

9 July 2019

Senator Cathy Giessel  
State Capitol Room 111  
Juneau, AK 99801

Dear Ms. Giessel:

I am writing on behalf of the American Geosciences Institute, a federation of over 50 geoscience societies representing 250,000 geoscientists from all 50 states, to strongly request that the proposed budgetary cuts to the University of Alaska be reversed so that the critical educational and research programs that both the Anchorage and Fairbanks campuses provide can continue unimpeded. The geoscience programs on these campuses are integral to the U.S. geoscience enterprise, representing two of the most productive programs in the country for educating the next generation of geoscientists. And given the centrality of natural resources and hazards to the economics of the State of Alaska, these centers of excellence produce the critical workforce to develop the energy and minerals within the Alaska, and are key to protecting the citizenry and infrastructure from natural hazards.

Additionally, the geoscience programs represent unique training grounds for professionals to be appropriately educated and equipped to work in the unique environments within Alaska, something which can't be effectively taught elsewhere. Likewise, the mining and geological engineering program consistently demonstrates its importance through its nearly perfect job placement rate, and that it is one of just a dozen U.S. mining engineering programs, filling a critical economic space.

Any major cuts to the University of Alaska, especially following the previous rounds of budgetary trimming, will force the next generation of students to seek their education outside of Alaska, and not be effectively equipped to work within the State later. Likewise, the cutting-edge research done within the University relative to Alaska's unique environments, such as permafrost, would be lost, not only to Alaska, but become an expertise at risk of permanent decimation.

These budget cuts will not only hurt the students but will negatively impact the future economic health of the State of Alaska, potentially forcing even more austerity for the State. I have attached a fact sheet that we produce that looks at how geoscience is a vital part of your state, but you can also view it online here:

[https://s3images.americangeosciences.org/agi/statefactsheets/AK\\_GeoscienceInYourState\\_AGI.pdf](https://s3images.americangeosciences.org/agi/statefactsheets/AK_GeoscienceInYourState_AGI.pdf)

If you would like to discuss this situation further, please feel free to contact me at: (703) 379-2480 x 202 or [aandersonbook@americangeosciences.org](mailto:aandersonbook@americangeosciences.org)

Respectfully,



Allyson Anderson Book  
Executive Director

# Geoscience in Alaska

## 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.



Satellite image: NASA/USGS Landsat Program. State outline (not to scale): Matt Battison.

## WORKFORCE IN ALASKA

- 3,736 geoscience employees (excludes self-employed) in 2017<sup>1</sup>
- \$101,739: average median geoscience employee salary<sup>1</sup>
- 4 academic geoscience departments<sup>2</sup>

## WATER USE IN ALASKA

- 315 million gallons/day: total groundwater withdrawal<sup>3</sup>
- 450 million gallons/day: total surface water withdrawal<sup>3</sup>
- 99 million gallons/day: public supply water withdrawal<sup>3</sup>
- 2 million gallons/day: water withdrawal for irrigation<sup>3</sup>
- 8 million gallons/day: self-supplied industrial fresh water withdrawal<sup>3</sup>
- 74% of the population is served by public water supplies<sup>3</sup>

## By the numbers: ALASKA

- 3,736 geoscience employees (excludes self-employed)<sup>1</sup>
- 315 million gallons/day: total groundwater withdrawal<sup>3</sup>
- \$3.53 billion: value of nonfuel mineral production in 2017<sup>4</sup>
- 54 total disaster declarations, including 17 severe storm, 4 fire, and 13 flood disasters (1953-2017)<sup>6</sup>
- \$33.6 million: NSF GEO grants awarded in 2017<sup>14</sup>

## ENERGY AND MINERALS IN ALASKA

- \$3.53 billion: value of nonfuel mineral production in 2017<sup>4</sup>
- Zinc, gold, lead: top three nonfuel minerals in order of value produced in 2017<sup>4</sup>
- 932,000 short tons: coal produced in 2016<sup>5</sup>
- 344 billion cubic feet: natural gas produced in 2017<sup>5</sup>
- 181 million barrels: crude oil produced in 2017<sup>5</sup>
- 1.78 million megawatt hours: hydroelectricity produced in 2017<sup>5</sup>
- 164,000 megawatt hours: wind produced in 2017<sup>5</sup>

