EMILY B. CAHOON

(508)561-7427 (mobile)
ebcahoon@gmail.com
MetalsMineralsExp.com

EDUCATION

Ph.D. Igneous Petrology/ Geochemistry/ Volcanology, 2020
School of the Environment, Portland State University, OR
Research Advisor: Dr. Martin J. Streck
Distribution, Geochronology, and Petrogenesis of the Picture Gorge Basalt with Special Focus on Petrological Relationships to the Main Columbia River Basalt Group

Certificate of Innovation in College Teaching, 2020
Office of Academic Innovation, Portland State University, OR
Digital Teaching Portfolio

M.S. Geology, 2015
School of the Environment, Washington State University, WA
Research Advisor: Dr. David Gaylord
Volcanogenic Sedimentation in the Greenhorn 7.5′ Quadrangle Oregon: Explosive and Effusive Volcanism coeval with the Eocene Clarno Formation

B.S. Geology, 2010
College of Earth, Ocean, and Environment, University of Delaware, DE
Senior Project Advisor: Dr. Edward Kohut
Petrology of Resurgent Domes, East Diamante Submarine Caldera, Marianas Arc

ACADEMIC WORK EXPERIENCE

• **University of Alaska Anchorage** *(August 2020 - present)*
Term Assistant Professor
Course taught include igneous/ metamorphic petrology, environmental geology, introductory geology, geologic data analysis, and volcanology.

• **Cambridge Coaching** *(April 2020 – present)*
Academic Tutor
Academic tutor for college-level courses providing students virtual teaching and studying support across the United States.

• **Community College Research Center, Teachers College, Columbia University** *(Sept 2019 – July 2020)*
Research Consultant
Describe and evaluate Lesson Study cycle activities at participating community colleges using a structured observation protocol and under the guidance of the project director.

• **Clackamas Community College** *(Sept 2019 – present)*
Adjunct Faculty
Science instructor for introductory geology and earth systems science lecture and/or laboratory courses.

• **Portland State University** *(2019, 2020)*
Mineralogy Instructor
Generate and teach lessons, demonstrations, and organize laboratory activities for undergraduate mineralogy and optical mineralogy course with a field trip to the Rice Northwest Museum of Rocks and Minerals.

• **Portland State University** *(Sept 2017 – June 2019)*
Graduate Research Assistant
Produced field guide for a 4-day professional field trip with interactive field map consistent with the field guide, 2019 GSA meeting (Cordilleran section). Assisted in creation of interactive web platform to view Scanning Electron Microbe images and chemical analyses of mineral phases from Mt. Shasta, California.

• **Portland State University** *(Sept 2015 – July 2017)*
Graduate Teaching Assistant
Work as instructor for lab courses including Introductory Geology, Mineralogy, Petrology, and Geology of Oregon (online course). Function as a liaison between the students and the professor and grade, return, and consult with students on assignments. Assist in the planning and executing of 1-3-day field trips within the state of Oregon.

• **Washington State University Teaching Assistant** *(Aug 2010 – Dec 2012)*
Graduate Teaching Assistant
Lab instructor for an introductory geology course, teaching principles of geology via lectures and field assignments. Prepare lectures, exercises, and potential experiments for each lesson and work as a liaison between the students and the professor. Grade, return, and consult with students on work within university deadlines.

INDUSTRY WORK EXPERIENCE

• **The Kiwanda Group** *(Oct 2016 – Dec 2019)*
Geologist
Work to synthesize data from geologic maps and geochemical assays to interpret and evaluate potential economic zones at a carbonate replacement deposit hosting Cu-Ag-Zn-Mn mineralization in Peru. Compile technical geologic text (JORC Code or NI-43-101), analyze geochemical assay data, and attend international mining conferences.

• **EA Engineering, Science, and Technology, Inc.** *(May 2014- Oct 2015)*
Geologist
Field geologist at heavily contaminated industrial sites collecting data. Data analysis included examination of geophysical borehole data (500' deep) through Triassic Basin sediments identifying fracture zones to determine hydraulic gradient, zones of communication, and well screen intervals. Created and developed field sampling plans, work plans, scopes of work, and geologic setting/ groundwater conditions at various sites. In the field, I oversaw and maintained groundwater sampling procedures, described in detail sediment cores, recorded and managed soil and groundwater samples for shipment, oversaw monitoring well installation by hollow stem auger, and monitored groundwater fluctuations.

