March 12, 2007

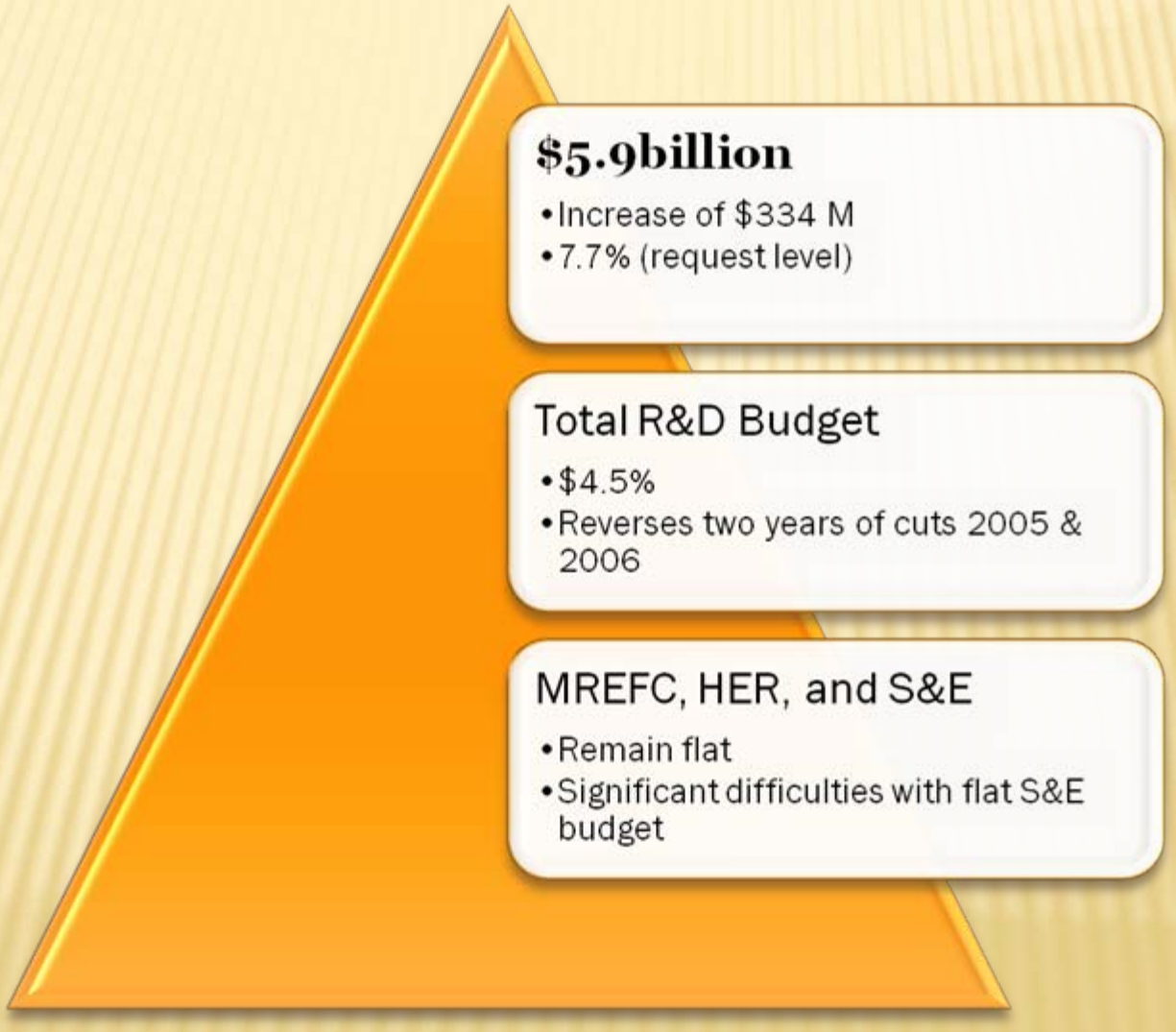
REPORT TO UNIDATA POLICY COMMITTEE

Clifford Jacobs
Division of Atmospheric Sciences
National Science Foundation

MAIN TOPICS

- FY 2007 and FY 2008 Budgets
- Changes in GEO staffing
- NSF's New Strategic Plan
- Strategic Guidance to ATM
- Competition for the Management of NCAR

