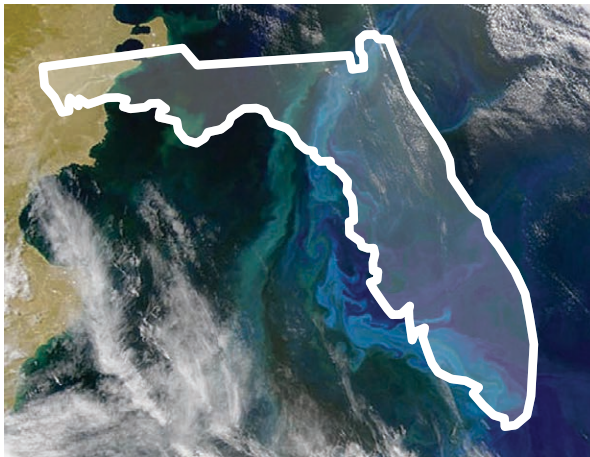


## WHAT IS GEOSCIENCE?

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.



Credit: Satellite image courtesy NASA, Visible Earth. State outline: Matt Battison.

## By the numbers: Florida

- \$3.26 billion: value of nonfuel mineral production in 2016<sup>7</sup>
- 14,000: geoscience employees (non-federal/self-employed)<sup>1</sup>
- 4,095: jobs in extractive industries in 2015<sup>2</sup>
- 57 severe storm, hurricane/tropical storm, and tornado disaster declarations since 1953<sup>8</sup>
- \$187.8 million: NSF grants awarded to **Florida** in 2016<sup>18</sup>
- \$19.85 million: NSF GEO grants to **Florida** in 2016<sup>18</sup>

## WORKFORCE IN FLORIDA

- 14,000: **geoscience employees** (non-federal/self-employed) in 2015<sup>1</sup>
- \$58,500: average median geoscience employee salary<sup>1</sup>
- 4,095: **jobs** in extractive industries in 2015<sup>2</sup>
- 29: academic geoscience departments<sup>3</sup>

## WATER IN FLORIDA

- 4.1 billion gallons/day: total groundwater withdrawal<sup>4</sup>
- 10.8 billion gallons/day: total surface water withdrawal<sup>4</sup>
- 2.3 billion gallons/day: public water supply withdrawal<sup>4</sup>
- 2.9 billion gallons/day: irrigation water withdrawal<sup>4</sup>
- 213 million gallons/day: self-supplied industrial fresh water withdrawal<sup>4</sup>
- 90% of the population is served by public water supplies<sup>4</sup>
- 4 counties in 2015 designated as primary natural disaster areas caused by drought<sup>5</sup>
- 147 USGS stream gages in **Florida**<sup>6</sup>

<sup>1</sup> Data Derived from Bureau of Labor Statistics: *Occupational Employment Statistics 2015*

<sup>2</sup> U.S. DOI U.S. Extractive Industries Transparency Initiative

<sup>3</sup> American Geosciences Institute Directory of Geoscience Departments 2016

<sup>4</sup> USGS Estimated Use of Water in the United States in 2010

<sup>5</sup> USDA Farm Service Agency: *Disaster Designation Information, 2015*

<sup>6</sup> USGS WaterWatch *Total Streamgage Stations, March 10, 2017*

## ENERGY AND MINERALS PRODUCTION IN FLORIDA

- \$3.26 billion: value of nonfuel mineral production in 2016<sup>7</sup>
- Crude Oil: 2.2 million barrels in 2015<sup>2</sup>
- Natural Gas: 21.26 billion cubic feet in 2014<sup>2</sup>
- Hydroelectricity: 223,000 megawatt hours in 2015<sup>2</sup>
- Solar: 252,000 megawatt hours in 2015<sup>2</sup>
- Other Biomass: 2.4 million megawatt hours in 2015; 11% of U.S. production<sup>2</sup>

## HAZARDS IN FLORIDA

### FEMA statistics for Florida

- 22 severe storm disaster declarations since 1953<sup>8</sup>
- 34 hurricane/tropical storm disaster declarations since 1953<sup>8</sup>
- 13 flooding disaster declarations since 1953<sup>8</sup>
- 1 tornado disaster declaration since 1953<sup>8</sup>
- 42 fire disaster declarations since 1953<sup>8</sup>
- \$486 million: individual assistance grants since 2005<sup>8</sup>
- \$586 million: mitigation grants since 2005<sup>8</sup>
- \$1 billion: preparedness grants since 2005<sup>8</sup>
- \$2.28 billion: public assistance grants since 2005<sup>8</sup>
- 44 weather and/or climate events with costs of each exceeding \$1 billion (inflation adjusted) 1980-2016<sup>9</sup>

