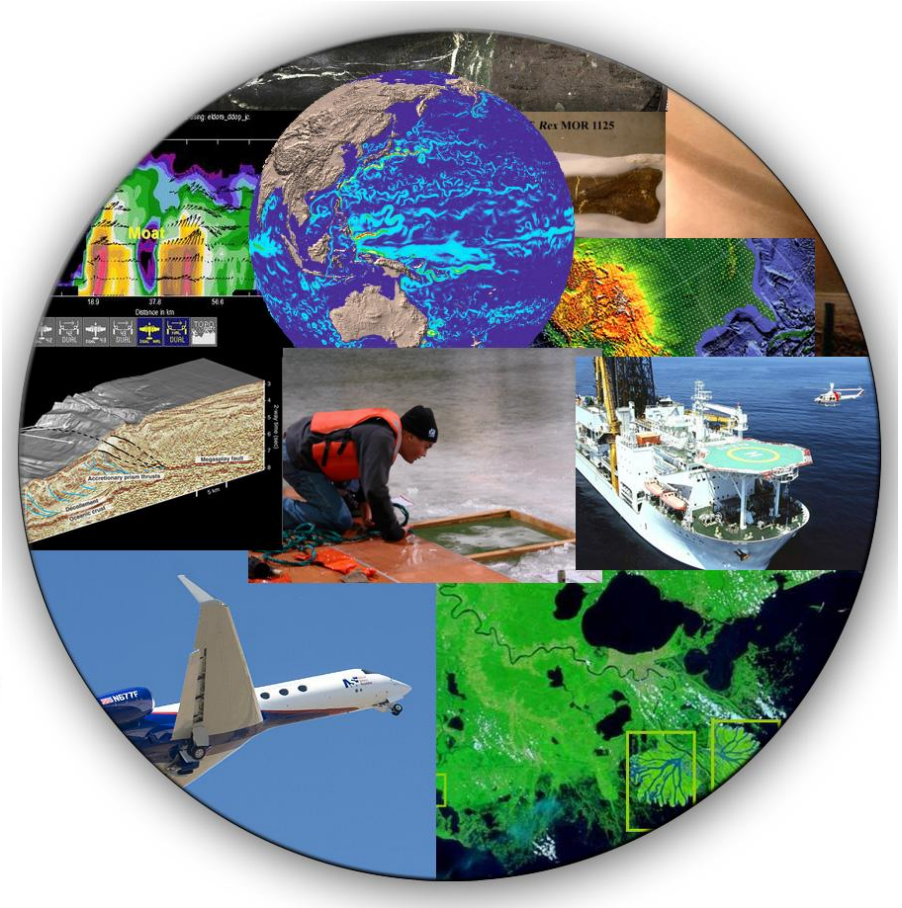
Unidata Policy Committee Meeting

October 21-22, 2010

Bernard M. Grant, Program Manager

NSF: The Budget Picture

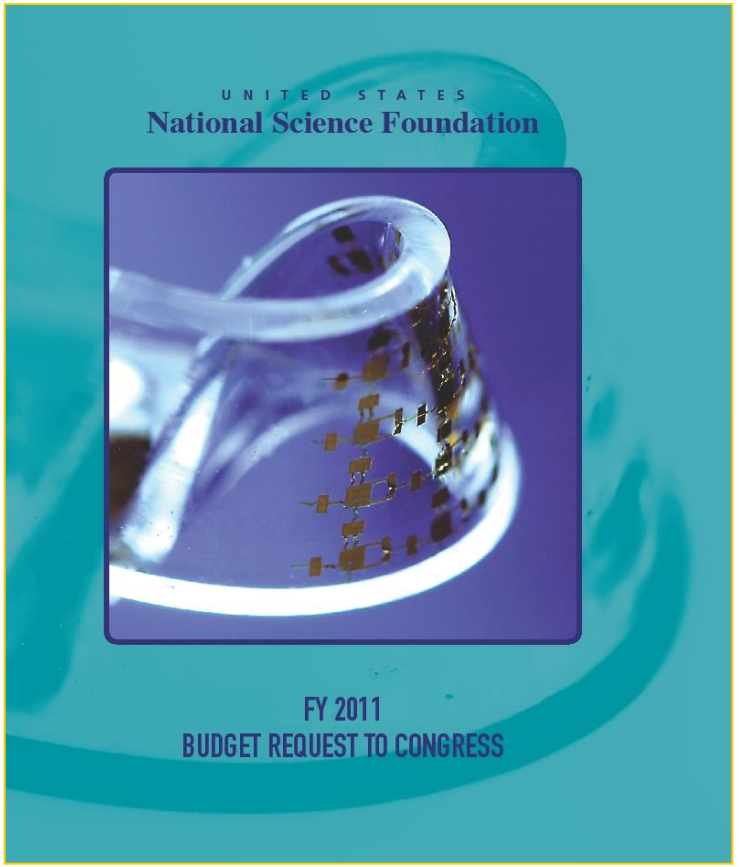


FY 2011 Budget Request

NSF FY 2011 Budget

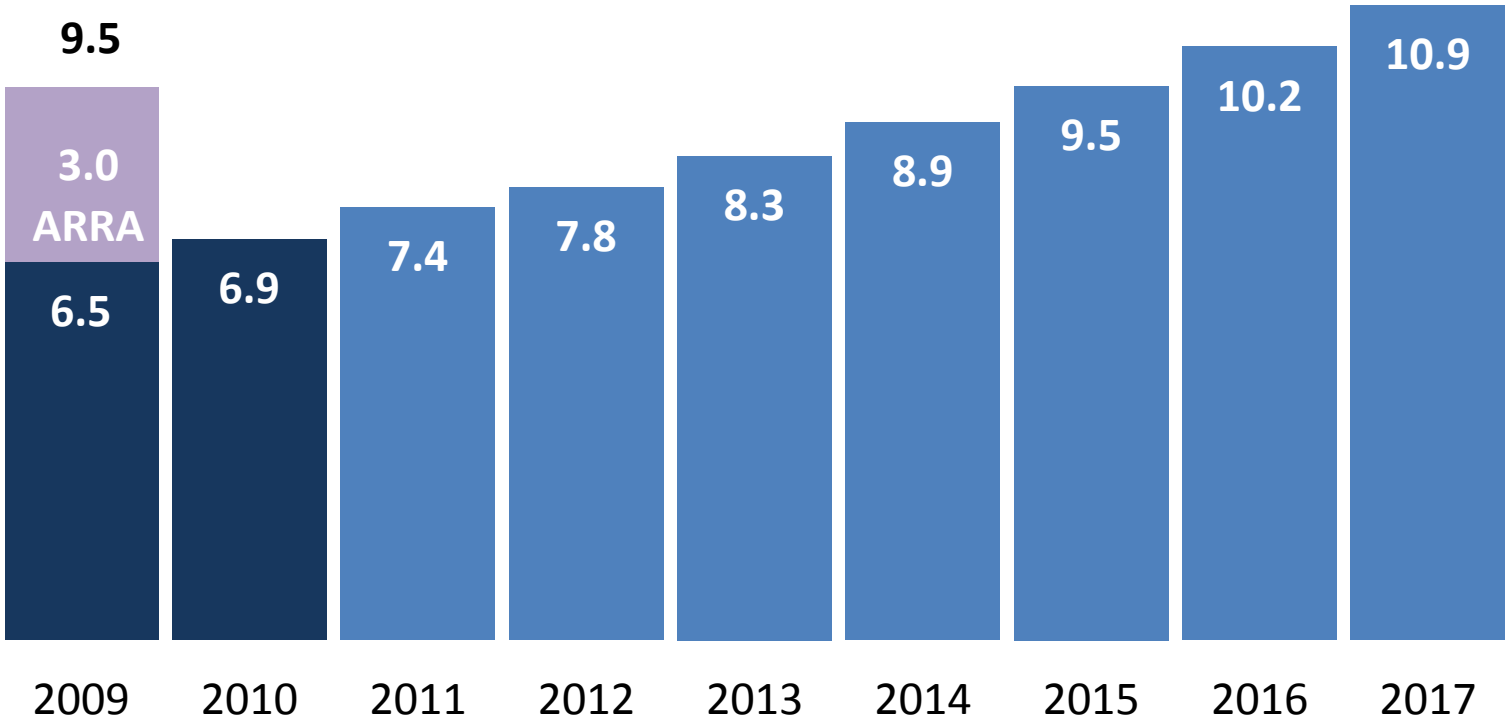
TOTAL: $7.4 billion