FY 2007 APPROPRIATION

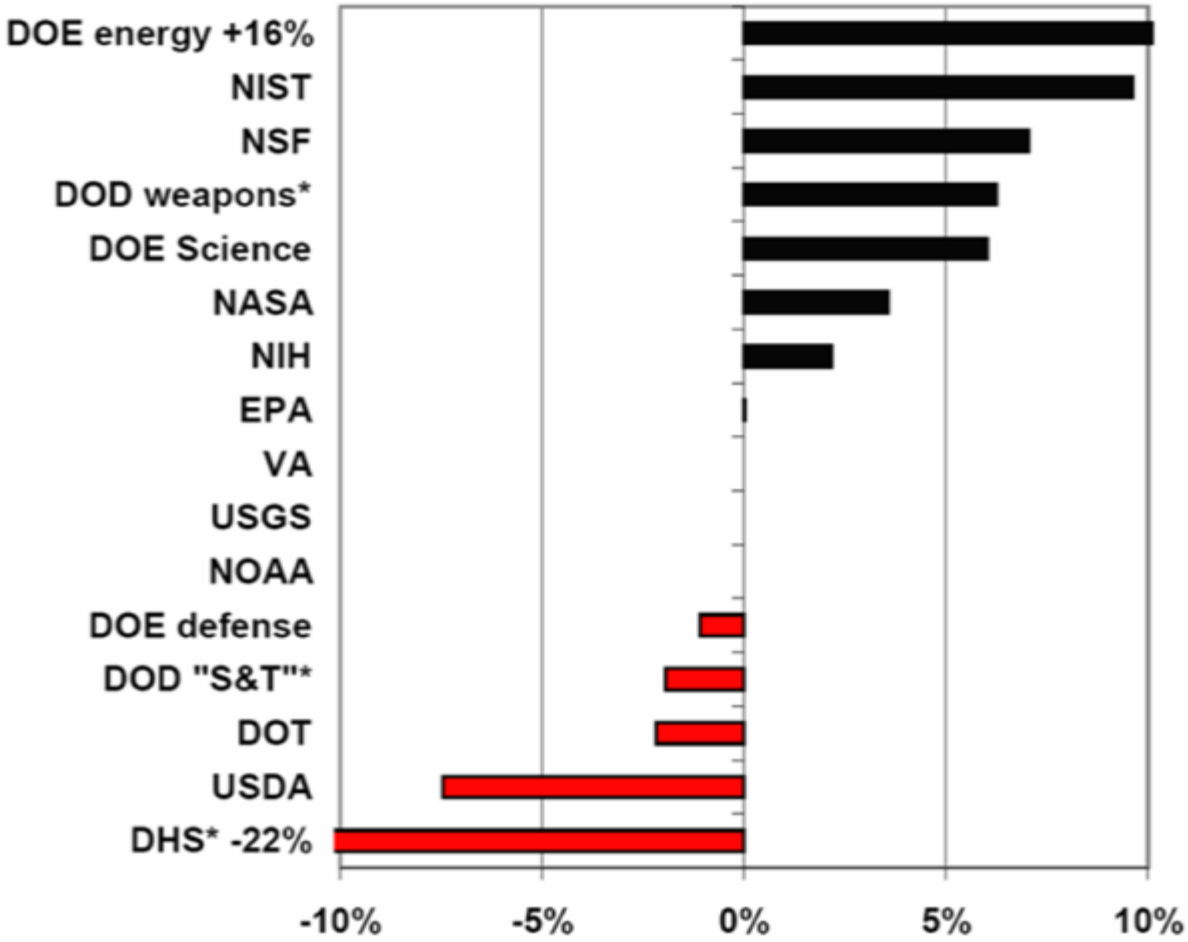


AAAS charts

OVERALL TRENDS IN R&D FUNDING

FY 2007 R&D Appropriations

Percent Change from FY 2006 (as of January '07)