• **Golder Associates, Inc.** *(March 2013-April 2014)*
Geologist
Worked as a geologist collecting field data at major environmentally impacted sites. Monitored groundwater fluctuations, quality, aquifer extents, and plume migration by conducting pump, step, and slug tests; and oversaw drilling (Hollow Stem, Geoprobe, Mud and Air Rotary), split spoon sampling, well development, and logging of core.

• **Duluth Metals ltd.** *(June 2011- Aug 2011)*
Field Geologist
Field based experience with exploration Cu-Ni mining company in Minnesota, US. Tasks involved sampling glacial till at designated locations in extremely difficult terrain using a hand-held GPS, organizing samples to be sent out for assay, and assisting with mapping projects identifying rock types/ textures and interpreting formation. Additional experience with logging core from active drill sites and transcribing sample data into geospatial database.

• **Delaware Geological Survey, Newark, DE** *(Jan 2008 – May 2010)*
Undergraduate Intern
Created well schedules from limited data using topographic maps, ArcGIS, and Oracle web-based platform. Fieldwork included aiding the head geologist of the site and the driller in handling core. Described both sediment and core from the drill site. Lab work weighing, washing, and analyzing drill samples.

UNDERGRADUATE MENTORSHIPS

- Stephanie Welch, undergraduate student (PSU), research findings presented at AGU, 2019 (poster presentation)
- Melinda Muckenthaler, undergraduate student (PSU, co-mentor), department thesis presenting June, 2020

PROFESSIONAL DEVELOPMENT

Mineralogy Undergraduate Work Study Program (development in-progress):

Collaboratively establish and develop a work-study/ internship program between the PSU Geology Department and the Rice Northwest Museum of Rocks and Minerals. This partnership will provide undergraduates studying geology experience with mineral specimen curatorial work while simultaneously creating research opportunities. Students will be encouraged to design and produce a project focused on a particular mineral specimen or collection of their choosing.

GSA Field Trip Co-Leader:

Co-leader on a 4-day professional field trip with the Geologic Society of America's (GSA) Cordilleran Sectional Meeting. This field trip explored volcanism of mid-Miocene silicic centers and nearby lavas of the Columbia River Basalt as well as volcanism pre- and postdating flood basalts (May, 2019).

Western Association of Graduate Schools 3MT (Nominee):

Research communication competition among graduate students in the western United States (March, 2019).

Scientific Party Member (Shift Lead), Nathaniel B. Palmer Icebreaker:

Shift leader overseeing a team of six scientists aboard an oceanic vessel. Science objectives focused on intraplate volcanism on the Rio Grande Rise as it related to the Walvis Ridge and the young end of the Tristan-Gough hotspot track (October - December, 2018).

Volcanology Students of Oregon (VOLC-OR), Founder/ Advisory Board:

Founded and organized the first student-run geology conference in Oregon focused in geochemistry, volcanology, and petrology. A collaborative initiative between Portland State University, University of Oregon, and Oregon State University, it serves as a more informal complement to our major national scientific meetings (2018 – Present). (https://blogs.uoregon.edu/volcor/2018/03/29/volc-or-a-community-of-oregonian-volcanology-students/)

3 Minute-Thesis (3MT) Presenter (1st Place):

3MT is a research communication competition designed to help graduate students develop presentation skills by consolidating their research and presenting it to a non-specialist audience in three minutes (March, 2018). (https://www.youtube.com/watch?v=zp06Sp8h2Tg)

Field Course Participant:

ExxonMobil Guadalupe Mountains Field course investigating and evaluating Permian shelf deposits. Field exercises focused on seismic studies, carbonate depositional systems, and sequence stratigraphy (March 2012).

Lehigh University Field Camp:

Student on a 6-week traveling field camp from Pennsylvania to Idaho with Lehigh University (2009).

Study Abroad:

Student on a 6-week study abroad trip investigating volcanic deposits, New Zealand (2010) and studying and practicing the Spanish language, Mexico (2009).

Geophysics Intern

Field assistant installing geophones at sites across Massachusetts with the Weston Observatory of Geoscience and Geophysics, Boston College (2008).

INNOVATIVE OUTREACH & SERVICE

AWG PNW Chapter Editor:

Board Member and Communications Editor publishing quarterly newsletters for the Pacific Northwest Chapter Association of Women Geoscientists (2020 - present).

Nick Zentner Geology Podcast:

Guest on The Nick Zentner Geology Podcast by Nick Zentner of Central Washington University. The podcast is designed to explain various and complex geological topics to a general audience (Jan, 2020). http://www.nickzentner.com/the-nick-zentner-geology-podcast/2020/1/10/emily-cahoon

Rice Northwest Museum of Rocks and Minerals Volunteer:

Assist the museum curator with upcoming mineral expositions and outreach events including Volcano-Day (2019- present).

