Testimony of the

Geological Society of America

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Regarding the

U.S. Geological Survey

FY 2022 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) recommends that Congress provide $1.75 billion for the U.S. Geological Survey (USGS) in Fiscal Year 2022. We thank Congress for the investments made in FY 2021 and encourage a path of increased investment to build USGS capabilities. 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; determining and assessing water quality and availability; and assessing risk of COVID-19 spread to new species. 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 to address past shortfalls in staffing, facilities, and research, given the importance of its many activities that protect lives and property, contribute to national security, and enhance the quality of life.

The Geological Society of America (GSA) is a scientific society with 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. 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 2021 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 $1.75 billion in Fiscal Year 2022. This increase will allow the USGS to implement new initiatives, maintain the base funding for critical research and monitoring, fill many vacant positions, and update and maintain its facilities.

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 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.

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 2020 alone, there were 13 severe storms, seven tropical cyclones, one drought, and one wildfire that resulted in a cost of $95 billion and 262 deaths. An improved scientific understanding of geologic and atmospheric hazards will reduce future losses by informing effective planning and mitigation.

  Decision makers in many sectors rely upon USGS data to respond to natural hazards. For example, USGS volcano monitoring provides data to enable decisions on aviation safety. NOAA depends on USGS products and data that are reliable, timely, and accurate 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 Promoting Research and Observations of Space Weather to Improve the Forecasting of Tomorrow Act (PROSWIFT Act), which was signed into law in October of 2020, highlights a path forward for USGS research to meet these objectives.

  The recent enactment of several bills illustrates the bipartisan, bicameral support of hazards research and GSA recommends adequate funding to implement these bills. For example, the National Landslide Preparedness Act was signed into law earlier this year, which expanded the existing Landslide Hazards Program within USGS and also authorized a 3D elevation program to update and coordinate the collection of elevation data across the country using enhanced, high-resolution surveys. Directives to USGS include identifying, mapping, assessing, and researching landslide hazards, responding to landslide events, establishing working groups with state offices, and developing landslide guidelines for geoscientists, emergency management personnel, and land-use decision-makers.

GSA urges Congress to continue supporting 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, as articulated in the Energy Policy Act of 2020. Achieving 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 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 other 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.

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, data preservation, and satellite observation, provide critical information, data, and infrastructure that underpin the research of the USGS. Stagnant funding has created backlogs in the posting of available jobs, the hiring of new scientists, and the dissemination of data to new stakeholders; increased investment is needed to fill these critical roles. GSA appreciates the committee's recent investments in Facilities to address many deferred maintenance issues and encourages continued

investment in this area. GSA recommends long-term funding and support for the USGS library, which is used by both federal scientists and external researchers. The Library houses more than 1.5 million volumes and more than three million maps, photographs and field records, with much of the information unique to the USGS or available from very sources worldwide.

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."

Knowledge of the Earth sciences is essential to scientific literacy and to meeting the environmental and resource challenges of the twenty-first century. 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. These investments will also allow for the recruitment and training of a diverse STEM pipeline, paving the way for increased equity, inclusion, and accessibility within the field of Earth sciences.

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.