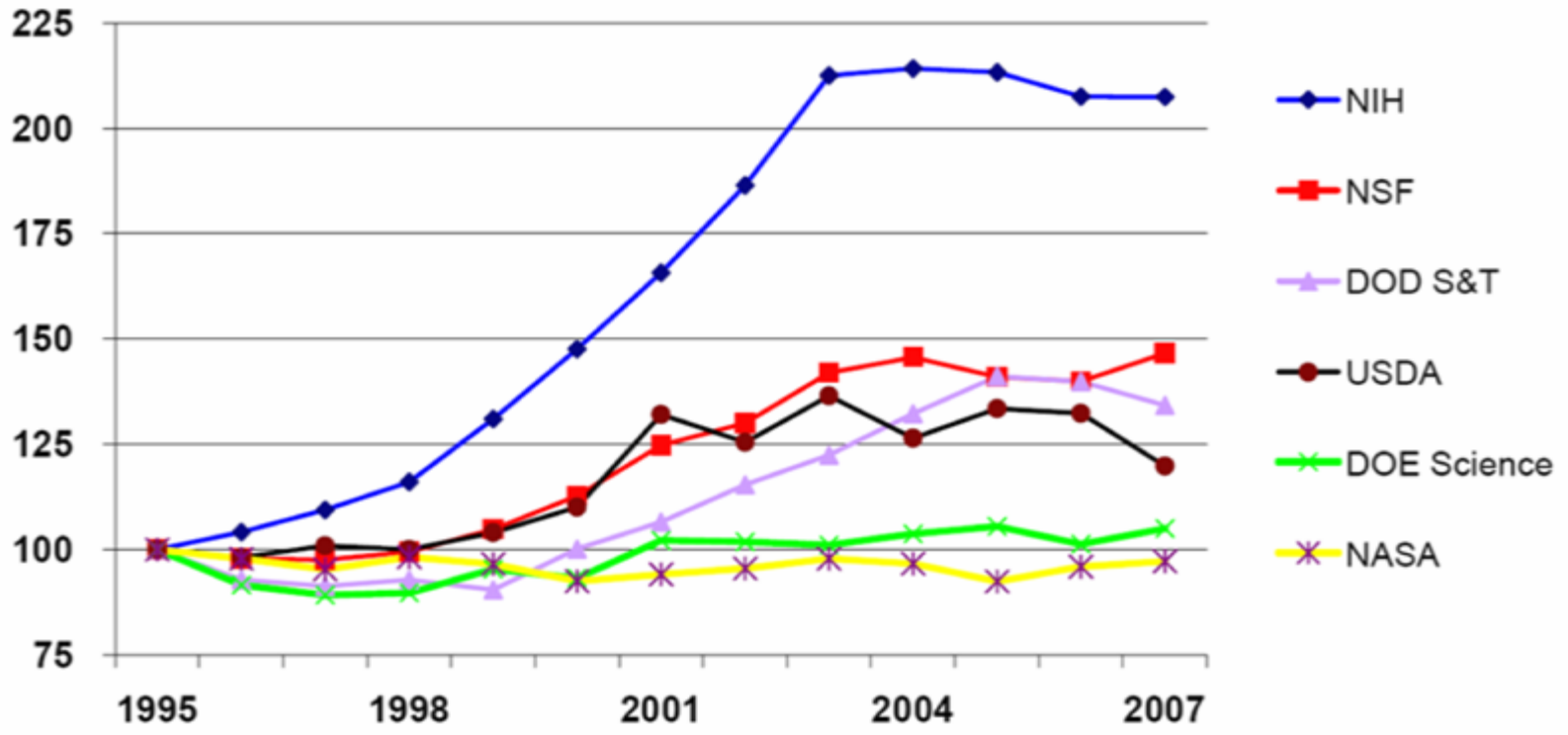


Source: AAAS estimates of R&D in FY 2007 appropriations bills and joint funding resolution.
DOD "S&T" = DOD R&D in "6.1" through "6.3" categories plus medical research.
* - DOD and DHS changes are enacted (final) appropriations.

