

Unidata Policy Committee Meeting

October, 2007

What's New

- FY 2008 Budget
- GEO News
- NSF News

FY 2008 Budget

- Request
- Research Activities
- Major Facilities Investments
- Education and Diversity Investments
- Budget Status
- NSF Authorization Bill

Context of FY 2008 Request

- NSF remains a high priority with the Administration
- 7 % annual growth projected through 2014
 - Signals from Congress are encouraging
 - Important steps forward in FY 2008 in research infrastructure
 - Science will capitalize on burgeoning observations revolution

Budget Request by Division

Geosciences Funding
(Dollars in Millions)

	FY 2006 Actual	FY 2007 Current Plan	FY 2008 Request	Change over FY 2007 Request	
				Amount	Percent
Atmospheric Sciences (ATM)	\$216.13	\$227.42	\$240.84	\$13.42	5.9%
Earth Sciences (EAR)	140.35	152.68	163.30	10.62	7.0%
Innovative & Collaborative Education and Research (ICER)	58.37	56.85	58.57	1.72	3.0%
Ocean Sciences (OCE)	289.09	307.90	329.29	21.39	6.9%
Total, GEO	\$703.95	\$744.85	\$792.00	\$47.15	6.3%

Totals may not add due to rounding.

Research Activities

- Continue strong support for climate change science
- Research on natural hazards (earthquakes, hurricanes, harmful algal blooms, space weather, etc.) continues to be emphasized
- Support near-term priorities of the Ocean Research Priorities Program
- Maintaining a strong base of fundamental research programs has, and will continue to be, a GEO priority

Status of the FY 2008 Budget

Current Continuing Resolution Expires November 16

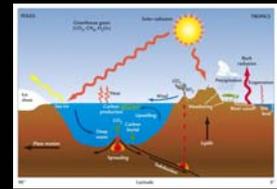
Account	FY 2008 Budget Request	FY 2008 House Mark	Change over FY 2008 Request	FY 2008 Senate Mark	Change over FY 2008 Request
R&RA	\$5,131.69	\$5,139.69	\$8.00	\$5,156.09	\$24.40
EHR	750.60	822.60	72.00	850.60	100.00
MREFC	244.74	244.74	0.00	244.74	0.00
AOAM	285.59	275.59	-10.00	285.59	0.00
NSB	4.03	4.03	0.00	4.03	0.00
OIG	12.35	12.35	0.00	12.35	0.00
Total	\$6,429.00	\$6,499.00	\$70.00	\$6,553.40	\$124.40

NSF Authorization Bill: Selected Provisions

- Requires NSB to re-evaluate elimination of cost sharing; reinstates cost sharing for MRI program
- Requires NSB to evaluate the role of NSF in supporting interdisciplinary research
- Pilot Program on Grants for New Investigators
- Mentoring for Postdocs
- Training in Ethical Conduct of Research

GEO News

- New GEO Assistant Director
 - On-going Search
- Strategic Planning: GEO Vision



Gail Ashley
Guy Brasseur

GEO-VISION 2007

The panel - co-chairs

Guy Brasseur & Gail Ashley

Richard Alley	Alexandra Navrotsky
Bill Brune	Chris Paola
Russ Davis	Maria Pirone
Scott Doney	Mary Jo Richardson
Dennis Hartman	Eric Riggs
David Karl	Sean Solomon
Jim Kinter	Michael Williams
Janet Kozyra	

Members AC-GEO

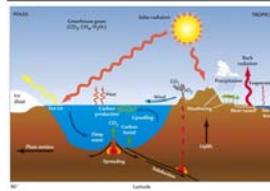
The charge:

- To develop for the Geosciences at NSF a comprehensive vision document, that builds on the former GEO-2000 strategic plan and the GEO-2003 addition.
- Although the new GEO-Vision document should be broad and integrative, it should be sufficiently concrete to be useful for the NSF managers and for the scientific community and help them in the designing of their research activities.
- The scientific community should be consulted.

