

Edward L. Vinis

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Quai aux Pierres de Tailles 16, Apt 7.5, 1000, Brussels, Belgium

Education

M.S. Environmental Studies, Tohoku University, Japan; Sept. 2024

B.S. Geology, University of Oregon, USA; Sept. 2021
Earth Science GPA 3.94

B.S. Chemistry, University of Puget Sound, USA; May 2014
Overall GPA 3.09

Research

Graduate Student Researcher, Oct. 2022-Sept. 2024

Thesis: *Experimental study on the silica-sealing zone above supercritical geothermal reservoirs and implications for fluid pressure oscillations related to earthquakes*

Adviser: Prof. Atsushi Okamoto

Co-author: *Emplacement Mechanics of Mafic Super-Eruptions in the Columbia River Basalt Province from Structural, Geochemical, Thermochronologic, and Magnetic Investigation of the Maxwell Lake Dike Complex* by Rachel Hampton, Joe Biasi, Becca Goughnour, Leif Karlstrom, Kendra Murray, and Ed Vinis. Presented at the American Geophysical Union Fall Meeting, 2021.

Undergraduate Research Assistant, Oct. 2021-June 2022

Organizing and analyzing Wallowa basalt dike sample data into GIS software

Advisers: Dr. Leif Karlstrom, Rachel Hampton PhD candidate

Undergraduate Research Assistant, Nov. 2020-Aug. 2021

Experimental Geochemistry research of CaCO_3 precipitation from direct air capture of CO_2

Advisers: Dr. James M. Watkins, Ellen K. Olsen PhD candidate

Undergraduate Research Assistant, May 2013-May 2014

Thesis: *Investigating the effects of terminal alkyl chain alterations on the ODBP liquid crystal molecule*

Adviser: Dr. Eric Scharrer

Conference Experience

International Joint Workshop on Slow-to-Fast Earthquakes 2024, Beppu, Japan; Sept. 2024

Oral presentation: *Fluid pressure oscillation created by temporary fracture sealing with silica using flow-through experiments*

Edward L. Vinis, Atsushi Okamoto

Japan Geoscience Union Meeting 2024, Chiba, Japan; May 2024

Poster: *Temporary fracture sealing by silica precipitation in granite: Insights from flow-through experiments under superhot conditions*

Edward L. Vinis, Atsushi Okamoto

Geothermal Research Society of Japan 2023 Annual Meeting, Gifu, Japan; Nov. 2023

Poster: *Investigating the Formation of the Silica-Sealing Layer Above Supercritical Geothermal Reservoirs Using Flow-Through Experiments*

Edward L. Vinis, Atsushi Okamoto

5th Academic Forum on Environmental Studies, Sendai, Japan; Oct. 2023

Poster: *Experiments on the Formation of the Silica-Sealing Layer Above Supercritical Geothermal Reservoirs*

Edward L. Vinis, Atsushi Okamoto

International Joint Workshop on Slow-to-Fast Earthquakes 2023, Tokyo, Japan; Sept. 2023

Poster: *Systematic Changes in Quartz Precipitation on Granite Surfaces Revealed by Hydrothermal Experiments*

Edward L. Vinis, Jumpei Sugioka, Atsushi Okamoto

International Symposium on Water-Rock Interaction 17/International Symposium on Applied Isotope Geochemistry 14, Sendai, Japan; Aug. 2023

Oral presentation: *Exploration of the Silica-Sealing Layer Above Supercritical Geothermal Reservoirs Using Flow-Through Experiments*

Edward L. Vinis, Jumpei Sugioka, Atsushi Okamoto

Earth, Sea, and Sky VIII International Workshop, Sendai, Japan; May 2023

Poster: *Flow-Through Experiments on the Formation of the Silica Sealing Layer Above Supercritical Geothermal Reservoirs*

Edward L. Vinis, Jumpei Sugioka, Atsushi Okamoto

Japan Geoscience Union Meeting 2023, Chiba, Japan; May 2023

Poster: *Flow-Through Experiments on the Formation of the Silica Sealing Layer Above Supercritical Geothermal Reservoirs*

