Testimony of the

Geological Society of America

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Regarding the

U.S. Geological Survey

FY 2020 Budget

to the

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Committee on Appropriations
Subcommittee on Interior, Environment, and Related Agencies

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Summary

The Geological Society of America (GSA) urges Congress to provide $1.2 billion for the U.S. Geological Survey (USGS) in Fiscal Year 2020. We thank Congress for the investments made in FY 2019 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; 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. Despite the critical role played by the USGS, funding for the agency has stagnated in real dollars for more than a decade. Given the importance of the many activities of the Survey that protect lives and property, contribute to national security, and enhance the quality of life, GSA believes that growth in funding for the Survey is necessary for the future of our Nation.

The Geological Society of America (GSA) is a global professional society with a growing membership of approximately 22,000 individuals. GSA provides access to elements that are essential to the professional growth of earth scientists at all levels of expertise and from all sectors: academic, government, business, and industry. The Society unites thousands of earth scientists from every corner of the globe in a common purpose to study the mysteries of our planet (and beyond) and share scientific findings.

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The Geological Society of America (GSA) appreciates the increase to the U.S. Geological Survey (USGS) budget in FY 2019 and thanks the Committee for recognizing the importance of the work of the agency to protect lives, property, and national security. GSA has strongly opposed the Administration's FY2018 and FY2019 budget requests that included cuts to nearly every program at the USGS and greatly appreciates the committee's work to restore this funding. GSA urges Congress to provide USGS $1.2 billion in Fiscal Year 2020. GSA urges the committee ensure that any changes to the organizational structure of USGS as part of the reorganization taking place within the Department of the Interior 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 – including earthquakes, hurricanes, tsunamis, volcanic eruptions, wildfires, and landslides – are a major cause of fatalities and economic losses. Recent natural disasters, including the Camp, Carr, and Woolsey fires and Hurricanes Michael and Florence, provide unmistakable evidence that the United States remains vulnerable to staggering losses. 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. Data from the USGS network of stream gages is used by the National Weather Service to issue flood and drought warnings. Earth and space observations provide data necessary to predict severe space weather events, which affect the electric power grid, satellite communications and information, and space-based position, navigation, and timing systems. 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. The recent enactment of the National Earthquake Hazards Reduction Program Reauthorization Act of 2018 indicates the support of Congress and the Administration for this important research and programs that enable advance warning of impending hazards, such as the Earthquake Early Warning System.

- On December 20, 2017, President Trump signed an executive order entitled *A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals*, that finds,

  "The United States is heavily reliant on imports of certain mineral commodities that are vital to the Nation's security and economic prosperity. This dependency of the United States on foreign sources creates a strategic vulnerability for both its economy and military to adverse foreign government action, natural disaster, and other events that can disrupt supply of these key minerals."

  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 Three Dimensional mapping and Economic Empowerment Program (3DEEP) program, which will provide new resources and leverage current data by building on the existing and successful 3-D elevation mapping and National Cooperative Geological Mapping Program to accelerate geological and geophysical mapping, identify critical mineral sites for further scientific review, and provide a host of additional benefits to local, state, and federal entities for safety, security, scientific, and industrial uses.

- The quality and quantity of surface water and groundwater have a direct impact on the wellbeing of societies and ecosystems, as evidenced by flooding and drought impacts experienced across the US during the past year, as well as the dependence of much of our society on groundwater. Greater scientific understanding of these resources through monitoring and research by the USGS is necessary to ensure adequate and safe water resources for the health and welfare of society.

- USGS research on climate impacts is used by local policymakers and resource managers to make sound decisions based on the best possible science. The Climate Adaptation Science Centers (CASC), for example, provide 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 North Central CASC supported the development of a new experimental drought-monitoring and early warning guidance tool called the Landscape Evaporative Response Index.

- 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 the 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. Funding is particularly needed in Facilities to address many deferred maintenance issues and GSA appreciates the committee's recent investments in this area.

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. *Emerging Workforce Trends in the Energy and Mining Industries: A Call to Action*, found, "In mining (nonfuel and coal) a personnel crisis for professionals and workers is pending and it already exists for faculty." Another recent study by the American Geosciences Institute, *Status of the Geoscience Workforce Report 2016*, found an expected deficit of approximately 90,000 geoscientists by 2024. 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.