University President's Advisory Council:

Nominated to serve on a council consisting of undergraduate and graduate students, the ASPSU President, and Vice President. The council meets once per term to advise on student success, engagement, and financial challenges (2019- present).

Ladies Lab Night with Science Outreach Society and International Women's Day:

Event to introduce women in high school and college to PSU science departments through activities (lab tours, discussions, activities and demos, etc.) in an effort to increase the number of women in STEM fields, Portland State University (March, 2018).

Center for the Study of Active Volcanoes (CSAV) Field Course Volunteer:

In conjunction with the Cascade Volcano Observatory (CVO), assisted in a field-based course at Mt St Helens. Field activities included description and interpretation of volcanic ejecta for the purposes of making a stratigraphic column; measuring tephra sequences to ultimately create an isopach map of different eruptions; and finally describing volcanic deposits to generate a geologic map (2016 & 2018).

Graduate Student Union Steward, Portland State University:

Serve as a connection between the broader membership and union leadership to build an active and involved union in our workplace and provide information about actions, initiatives, and events (2016-2018).

Graduate Student Representative, Portland State University:

Serve as a liaison between the graduate student body and faculty of the Geology Department (2016-2018).

American Geophysical Union (AGU) Instagram Account Manager:

"Took over" AGU's Instagram account, a social media platform, to document via videos and photos a Petrology Field Trip to central Oregon through PSU (May, 2017) and my own fieldwork in eastern Oregon with two undergraduate field assistants (June, 2017).

Cascade Volcano Observatory (CVO) Graduate Student Volunteer:

Assist in dam breach experiments with CVO scientists at the debris flow flume at the H.J. Andrews Experimental Forest (Summer, 2011).

INVITED LECTURES

- Clackamette Mineral and Gem Club (CMGC) April, 2020 *(postponed)*
- Association for Women Geoscientists (AWG)-Northwest Geological Society (NWGS) November, 2019
- United State Geological Survey Water Resource Center (USGS) March, 2019
- Cascade Volcano Observatory Seminar (CVO) February, 2019
- Geological Society of the Oregon Country (GSOC) July, 2018
- Intel Corporation (Supercomputer team) February, 2018
- Student Research Symposium and AESS/ESM Student Research Colloquium (Portland State University) May, 2018

FIELD, TECHNICAL, & COMPUTATIONAL SKILLS

Field: Geologic field mapping (1:24,000), drilling for paleomagnetic samples and use of a fluxgate magnetometer, use of a hand auger, continuous core logging, rock sawing (continuous and serrated blades), groundwater sampling (up to 250'), and well installation via air-rotary and mud-rotary drilling.

Laboratory: Sample preparation for geochemical analysis via X-ray Fluorescence (XRF), Ionically Coupled Plasma Mass Spectrometer (ICP-MS), ArAr Geochronology (ARGUS-VI multi-collector), stable oxygen analyses via Thermo-Finnigan MAT 253, back scatter electron (BSE) imaging via electron microprobe, Sr/ Nd isotopes via Thermal Ionization Mass Spectrometry (TIMS), and Hf/ Pb isotopes via NU Plasma HR multi-collector.

Software: Microsoft Packages (Word, Excel, PowerPoint), ArcGIS, Inkscape, MagicPlot, Google Platforms, ImageJ, ArArCALC, Dedoose

Learning Management Systems: Desire2Learn (D2L), Moodle, Blackboard

Experience: Adobe Illustrator, handheld XRF, MELTS, Magma Chamber Simulator, RStudio, gINT, Aztec, USCS soil classification

PROFESSIONAL CERTIFICATIONS & MEMBERSHIPS

Certifications: Unsealed Radioisotope Work (certified 2019 OSU), HF Acid Awareness Training (certified 2019 OSU), Geologist-in-Training (certified 2015 in Pennsylvania), American Red Cross Adult and Pediatric CPR/AED (2014, expired), American Red Cross Standard First Aid (2014, expired), 40-hour HAZWOPER (2015, expired), and 10-hour OSHA Construction Safety and Health (2014, expired).

