

Geophysical Institute

Founded in 1946, the Geophysical Institute is a premier center of Arctic Science for the study of geophysics from the center of the Earth to the surface of the sun and beyond, turning data and observations into information useful for state, Arctic and national priorities.

Our faculty and student researchers study permafrost; ice and snow; sea ice and the depths of the Arctic Ocean; coastal erosion; the seismicity and volcanology of Alaska; tectonic plates; the Arctic atmosphere; the aurora and other facets of near-earth space.

Major research programs are underway in space physics and aeronomy; atmospheric science; snow, ice and permafrost; seismology and geodesy; volcanology; remote sensing; and tectonics and sedimentation.

The GI's collection of 19 facilities and laboratories is unique, allowing our scientists to pursue a wide range of research that is based on the ground, in the air through manned and unmanned aircraft, or in space. The institute operates Poker Flat Research Range (<https://www.pfrr.alaska.edu/content/welcome-poker-flat/>) – the only university-owned rocket range in the U.S. – for space research, and the Alaska Satellite Facility (<https://asf.alaska.edu/>), a satellite ground station with processing and archiving capabilities for earth science support. In addition, the Alaska Volcano Observatory (<https://avo.alaska.edu/>), the Alaska Earthquake Center (<https://earthquake.alaska.edu/>), Alaska Climate Research Center (<https://climate.gi.alaska.edu/>) and the Alaska Center for Unmanned Aircraft Systems Integration (<https://acuasi.alaska.edu/>) are located at the institute. More than 75,000 books, 350 journals and other specialized media are maintained at the Keith B. Mather Library (<https://www.gi.alaska.edu/facilities/mather-library/>).

GI faculty and student researchers benefit from the coupled activities of education and research. Undergraduate and graduate students find work in research programs while gaining academic credit toward their degrees. Most GI faculty have joint appointments, providing teaching opportunities at the College of Natural Science and Mathematics or the College of Engineering and Mines.

The institute uses geophysical data as the basis for decision-making tools. Researchers monitor earthquakes and volcanic eruptions leading to hazard alerts to federal and state agencies. Remote sensing specialists use satellite and airborne observations to help fight forest fires and monitor the health of Alaska's ecosystems. Institute scientists run computer simulations of tsunamis, aiding coastal communities in developing emergency evacuation plans.

Our work helps the nation better understand climate change. It provides information about Arctic air pollution. It aids in national defense. The institute partners with K-12 schools across the state to share scientific curricula to educate and motivate students in STEM.

More than 500 permanent field sites are operated throughout Alaska and are associated with the Poker Flat Research Range, the Alaska Earthquake Center, the Alaska Volcano Observatory and the Permafrost Research Laboratory.

For more information, visit the Geophysical Institute website (<https://www.gi.alaska.edu/>) or call 907-474-7558.