Geoscience Outreach
ISGS distributes technical and nontechnical publications in print and online, presents lectures and exhibits, responds to inquiries, and leads field trips to help citizens and government officials understand how the research programs of ISGS help protect the environment and strengthen the economy of Illinois.

ISGS Services
ISGS provides many services that support and enhance our research by providing unbiased scientific information. These services are available to the public on a cost recovery basis and include scientific mud rotary drilling, downhole geophysical logging, subsurface geophysical investigations, geochemical analysis, particle-size analysis, rock and mineral property characterization, and 3-D visualization. For a complete list of services, refer to the ISGS website.

Geological Records and Samples Library
The Geological Records Unit of ISGS is the state repository for certain drilling records including records of more than 500,000 oil and gas wells, water wells, engineering borings, and test holes drilled in Illinois.

ISGS manages one of the largest collections of geological samples in the United States. For more than 100 years, the Survey has been collecting rock and sediment cores and drill cuttings from wells drilled for mineral exploration, oil, and water in an effort to help Survey and industry scientists and the public understand the subsurface geology of Illinois and its resource potential.

Areas of Expertise
Advanced Energy Technology
Bedrock Geology (Paleozoic)
Carbon Capture and Geologic Sequestration
Coal Geology
Drilling and Sampling of Earth Materials
Earthquakes
Engineering Geology
Environmental Site Assessments
Geochemistry of Sediment, Rock, and Fluids
Geographic Information Systems
Geological Hazards
Geological Images, Samples, and Collections
Geological Mapping and Modeling
Geophysics
Geoscience Outreach
Geospatial Analysis, Modeling, and 3-D Visualization
Glacial and Quaternary Geology
Groundwater Resources and Protection
Historical Aerial Photographs
Hydraulic Fracturing
Illinois Height Modernization
Industrial Mineral Resources
Karst (sinkholes)
Landslides and Mine Subsidence
Paleontological Collections
Petroleum Geology
Topographic Maps and LiDAR
Well and Borehole Records
Wetlands Geology

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ISGS is part of the Prairie Research Institute at the University of Illinois, which provides research and service to build the Illinois economy, promote public health and safety, and steward Illinois’ abundant resources.
The Illinois State Geological Survey (ISGS) serves the citizens of Illinois with the highest standards for scientific research, service, and professionalism in providing earth science information relevant to the state’s environmental quality, economic vitality, public health, and safety. Its staff of approximately 200 scientists and technical and support personnel conduct basic and applied geological research, create new geologic maps, and gather and manage the state’s geological data. ISGS provides information to industry, government agencies, and the public about the geology, earth hazards, groundwater, and mineral resources of Illinois.

Scientists at ISGS work in multidisciplinary teams on timely geoscience and engineering problems of importance to Illinois. Research partners include scientists and engineers from industry, government agencies, and research universities. The principal stakeholders encompass people, companies, and institutions in Illinois and the nation. The Survey publishes results in journals; posts maps, reports, and information on their website; makes data available online; and works directly with individuals. Increasingly apparent is the national and global applicability of ISGS’ Illinois experience.

Research and Service

ISGS provides expertise in a wide array of areas. Research sections include:

Carbon Sequestration

The Midwest Geological Sequestration Consortium (MGSC), led by ISGS, is one of seven national research partnerships working to find a balance between our growing energy needs and increasing climate concerns by capturing carbon dioxide (CO₂) created in energy production and industrial processes and storing it safely underground in natural geological formations. The MGSC is leading a large-scale demonstration project that will store one million metric tons of CO₂ in the Mt. Simon Sandstone, a deep saline reservoir. ISGS geologists, geophysicists, and geochemists provide the investigative and analytical expertise needed to conceptualize and lead this program and ensure its effectiveness.

Coal and Petroleum

ISGS scientists study the coal-bearing Pennsylvanian rocks that underlie approximately 68 percent of the state. Recent annual production from Illinois coal mines has exceeded 45 million tons, with more than 211 billion tons of resources identified.

By defining, mapping, and characterizing oil-producing geological units, the Survey aids industry exploration and development of oil and natural gas resources in Illinois. ISGS also advises the state on oil production and on the environmental implications of technologies such as hydraulic fracturing.

Bedrock Geology and Industrial Minerals

Geologists at ISGS investigate the preglacial geologic history of Illinois. Our scientists collect, analyze, and disseminate geologic information to aid in the exploration for mineral resources and address environmental concerns such as sinkhole development. The major industrial minerals currently produced in Illinois are crushed stone, sand and gravel, silica sand, and tripoli.

Glacial Geology

Ice-age glaciers transported an abundance of gravel, sand, and clay into an area covering more than 90 percent of the state. Using the latest technology, ISGS experts create geologic maps and 3-D models that are used to guide wise land-use decisions and strategies for groundwater resource evaluation and protection.

Groundwater

ISGS geologists conduct research related to groundwater, a resource used by one-third of all Illinois households, farms, and industries. Most users meet their groundwater needs by tapping into aquifers, especially the water-yielding sand and gravel materials of glacial origin that often have little protection from contamination.

Wetlands and Environmental Site Assessments

The Survey researches the hydrogeology and geochemistry of Illinois wetlands so that citizens, businesses, and state and local agencies including the Illinois Department of Transportation (IDOT) can make informed decisions regarding beneficial wetland resources.

The ISGS Environmental Site Assessments program provides information on environmental conditions associated with highway projects so that IDOT can prioritize, design, and schedule highway projects safely and efficiently.