



Written Testimony American Geosciences Institute

Testimony Submitted by American Geosciences Institute

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To the United States House of Representatives Committee on Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies

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Thank you for this opportunity to provide the American Geosciences Institute's perspective on fiscal year (FY) 2015 appropriations for geoscience programs within the Subcommittee's jurisdiction.

The American Geosciences Institute (AGI) supports earth science research sustained by the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), the National Institute of Standards and Technology (NIST), and the National Aeronautics and Space Administration (NASA). Frontier research on the Earth, energy, and the environment has fueled economic growth, mitigated losses, and sustained our quality of life. The Subcommittee's leadership in supporting geoscience-based research is even more critical as our nation competes with rapidly developing countries, such as China and India, for energy, mineral, air, and water resources. Our nation needs skilled geoscientists to help explore, assess, and develop Earth's resources in a strategic, sustainable, and environmentally sound manner and to help understand, evaluate, and reduce our risks to hazards. **AGI recognizes our nation's financial challenges and also the necessity for steady and sustained growth in investment in science and technology for the future. AGI respectfully requests \$1.322 billion for the Geoscience Directorate at NSF and \$1.853 billion for NASA Earth Science programs to keep pace with inflation. AGI supports the President's request for \$5.497 billion for NOAA and \$900 million for NIST.**

AGI is a nonprofit federation of about 50 geoscientific and professional societies representing more than 250,000 geologists, geophysicists, and other Earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice for shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources, resilience to hazards, and the health of the environment.

National Science Foundation: AGI supports a minimum increase of \$18 million over the President's request for the Geosciences Directorate to keep pace with inflation, and an overall budget of \$7.255 billion for NSF. NSF is vital national incubator for scientific breakthroughs that will fuel economic growth and for developing the educated workforce that is needed to drive innovation and global leadership in science, engineering, and technology. AGI believes that investment in NSF programs, where research is funded based on competitive scientific merit and peer review, will pay important dividends in our understanding of the world we inhabit and will play a critical role in maintaining U.S. dominance in science and technology long into the future.

NSF Geosciences Directorate: AGI is very disappointed that the President's request for a 0.1 percent increase for the Geoscience Directorate (GEO) does not come close to matching inflation, which averaged 1.5% in 2013, and thus presents an effective cut in funding for geoscience research and infrastructure. AGI recognizes the challenges faced by Congress in balancing the nation's budget and respectfully asks the Subcommittee to provide the Geosciences Directorate with a modest funding increase of 1.5 percent over FY 2014 levels, which would do no more than match inflation and maintain current funding levels for the geosciences.

AGI asks the Subcommittee to provide \$254 million for Atmospheric and Geospace Sciences, \$180 million for Earth Sciences, \$362 million for Ocean Sciences, \$85 million for Integrative and Collaborative Education and Research (ICER), and \$441 million for Polar Programs, for a total investment of \$1,322 million in NSF's Geoscience Directorate.

The Geosciences Directorate (GEO) is the principal source of federal support for academic earth scientists and their students who are seeking to understand the Earth and the processes that sustain and transform life on this planet. The Geosciences Directorate provides about 65 percent of federal funding for basic geoscience research at academic institutions. According to NSF data, the Directorate distributes about 1,700 awards annually involving about 14,700 people and supporting indispensable research infrastructure and instruments.

Understanding the Earth improves our ability to anticipate and mitigate the effects of natural hazards such as earthquakes, landslides, and tsunamis, to make long- and short-term weather forecasts, locate and appropriately develop earth resources, to sustainably manage our environment, and to make well-informed decisions at all levels from the individual citizen to national and international policy makers.

NSF's Division of Polar Programs (PLR) funds basic research in the Arctic and Antarctic and manages all U.S. activities in Antarctica as a single, integrated program. The polar regions are the focus of intense scientific and political interest as new navigation routes are opening access to resources and presenting security challenges. NSF-funded research and infrastructure are helping the United States understand environmental conditions in extreme environments, develop polar technology, and construct data-driven strategic and security policies. AGI suggests a minimum of \$441 million for the Division of Polar Programs.

