Geoscience in Illinois

**WHAT IS GEOSCIENCE?**

Geoscience is the study of the Earth and the complex geologic, marine, atmospheric, and hydrologic processes that sustain life and the economy. Understanding the Earth’s surface and subsurface, its resources, history, and hazards allows us to develop solutions to critical economic, environmental, health, and safety challenges.

**By the numbers: ILLINOIS**

- 9,546 geoscience employees (excludes self-employed)¹
- 891 million gallons/day: total groundwater withdrawal³
- $1.38 billion: value of nonfuel mineral production in 2017⁴
- 60 total disaster declarations, including 25 severe storm, 15 flood, and 10 tornado disasters (1953-2017)⁶
- $16.8 million: NSF GEO grants awarded in 2017¹⁴

**WORKFORCE IN ILLINOIS**

- 9,546 geoscience employees (excludes self-employed) in 2017¹
- $80,768: average median geoscience employee salary¹
- 17 academic geoscience departments²

**WATER USE IN ILLINOIS**

- 891 million gallons/day: total groundwater withdrawal³
- 9.6 billion gallons/day: total surface water withdrawal³
- 1.48 billion gallons/day: public supply water withdrawal³
- 234 million gallons/day: water withdrawal for irrigation³
- 431 million gallons/day: self-supplied industrial fresh water withdrawal³
- 91% of the population is served by public water supplies³

**ENERGY AND MINERALS IN ILLINOIS**

- $1.38 billion: value of nonfuel mineral production in 2017⁴
- Sand and gravel, crushed stone, portland cement: top three nonfuel minerals in order of value produced in 2017⁴
- 43.4 million short tons: coal produced in 2016³
- 8.31 million barrels: crude oil produced in 2017⁵
- 11.3 million megawatt hours: wind produced in 2017⁵
- 55,000 megawatt hours: solar produced in 2017⁵

**NATURAL HAZARDS IN ILLINOIS**

- 60 total disaster declarations, including 25 severe storm, 15 flood, and 10 tornado disasters (1953-2017)⁶
- $651 million: individual assistance grants (2005-2017)⁶
- $1.35 billion: preparedness grants (2005-2017)⁶
- 72 weather and/or climate events, each with costs exceeding $1 billion (inflation adjusted) (1980-2017)⁷

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⁴ U.S. Geological Survey, Mineral Commodity Summaries 2018
⁵ U.S. Energy Information Administration
⁶ FEMA Data Visualization: Summary of Disaster Declarations and Grants (accessed May 2, 2018)
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Geoscience, Illinois, and Federal Agencies

U.S. GEOLOGICAL SURVEY (USGS)
- $1.15 billion: total USGS budget in FY 2018 (5.8% increase from FY 2017)\(^8\)
- The National Cooperative Geologic Mapping Program funds geologic mapping projects with federal (FEDMAP), state (STATEMAP), and university (EDMAP) partners
- $4.05 million: Illinois STATEMAP funding (1993-2016)\(^9\)
- 6 Illinois universities, including Illinois State University and Northwestern University, have participated in EDMAP\(^9\)
- USGS streamgages collect real-time or recent streamflow, groundwater, and water-quality data throughout Illinois

NATIONAL SCIENCE FOUNDATION (NSF)
- $7.8 billion: total NSF budget in FY 2018 (4% increase from FY 2017)\(^13\)
- $1.4 billion: total NSF Geosciences Directorate (GEO) awards in FY 2017 (7.2% increase from FY 2016)\(^14\)
- 62 NSF GEO awards in Illinois totaling $16.8 million in 2017\(^14\)
- $8 million: NSF GEO grants awarded to University of Illinois at Urbana-Champaign in 2017\(^14\)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)
- $20.7 billion: total NASA budget in FY 2018 (5.5% increase from FY 2017)\(^10\)
- $1.9 billion: total NASA Earth Science budget in FY 2018 (0% change from FY 2017)\(^10\)
- Gravity Recovery and Climate Experiment (GRACE) satellites measure groundwater changes in Illinois
- Soil Moisture Active Passive (SMAP) satellite measures soil moisture in Illinois

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
- $8.1 billion: total EPA budget in FY 2018 (0% change from FY 2017)\(^15\)
- 45 active superfund sites in Illinois in 2018\(^16\)
- $34.30 million: Drinking Water State Revolving Fund (DWSRF) grants in Illinois in 2017\(^17\)
- $200,000: Brownfield cleanup grants awarded to Illinois in 2018\(^18\)

FEDERAL FACILITIES IN ILLINOIS
- USGS Illinois Water Science Center, Urbana
- DOE Argonne National Lab, Argonne
- DOE Fermi National Accelerator Lab, Batavia
- NOAA OAR Real-Time Meteorological Observation Network, Chicago

YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION
Illinois State Geological Survey
615 E. Peabody Drive
Champaign, IL 61820
http://isgs.illinois.edu/
217-333-5105

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\(^8\) U.S. Department of the Interior, FY 2019 Budget in Brief
\(^9\) U.S. Geological Survey, National Cooperative Geologic Mapping Program
\(^10\) National Aeronautics and Space Administration, FY 2019 Budget Estimates
\(^11\) National Oceanic and Atmospheric Administration, FY 2019 Bluebook
\(^12\) NOAA In Your State and Territory
\(^13\) U.S. House of Representatives, FY 2018 Omnibus Spending Bill (Division B) – Commerce, Justice, Science, and Related Agencies Appropriations Act, 2018
\(^14\) National Science Foundation, Budget Information System
\(^15\) U.S. House of Representatives, FY 2018 Omnibus Spending Bill (Division G) – Department of the Interior, Environment, and Related Agencies Appropriations Act, 2018
\(^16\) U.S. Environmental Protection Agency, Superfund Sites
\(^17\) U.S. Environmental Protection Agency, Drinking Water State Revolving Fund National Information Management System Reports
\(^18\) U.S. Environmental Protection Agency, Brownfields Grant Fact Sheet Search

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