AAAS

Trends in Federal R&D, FY 1995-2007 (as of 1/07)*

selected agencies in constant dollars, FY 1995=100



Source: AAAS analyses of R&D in *AAAS Reports VIII-XXXI*. * FY 2007 figures are AAAS estimates of FY 2007 appropriations and joint funding resolution.
R&D includes conduct of R&D and R&D facilities.

AAAS

UNITED STATES

National Science Foundation

FY 2008

BUDGET REQUEST TO CONGRESS

FY 2008 BUDGET REQUEST

$6.43 billion

Increase over FY 2007 Request:

$409 million, 6.8%

FY 2008 BUDGET REQUEST BY APPROPRIATIONS ACCOUNT (MILLIONS)

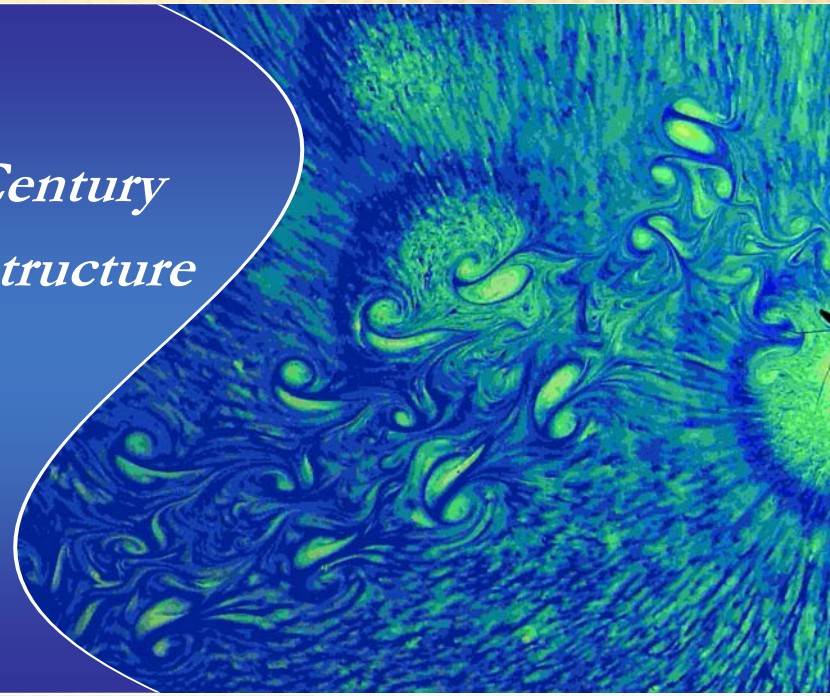
Appropriations Account	FY 2008 Request	Change from FY 2007 Request	
Research & Related Activities	$5,131.69	$365.74	(7.7%)
Education & Human Resources[1]	$750.60	$34.38	(4.8%)
Major Research Equipment & Facilities Construction	$244.74	$4.29	(1.8%)
Agency Operations & Award Management	$285.59	$3.77	(1.3%)
National Science Board	$4.03	$0.12	(3.1%)
Inspector General	$12.35	$0.49	(4.1%)
TOTAL, NSF	**$6,429.00**	**$408.79**	**(6.8%)**

Totals may not add due to rounding.

[1] Funding for EPSCoR is moved to R&RA in FY 2008.