Increase: 8 percent



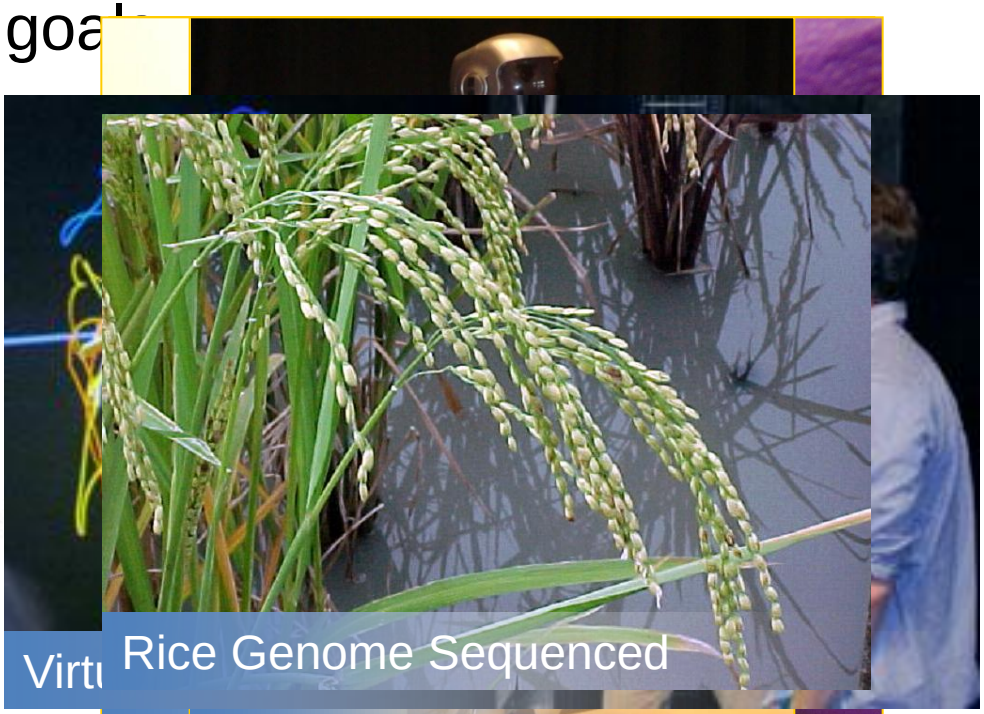
President's Plan for Science and Innovation

Total NSF Funding
(dollars in billions)



Innovation

The FY 2011 Budget Request will keep NSF at the cutting edge of innovation and in line with the Administration's innovation goa