NSF funds facilities that enable researchers to access locations, data, and technologies that serve the overall research community. AGI strongly supports robust and steady funding for infrastructure and the operation and maintenance of major facilities, including the Academic Research Fleet, Geodetic and Seismological Facilities for the Advancement of Geosciences and EarthScope (GAGE and SAGE), Ocean Drilling Activities, the Ocean Observatories Initiative, and the National Center for Atmospheric Research (NCAR).

Directorate for Education and Human Resources: NSF support for geoscience education must be maintained if we are to meet the demand for a skilled workforce and an informed citizenry prepared to make well-informed decisions about the management of our planet and its resources. Outreach and education are important at all levels from K-12 through graduate level and should include formal and informal outlets to facilitate lifelong learning. AGI strongly supports funding for geoscience education at all levels and particularly supports programs to diversify the geoscience student population and workforce. AGI urges Congress to fund programs in NSF's Directorate for Education and Human Resources, including NSF Scholarships in STEM, Graduate Research Fellowships, Climate Change Education, Research Experiences for Undergraduates, and Advancing Informal STEM Education.

National Oceanic and Atmospheric Administration: AGI supports the President's request for \$5.497 billion for NOAA. We hope the Subcommittee will continue to support the National Weather Service (NWS), Oceanic and Atmospheric Research (OAR), National Ocean Service (NOS), and the National Environment Satellite, Data and Information Service (NESDIS). These programs are critical for understanding and mitigating natural and human-induced hazards in the Earth system while sustaining our natural resources. Geoscientists rely on NOAA for much of the data and long-term monitoring that enable research and rapid response to events such as hurricanes, drought, marine oil spills, and a range of coastal phenomena.

National Institute of Standards and Technology: AGI supports the President's request for \$900 million for the NIST. Basic research at NIST is conducted by earth scientists and geotechnical engineers and used by the public and private sectors on a daily basis. The research conducted and the information gained is essential for understanding natural hazards and for identifying the infrastructure needed to build resilient communities and stimulate economic growth. Advanced infrastructure research will help to reduce the estimated average of \$52 billion in annual losses caused by floods, fires, and earthquakes.

NIST is the lead agency for the National Earthquake Hazard Reduction Program (NEHRP), but has received only a small portion of authorized and essential funding in the past. AGI strongly supports the reauthorization of the National Earthquake Hazards Reduction Program (NEHRP) in this Congress. We hope the appropriations subcommittee will continue to support this effective and cohesive program, even if the authorizing legislation takes more time to

complete. NEHRP is an excellent example of how to coordinate different entities for the safety and security of all. NEHRP develops effective practices and policies for earthquake loss reduction and accelerates their implementation; improves techniques for reducing earthquake vulnerabilities of facilities and systems; improves earthquake hazards identification and risk assessment methods and their use; and improves the understanding of earthquakes and their effects.

National Aeronautic and Space Administration: AGI is disappointed that the President proposes a 3.1 percent cut to Earth Science functions at NASA. NASA needs to maintain its current fleet of Earth-observing satellites, launch the next tier, and accelerate development of the subsequent tier of missions. The observations and understanding about our dynamic Earth gained from these missions is critical to research and to life-sustaining functions like weather forecasting, emergency service response and planning, and tracking ash plumes or oil spills that disrupt the economy and the environment. **We respectfully suggest that funding levels should at least match inflation and therefore we ask that \$1,853 million be appropriated for Earth Science Programs within the NASA's Science Mission Directorate.**

AGI applauds NASA's successful launch of the Landsat 8 satellite in February, 2013, which will enable the continuation of a 40-year record of Earth observations in conjunctions with the U.S. Geological Survey (USGS). Geoscientists use Landsat data to monitor, predict, and help land managers to address drought, wildfires, changes in vegetation, and other changes to the Earth's surface. AGI strongly supports the NASA/USGS Sustainability Land Imaging Architecture Study Team which is examining options for continuing Landsat-compatible observations into the future and urges Congress to support and fund their efforts.

Thank you for the opportunity to present this testimony to the Subcommittee. If you would like any additional information for the record, please contact Maeve Boland at 703-379-2480, ext. 228 voice, 703-379-7563 fax, mboland@agiweb.org, or 4220 King Street, Alexandria VA 22302-1502.