<sup>7</sup> USGS Mineral Commodity Summaries 2017

<sup>8</sup> FEMA Summary of Disaster Declarations and Grants, 2016

<sup>9</sup> NOAA Billion-Dollar Weather and Climate Disasters: Mapping

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

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## U.S. GEOLOGICAL SURVEY (USGS) GEOLOGIC MAPPING

- \$1.06 billion: total USGS budget; 1.6% up from FY 2015<sup>10</sup>
- The USGS National Cooperative Geologic Mapping Program (NCGMP) funds geologic mapping projects by states (STATEMAP) and universities (EDMAP)
- \$2.8 million: **Florida** STATEMAP funding (1993-2016)<sup>11</sup>
- 50 **Florida** counties mapped or partially mapped with STATEMAP funds<sup>11</sup>
- 23 geologic maps in **Florida** created with STATEMAP support<sup>11</sup>
- 25,239 square miles in **Florida** mapped through STATEMAP<sup>11</sup>
- **Florida State University** participated in EDMAP<sup>11</sup>

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## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

- \$5.6 billion: total NASA Science budget; 6.6% up from FY 2015<sup>12</sup>
- \$1.9 billion: total NASA Earth Science budget; 7.7% up from FY 2015<sup>12</sup>
- GRACE satellites measure groundwater changes in all of **Florida**<sup>13</sup>
- SMAP satellite measures soil moisture in all of **Florida**<sup>13</sup>

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## NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

- \$5.8 billion: total NOAA budget; 5.9% up from FY 2015<sup>14</sup>
- GOES satellites provide state-of-the-art weather forecasting over **Florida**<sup>15</sup>
- DISCOVER satellite monitors radiation and air quality over **Florida**<sup>15</sup>
- 50 National Weather Service observing stations in **Florida**<sup>16</sup>
- 151 National Weather Service cooperative observer sites in **Florida**<sup>16</sup>

<sup>10</sup> DOI <https://www.doi.gov/budget>

<sup>11</sup> Florida State Geological Survey

<sup>12</sup> NASA <https://www.nasa.gov/news/budget/index.html>

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

<sup>14</sup> NOAA Total Budget

<sup>15</sup> Geostationary Operational Environmental Satellite (GOES) & Deep Space Climate Observatory (DISCOVER)

<sup>16</sup> NOAA in Your State

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## NATIONAL SCIENCE FOUNDATION (NSF)

- \$7.46 billion: total NSF budget; 1.6% up from FY 2015<sup>17</sup>
- \$1.28 billion: total NSF Geosciences Directorate (GEO) budget; 1.6% up from FY 2015<sup>17</sup>
- 583 NSF grants in **Florida** totaling \$187.8 million in 2016<sup>18</sup>
- 84 NSF GEO grants in **Florida** totaling \$19.85 million in 2016<sup>18</sup>
- \$6.6 million: NSF GEO grants to the **University of Miami** Rosenstiel School of Marine & Atmospheric Science in 2016<sup>18</sup>

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## U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- \$8.14 billion: total EPA budget; 0% up from FY 2015<sup>19</sup>
- 92 active/proposed superfund sites<sup>20</sup>
- \$677.5 million: cumulative federal grants for Drinking Water State Revolving Fund (DWSRF) in **Florida** (1997-2016)<sup>21</sup>
- \$30.4 million: annual value of federal DWSRF grants in **Florida** in 2016<sup>21</sup>

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## MAJOR FEDERAL FACILITIES IN FLORIDA

- NSF National High Magnetic Field Laboratory, Tallahassee
- NASA Kennedy Space Center, Florida's Space Coast
- USGS Wetland and Aquatic Research Center, Gainesville
- USGS Florida Water Science Center, Lutz
- NOAA (NWS) - National Hurricane Center, Miami

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## YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION

### Florida Geological Survey

3000 Commonwealth Blvd., Suite 1  
Tallahassee, FL 32303

<http://www.dep.state.fl.us/geology/>

(850) 617-0300

<sup>17</sup> NSF <https://www.nsf.gov/about/budget/>

<sup>18</sup> NSF Budget Internet Information System

<sup>19</sup> EPA Budget and Spending

<sup>20</sup> EPA Search for Superfund Sites Where You Live

<sup>21</sup> 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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