American Recovery and Reinvestment Act (ARRA)

ARRA allowed NSF to make 4,599 competitive awards and will support the construction of the Alaska Region Research Vessel (renamed: Sikuliaq “New Ice suitable for walking on”)

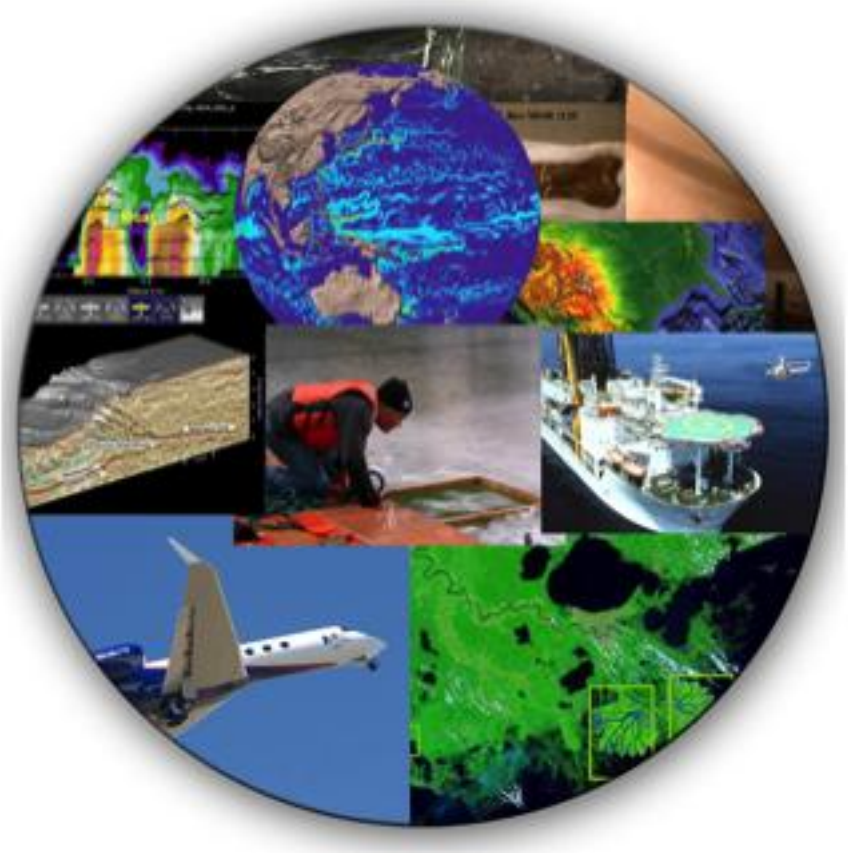
Administration Priority Programs Supported in the NSF FY 2011 Budget