FY 2008 BUDGET PRIORITIES

- *Discovery Research for Innovation*
- *Preparing the Workforce for the 21st Century*
- *Transformational Facilities and Infrastructure*
- *International Polar Year Leadership*
- *Stewardship*



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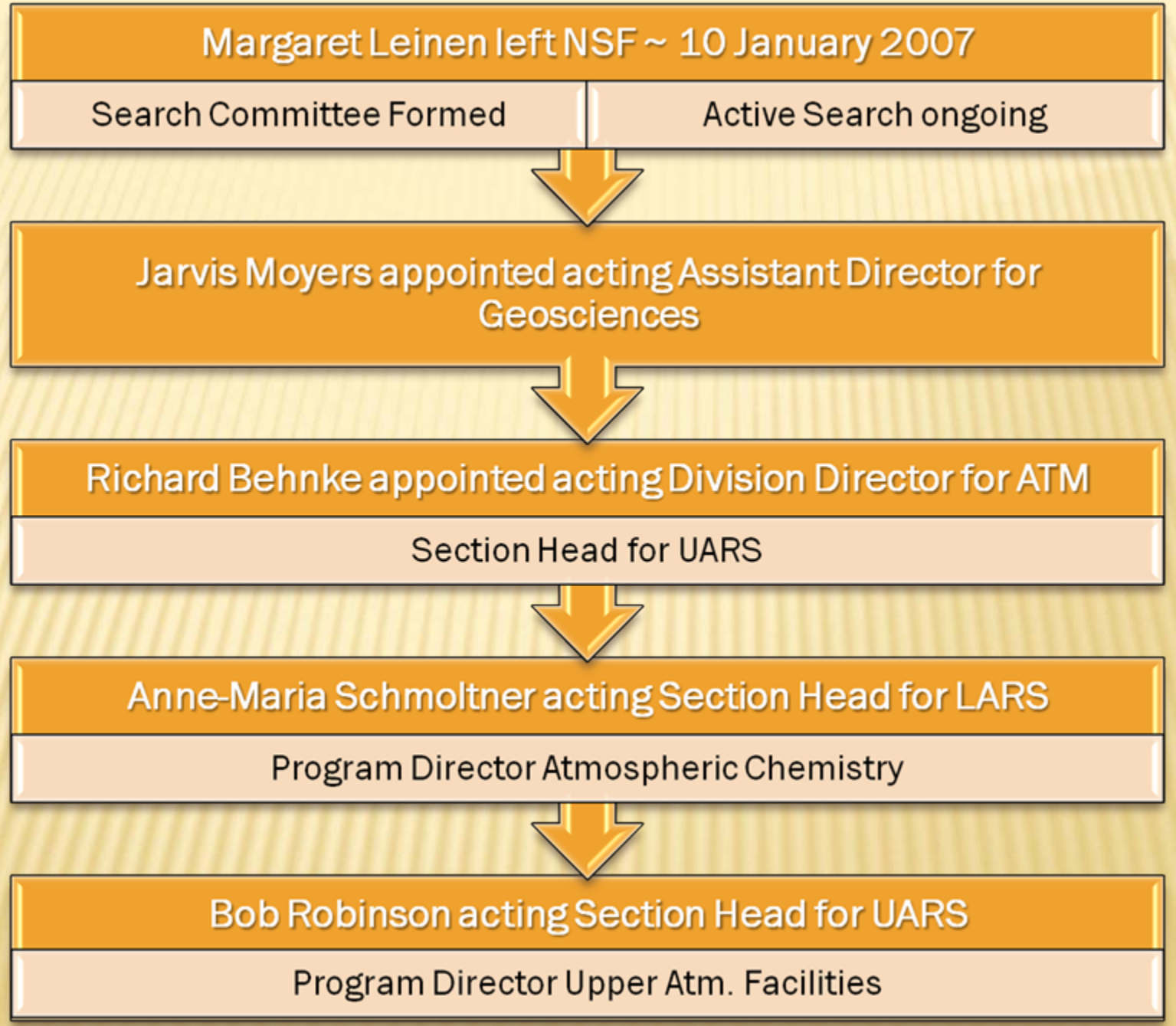
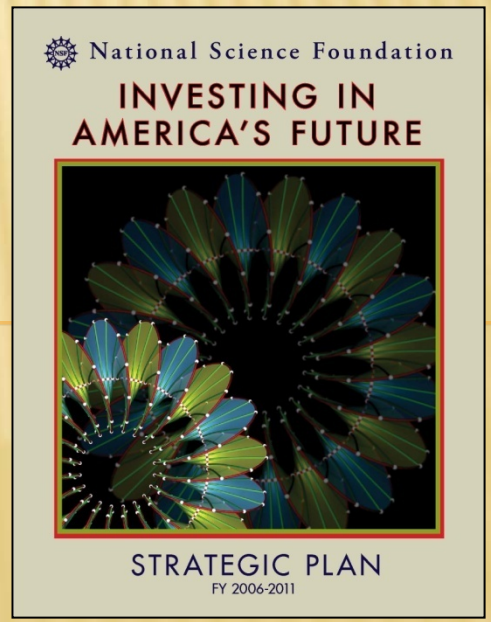
CHANGING GEO STAFF


