



BOISE STATE UNIVERSITY

RESEARCH
STRENGTHS



GEOSCIENCES

Through research that advances understanding of the surface, near surface and deep Earth environments, Boise State geoscientists are addressing critical issues such as climate change, human-environment interactions, alternative energy sources and basic materials.

- Two doctoral, four master's and two undergraduate degree programs
- World-class expertise in studies of the Earth's shallow subsurface, and in chemical analysis and characterization of geologic materials
- State-of-the art laboratories on campus and at field sites located along the Boise River and in the Boise foothills attract collaborators from top research institutions from around the world and support a broad range of funded research programs

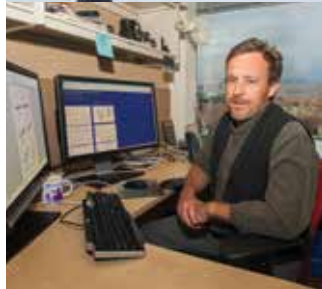
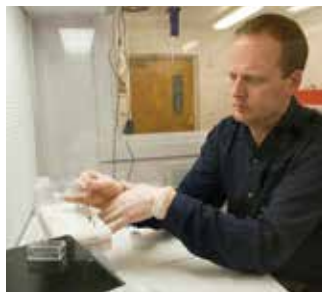
A RIGOROUS APPROACH TO RESEARCH:

> **GEOCHRONOLOGY** research to more precisely define the geologic time scale > **SNOWPACK** studies that use ground-based radar to determine distribution of water across a mountain slope > **VOLCANO ACOUSTICS** research to understand how and when eruptions occur > **HYDROGEOPHYSICAL** studies to develop noninvasive methods to image the subsurface > **EARTHQUAKE HAZARD** analyses to determine location and uplift history of fault zones > **GROUNDWATER** investigations that provide insight on impacts of climate change



GEOSCIENCES

Geosciences spans immense temporal and spatial scales and intersects with physics, chemistry, biology, mathematics and other disciplines. Boise State researchers utilize a variety of tools, from field-oriented projects to laboratory experimentation and numerical models.



GEOLOGICAL SCIENCES seeks to understand the processes of planetary evolution through the application of petrologic, structural, geochemical, stratigraphic and paleontological methods to the geological record. Research and graduate program strengths include volcanology and igneous petrology, orogenic systems science, and time-series analysis of the stratigraphic record.

GEOPHYSICS applies high-resolution geophysical methods to better understand the geologic and hydrologic processes of the near surface. Boise State has developed a strong research interest in hydrogeophysics, geophysical inversion, physical properties of soil, earthquake hazard studies and paleoclimate studies. Students work on problems of water flow in the shallow subsurface using electrical, electromagnetic, and seismic techniques, or use seismic methods to determine the sediment distribution in ocean basins.

SURFICIAL PROCESSES is primarily focused on questions related to modern Earth processes. Our graduate program has a strong emphasis in the broadly defined field of hydrologic sciences and our faculty are engaged in research that extends from geomorphology and sediment transport to surface and groundwater flow and quality and modern climate change.

RESOURCES

- Center for Geophysical Investigation of the Shallow Subsurface
- Boise Hydrogeophysical Research Site
- Dry Creek Experimental Watershed
- BioTrace Laboratory
- Isotope Geology Lab
- Stable Isotope Lab

ISSUED AND PENDING PATENTS

- Modular Hydraulic Packer and Port System
- Determination of Permeability from Damping

(Note: Boise State's patent portfolio continues to grow and new applications are in process.)

GRANTS AND AWARDS

- National Science Foundation
- NASA
- Environmental Protection Agency
- Department of Defense
- U.S. Geological Survey
- Idaho Department of Water Resources
- Department of Agriculture



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RESEARCH AND ECONOMIC DEVELOPMENT

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