- Graduate Research Fellowship Program: **$158 million**
- Faculty Early Career Development: **$209 million**
- Climate Change Education Program: **$10 million**
- Advanced Technological Education: **$64 million**

Select FY 2011 Interagency Activities

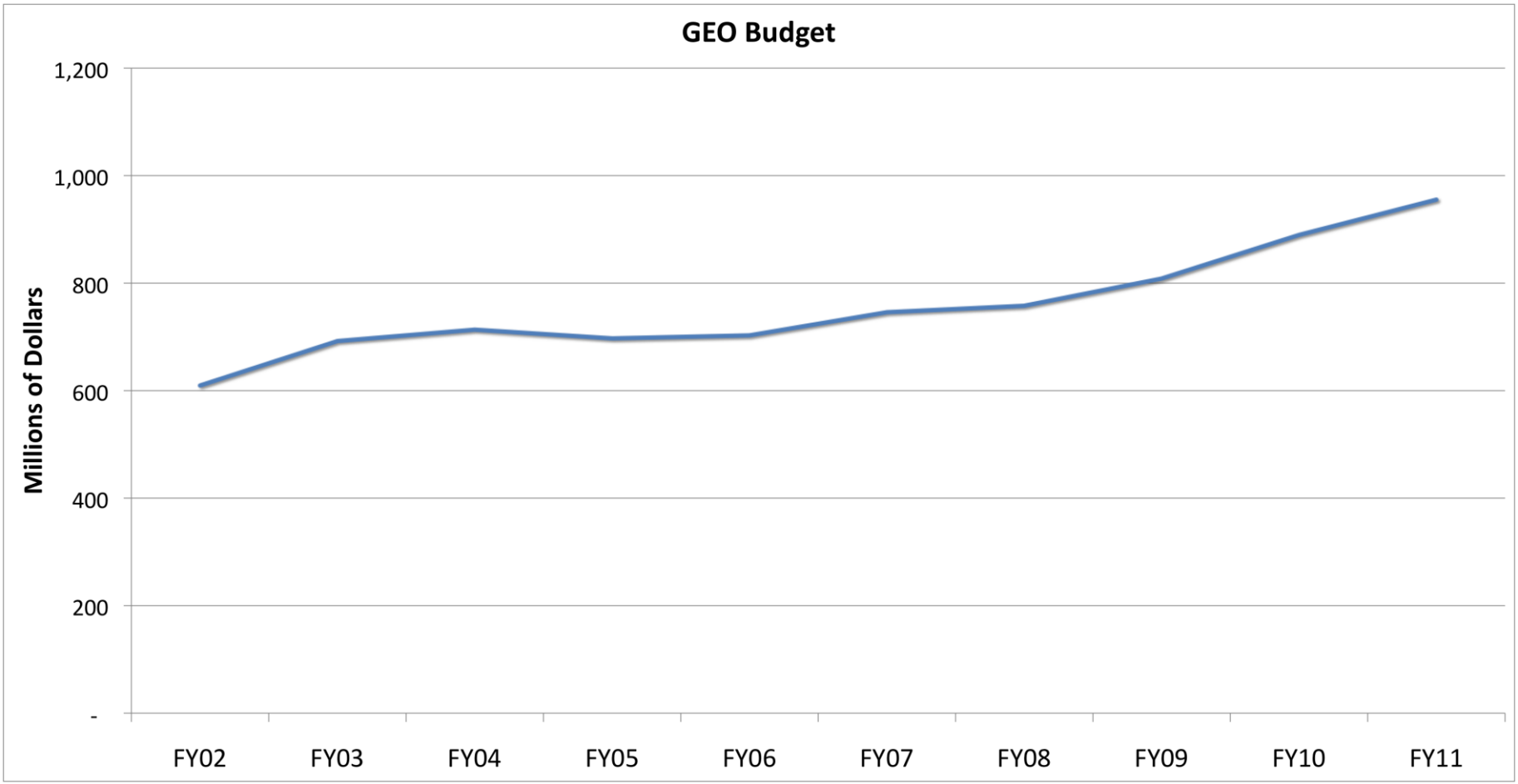
- Networking and Information Technology R&D Program:
  $1.17 billion
- U.S. Global Change Research Program:
  $370 million
- National Nanotechnology Initiative:
  $401 million

