Geoscience in Virginia

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: VIRGINIA
- 8,782 geoscience employees (excludes self-employed)\(^1\)
- 298 million gallons/day: total groundwater withdrawal\(^3\)
- $1.25 billion: value of nonfuel mineral production in 2017\(^4\)
- 64 total disaster declarations, including 17 severe storm, 15 flood, and 13 hurricane disasters (1953-2017)\(^6\)
- $18.8 million: NSF GEO grants awarded in 2017\(^14\)

WORKFORCE IN VIRGINIA
- 8,782 geoscience employees (excludes self-employed) in 2017\(^1\)
- $77,129: average median geoscience employee salary\(^1\)
- 20 academic geoscience departments\(^2\)

WATER USE IN VIRGINIA
- 298 million gallons/day: total groundwater withdrawal\(^3\)
- 6.43 billion gallons/day: total surface water withdrawal\(^3\)
- 697 million gallons/day: public supply water withdrawal\(^3\)
- 52 million gallons/day: water withdrawal for irrigation\(^3\)
- 370 million gallons/day: industrial fresh water withdrawal\(^3\)
- 81% of the population is served by public water supplies\(^3\)

ENERGY AND MINERALS IN VIRGINIA
- $1.25 billion: value of nonfuel mineral production in 2017\(^4\)
- Stone (crushed), cement (portland), sand and gravel (construction): top three nonfuel minerals in order of value produced in 2017\(^4\)
- 12.9 million short tons: coal produced in 2016\(^5\)
- 1.62 million megawatt hours: hydroelectricity produced in 2017\(^5\)
- 3.19 million megawatt hours: wood-derived fuels produced in 2017\(^5\)

NATURAL HAZARDS IN VIRGINIA
- 64 total disaster declarations, including 17 severe storm, 15 flood, and 13 hurricane disasters (1953-2017)\(^6\)
- $19 million: individual assistance grants (2005-2017)\(^6\)
- $72 million: mitigation grants (2005-2017)\(^6\)
- $439 million: preparedness grants (2005-2017)\(^6\)
- $267 million: public assistance grants (2005-2017)\(^6\)
- 64 weather and/or climate events, each with costs exceeding $1 billion (inflation adjusted) (1980-2017)\(^7\)

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\(^3\) U.S. Geological Survey, Estimated Use of Water in the United States in 2015
\(^4\) 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)
\(^7\) NOAA National Centers for Environmental Information, U.S. Billion-Dollar Weather and Climate Disasters from 1980 to 2018 (accessed April 6, 2018)
U.S. GEOLOGICAL SURVEY (USGS)

- $1.15 billion: total USGS budget in FY 2018 (5.8% increase from FY 2017)
- The National Cooperative Geologic Mapping Program funds geologic mapping projects with federal (FEDMAP), state (STATEMAP), and university (EDMAP) partners
- $2.89 million: STATEMAP funding to the Virginia Division of Geology and Mineral Resources (1993-2016)
- College of William and Mary, Radford University, and Virginia Wesleyan College have participated in EDMAP
- USGS streamgages collect real-time or recent streamflow, groundwater, and water-quality data throughout Virginia

NATIONAL SCIENCE FOUNDATION (NSF)

- $7.8 billion: total NSF budget in FY 2018 (4% increase from FY 2017)
- $1.4 billion: total NSF Geosciences Directorate (GEO) awards in FY 2017 (7.2% increase from FY 2016)
- 71 NSF GEO awards in Virginia totaling $18.8 million in 2017
- $4.6 million: NSF GEO grants awarded to Virginia Polytechnic Institute and State University in 2017

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- $8.1 billion: total EPA budget in FY 2018 (0% change from FY 2017)
- 31 active Superfund sites in Virginia in 2018
- $13.7 million: Drinking Water State Revolving Fund (DWSRF) grants in Virginia in 2017

FEDERAL FACILITIES IN VIRGINIA

- USGS National Center, Reston
- USGS Library, Reston
- USGS National Minerals Information Center, Reston
- USGS Water Science Center, Richmond
- NSF Headquarters, Alexandria
- NSF National Radio Astronomy Observatory, Charlottesville
- NASA Langley Research Center, Hampton

YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION

Virginia Division of Geology and Mineral Resources
900 Natural Resources Drive, Suite 400
Charlottesville, VA 22903
434-951-6341

8 U.S. Department of the Interior, FY 2019 Budet in Brief
9 U.S. Geological Survey, National Cooperative Geologic Mapping Program
10 National Aeronautics and Space Administration, FY 2019 Budget Estimates
11 National Geospatial-Intelligence Agency, 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