

The New U.S. Geological Survey



U.S. Department of the Interior

U.S. Geological Survey

Our Nation faces challenging questions concerning the environment we live in and the resources we use each day.

- How can we prevent or mitigate the effects of natural hazards—earthquakes, floods, volcanoes, landslides, wildfires, coastal erosion, outbreaks of disease among our wildlife?

- How can we ensure an adequate supply of critical resources—land, water, energy, minerals—for our children and grandchildren?

- How is our natural environment altered when we extract and use these resources, and how can we minimize or repair any negative effects of these alterations?

- How can we make accessible the ever-increasing amounts of data and information about the Earth's natural resources, environment, and natural hazards?

For more than a century, the mission of the U.S. Geological Survey (USGS) has been to provide the sound, credible,

impartial scientific information to answer questions like these.

The issues facing our society have become increasingly complex, demanding new approaches and new partnerships. In the past few years, the USGS has changed dramatically to meet the changing needs of the Nation. The New USGS incorporates minerals information specialists from the former U.S. Bureau of Mines and the biological expertise of the former National Biological Service, complementing its traditional strengths in geology, mapping, and water.

The Earth's physical, chemical, and biological systems depend on and are influenced by each other. The integration of physical and biological research at the USGS enhances its ability to provide the sound science needed to solve the issues facing our Nation. By considering how USGS activities relate to four crosscutting themes—natural hazards, natural resources, environment, and information management—we are building strong multidisciplinary teams of scientists focused on research and results that people can use.

Coping With Natural Hazards

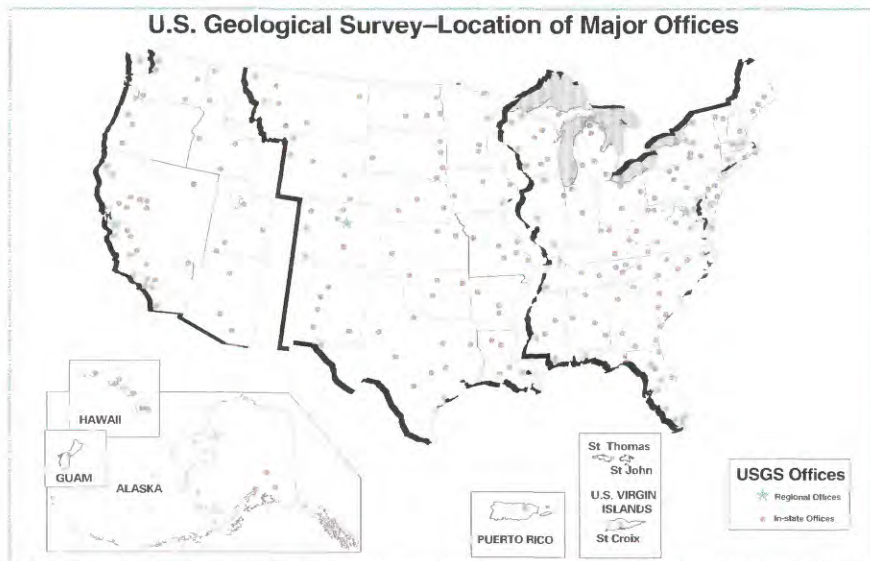
Natural hazards are taking an increasing toll on the lives and property of our Nation. To help reduce this burden of suffering and economic loss, the USGS maintains a number of research and monitoring programs across the United States.

- A network of 7,000 stream-gaging stations, many of them funded in partnership with local, State, and Federal agencies, provides information on floods and droughts. More than 2,500 of those stations are linked by satellite communications to the World Wide Web, where the public, emergency management agencies, utilities, private industry, and others can access real-time streamflow data updated as often as four times an hour during floods.

- Three volcano observatories assess the dangers from active volcanoes in Alaska, Hawaii, and the Cascade Range in Washington, Oregon, and northern California. In cooperation with the aviation industry, the USGS continuously monitors volcanoes in the Aleutian Island chain to reduce the risk to airplanes from clouds of volcanic ash. The United States, with 65 active volcanoes, ranks third in the world in the number of active volcanoes within its borders.

- The National Earthquake Information Center works with partners at State and regional levels and around the world to monitor earthquake activity. In addition, earthquake studies and geologic mapping are needed to outline the areas that are most vulnerable to damage from earthquakes. Through cooperative efforts with engineers and urban planners, the USGS is working to reduce the human and economic losses from potential earthquakes in Alaska, the West Coast, and the lesser known hazardous areas of the Central United States and South Carolina.

