



Geographic Setting

Located in the Pacific Northwest, the University of Washington is in a strategic position to participate in both terrestrial and marine

aspects of Quaternary research. Our proximity to ocean, lakes, rivers, mountains, lowlands, rain forests, alpine tundra, and the arid Columbia Plateau attracts faculty and students with research interests spanning a wide range of subjects and environments. Our diverse topography and climates provide an ideal research setting, with glaciers, volcanoes, Quaternary sediments and landforms, and biogenic deposits all within driving distance from campus.

The QRC seeks to:

- Understand environments and climate changes of the past two million years in the context of modern surface processes, with special attention to historical changes, prehistoric postglacial environments, and Ice Age events.
- Foster interdisciplinary studies in anthropology, atmospheric sciences, archaeology, biology, climatology, engineering, forestry, geology, geophysics, geochemistry, oceanography, paleoecology, and pedology.
- Provide a scientific perspective on the magnitude of human-induced environmental change, including climatic change, in the context of recent earth history.
- Apply Quaternary studies to modern environmental problems and natural hazards, helping to guide and understand consequences of policy decisions.



Photo: Naomi Finnegan

QRC Faculty

- Rolf Aalto**
Earth and Space Sciences
- Patricia Anderson**
Earth and Space Sciences
- Brian Atwater**
Earth and Space Sciences
USGS
- Derek Booth**
Earth and Space Sciences
Civil Engineering
- Jody Bourgeois**
Earth and Space Sciences
- Linda B. Brubaker**
Forest Resources
- Angela E. Close**
Anthropology
- Gerald G. Eck**
Anthropology
- Ben Fitzhugh**
Anthropology
- Alan Gillespie**
Earth and Space Sciences
- Donald K. Grayson**
Anthropology
- Bernard Hallet**
Earth and Space Sciences
- Dennis Hartmann**
Atmospheric Sciences
- Ross Heath**
Oceanography
- Kathryn Hoppe**
Earth and Space Sciences
- Estella Leopold**
Biology
- David Montgomery**
Earth and Space Sciences

- Charles Nittrouer**
Oceanography
- Stephen Porter**
Earth and Space Sciences
- Jaakko Putkonen**
Earth and Space Sciences
- Paul D. Quay**
Oceanography
- Charles Raymond**
Earth and Space Sciences
- Jeffrey Richey**
Oceanography
- Gerard Roe**
Atmospheric Sciences
- Ronald S. Sletten**
Earth and Space Sciences
- Eric Steig**
Earth and Space Sciences
- Julie Stein**
Anthropology
- John Stone**
Earth and Space Sciences
- Minze Stuiver**
Earth and Space Sciences
- Terry Swanson**
Earth and Space Sciences
- Ed Waddington**
Earth and Space Sciences
- Stephen Warren**
Atmospheric Sciences
Earth and Space Sciences
- A. L. Washburn**
Earth and Space Sciences

Quaternary Research Center

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The Quaternary Research Center

fosters interdisciplinary research on the last two million years of the global environment, a time encompassing massive and abrupt changes of climate, sea level, global biota, and ice extent, as well the evolution of humans and the advent of civilization.



Photo: Eastbrook Photolmage Center

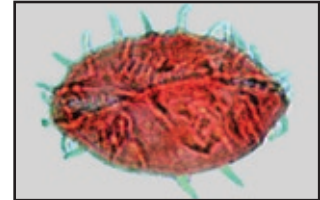


Photo: Linda Reinink-Smith



Photo: Bernard Hallett



Photo: Mark Brenner

We study processes that drive environmental changes in order to understand how the Earth sustains humanity, and to prepare for future environmental changes.

Quaternary Research

An Interdisciplinary Journal

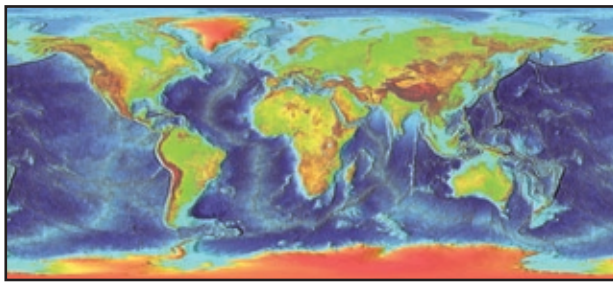
The Center publishes *Quaternary Research*, the leading international journal of Quaternary science. Content includes studies from geology, geophysics, archaeology, paleontology, and oceanography. The journal features interdisciplinary articles that present previously unpublished research results and comprehensive reviews.



Research Projects

QRC Faculty and students engage in a broad range of research projects involving field, laboratory, and theoretical studies. Research has been carried out on every continent, in a variety of natural environments. Ongoing projects include:

- Coupling of climate, erosion, and tectonics in the Himalaya, Andes, and other mountain ranges
- Stable isotope records from Greenland and Antarctic ice cores
- Glacial and periglacial processes
- Archaeological investigations in the Kuril Islands
- Prehistoric tsunamis in Kamchatka, Puget Sound and around the Pacific Rim
- Terrestrial environments as analogs for interpreting Martian landforms
- Environmental history of Puget Sound rivers.



Facilities

QRC Resource Center

The Flint/Washburn Collection of the QRC Resource Center is one of the finest sources of information in North America about the Quaternary Period. An extensive collection of books, journals, serials, and reprints provides a valuable resource for students, resident faculty, and visiting scholars. The Easterbrook Photo Image Collection (EPIC) provides another exceptional resource for research and teaching.



Stable Isotope Laboratory

Eric Steig

Developing high-resolution climate records covering the last ten millennia, from ice cores in the Canadian Arctic, Greenland, and Antarctica. Off-line and on-line preparation systems for D/H and $^{18}\text{O}/^{16}\text{O}$ on water, $^{13}\text{C}/^{12}\text{C}$ and on carbonates and organic materials, and $^{15}\text{N}/^{14}\text{N}$ on nitrate and organics.

Periglacial Laboratory

Bernard Hallet and Jaakko Putkonen

Studying processes that shape landscapes in alpine and polar regions. Cold rooms for precisely controlled experiments on soils and rocks as they freeze and thaw. Preparation rooms for staging field work and preparing instrumentation to study glacial and periglacial processes in diverse regions including Alaska, Antarctica, Greenland, and Patagonia.

GIS Lab

David Montgomery

Using Geographical Information Systems (GIS) to explore and quantify geomorphology, and to support field campaigns. Spatial Data Engine, Internet Map Server, mammoth file server and web servers, and powerful student workstations.

Cosmogenic Nuclide Laboratories

John Stone

Measuring cosmic-ray-produced ^{26}Al , ^{10}Be and ^{36}Cl in rocks, soils, sediment and ice to date events that have modified the Earth's surface and studying the responsible geomorphic processes. Dating Quaternary glaciation, studying erosion and sediment transport, and quantifying cosmogenic nuclide production.



Soil Geochemistry Lab

Ron Sletten

Studying soil and water chemistry, including the role of natural organic matter in metal transport in soil and water. Examining surface processes and carbon dynamics in polar regions.

Quaternary Ecology and Paleocology Laboratories

Pat Anderson

Detailed stratigraphic studies of plant and animal remains in Quaternary sediments. Extensive collection of modern reference pollen types from Asia and the Americas. Studies of fossil cladoceran remains, diatoms, seeds, and trace-metal geochemistry in lake sediments.

Remote Sensing and Planetary Sciences Laboratory

Alan Gillespie

Theory and mapping of multispectral remote-sensing data as applied to the surface of Earth and other planetary bodies. Monitoring of anthropogenic change and natural hazards.