- Earth Science Women's Network (2020- Present)
- International Association for Geoscience Diversity (2020- Present)
- Women In Environment (2019- Present)
- American Association for the Advancement of Science (2017- Present)
- American Geophysical Union (2016- Present)
- International Association of Volcanology and Chemistry of the Earth's Interior (2015- Present)
- Association for Women Geoscientists (2015- Present)
- American Association of Petroleum Geologists (2010- Present)
- Geological Society of America Member (2010- Present)
- Boston Mineral Club (2007- Present)

ACADEMIC AWARDS, GRANTS, SCHOLARSHIPS, & FELLOWSHIPS

- Pacific Section Foundation Scholarship, 2019, American Association of Petroleum Geologists
- Kristovitch Award, 2018, Portland State University
- Grant-In-Aid Award, 2018, Portland State University
- Graduate Student Service Award, 2018, Portland State University
- Graduate Research Grant, 2018, Evolving Earth Foundation
- 3 Minute Thesis, First Place Winner, 2018, Portland State University
- Graduate Student Research Grant, 2017, Geological Society of America
- Graduate Student Service Award, 2017, Portland State University
- Best Quality Poster, 2017, Association of Engineering Geologists
- Dean's Graduate Scholarship, 2015 & 2016, Portland State University
- Graduate Research Grant, 2012, EDMAP
- Graduate Student Travel Grant, 2012, Geological Society of America
- Frank Scott Graduate Fellowship, 2012, Washington State University

•Graduate Research Travel Grant, 2011, Washington State University
•Frank Scott Graduate Fellowship, 2011, Washington State University
•Graduate Student Research Grant, 2011, Geological Society of America
•Graduate Student Travel Grant, 2011, Geological Society of America
•Outstanding Senior Award, 2010, University of Delaware

ACADEMIC AWARDS, GRANTS, SCHOLARSHIPS, & FELLOWSHIPS (unsuccessful)

•National Science Foundation, EAR-Postdoctoral Fellowship Proposal ($174,000)
•Philanthropic Educational Organization, Scholar Award (2018 & 2019) ($15,000)
•Lewis & Clark Fund for Exploration and Field Research, American Philosophical Society ($3,600)
•Harriet Evelyn Wallace Scholarship, American Geosciences Institute (2017 & 2018) ($5,000)
•Chen Fellowship, Portland State University ($10,000)

PUBLICATIONS

• **Cahoon, E.B.**, Streck, M.J., Koppers, A.A., and Miggins, D.P., 2020. Reshuffling the Columbia River Basalt chronology—Picture Gorge Basalt, the earliest-and longest-erupting formation. *Geology*, *48* (4), pp.348-352. *(including cover photo of publication)*

In Preparation

•**Cahoon, E.B.**, Streck, M.J., Koppers, A.A.P., Miggins, D., 2020, Reassessment of the Spatial Distribution and Eruptive Volume of the Picture Gorge Basalt *(Geosphere)*

•**Cahoon, E.B.**, Streck, M.J., Carlson, R.W., 2020, Mantle Sources and Geochemical Evolution of the Picture Gorge Basalt *(Journal of Petrology)*

•Hammond, P.E., Faust, M.S., **Cahoon, E.B.**, McClaughry, J.D., Ferns, M.L., 2020, Bridging the Gap: A Possible Dislocated Hotspot Track of the Yellowstone Plume in Oregon, USA *(resubmission to Geosphere)*

•Davidson, P.C., **Cahoon, E.B.**, Koppers, A.A.P., Miggins, D., 2020, HF Acid Leaching of Volcanic Groundmass in an Effort to Reduce the Influence of 39Ar Recoil in 40Ar/39Ar Dating

CONFERENCE/ OUTREACH CONTRIBUTIONS

•Badur, C.B., **Cahoon, E.B.**, Kamenov, G., and Hames, W.E., 2020, Implications for the History of Sunstones from Southeastern Oregon from New Chemical, Isotopic, and Geochronological Data: Geological Society of America Abstracts with Programs *(awaiting abstract acceptance)*

•**Cahoon, E.B.**, Streck, M.J., Carlson, R.W., Koppers, A.A.P, Miggins, D., 2019, Significance of Upper-Mantle Geochemical Signals of the Picture Gorge Basalt (PGB) Member in Light of an Extended Distribution and New Age Data Placing PGB at Onset of Columbia River Basalt Group Eruptions: American Geophysical Union Abstracts with Programs. *(poster presentation)*

•Koppers, A.A.P, Davidson, P., **Cahoon, E.B.**, Miggins, D., 2019, HF Leaching of Volcanic Groundmass in an Effort to Reduce 39Ar Recoil in 40Ar/39Ar Dating: American Geophysical Union Abstracts with Programs. *(poster presentation)*

