

Testimony of the
Geological Society of America
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Regarding the
U.S. Geological Survey
FY 2021 Budget
to the
United States House of Representatives
Committee on Appropriations
Subcommittee on Interior, Environment, and Related Agencies
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Summary

The Geological Society of America (GSA) recommends that Congress provide \$1.35 billion for the U.S. Geological Survey (USGS) in Fiscal Year 2021. We thank Congress for the investments made in FY 2020 and encourage a path of sustainable growth moving forward. As one of our Nation's key science agencies, the USGS plays a vital role in understanding and documenting mineral and energy resources that underpin economic growth; researching and monitoring potential natural hazards that threaten U.S. and international security; informing communities about the impacts of a changing climate; and determining and assessing water quality and availability. Approximately two thirds of the USGS budget is allocated for research and development. In addition to supporting the science activities and decisions of the Department of the Interior, this research is used by communities across the nation to make informed decisions in land-use planning, emergency response, natural resource management, engineering, and education. GSA believes that it is important to grow the USGS budget, given the importance of its many activities that protect lives and property, contribute to national security, and enhance the quality of life.

Founded in 1888, The Geological Society of America (GSA) is a scientific society with more than 20,000 members from academia, government, and industry in more than 100 countries. Through its meetings, publications, and programs, GSA enhances the professional growth of its members and promotes the geosciences in the service of humankind and stewardship of the Earth. GSA encourages cooperative research among earth, life, planetary, and social scientists, fosters public dialogue on geoscience issues, and supports all levels of earth-science education.

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The Geological Society of America (GSA) appreciates the increase to the U.S. Geological Survey (USGS) budget in FY 2020 and thanks the Committee for recognizing the importance of the work of the agency to protect lives, property, and national security. GSA urges Congress to build on these investments and provide USGS \$1.35 billion in Fiscal Year 2021. This increase will allow the USGS to implement new initiatives, maintain the base funding for critical research and monitoring, and update and maintain its facilities. GSA appreciates the Committee's efforts to ensure that any changes to the organizational structure of USGS support rather than hinder the ability of the USGS to serve the nation with its research.

U.S. Geological Survey Contributions to National Security, Health, and Welfare

The USGS is one of the nation's premier science agencies, with a distinctive capacity to engage truly interdisciplinary teams of experts to gather data, conduct research, and develop integrated decision support tools. Approximately two thirds of the USGS budget is allocated for research and development. In addition to underpinning the science activities and decisions of the Department of the Interior, this research is used by communities and businesses across the nation to make informed decisions regarding land use planning, emergency response, natural resource management, engineering, and education.

As noted in the Preamble to its Endorsement of American Meteorological Society's *Freedom of Scientific Expression* statement, GSA "strongly believes that science and society benefit greatly from careful and ample technical peer review of scientific findings, and subsequent communication of scientific results must be permitted freely and without concern by the scientist for censorship, intimidation, or political interference." GSA encourages Congress to ensure that USGS follows these principles and others outlined in the Department of the Interior's Integrity of Scientific and Scholarly Activities policies.

USGS research addresses many of society's greatest challenges for national security, health, and welfare. Several are highlighted below.

- Natural hazards are a major cause of fatalities and economic losses. NOAA found that in 2019, the United States saw 14 weather and climate disaster events with losses exceeding \$1 billion each, which included floods, severe storms, tropical cyclones and wildfires. An improved scientific understanding of geologic hazards will reduce future losses by informing effective planning and mitigation.

Decision makers in many sectors rely upon USGS data to respond to natural disasters. For example, USGS volcano monitoring provides key data to enable decisions on aviation safety. NOAA depends on data from the USGS to issue flood, drought, and tsunami warnings. USGS is a key partner in obtaining data necessary to predict severe space weather events, which affect the electric power grid, satellite communications, and navigation systems. The March 2019 Executive Order, Coordinating National Resilience to Electromagnetic Pulses, highlights these research needs.

