

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 LOUISIANA

- 7,390: **geoscience employees** (non-federal/self-employed) in 2015¹
- \$78,500: average median geoscience employee salary¹
- 45,270: **jobs** in extractive industries in 2015²
- 14: academic geoscience departments³

WATER IN LOUISIANA

- 1.6 billion gallons/day: total groundwater withdrawal⁴
- 7 billion gallons/day: total surface water withdrawal⁴
- 746 million gallons/day: public supply water withdrawal⁴
- 928 million gallons/day: water withdrawal for irrigation⁴
- 87% of the population is served by public water supplies⁴
- 38 parishes in 2015, and 19 parishes in 2016, designated as primary natural disaster areas caused by drought⁵
- 36 USGS stream gages in **Louisiana**⁶

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 USDA Farm Service Agency *Disaster Designation Information (2015 Crop Year & 2016 Crop Year)*

6 USGS WaterWatch *Total Streamgage Stations (March 10, 2017)*

By the numbers: LOUISIANA

- \$560 million: value of nonfuel mineral production in 2016⁷
- 7,390: **geoscience employees** (non-federal/self-employed)¹
- 45,270: **jobs** in extractive industries in 2015²
- 41 severe storm, hurricane/tropical storm, and tornado disaster declarations since 1953⁸
- \$45.6 million: NSF grants awarded in Louisiana in 2016¹⁸
- \$2.3 million: NSF GEO grants awarded in Louisiana in 2016¹⁸

ENERGY AND MINERALS PRODUCTION IN LOUISIANA

- \$560 million: value of nonfuel mineral production in 2016⁷
- 62.9 million barrels: crude oil produced in 2015²
- 1.9 trillion cubic feet: natural gas produced in 2015, #5 in the nation²
- 2.6 million short tons: coal produced in 2014²
- 1 million megawatt hours: hydroelectricity produced in 2015²

NATURAL HAZARDS IN LOUISIANA

FEMA statistics for Louisiana

- 14 severe storm disaster declarations since 1953⁸
- 23 hurricane/tropical storm disaster declarations since 1953⁸
- 26 flooding disaster declarations since 1953⁸
- 4 tornado disaster declarations since 1953⁸
- \$7 billion: individual assistance grants since 2005⁸
- \$3 billion: mitigation grants since 2005⁸
- \$430 million: preparedness grants since 2005⁸
- \$15.5 billion: public assistance grants since 2005⁸
- 51 weather and/or climate events, each with costs exceeding \$1 billion (inflation adjusted) 1980-2016⁹

7 USGS *Mineral Commodity Summaries (2017)*

8 FEMA *Summary of Disaster Declarations and Grants (2016)*

9 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 USGS budget; 1.6% up from FY 2015¹⁰
- The USGS National Cooperative Geologic Mapping Program (NCGMP) funds geologic mapping projects by states (STATEMAP) and universities (EDMAP)
- \$2 million: **Louisiana** STATEMAP funding (1993-2016)¹¹
- Over 40 geologic maps in **Louisiana** created with STATEMAP support (1993-2010)¹¹
- Over half of **Louisiana** mapped through STATEMAP (1993-2010)¹¹
- 4 **Louisiana** universities participated in EDMAP¹¹

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

- \$5.6 billion: total NASA Science budget; 6.6% up from FY 2015¹²
- \$1.9 billion: total NASA Earth Science budget; 7.7% up from FY 2015¹³
- GRACE satellites measure groundwater changes in all of **Louisiana**¹⁴
- SMAP satellite measures soil moisture in all of **Louisiana**¹⁴

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

- \$5.8 billion: total NOAA budget; 5.9% up from FY 2015¹⁵
- GOES satellites provide state-of-the-art weather forecasting over **Louisiana**¹⁶
- DISCOVER satellite monitors radiation and air quality over **Louisiana**¹⁶
- 21 National Weather Service observing stations in **Louisiana**¹⁷
- 166 National Weather Service cooperative observer sites in **Louisiana**¹⁷

¹⁰ DOI Budget and Performance

¹¹ USGS National Cooperative Geologic Mapping Program

¹² NASA Budget Documents, Strategic Plans and Performance Reports

¹³ American Institute of Physics FY2016 Appropriations

¹⁴ Gravity Recovery and Climate Experiment (GRACE); Soil Moisture Active Passive (SMAP)

¹⁵ NOAA Total Budget

¹⁶ Geostationary Operational Environmental Satellite (GOES) & Deep Space Climate Observatory (DISCOVER)

¹⁷ NOAA in Your State

NATIONAL SCIENCE FOUNDATION (NSF)

- \$7.46 billion: total NSF budget; 1.6% up from FY 2015¹⁸
- \$1.28 billion: total NSF Geosciences Directorate (GEO) awards; 1.6% up from FY 2015¹⁸
- 166 NSF grants in **Louisiana** totaling \$45.6 million in 2016¹⁸
- 15 NSF GEO grants in **Louisiana** totaling \$2.3 million in 2016¹⁸
- \$1.2 million: NSF GEO grants to **Louisiana State University & Agricultural and Mechanical College** in 2016¹⁸
- \$510,000: NSF GEO grants to **Louisiana Universities Marine Consortium** in 2016¹⁸

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- \$8.14 billion: total EPA budget; 0% up from FY 2015¹⁹
- 16 active/proposed superfund sites²⁰
- \$281 million: cumulative federal grants for Drinking Water State Revolving Fund (DWSRF) in **Louisiana** (1997-2016)²¹
- \$11.4 million: annual value of federal DWSRF grants in **Louisiana** in 2016²¹

MAJOR FEDERAL FACILITIES IN LOUISIANA

- USGS Wetland and Aquatic Research Center - Lafayette, LA, Lafayette
- NOAA **Louisiana** Spatial Reference Center, Baton Rouge
- NASA Michoud Assembly Facility, New Orleans
- DOE Strategic Petroleum Reserve, New Orleans

YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION

Louisiana Geological Survey

3079 Energy, Coastal and Environment Building
Baton Rouge, LA 70803

<http://www.lsu.edu/lgs/>

(225) 578-5320

¹⁸ NSF Budget Internet Information System

¹⁹ EPA Budget and Spending

²⁰ EPA Search for Superfund Sites Where You Live (August 2017)

²¹ 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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