

# Science, Society, Solutions: An Introduction to the USGS

## Science for Today and Tomorrow

Created by an act of Congress in 1879, the USGS has evolved over the ensuing 120 years, matching its talent and knowledge to the progress of science and technology. Today, the USGS stands as the sole science agency for the Department of the Interior. It is sought out by thousands of partners and customers for its natural science expertise and its vast earth and biological data holdings. The USGS is the science provider of choice in accessing the information and understanding to help resolve complex natural resource problems across the Nation and around the world.

## Valued by the Nation

The USGS serves the Nation as an independent fact-finding agency that collects, monitors, analyzes, and provides scientific understanding about natural resource conditions, issues, and problems. The value of the USGS to the Nation rests on its ability to carry out studies on a national scale and to sustain long-term monitoring and assessment of natural resources. Because it has no regulatory or management mandate, the USGS provides impartial science that serves the needs of

### The USGS serves the Nation by providing reliable scientific information to

- Describe and understand the Earth;
- Minimize loss of life and property from natural disasters;
- Manage water, biological, energy, and mineral resources; and
- Enhance and protect our quality of life.

our changing world. The diversity of scientific expertise enables the USGS to carry out large-scale, multi-disciplinary investigations that build the base of knowledge about the Earth. In turn, decision makers at all levels of government — and citizens in all walks of life — have the information tools they need to address pressing societal issues.

## People and Products

The USGS employs the best and the brightest experts who bring a range of earth and life science disciplines to bear on problems. By integrating its diverse scientific expertise, the USGS is able to understand complex natural science phenomena and provide scientific products that lead to solutions, making the job of partners and customers easier, whether it is restoring the Florida Everglades, conquering invasions of unwanted and

threatening species, unraveling the implications of climate change, or assessing the vulnerability of large metropolitan areas to natural hazards.

## Everywhere on the Landscape

The 10,000 scientists, technicians and support staff of the USGS are located in nearly 400 offices in every State and in several foreign countries. With a budget of more than \$1 billion dollars a year, the USGS leverages its resources and expertise in partnership with more than 2,000 agencies of State, local and tribal government, the academic community, other Federal allies, non-governmental organizations, and the private sector. Field investigations, direct observations of natural science processes and phenomena, and monitoring and data collection at the local scale are the scientific hallmarks of the USGS.



USGS information — on biological resources, on natural hazards, on ground-water availability — is helping society solve many of today's pressing issues.

## Science Focus

The diversity of scientific issues that demand attention has prompted the USGS to focus its efforts into four major areas: natural hazards, resources, the environment, and information and data management.

Natural hazards are an ever-present national concern, and the USGS is committed to providing the science needed to reduce the loss of life and property they can cause. Natural hazards take many forms, from earthquakes to volcanic eruptions, from landslides and other forms of ground failure to geomagnetic storms, from floods, droughts, and coastal storms to wildfires, from fish and wildlife diseases to invasive species. USGS science assesses where natural hazards may occur and what the risks are to the people who live there. Long-term monitoring of natural hazards enables scientists to detect and report on hazards in real time. The USGS works cooperatively with Federal, State, and local agencies to assist in emergency response efforts when catastrophes strike. USGS science provides information needed by the public to understand the hazards that may exist in their community and to help mitigate losses and damages when they occur.

Natural resources supply our Nation, whether it is water drawn from a tap or an irrigation spigot, or the mineral and energy resources that heat homes and fuel the economy. Fish, waterfowl, and other biological resources provide a diversity of life and ensure a healthy environment. The USGS provides the scientific expertise



**USGS information provides a gateway to the Earth for decisionmakers and the public.**

to assess the quantity, quality, and availability of natural resources. From its earliest days, the USGS was a prime mover in aiding the economic development of the Nation — a role that remains a core responsibility in bringing understanding of the processes that form and affect our resource base.

The complex environment in which we live and work demands an understanding of many interrelated natural systems. USGS environmental science is focused on understanding the physical, chemical, and biological processes at work in those natural systems and how those processes are affected by human activities on the landscape. The USGS seeks to provide the understanding and scientific information needed to recognize and mitigate adverse impacts and to sustain the health of the Nation's environment. USGS scientific efforts include long-term data collection, monitoring, analysis, and predictive modeling. USGS environmental science has been crucial to issues such as unlocking the research keys to toxic substances and water-borne pathogens in the quest for safe drinking water supplies; understanding the physical processes that govern contaminants in the environment and determining the impacts of these contaminants on living resources; assessing the status and trends in water quality to develop sound environmental policies; integrating science to understand critical ecosystems such as the Everglades, Chesapeake Bay, and San Francisco Bay; and providing geographic data that can be used to ensure biological diversity across the landscape.

Information — about natural hazards, resources, and the environment — is the key to understanding the Earth. USGS science provides comprehensive, high-quality, and timely scientific information to decision makers and the public. The information holdings of the USGS offer an amazing gateway to rich data bases, manipulatable maps, newly acquired satellite images, real-time information, and a wealth of reports spanning more than a century of science. The growing global population lives in an information age that is becoming incredibly complex. Scientific information is increasingly essential to an ever-widening — and demanding — customer base. More and

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*The scientific nature of the USGS, its national perspective, and its non-regulatory role enable the USGS to provide information and understanding that are policy relevant and policy neutral.*

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more, USGS information is available over the internet and on CD-ROM, delivering information directly to customers.

## In Service to the Nation

The USGS is proud of its outstanding history of public service and scientific advances. The USGS has been at the forefront of advances in understanding the Earth, its processes, and its resources. USGS scientists pioneered hydrologic techniques for gaging the discharge in rivers and streams and modeling the flow of complex ground-water systems. The astronauts who landed on the Moon in 1969 were trained in geology by the USGS. Innovative ventures with the private sector have given the world access to digital images of neighborhoods and communities in one of the largest data sets ever made available online. Modern-day understanding of the formation and location of energy and mineral resource deposits is rooted in fundamental scientific breakthroughs by USGS scientists. USGS biologists revolutionized thinking about managing wildlife resources, which has provided a sound scientific basis that lets waterfowl conservation and recreational hunting work in tandem as adaptive management, not as conflicting interests. Advances in seismology are making early warnings of earthquakes a reality that will give the needed alert time to save lives. The future of the global community presents unprecedented opportunities for the science of the USGS to continue to make substantive and life-enhancing contributions to the betterment of the Nation and the world.

## For More Information

Learn more about USGS at [www.usgs.gov](http://www.usgs.gov) or call 1-888-ASK-USGS.