The recent enactment of several bills illustrates the bipartisan, bicameral support of hazards research and GSA recommends adequate funding to implement these bills. Last year, a lands package included a hazards and mapping title that establish a National Volcano Early

Warning and Monitoring System at the USGS and reauthorize the USGS' National Cooperative Geologic Mapping Program. The previous year, the enactment of the National Earthquake Hazards Reduction Program Reauthorization Act of 2018 indicates the support of Congress and the Administration for enabling advance warning of impending hazards, such as the Earthquake Early Warning System.

GSA urges Congress to support efforts for USGS to modernize and upgrade its natural hazards monitoring and warning systems, including additional 3-D elevation mapping and earthquake early warning systems, while maintaining fundamental research and monitoring.

- There is a vital need to understand the abundance and distribution of critical mineral resources, as well as the geologic processes that form them, both within the United States and globally. This goal will require expanded collection and analysis of geological, geochemical, and geophysical data.

GSA supports increases in minerals science, research, information, data collection and analysis that will allow for more economic and environmental management and utilization of minerals. In addition, GSA supports increases in funding for research to better understand domestic sources of energy, including conventional and unconventional oil and gas and renewables. GSA appreciates congressional support for the new EarthMRI program, which will provide new resources and leverage current data to accelerate geological and geophysical mapping, identify critical mineral sites for further scientific review, among safety, security, scientific, and industrial uses.

- Improved fundamental understanding of the quantity, quality, distribution, and use of water resources through monitoring and research by the USGS is necessary to ensure adequate and safe water resources for the health and welfare of society. Improved representation of geological, biological, and ecological systems—including underlying physical and chemical processes and their interactions—is needed. In addition to maintaining current monitoring capabilities, new hydrologic data are required to improve the reliability and reduce the uncertainty of scientific analyses that support water resources management and policy decisions.
- USGS research on climate impacts is used by local policymakers and resource managers to make sound decisions based on the best possible science. In addition to fundamental, long-term climate change research, the USGS provides scientific information necessary to anticipate, monitor, and adapt to the effects of climate change at regional and local levels, allowing communities to make smart, cost-effective decisions. For example, the Alaska Climate Adaptation Science Center (CASC) has conducted research on the relationship between wildfire and other ecological disturbances, such as drought, which will help resource managers plan for and adapt to the evolving threat that fire poses to humans, infrastructure, and ecosystems. Across the country, the Southeast CASC is working with local stakeholders to protect cultural resources in the face of a changing climate.
- The Landsat satellites have amassed the largest archive of remotely sensed land data in the world, a tremendously important resource for natural resource exploration, land use planning,

and assessing water resources, the impacts of natural disasters, and global agriculture production. GSA supports interagency efforts for future support of Landsat. The recent National Academy of Sciences' *Earth Science and Applications from Space (ESAS) Decadal Survey* report notes,

“Earth science and applications are a key part of the nation’s information infrastructure, warranting a U.S. program of Earth observations from space that is robust, resilient, and appropriately balanced.”

Activities from hazard monitoring to mineral forecasts are supported by Core System Sciences, Facilities, and Science Support. These programs and services, such as geologic mapping and data preservation, provide critical information, data, and infrastructure that underpin the research of the USGS. GSA appreciates the committee’s recent investments in Facilities to address many deferred maintenance issues.

Knowledge of the earth sciences is essential to scientific literacy and to meeting the environmental and resource challenges of the twenty-first century. GSA is very concerned that cuts in Earth science funding will cause students and young professionals to leave the field, potentially leading to a lost generation of professionals in areas that are already facing worker shortages. Investments in these areas could lead to job growth, as demand for these professionals now and in the future is assessed to be high. Strong investments in geoscience research are needed to prepare citizens for these job opportunities.

Thank you for the opportunity to provide testimony about the U.S. Geological Survey. For additional information or to learn more about the Geological Society of America – including GSA Position Statements on climate change, water resources, mineral and energy resources, natural hazards, and public investment in Earth science research – please visit www.geosociety.org or contact GSA’s Director for Geoscience Policy Kasey White at kwhite@geosociety.org.