Edward L. Vinis, Jumpei Sugioka, Atsushi Okamoto

Geological Society of America Connects annual meeting student volunteer, Portland, USA; Oct. 2021

University of Oregon Undergraduate Research Symposium, Eugene, USA; May 2021

Isotopic fractionations produced during direct air capture of carbon dioxide

Edward L. Vinis, Ellen K Olsen, Dr. James M Watkins

University of Puget Sound Fall Research Symposium, Tacoma, USA; Sept. 2013

Investigating the effects of terminal alkyl chain alterations on the ODBP liquid crystal molecule

Ed Vinis, Dr. Eric Scharrer

Field Experience

Field Assistant; July 2021-Sept. 2021

Addison Richter, Master's Student

Examined structural geology and deformation of thrust terranes near Mt. Baker, Washington

Field Assistant; Aug. 2021

Ellen K. Olsen, PhD candidate

Investigating isotopic fractionations of seasonal saline lakes in Oregon and California

Field Assistant; July 2021

Rachel Hampton, PhD candidate

Collected samples from basaltic feeder dikes to the Columbia River Flood Basalts, Willamette Mountains, Oregon

Assistant Field Camp Organizer; June 2021-July 2021

Aided UO Field Camp with logistics required for remote mapping including set up, take down, and transferring equipment between field sites

UO Field Camp 2020; July-Aug. 2020

Geologic mapping of stratigraphic units and paleo stream channels in central Oregon

Scholarships and Awards

- Japanese Government (Monbukagakusho: MEXT) Scholarship, Sept. 2022
- University of Oregon Earth Science Department commencement speaker, June 2021
- Emeritus Faculty Tribute Fund, UO Field Camp Scholarship (\$400), June 2021
- Emeritus Faculty Tribute Fund, UO Field Camp Scholarship (\$750), July 2020
- Field Scholarship for UO IgDEAS (Inclusivity and gender Diversity in the Earth and Atmospheric Sciences) (\$150), July 2020
- Youngquist Fellowship Award (\$5000), June 2020

Grants

Puget Sound Summer Research Grant, May 2013

Laboratory Techniques

Flow-through experiments with granite under supercritical conditions, Okamoto lab 2022-2024

- Intricate knowledge of stainless steel *Swagelok* high-pressure gas and fluid equipment used to create a flow-through apparatus with a titanium autoclave and furnace
- Careful understanding of supercritical temperature and pressure conditions (380 °C, 22 MPa) needed to precipitate silica in a safe environment
- Precise and delicate cutting and polishing of granite cores and samples used in flow-through experiments

- Analyses include X-Ray Computed Tomography (X-Ray CT), Micro X-Ray Fluorescence (μ -XRF), Scanning Electron Microscope Energy Dispersive Spectroscopy (SEM-EDS), optical microscopy, Scanning Electron Microscope Cathodoluminescence (SEM-CL), Electron Probe Microanalyzer (EPMA), Raman Spectroscopy, and Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES).

Calcite precipitation experiments, Watkins lab 2021

- Involved use of auto-titrator, pH probe, Environmental Scanning Electron Microscope (ESEM), and general laboratory techniques for performing multi-day reactions

TestAmerica environmental testing labs, Organic Prep Analyst I, March 2016-June 2017

- Preparation of organic sample extractions using predetermined extraction methods
- Data collection and organization using LIMS software

Organic Synthesis research, Scharrer lab, 2013-2014

- Organic synthesis techniques needed to produce alkyl chain alterations of liquid crystal molecules
- Required use of laboratory instrumentation including nuclear magnetic resonance (H-NMR), infrared spectroscopy (IR), mass spectrometry (MS), gas/liquid chromatography, differential scanning calorimetry (DSC), and polarizing microscopy

Software Experience

Microsoft Office, Adobe product suites, Python Jupyter notebook, QGIS

Memberships

American Geophysical Union student member, 2022-present

Geological Society of America student member, 2021-present

Geochemical Society student member, 2020-present

American Association of Petroleum Geologists student member, 2021-2022

References

Atsushi Okamoto

Research Adviser

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Mark H. Reed

Professor

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James M. Watkins

Research Adviser

watkins4@uoregon.edu