GEO: The Big Picture



- American Recovery Act GEO investments: $601M
- FY2010: 10.2% increase over FY2009
  - Includes Agency-wide climate initiative
- FY2011: President's budget request includes a 7.4% increase for GEO

GEO 10 Year Budget



Budget by Division and Area

GEO Funding
(Dollars in Millions)

	FY 2009 Omnibus Actual	FY 2009 ARRA Actual	FY 2010 Estimate	FY 2011 Request	Change Over FY 2010 Estimate Amount	Change Over FY 2010 Estimate Percent
Atmospheric and Geospace Sciences (AGS)	$245.54	$68.20	$259.80	$280.80	$21.00	8.1%
Earth Sciences (EAR)	171.01	85.22	183.00	199.00	16.00	8.7%
Integrative and Collaborative Education & Research (ICER)	61.47	79.58	97.92	97.60	-0.32	-0.3%
Ocean Sciences (OCE)	330.51	114.00	348.92	377.89	28.97	8.3%
Total, GEO	**$808.53**	**$347.00**	**$889.64**	**$955.29**	**$65.65**	**7.4%**
Research	389.11	224.69	464.12	505.17	41.05	8.8%
Education	31.82	35.98	41.40	44.68	3.28	7.9%
Infrastructure	374.10	86.34	367.79	387.60	19.81	5.4%
Stewardship	13.51	-	16.33	17.84	1.51	9.2%

Totals may not add due to rounding.

2011 Budget

- The 2011 Request represents opportunities for GEO to make advances on several important fronts:
  - Research: new thrusts
  - Infrastructure: advancement and renewal
  - Education: expansion of programs

2011 Research Themes

- Science, Engineering, and Education for Sustainability (SEES +$35M to $230M)
  - Follow-on to 2010 Climate Research activity
  - In 2011, GEO will support research to study regions that are highly susceptible to the impacts of environmental changes, such as:
    - Coastal areas subject to sea-level rise
    - The Arctic, where warming temperatures and waning ice cover challenges communities and ecosystems

Science, Engineering, and Education for Sustainability

SEES will generate the discoveries in climate and energy science needed to inform societal actions for environmental and economic sustainability.

- Emergence of new areas of research that help close key gaps in the knowledge base.
- Development of new models for research, specifically employing integrative, systemic approaches.
- Generation of new integrated understanding of the interplay of environment, energy, and the economy.

•SEES portfolio totals $765.5 million in 2011.