Margaret Leinen left NSF ~ 10 January 2007
Search Committee Formed
Active Search ongoing
Jarvis Moyers appointed acting Assistant Director for Geosciences
Richard Behnke appointed acting Division Director for ATM
Section Head for UARS
Anne-Maria Schmoltner acting Section Head for LARS
Program Director Atmospheric Chemistry
Bob Robinson acting Section Head for UARS
Program Director Upper Atm. Facilities

INVESTING IN AMERICA'S FUTURE

The National Science Foundation Strategic Plan for FY 2006-2011

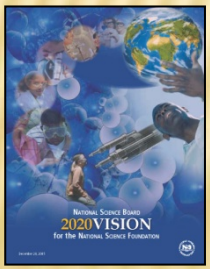


NSF STRATEGIC PLAN TIMELINE

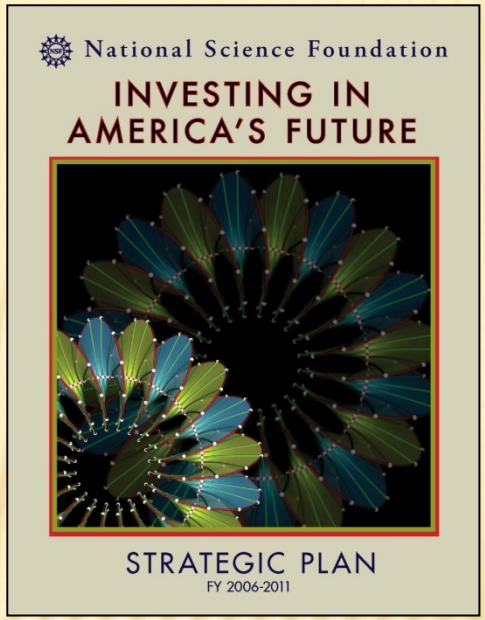
American Competitiveness Initiative (Feb '06)

Comments from Public, NSF Staff, NSB, Advisory Committees, Others…

NSB 2020 Vision (Dec '05)



September 2006



February 2007

Strategic Plan FY2006-2011

NSF Budget Request FY2008

www.nsf.gov/pubs/2006/nsf0648/nsf0648.jsp

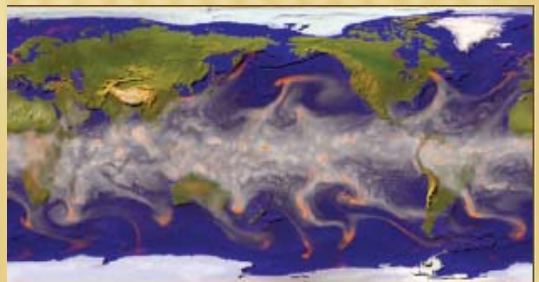
NSF IN A CHANGING LANDSCAPE

The NSF Strategic Plan responds to the…

- Globally increasing pace, scope, and impact of fundamental science and engineering
- Escalating need to improve math/science education and technical workforce development
- Emerging new modes of inquiry and new tools for investigation
- Need for continued excellence in NSF as a capable and responsive organization