•Welch, S., **Cahoon, E.B.**, Steiner, A., 2019, Oregon Sunstones: Major Element and Copper Variability Between Cu-bearing Labradorite and Basaltic Groundmass: American Geophysical Union Abstracts with Programs. *(poster presentation)*

•**Cahoon, E.B.**, Streck, M.J., Koppers, A.A.P, Miggins, D., 2019, Revising age and distribution of the Picture Gorge Basalt and their implication for evolution models of Columbia River Basalt volcanism: Cordilleran Section, Geological Society of America Abstracts with Programs, Session 9, T13, No. 4 *(poster presentation)*

•**Cahoon, E.B**. & Streck, M.J., 2019, Oligocene basalts of eastern Oregon as probes into a pre-CRBG mantle in eastern Oregon and possibly connection to a new "Re-emerging Plume Model": Cordilleran Section, Geological Society of America Abstracts with Programs, Session 4, T13, No. 1 *(oral presentation)*

•McClaughry, J.D., Gaylord, D.R., Ferns, M.L., Felt, K.J., Spall, B.N., **Cahoon, E.B.**, 2019, Sedimentary and Volcanic Evolution of the Middle Eocene Clarno Formation, NE Oregon: Cordilleran Section, Geological Society of America Abstracts with Programs, Session 40, T24, No. 5 *(poster presentation)*

•Streck, M.J., Ferns, M.L., **Cahoon, E.B**., 2019, Flood Basalts, Rhyolites, and Pre- to Postdating Volcanism of the Columbia River Province in Eastern Oregon *(GSA Cordilleran Section Field Guide, trip 401)*

•**Cahoon, E.B**., 2018, Isotopes Crash Course! (https://earthref.org/drupal/content/isotopes-crash-course) *(Earth Ref Blog Post)*

•**Cahoon, E.B**. & Hasenberg, C., 2018, Clarno and John Day Lava: Extent and Origins, The Geological Newsletter: News of the Geological Society of Oregon Country, Vol. 84, No. 5. *(Newsletter)*

•**Cahoon, E.B**. & Streck, M.J., 2017, Picture Gorge Basalt, Eastern Oregon: Extended Distribution and Petrogenetic Connections to Steens Basalt and Strawberry Volcanics: Geological Society of America Abstracts with Programs, Vol. 49, No. 6. *(oral presentation)*

•**Cahoon, E.B**. & Streck, M.J., 2017, Reevaluating distribution area and composition of the Picture Gorge Basalt CRBG, eastern Oregon: International Association of Volcanology and Chemistry of the Earth's Interior, ME23C-076. *(poster)*

•**Cahoon, E.B.** & Streck, M.J., 2016, Miocene basaltic lava flows and dikes of the intervening area between Picture Gorge and Steens Basalt of the CRBG, eastern Oregon: American Geophysical Union Abstracts with Programs. *(poster)*

•**Cahoon, E.B.** & Streck, M.J., 2016, Early results of Miocene basaltic lavas exposed in the intervening area of Picture Gorge and Steens Basalt of the CRBG, Eastern Oregon: Geological Society of America Abstracts with Programs, Vol. 48, No. 6. *(oral presentation)*

•**Cahoon, E.B.**, et al., 2012, The Tertiary Record of Explosive and Effusive Volcanism in the Paleogene, Clarno Formation-Deposits of the Greenhorn 7.5' Quadrangle, Oregon: Geological Society of America Abstracts with Programs, Vol. 44, No. 7, p. 561. *(poster)*

•**Cahoon, E.B.**, et al, 2011, Paleogene-Neogene Stratigraphy, Volcanism, and Volcanogenic Sedimentation in the Greenhorn 7.5' Quadrangle, OR: Geological Society of America Abstracts with Programs, Vol. 43, No. 5, p. 601. *(poster)*

•Felt, K.J., Gaylord, D.R., McClaughry, J.D., **Cahoon, E.B.**, Ferns, M.L., 2011, Mapping and Correlating Enigmatic Paleogene to Neogene Volcanogenic Sedimentary and Volcanic Strata in NE Oregon: Geological Society of America Abstracts with Programs, Vol. 43, No. 5, p. 601 *(poster)*

•**Cahoon, E.B.**, et al., 2010, Left for Dead? Petrology of Resurgent Domes, East Diamante Submarine Caldera, Marianas Arc: Geological Society of America Abstracts with Programs, Vol. 42, No. 1, p. 157 *(poster)*