U.S. Geological Survey—Location of Major Offices



■ USGS scientists are studying emerging diseases such as cryptosporidiosis, Valley fever (coccidioidomycosis), plague, and avian botulism to understand wildlife diseases and effects on human health.

Understanding Our Natural Resources

Much of our strength as a Nation comes from our abundant—yet finite—heritage of natural resources. USGS studies of water supplies, mineral and energy deposits, and our wealth of plants and animals provide essential information to managers, regulators, industry, and the public for sound decisions on our unique resource heritage.

■ On average, each U.S. citizen uses 78 gallons of water at home per day, and the demand for good-quality water for drinking, recreation, farming, and industry continues to rise. Through the National Water-Quality Assessment Program, USGS scientists are tracking the quality of our surface- and groundwater resources in 60 large areas across the country that account for two-thirds of the Nation's water use.

■ Scientists at the USGS monitor trends and statistics for more than 600 mineral commodities, from agricultural minerals to zirconium, and study where and how mineral deposits are created and modified. National, regional, and local assessments determine the amounts and quality of our mineral and energy resources.

■ USGS scientists, in cooperation with States, universities, and local groups, are monitoring the health of America's biological resources, from polar bears in Alaska to manatees in Florida. In the Great Lakes, the populations of major commercial and sport fish are being monitored in a cooperative effort to provide a scientific basis by which fisheries managers and researchers can evaluate potential management plans for the region's important commercial and recreational fisheries.

Addressing Environmental Issues

The safety and health of our Nation's citizens depend on the environment in which we live. USGS scientists

are working to provide the information needed to sustain our environment and to recognize and mitigate adverse effects on it.

■ More than 500,000 abandoned mines dot the landscape of the United States. USGS geologists, biologists, hydrologists, cartographers, and others are working with Federal land management agencies to remediate contamination associated with abandoned mines, focusing on the sites that have the greatest effect on water quality and ecosystem health in specific watersheds. The work requires coordinated efforts by experts in digital data collection and management, ecology, geochemistry, geology, water-quality studies, hydrology, and mapping.

■ Invasive exotic plants and animals are a major threat throughout the Nation, costing billions of dollars in economic losses and causing untold damage to the environment. Non-native species damage agricultural crops and rangelands, contribute to the decline of commercially important fishes, spread diseases that affect domestic animals and people, and disrupt vital ecosystem functions. USGS biologists are studying such invaders as brown tree snakes, leafy spurge, and zebra mussels to determine the best ways of controlling their spread.

■ More and more people live and work near a coast, yet increasing populations put enormous stresses on these essential ecosystems. USGS studies in coastal estuaries like San Francisco Bay and Chesapeake Bay are helping to explain how the Nation's coastal ecosystems respond to natural sources of change, such as floods and hurricanes, as well as human influences.

Managing Data and Information

An essential part of the USGS mission is making sure that the results of its scientific studies are available in a wide variety of formats, both traditional and electronic, to those who need the information. The USGS maintains a wide range of data bases and other sources of information that are consulted millions of times each year.

■ The USGS home page on the World Wide Web provides access to more than 100,000 pages of information, from how

to order any of more than 80,000 maps and other publications to what is the latest volcano activity in Alaska. More than 150,000 people visit the USGS web site each month.

■ At the USGS EROS Data Center in South Dakota, more than 12 million aerial photographs and satellite images are archived and available for purchase. These images provide valuable information about our planet's landforms, vegetation, and resources.

■ USGS topographic maps have provided an accurate foundation for planning and decisionmaking for the past 100 years. Today, geospatial information in geographic information systems is helping resource managers, planners, emergency personnel, and others make decisions quickly and with confidence.

■ The USGS Library, established in 1882, is one of the largest earth science libraries in the world. More than 1 million books and 500,000 maps in the library system cover all aspects of the earth sciences. The 12 libraries of the former National Biological Service and the library of the former Bureau of Mines have been added to the USGS library system, greatly expanding its holdings and coverage.

Reaching to the Future

With its rich scientific heritage and its unique mix of expertise, the USGS is poised to reach a new understanding of our Earth. America's abundant water, land, energy, mineral, and biological resources provide the foundation for much of our Nation's wealth and the well-being of its citizens. The New USGS is uniquely able to provide the knowledge and understanding needed for the careful stewardship of these resources to ensure the health, prosperity and quality of life enjoyed by current and future generations of Americans.

Contacting the USGS

For more information about the USGS and its products and services, visit the World Wide Web site at

<http://www.usgs.gov>

Explore the EarthFax fax-on-demand system at 703-648-4888, or call 1-800-USA-MAPS.