CRI Statistics for FY10

WSC	OA	CCEP-1	BD	EaSM
Number of Projects Proposed				
171	106	110	195	137
Number of Projects Funded				
16	23	15	13	0
Funding Amounts in FY 2010				
$16 M	$12 M	$12 M	$26 M	$0 M

Notes: FY10 competitions resulted in:

- 67 awards totaling $66M (FY10) and $19M (FY11), and
- Approx. 25 EaSM awards in FY11, totaling approx 40M NSF, $10M USDA, $9M DoE

GEO Investment in Infrastructure

GEO Funding for Facilities
(Dollars in Millions)

	FY 2009 Omnibus Actual	FY 2009 ARRA Actual	FY 2010 Estimate	FY 2011 Request	Change Over FY 2010 Amount	Change Over FY 2010 Percent
Facilities	$374.10	$86.34	$367.79	$387.60	$19.81	5.4%
National Astronomy and Ionosphere Center	-	-	2.20	3.00	0.80	36.4%
National Center for Atmospheric Research	106.79	13.20	97.00	108.00	11.00	11.3%
National Nanotechnology Information Network	0.60	-	0.60	0.60	-	-
Academic Research Fleet	88.95	18.00	80.00	77.00	-3.00	-3.8%
Integrated Ocean Drilling Program	47.95	25.00	43.40	46.41	3.01	6.9%
Incorporated Research Institutions for Seismology	12.00	-	12.36	12.73	0.37	3.0%
EarthScope	24.29	9.00	25.05	26.00	0.95	3.8%
Ocean Observatories Initiative	17.84	-	16.50	27.50	11.00	66.7%

2011 Infrastructure Investments

- OOI Operations and Management – 2011 brings a ramp-up in O&M support for the OOI
- Regional Class Research Vessels – 2011 will see continued planning for the construction of up to three Regional Class Research Vessels starting in 2012.
- NCAR-Wyoming Supercomputer Center – 2011 sees the continuation of support for the construction of a new community supercomputer center.

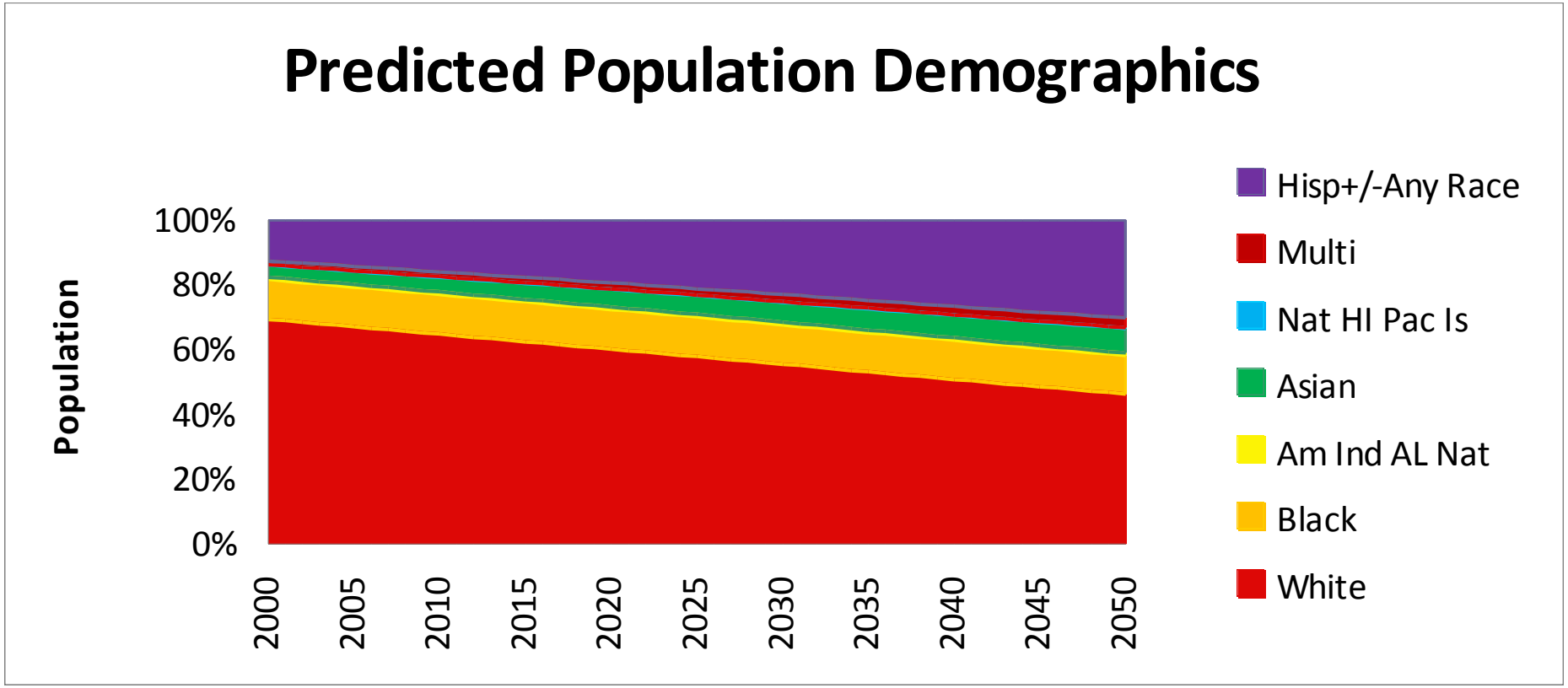
NCAR-Wyoming Supercomputing Center Project (NWSC)

