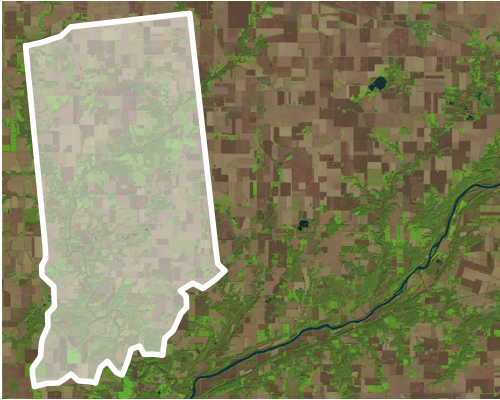


WHAT IS GEOSCIENCE?

Geoscientists study the Earth's systems — the complex geologic, marine, atmospheric, and hydrologic processes that sustain life and the economy. Geoscience expertise enables us to develop solutions to critical economic, environmental, health, and safety challenges.



Satellite image: NASA/USGS Landsat Program. State outline: Matt Battison.

WORKFORCE IN INDIANA

- 4,800: **geoscience employees** (non-federal/self-employed) in 2015¹
- \$73,600: average median geoscience employee salary¹
- 6,500 **jobs** in extractive industries in 2015²
- 15: academic geoscience departments³

WATER IN INDIANA

- 720 million gallons/day: total groundwater withdrawal⁴
- 7.9 billion gallons/day: total surface water withdrawal⁴
- 660 million gallons/day: public supply water withdrawal⁴
- 140 million gallons/day: water withdrawal for irrigation⁴
- 2.2 billion gallons/day: self-supplied industrial fresh water withdrawal⁴
- 74% of the population is served by public water supplies⁴
- 100 USGS stream gages in **Indiana**⁵

By the numbers: INDIANA

- \$1 billion: value of nonfuel mineral production in 2016⁶
- 4,800: **geoscience employees** (non-federal/self-employed)¹
- 6,500: **jobs** in extractive industries in 2015²
- 24 severe storm disaster declarations since 1953⁷
- 12 flooding disaster declarations since 1953⁷
- \$155.5 million: NSF grants awarded in Indiana in 2016¹⁷
- \$3.6 million: NSF GEO grants awarded in Indiana in 2016¹⁷

ENERGY AND MINERALS PRODUCTION IN INDIANA

- \$1 billion: value of nonfuel mineral production in 2016⁶
- 2.2 million barrels: crude oil produced in 2015²
- 7.3 billion cubic feet: natural gas produced in 2015²
- 34 million short tons: coal produced in 2015²
- 4.5 million megawatt hours: wind power produced in 2015²
- 220,000 megawatt hours: solar power produced in 2015²

NATURAL HAZARDS IN INDIANA

FEMA statistics for Indiana

- 24 severe storm disaster declarations since 1953⁷
- 12 flooding disaster declarations since 1953⁷
- 4 tornado disaster declarations since 1953⁷
- \$136 million: individual assistance grants since 2005⁷
- \$79 million: mitigation grants since 2005⁷
- \$280 million: preparedness grants since 2005⁷
- \$208 million: public assistance grants since 2005⁷
- 50 weather and/or climate events, each with costs exceeding \$1 billion (inflation adjusted) 1980-2016⁸

¹ Data Derived from Bureau of Labor Statistics Occupational Employment Statistics (2015)

² U.S. DOI Extractive Industries Transparency Initiative

³ American Geosciences Institute Directory of Geoscience Departments (2016)

⁴ USGS Estimated Use of Water in the United States in 2010

⁵ USGS WaterWatch Total Streamgage Stations (March 10, 2017)

⁶ USGS Mineral Commodity Summaries (2017)

⁷ FEMA Summary of Disaster Declarations and Grants (2016)

⁸ NOAA Billion-Dollar Weather and Climate Disasters: Mapping

AGI is a network of 51 member societies, representing more than 250,000 geoscientists.

