

**Michelle Muth**  
1272 University of Oregon, Eugene, OR, 97403, USA  
mmuth@uoregon.edu (215) 206-3605

## Education

**Ph.D. Earth Science**, University of Oregon, Eugene, OR 2016-Present  
Research advisor: Paul Wallace

**B.S. Earth Science**, Rice University, Houston, TX 2011-2015  
Research advisor: Rajdeep Dasgupta  
Distinction in Research and Creative Work  
Thesis: The effect of variable Na/K on CO<sub>2</sub> solubility in slab-derived rhyolitic melts

Sea Education Association, Woods Hole, MA Fall 2013  
6 weeks oceanography coursework, 6 weeks at sea in Eastern Pacific  
Project: Effect of Low pH on the Growth of Phytoplankton in the Eastern Pacific Ocean

## Awards Received

Argonne National Laboratory User Proposal Beamtime Award (2019)

NSF Graduate Research Fellowship (2017)

First Year Graduate Student Fellowship (2016)

Torkild Rieber Award in Earth Science (2015)

The Eugen Merten Memorial Prize in Geology and Geophysics (2013)

Chevron Earth Science Minority Scholarship (2013)

## Work and Research Experience

**Graduate Researcher**, University of Oregon 2016- Present

**Geoscientist**, AECOM, Philadelphia Area Remediation Services Group 2015- 2016

**Outdoor Education Instructor**, Texas Parks and Wildlife Department Fall 2014

**Undergraduate Researcher**, Rice University Experimental Petrology Group 2013- 2015

**Student Consultant**, Rice University Center for Communication 2012- 2015

**NSF-REU Intern**, University of Minnesota Institute for Rock Magnetism Summer 2013  
Research advisor: Josh Feinberg

## Publications

**Muth, M.**, Duncan M., S. and Dasgupta, R. (In Press). The Effect of Variable Na/K on CO<sub>2</sub> Solubility in Slab-Derived Rhyolitic Melts. *Carbon in Earth's Interior AGU Monograph*.

Frahm, E., Feinberg, J. M., Schmidt-Magee, B. A., Wilkinson, K., Gasparyan, B., Yeritsyan, B., Karapetian, S., Meliksetian, K., **Muth, M.**, & Adler D. S. (2014). Sourcing geochemically identical obsidian: multiscalar magnetic variations in the Gutansar volcanic complex and implications for Palaeolithic research in Armenia, *Journal of Archaeological Science*, 47, 164-178.

## Presentations

**Muth, M.**, Wallace, P. J., Gaetani, G. A. Drawing connections between slab-derived sulfur, mantle melting, and arc magma oxidation state: A case study in the southern Cascades. *Presented at AGU 2019 Fall Meeting, Washington D. C., 9-13 December.*

**Muth, M.**, Wallace, P. J. Insights into Arc Magma Volatile Cycling and Oxidation State from Global Sulfur Trends. *Presented at AGU 2018 Fall Meeting, Washington D. C., 10-14 December.*

**Muth, M.**, Wallace, P. J., Walowski, K. J. The Role of Hydrous Slab Melts in the Sulfur Content, Metal Content, and Oxidation State of Primitive Arc Magmas in the Southern Cascades. *Presented at AGU 2017 Fall Meeting, New Orleans, LA, 11-15 December.*

**Muth, M.**, Wallace, P. J. Sulfur, Copper, and the Oxidation State of the Southern Cascade Arc. *Presented at 2017 CIDER Subduction Zone Workshop, Berkeley, CA, 19 June – 21 July.*

**Muth, M.**, Duncan, M. S., Dasgupta, R. Effect of variable Na/K ratio on CO<sub>2</sub> solubility in slab-derived rhyolitic melts- An experimental study. *Presented at AGU 2014 Fall Meeting, San Francisco, CA, 15-19 December.*

**Muth, M.**, Feinberg, J., Frahm, E., Stillinger, M. Magnetic Differentiation of Obsidian Volcanism at Glass Buttes, Oregon. *Presented at NSF-REU University of Minnesota Earth Sciences Summer Internship Poster Session, 9 August 2013.*

Feinberg, J. M., Frahm, E., **Muth, M.** Magnetic studies of archaeological obsidian: Variability of eruptive conditions within obsidian flows is key to high-resolution artifact sourcing. *Presented at AGU 2013 Fall Meeting, San Francisco, CA, 9-13 December.*

## Field Experience

Lassen Volcanic Field, CA

July 2017

Field sampling of tephra deposits at selected cinder cones with the goal of collecting olivine hosted melt inclusions for subsequent analysis.

Long Valley Caldera, CA

August 2017

Assisted with detailed field sampling of inter-layered ignimbrite and fall deposits.

## Lab Experience

Fourier Transform Infrared Spectroscopy (FTIR)

Electron Microprobe (EPMA)

X-Ray Absorption Near Edge Structure (XANES)

Secondary Ion Mass Spectrometry (SIMS)

Laser Ablation ICP-MS

End-loaded Piston Cylinder Apparatus

## Organizations and Service

CIDER (Cooperative Institute for Dynamic Earth Research)

Participant Summer 2017

- Participated in collaborative research project: "The ins and outs of mélange diapirs: a multidisciplinary approach to formation, ascent, and observation".
- Abstract accepted to present results at 2017 AGU Fall meeting.

University of Oregon CMiS (Community for Minorities in STEM)

Member 2016- Current

Social and Outreach Chair 2017- 2018

Seminar Chair 2018-2019

Vice President 2019-2020

"Mad Duck" Science Outreach Program

- Organized and lead 4-hour long science outreach module for local middle school students.
- Facilitated module design collaborations between Mad Duck and UO CMiS.

Mineralogical Society of America

Member 2017- Current

Geological Society of America

Member 2016- Current

American Geophysical Union

Member 2014- Current