- This project encompasses the design and construction of a world class center for high performance scientific computing in the atmospheric and related geosciences.
- NSF FY 2011 request includes an $11m augmentation for NCAR to cover increased support for climate change activities as well as preparation for the transition of computing operations to NWSC.

2011 Education & Diversity Themes

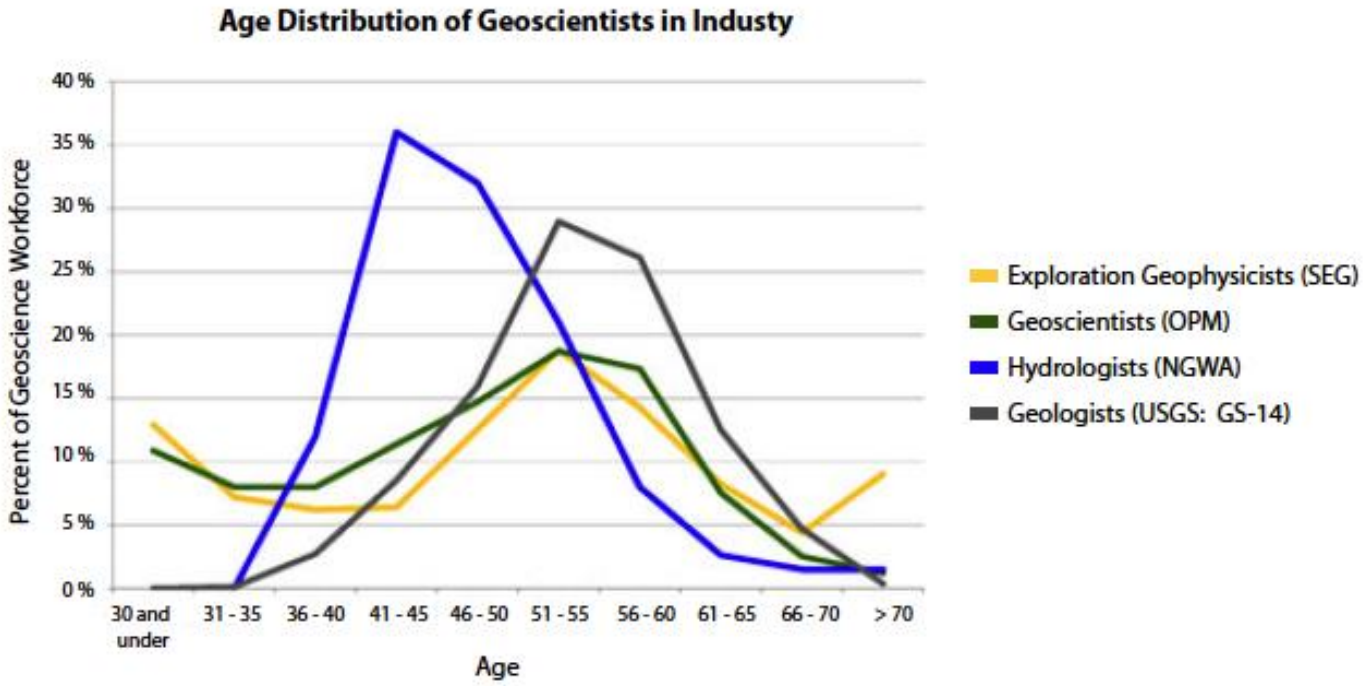
- GEO Graduate Research Fellowships are increasing to $2.74 million from $1 million.
- ADVANCE is increasing to $4.28 million from $3.46 million (fostering women in science).
- GEO Ed: About 100 proposals received
- Diversity: new strategic planning effort and Opportunities for Diversity in the Geosciences