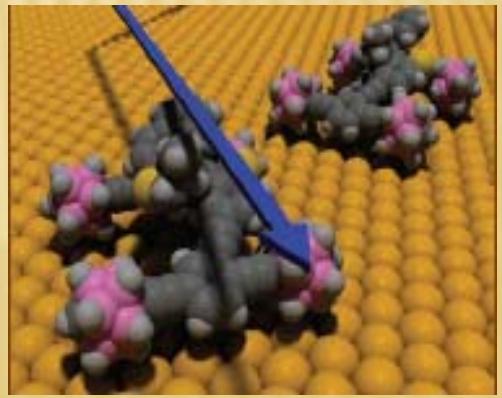
WHAT'S NEW?

- Strategic Goals are Focused on Outcomes
- Each Strategic Goal has 3-5 Year Investment Priorities
- New Vision stressing discovery, innovation, education, broadening participation, and moving beyond the current S&E frontiers
- Six Considerations for Future Major Investments
- Input Frequently Solicited, Received and Used from our Advisory Committees, NSB, NSF Staff, Academe, Professional Societies and the Public



STRATEGIC GOALS

- Discovery
- Learning
- Research Infrastructure
- Stewardship



INTERRELATED STRATEGIC OUTCOME GOALS

STRATEGIC GUIDANCE FOR NSF'S SUPPORT OF THE ATMOSPHERIC SCIENCES

Taken from a presentation at NSF on
November 29, 2006

John Armstrong
Marvin Geller

http://books.nap.edu/openbook.php?record_id=11791&page=R1

COMMITTEE MEMBERSHIP

John A. Armstrong, (Chair) IBM Corporation (retired)
Susan K. Avery, University of Colorado
Howard B. Bluestein, University of Oklahoma
Elbert W. Friday, University of Oklahoma
Marvin A. Geller, State University of New York, Stony Brook
Elisabeth A. Holland, National Center for Atmospheric Research
Charles E. Kolb, Aerodyne Research, Inc.
Margaret A. LeMone, National Center for Atmospheric Research
Ramon E. Lopez, Florida Institute of Technology
Susan Solomon, National Oceanic and Atmospheric Administration
John M. Wallace, University of Washington
Robert A. Weller, Woods Hole Oceanographic Institution
Stephen E. Zebiak, Columbia University

STATEMENT OF TASK

… provide guidance to ATM on its strategy for achieving its goals in the atmospheric sciences into the future

… in doing so, engage the broad atmospheric science community to the fullest extent possible

1. What are the most effective activities and modes of support for achieving NSF's range of goals in the atmospheric sciences?
2. Is the balance among the activities appropriate and should it be adjusted? Is the balance among modes of support effective and should it be adjusted?
3. Are there any gaps in the activities supported by the Division and are there new mechanisms that should be considered in planning and facilitating these activities?
4. Are interdisciplinary, Foundation-wide, interagency, and international activities effectively implemented and are there new mechanisms that should be considered?
5. How can NSF ensure and encourage the broadest participation and involvement of atmospheric researchers at a variety of institutions?

DEFINING TERMINOLOGY

- **Goals:** Overarching objectives of NSF in the atmospheric sciences, including cutting-edge research, education and workforce development, service to society, computational and observational objectives, and data management.
- **Activities:** Means taken to achieve the goals, including theoretical and laboratory research, field measurement programs, technology development, education and workforce programs, product development, and outreach.
- **Modes of support:** programmatic tools NSF uses, including
  - Grants to individual and multiple principal investigators (PIs)
  - Small centers
  - Large national centers
  - Cooperative agreements to support facilities
  - Interagency programs
- **Balance:** The evolving diversity of modes and approaches to ensure the overall health of the enterprise. “Balance” does not imply a specific percentage to any particular component.

