**Geoscience in West 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: WEST VIRGINIA**
- 3,217 geoscience employees (excludes self-employed)¹
- 134 million gallons/day: total groundwater withdrawal³
- $245 million: value of nonfuel mineral production in 2017⁴
- 67 total disaster declarations, including 29 flood, 23 severe storm, and 4 snow disasters (1953-2017)⁶
- $294,000: NSF GEO grants awarded in 2017¹⁴

**ENERGY AND MINERALS IN WEST VIRGINIA**
- $245 million: value of nonfuel mineral production in 2017⁴
- Crushed stone, portland cement, sand and gravel (industrial): top three nonfuel minerals in order of value produced in 2017⁴
- 79.8 million short tons: coal produced in 2016⁵
- 1.60 trillion cubic feet: natural gas produced in 2017⁵
- 9.47 million barrels: crude oil produced in 2017⁵
- 1.77 million megawatt hours: hydroelectricity produced in 2017⁵

**WORKFORCE IN WEST VIRGINIA**
- 3,217 geoscience employees (excludes self-employed) in 2017¹
- $53,085: average median geoscience employee salary¹
- 4 academic geoscience departments²

**WATER USE IN WEST VIRGINIA**
- 134 million gallons/day: total groundwater withdrawal³
- 2.19 billion gallons/day: total surface water withdrawal³
- 185 million gallons/day: public supply water withdrawal³
- 4 million gallons/day: water withdrawal for irrigation³
- 424 million gallons/day: industrial fresh water withdrawal³
- 79% of the population is served by public water supplies³

**NATURAL HAZARDS IN WEST VIRGINIA**
- 67 total disaster declarations, including 29 flood, 23 severe storm, and 4 snow disasters (1953-2017)⁶
- $117 million: individual assistance grants (2005-2017)⁶
- 33 weather and/or climate events, each with costs exceeding $1 billion (inflation adjusted) (1980-2017)⁷

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² AGI Directory of Geoscience Departments
⁵ Energy Information Administration
⁶ FEMA Data Visualization: Summary of Disaster Declarations and Grants (accessed May 2, 2018)

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Geoscience, West Virginia, and Federal Agencies

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
- $1.43 million: STATEMAP funding to the West Virginia Geological and Economic Survey (1993-2016)
- West Virginia University has participated in EDMAP
- USGS streamgages collect real-time or recent streamflow, groundwater, and water-quality data in West 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)
- 5 NSF GEO awards in West Virginia totaling $294,000 in 2017
- $192,000: NSF GEO grants awarded to West Virginia University in 2017

U.S. GEOLOGICAL SURVEY (USGS)
- $20.7 billion: total NASA budget in FY 2018 (5.5% increase from FY 2017)
- $1.9 billion: total NASA Earth Science budget in FY 2018 (0% change from FY 2017)
- Gravity Recovery and Climate Experiment (GRACE) satellites measure groundwater changes in West Virginia
- Soil Moisture Active Passive (SMAP) satellite measures soil moisture in West Virginia

NATIONAL SCIENCE FOUNDATION (NSF)
- $20.7 billion: total NASA budget in FY 2018 (5.5% increase from FY 2017)
- $1.9 billion: total NASA Earth Science budget in FY 2018 (0% change from FY 2017)
- Gravity Recovery and Climate Experiment (GRACE) satellites measure groundwater changes in West Virginia
- Soil Moisture Active Passive (SMAP) satellite measures soil moisture in West Virginia

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
- $8.1 billion: total EPA budget in FY 2018 (0% change from FY 2017)
- 10 active Superfund sites in West Virginia in 2018
- $8.17 million: Drinking Water State Revolving Fund (DWSRF) grants in West Virginia in 2017
- $200,000 Brownfield cleanup grants awarded to West Virginia in 2018

FEDERAL FACILITIES IN WEST VIRGINIA
- USGS Leetown Science Center, Kearneysville
- NOAA Cyber Security Center, Fairmont
- NASA Independent Verification and Validation Facility, Fairmont
- DOE National Energy Technology Lab, Morgantown

YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION
West Virginia Geological and Economic Survey
1 Mont Chateau Road
Morgantown, WV 26508
http://www.wvgs.wvnet.edu/
304-594-2331

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

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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