## NATURAL HAZARDS IN ALASKA

- 54 total disaster declarations, including 17 severe storm, 14 fire, and 13 flood disasters (1953-2017)<sup>6</sup>
- \$9 million: individual assistance grants (2005-2017)<sup>6</sup>
- \$40 million: mitigation grants (2005-2017)<sup>6</sup>
- \$123 million: preparedness grants (2005-2017)<sup>6</sup>
- \$146 million: public assistance grants (2005-2017)<sup>6</sup>
- 6 weather and/or climate events, each with costs exceeding \$1 billion (inflation adjusted) (1980-2017)<sup>7</sup>

<sup>1</sup> U.S. Bureau of Labor Statistics, Occupational Employment Statistics, May 2017

<sup>2</sup> American Geosciences Institute, Directory of Geoscience Departments, 53rd Edition (2018)

<sup>3</sup> U.S. Geological Survey, Estimated Use of Water in the United States in 2015

<sup>4</sup> U.S. Geological Survey, Mineral Commodity Summaries 2018

<sup>5</sup> U.S. Energy Information Administration

<sup>6</sup> FEMA Data Visualization: Summary of Disaster Declarations and Grants (accessed May 2, 2018)

<sup>7</sup> NOAA National Centers for Environmental Information, U.S. Billion-Dollar Weather and Climate Disasters from 1980 to 2018 (accessed April 6, 2018)

AGI is a network of 52 member societies, representing more than 260,000 geoscientists.

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<https://www.americangeosciences.org/policy/factsheet/states> | [govt@americangeosciences.org](mailto:govt@americangeosciences.org)

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## U.S. GEOLOGICAL SURVEY (USGS)

- \$1.15 billion: total USGS budget in FY 2018 (5.8% increase from FY 2017)<sup>8</sup>
- The National Cooperative Geologic Mapping Program funds geologic mapping projects with federal (FEDMAP), state (STATEMAP), and university (EDMAP) partners
- \$4.24 million: Alaska STATEMAP funding (1993-2016)<sup>9</sup>
- University of Alaska Fairbanks has participated in EDMAP<sup>9</sup>
- USGS streamgages collect real-time or recent streamflow, groundwater, and water-quality data throughout Alaska

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## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

- \$20.7 billion: total NASA budget in FY 2018 (5.5% increase from FY 2017)<sup>10</sup>
- \$1.9 billion: total FY 2018 NASA Earth Science budget (0% change from FY 2017)<sup>10</sup>
- Gravity Recovery and Climate Experiment (GRACE) satellites measure groundwater changes in Alaska
- Soil Moisture Active Passive (SMAP) satellite measures soil moisture in Alaska

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## NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

- \$5.9 billion: total NOAA budget in FY 2018 (4.1% increase from FY 2017)<sup>11</sup>
- Next-generation geostationary (GOES) and polar orbiting (JPSS) satellites provide weather forecasting over Alaska
- Deep Space Climate Observatory (DISCOVER) satellite monitors radiation and air quality over Alaska
- 48 National Weather Service Automated Surface Observing Systems (ASOS) stations in Alaska<sup>12</sup>
- 168 National Weather Service Cooperative Observer Program (COOP) sites in Alaska<sup>12</sup>

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## NATIONAL SCIENCE FOUNDATION (NSF)

- \$7.8 billion: total NSF budget in FY 2018 (4% increase from FY 2017)<sup>13</sup>
- \$1.4 billion: total NSF Geosciences Directorate (GEO) awards in FY 2017 (7.2% increase from FY 2016)<sup>14</sup>
- 78 NSF GEO awards in Alaska totaling \$33.6 million in 2017<sup>14</sup>
- \$28.6 million: NSF GEO grants awarded to University of Alaska Fairbanks in 2017<sup>14</sup>

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

- \$8.1 billion: total EPA budget in FY 2018 (0% change from FY 2017)<sup>15</sup>
- 6 active Superfund sites in Alaska in 2018<sup>16</sup>
- \$8.24 million: Drinking Water State Revolving Fund (DWSRF) grants in Alaska in 2017<sup>17</sup>

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## FEDERAL FACILITIES IN ALASKA

- USGS Volcano Science Center, Anchorage
- USGS Alaska Climate Science Center, Anchorage
- NOAA OAR Barrow Observatory, Barrow
- DOE National Energy Technology Laboratory, Fairbanks
- NSF Earthscope, Fairbanks

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## YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION

Alaska Department of Natural Resources  
Division of Geological & Geophysical Surveys  
3354 College Road  
Fairbanks, AK 99709  
<http://www.dggs.alaska.gov>  
907-451-5000

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