The outline of the report

- 1. Planet Earth-
 - Complexity, Vulnerability, Sustainability
- 2. The Earth – A Complex System
 - spatial context, description of spheres
- 3. The Earth – A System of Change
 - temporal context, change on different time scales, prediction, uncertainty
- 4. Meeting the Challenges

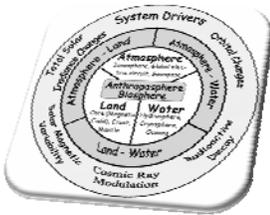
Chapter 2 and 3



- recent progress
- near term challenges,
- key research areas (5-10 years)

Earth System Science offers a conceptual framework for scientific breakthroughs

Chapter 2 (as an example)



- Positive and negative feedbacks between geospace, atmosphere, ocean, solid Earth, biosphere, hydrosphere, cryosphere and anthroposphere at different scales in time and space.
- Earth system science offers a conceptual framework for scientific breakthroughs

System Dynamics: complex, deformable media flowing under the influence of heat, pressure, gravity and friction; capacity for self-organization and pattern formation, surprising ubiquity for water, from the mantle to the upper atmosphere, and spanning from microseconds to billions of years

Chapter 4: Meeting the Challenges

- Transformational Research: New Methodologies, Cross Disciplinary Focus
- Building Intellectual Capacity: Diverse, Broadly Educated, Multi-Talented Geoscientists
- Converging Technologies – Exploiting the 21st Century Tools

NEXT STEP

- Input from AC-GEO
- Input from community
- 3rd and final face-to-face meeting of GeoVision Committee
- Input from NSF program managers

NSF-Wide Issues

- Transformative Research
- Computer-Enabled Discovery and Innovation
- IPAMM

Transformative Research

- Findings
 - NSF's ability to solicit, to identify, and to fund transformative research requires a clear definition of transformative research
 - Transformative research frequently does not fit comfortably within the scope of project-focused, innovative, step-by-step research or even major centers, nor does it tend to fare well wherever a review system is dominated by experts highly invested in current paradigms or during times of especially limited budgets that promote aversion to risk
 - There exists a substantial external perception that NSF does not support transformative research.



The National Science Foundation must support the most innovative and potentially transformative research—research that has the capacity to revolutionize existing fields, create new fields, create paradigm shifts, support discovery, and lead to radically new technologies. The Foundation must create an environment that is most open to and encourages transformative research proposals from the research community.

National Science Board, 2010 Vision for the National Science Foundation, 2003

What NSF Currently Does To Facilitate Transformative Research

- Mechanisms
 - Small Grants for Exploratory Research (SGERs)
 - Accomplishment Based Renewals
 - Creativity Extensions
- Programs
 - Instrumentation and Infrastructure
 - Centers
 - Special Interdisciplinary Programs

NSB Recommendation and Guidelines

Board's Recommendation to NSF: Develop a distinct, Foundation-wide Transformative Research Initiative (TRI)

Guidelines:

- Adopt the Board's definition of transformative research
- Weave TRI into the core values of the Foundation.
- Fund this initiative as soon as possible

NSF Response

A Three Pronged Approach Proposed:

- Infuse** support of Potentially Transformative Research (PTR) throughout NSF and all its programs
 - Change to intellectual merit review criteria
- Learn** how to facilitate PTR
 - Internal Group to disseminate guidelines on best management practices
- Lead** the community through opportunities for PTR proposal submissions

Lead: Program Award Initiative (3-Year Trial)

- Replace SGER
 - One mechanism exclusively for funding proposals requiring rapid response
 - TIGUR** (Timely Grants for Urgent Research)
- Establish a two-tiered "early-concept" award mechanism
 - EAGER**: (EARly-concept Grants for Exploratory Research)
 - Tier I: Limited funding grants, internally-reviewed
 - Tier II: Larger grants requiring additional level of review
 - Working group established to recommend implementation details
 - Monitor and track for impact and lessons-learned
 - Advertise new approach to the community at large

Cyber-Enabled Discovery and Innovation (CDI)

- Solicitation: <http://www.nsf.gov/pubs/2007/nsf07603/nsf07603.htm>
FAQ, examples, resources: <http://www.nsf.gov/crssprgm/cdi>

- From Data to Knowledge
- Understanding Complexity in Natural, Built and Social Systems
- Building Virtual Organizations

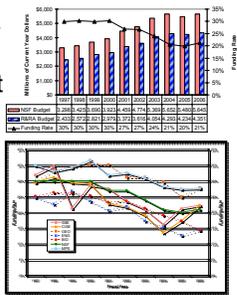
Details:

- Transformative research
- Innovation in, or innovative use of computational thinking
- Multidisciplinary
- 3 types of proposals (Type I, II; no type III in FY 2008)
- LOI: 11/30/07 (required)
- Preliminary Proposals: 1/8/08
- Full Proposals: 4/29/08

Impact of Proposal and Award Management Mechanisms (IPAMM)



- Internal working group created in 2006 to study the impact of proposal and award management mechanisms
- IPAMM completed and final report released on August 8, 2007



Questions and/or Comments