The Importance of Diversity to the Future of the STEM Workforce



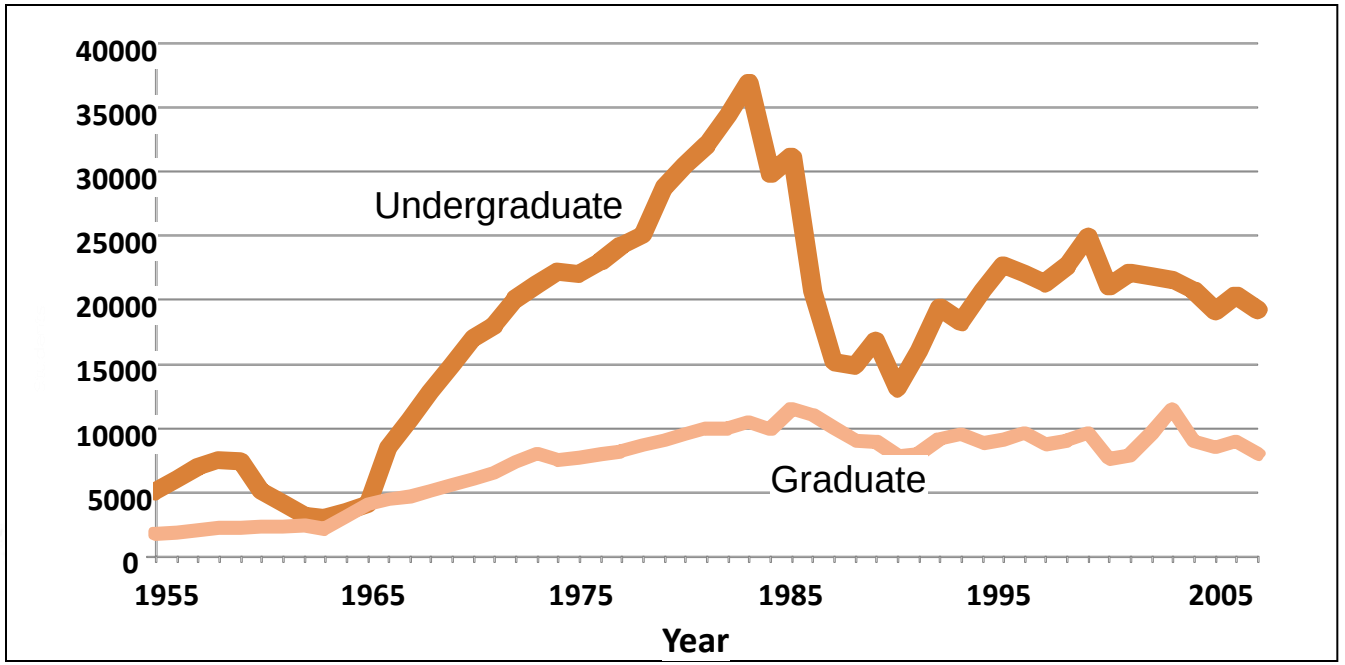
SOURCE: Bureau of the Census

The Aging Geoscience Workforce



ploration Geophysicists; National Ground Water Association; and US
ce Demographics and Trends (Peter Lyttle, 33rd IGC, Norway, August 2008).

U.S. Geoscience Enrollments



NSB Task Force on Merit Review

- Five years since last review of the Merit Review process
- Task Force Reconstituted at February 2010 NSB Meeting
- Charged with examining the two Merit Review Criteria and their effectiveness in achieving the goals for NSF support for science and engineering research and education.
- Report due to NSB in Spring 2010

NSF Merit Review Criteria

- **Intellectual Merit**
  - A critical criterion for NSF's funding of research both in overall quality and in significance to the broader field. A concern has arisen over the past few years that the current system is missing the importance of some more transformative (often also called high-risk, high-payoff) research
- **Broader Impacts**
  - This criterion identifies the important outcomes and consequences of NSF-supported research. Anecdotal evidence suggests that this requirement can be very confusing to the research community, which continues to express frustration in interpreting and thus responding effectively to the criterion.