

MOLLY GALLAHUE

(847) 491-8182 | molly@earth.northwestern.edu

Education

Northwestern University / Ph.D., Earth and Planetary Science / In Progress
St. Norbert College / B.S., Geology and Mathematics / 2018
University College Cork, Ireland / Study Abroad / 2016

Research Interests

Seismology, plate tectonics, seismic hazards

Research

California Historical Intensity Mapping Project (CHIMP) (ongoing) We have built a dataset of shaking experienced from moderate and large earthquakes throughout California over the past 162 years. The completed dataset has been made publicly available and is used initially to evaluate current USGS seismic hazard maps, with later applications in assessing current ground motion models.

Igneous material at volcanic rifted margins (ongoing) Rifting continents give rise to igneous material, but the relationship between the amount of igneous material and degree of rifting remains unknown. We use seismic reflection and other data to calculate the amount of igneous material at rifted margins and compare it to margin characteristics in order to elucidate mechanisms involved in continental rifting.

Petrology of intrusive granites from the Mellen Complex in Northwestern Wisconsin (2015-2016) Rock samples were collected from the Mellen Complex and were made into thin sections. Point count analysis and Scanning Electron Microscope (SEM) analysis was conducted on the samples to determine the overall mineral composition.

Publications

Gallahue, M.M., Stein, S., Stein, C.A., Jurdy, D., Barklage, M., Rooney, T. (2020) A compilation of igneous rock volumes at volcanic passive continental margins. Invited review for *Marine and Petroleum Geology*, submitted.

Salditch, L., **Gallahue, M.**, Lucas, M., Neely, J., Hough, S.E., Stein, S. (2020) California Historical Intensity Mapping Project (CHIMP) – A consistently reinterpreted dataset of seismic intensities for the past 162 years and implications for seismic hazard maps. *Seismological Research Letters*, in review.

Presentations

Gallahue, M., Salditch, L., Hough, S.E., Stein, S., Spencer, B., Brooks, E., Neely, J., Lucas, M. (2019) CHIMP – A shaking dataset for historical large earthquakes in California. AGU Annual Meeting, San Francisco, CA.

Gallahue, M., Stein, S., Stein, C.A., Jurdy, D.M., Barklage M. (2019) Compilation of igneous rock volumes and geometries at volcanic passive continental margins to explore the processes of continental rifting and breakup. AGU Annual Meeting, San Francisco, CA.

Gallahue, M., Salditch, L., Hough, S.E., Stein, S., Spencer, B., Brooks, E., Neely, J., Lucas, M. (2019) CHIMP – A shaking dataset to assess the performance of earthquake hazard maps for California. GSA Annual Meeting, Phoenix, AZ.

Gallahue, M., Stein, S., Stein, C.A., Jurdy, D.M., Barklage M. (2019) Exploring the role of hotspots in initiating continental breakup from volcanic volumes at rifted margins. GSA Annual Meeting, Phoenix, AZ.

Salditch, L., Hough, S.E., Stein, S., Spencer, B., Brooks, E., Neely, J., **Gallahue, M.** (2019) Toward a database of consistently reinterpreted intensities in California. SSA Annual Meeting, Seattle, WA.

Teaching Assistant Experience

Northwestern University - EARTH 101: Earth Science for the 21st Century

Teaching Assistant / September 2019 – December 2019

St. Norbert College Geology Department

Teaching Assistant / August 2015 – May 2018

St. Norbert College Mathematics Department

Teaching Assistant / August 2017 – May 2018

Awards and Honors

Honorable Mention / NSF Graduate Research Fellowship Program / 2020

Outstanding Student Presentation Award / American Geophysical Union / 2019

North-Central Section Student Travel Grant / Geological Society of America / 2019

Maria Luisa Crawford Field Camp Scholarship / Association for Women Geoscientists / 2018

The Geology Award / St. Norbert College / 2018

Computer Skills

Proficient in Excel, Python, Adobe Illustrator and LaTeX.

Field Experience

- 2018** Northwestern University seismic reflection survey of Geneva Lake, WI.
Illinois State University geology field camp course involving the mapping of field sites in Wyoming and South Dakota.
- 2017** St. Norbert College petrology course trip to Copper Harbor, MI to examine Keeweenawan geology of the upper peninsula.
St. Norbert College sedimentology/stratigraphy course trip along the Niagara Escarpment to discuss the sedimentology and geologic history of the Door County, WI region.
St. Norbert College sedimentology/stratigraphy course trip to Fonferek's Glen County Park, WI to measure stratigraphic section and collect rock samples for a course project.
- 2016** St. Norbert College Black Hills of South Dakota field course to visit and discuss the geology of the Badlands, Wind Cave National Park, the Mammoth Site in Hot Springs, SD, Devil's Tower, Mount Rushmore, and Homestake Mine.
St. Norbert College structural geology course to examine the Baraboo syncline and Baraboo quartzite of Baraboo, WI.
- 2015** St. Norbert College petrology course trip to examine the Wausau syenite and Rib Mountain quartzite of Wausau, WI.
St. Norbert College mineralogy course trip to Mellen, WI to collect granite samples from the Mellen Complex to analyze for a research project.

Other Work Experience

Field Museum

Volunteer Docent / April 2019 - present

St. Norbert College Admissions Office

Office Assistant and Tour Guide / March 2015 – May 2018

Rotary Botanical Gardens

Intern / June 2015 – August 2015