Written and compiled by Jeremiah Bernau for AGI, April 2017. This work may be distributed under a Creative Commons BY-NC-ND 4.0 license.

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U.S. GEOLOGICAL SURVEY (USGS) GEOLOGIC MAPPING

- \$1.06 billion: total FY 2016 USGS budget; 1.6% up from FY 2015⁹
- The USGS National Cooperative Geologic Mapping Program (NCGMP) funds geologic mapping projects by states (STATEMAP) and universities (EDMAP)
- \$3.6 million: **Indiana** STATEMAP funding (1993-2016)¹⁰
- Over a third of **Indiana** mapped through STATEMAP (1993-2009)¹⁰
- **Indiana University** and **Purdue University** participated in EDMAP¹⁰

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

- \$5.6 billion: total FY 2016 NASA Science budget; 6.6% up from FY 2015¹¹
- \$1.9 billion: total FY 2016 NASA Earth Science budget; 7.7% up from FY 2015¹²
- GRACE satellites measure groundwater changes in all of **Indiana**¹³
- SMAP satellite measures soil moisture in all of **Indiana**¹³
- GPM satellite measures precipitation over all of **Indiana**¹³

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

- \$5.8 billion: total FY 2016 NOAA budget; 5.9% up from FY 2015¹⁴
- GOES satellites provide state-of-the-art weather forecasting over **Indiana**¹⁵
- DISCOVER satellite monitors radiation and air quality over **Indiana**¹⁵
- 172 National Weather Service Cooperative Observer Program (COOP) sites in **Indiana**¹⁶

⁹ DOI Budget and Performance

¹⁰ USGS National Cooperative Geologic Mapping Program

¹¹ NASA Budget Documents, Strategic Plans and Performance Reports

¹² American Institute of Physics FY2016 Appropriations

¹³ Gravity Recovery and Climate Experiment (GRACE); Soil Moisture Active Passive (SMAP); Plankton, Aerosol, Cloud, ocean Ecosystem (PACE); Global Precipitation Measurement (GPM)

¹⁴ NOAA Total Budget

¹⁵ Geostationary Operational Environmental Satellite (GOES) & Deep Space Climate Observatory (DISCOVER)

¹⁶ NOAA in Your State

NATIONAL SCIENCE FOUNDATION (NSF)

- \$7.46 billion: total FY 2016 NSF budget; 1.6% up from FY 2015¹⁷
- \$1.28 billion: total FY 2016 NSF Geosciences Directorate (GEO) awards; 1.6% up from FY 2015¹⁷
- 487 NSF grants in **Indiana** totaling \$155.5 million in 2016¹⁷
- 24 NSF GEO grants in **Indiana** totaling \$3.6 million in 2016¹⁷
- \$1.5 million: NSF GEO grants to **Indiana University** in 2016¹⁷

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- \$8.14 billion: total FY 2016 EPA budget; 0% up from FY 2015¹⁸
- 40 active/proposed superfund sites¹⁹
- \$283.7 million: federal grants for Drinking Water State Revolving Fund (DWSRF) in **Indiana** (1997-2016)²⁰
- \$13.5 million: annual value of federal DWSRF grants in **Indiana** in 2016²⁰

MAJOR FEDERAL FACILITIES IN INDIANA

- USGS Indiana-Kentucky Water Science Center, Indianapolis
- NSF Joint Institute for Nuclear Astrophysics, Notre Dame

YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION

Indiana Geological Survey

611 N. Walnut Grove
Bloomington, IN 47405-2208
<http://igs.indiana.edu/>
(812) 855-7636

¹⁷ NSF Budget Internet Information System

¹⁸ EPA Budget and Spending

¹⁹ EPA Search for Superfund Sites Where You Live (July 2017)

²⁰ EPA Drinking Water State Revolving Fund National Information Management System Reports

AGI's Geoscience Policy and Critical Issues programs support well-informed public policy and decision making by providing information and facilitating dialogue between the geoscience community and decision makers at all levels.

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