COMMUNITY INPUT

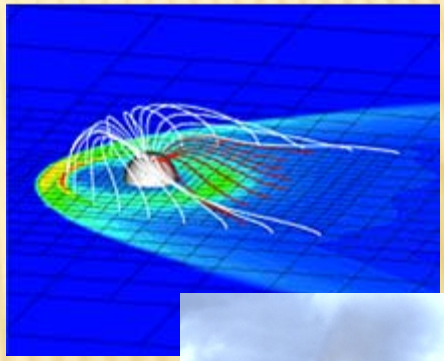
- Met six times to gather information and conduct deliberations
  - Numerous invited presentations
  - “Open mike” session when any comments were welcome
- Made available a website and a way for individuals to contribute comments
- Met with the Heads and Chairs of the UCAR universities
- Held town hall sessions
  - December 2004 fall meeting of the AGU
  - January 2005 annual meeting of the AMS
  - December 2005 fall meeting of the AGU
  - January 2006 annual meeting of the AMS
- Presented Interim Report at BASC meeting, Boulder, CO Oct. 2005
- Solicited reactions to the Interim Report, which provided a preliminary sense of the committee’s overarching conclusions
- Solicited personal testimonials to provide anecdotal evidence

OBJECTIVES FOR THE FINAL REPORT

- More support for the preliminary assessment of balance. Should the balance be adjusted? To tackle this, we evaluated:
  - Major achievements of the atmospheric sciences over the past 30 years and to what extent the various modes were important in each
  - How the field has evolved to help us consider whether new modes are needed to address new challenges
  - How each mode operates today to identify the strengths and shortcomings of each.
- New mechanisms that should be considered in planning and facilitating ATM activities?
- New mechanisms that should be considered for implementing interdisciplinary, Foundation-wide, interagency, and international activities?
- Fostering the broadest participation and involvement of atmospheric researchers at a variety of institutions?

CASE STUDIES OF SELECTED MAJOR ACHIEVEMENTS IN THE ATMOSPHERIC SCIENCES

1. Improvements in severe weather forecasting
2. Development of the dropsonde
3. Identifying causes for the Antarctic ozone hole
4. Development of community computational models
5. Development of the wind profiler to observe turbulent scatter
6. Emergence of space weather as a predictive science
7. Understanding the oxidative capacity of the troposphere
8. Identifying the importance of tropospheric aerosols to climate
9. The role of Mauna Loa measurements in understanding the global carbon cycle
10. Improving El Niño predictions
11. Development of helioseismology
12. Reading the paleoclimate record



CASE STUDIES OF SELECTED MAJOR ACHIEVEMENTS IN THE ATMOSPHERIC SCIENCES

Some conclusions…

- ATM has played a role in every one of these major accomplishments
- All the modes of support have been important to one or more of these achievements
- Each major achievement benefited from several modes; the diversity of modes has been a tremendous and necessary asset for the atmospheric sciences.
- PI grants were instrumental in all of the achievements; the large national center contributed to nearly all of them.
- The value of partnerships with other disciplines, agencies, and nations is also apparent. NSF has been effective in fostering collaboration.
- ***ATM has adjusted the balance*** from time to time as opportunities, needs, and scientific progress made necessary and possible.

OVERVIEW OF FINDINGS AND RECOMMENDATIONS

- Value of diverse modes of support
- Strategic planning (2)
- Ongoing strategic guidance
- High-risk, potentially transformative research
- Enhancing cross-disciplinary, interagency, and international coordination (2)
- Recruiting and training top students (3)
- Meeting supercomputing needs
- Supporting field programs, data archives, and data analysis (3)
- Developing observational tools (2)
- Effectively utilizing centers (3)

Timeline of events

UPDATE ON THE COMPETITION FOR THE MANAGEMENT OF NCAR

TIMELINE OF EVENTS

- 07-542 Solicitation posted January 12, 2007
- Preliminary Proposal Deadline Date:
  - April 13, 2007
- Full Proposal Deadline Date:
  - August 31, 2007
  - By Invitation Only
- Expected Award Start Date:
  - Oct. 1, 2008

QUESTIONS AND DISCUSSION