (FY03 - FY07): \$793.5M