



## KRISTINA J. WALOWSKI, Ph.D.

### Assistant Professor of Geology

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Middlebury

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## EDUCATION

**Doctor of Philosophy** - Geological Sciences, University of Oregon - June, 2015

Dissertation Title: *From Cinder Cones to Subduction Zones: Volatile Recycling and Magma Formation beneath the Southern Cascade Arc* (Advisor: Dr. Paul Wallace)

**Bachelor of Science in Geology** - University of California, Los Angeles - June, 2010

## ACADEMIC APPOINTMENTS

- ♦ Assistant Professor of Geology (*to begin* March, 2021). Western Washington University.
- ♦ Assistant Professor of Geology (January, 2017 - present). Middlebury College.
- ♦ Postdoctoral Research Assistant (2015-2016). University of Edinburgh.
- ♦ Graduate Teaching Fellow & Research Assistant (2010-2015). University of Oregon.
- ♦ Undergraduate Research Assistant (2008-2010). UCLA.

## RESEARCH INTERESTS

Mantle geochemistry; stable isotope geochemistry; lunar mantle geochemistry; ocean island basalt chemistry; arc magma petrogenesis; thermo-petrologic modelling; subduction metamorphism; volcanic degassing; geochemical modeling; magmatic plumbing system evolution; magmatic timescales; diffusion modeling; melt inclusion geochemistry; tephra stratigraphy; cinder cone eruption dynamics; crustal differentiation.

## PUBLICATIONS

- Bekaert, D.V., Turner, S.J., Broadley, M.W., Barnes, J.D., Halldórson, S.A., Labidi, J., Wade, J., **Walowski, K.J.**, Barry, P.H. (Accepted). Subduction-driven volatile recycling: a global mass-balance. *Annual Review of Earth and Planetary Sciences*.
- \*Hollyday, A. E., \*Leiter, S. H., & **Walowski, K. J.** (2020). Pre-eruptive storage, evolution, and ascent timescales of a high-Mg basaltic andesite in the southern Cascade Arc. *Contributions to Mineralogy and Petrology*, 175(9), 1-21.
- Black, B., Mittal, T., \*Lingo, F., **Walowski, K. J.**, Hernandez, A., (2020). Assessing the environmental consequences of lava-water interactions during Large Igneous Province emplacement. In *Environmental Effects of Large Igneous Provinces: the Deadly Kiss of LIPs* (Ch. 5, pp. 113-128). AGU Books.
- Walowski, K. J.**, Wallace, P. J., Cashman, K.V., Clynne, M. A., Ruprecht, P., Marks, J.K. (2019). Understanding melt evolution and the magmatic plumbing system at Cinder Cone, Lassen Volcanic National Park, California: Insights from olivine-hosted melt inclusions. *Journal of Volcanology and Geothermal Research*, 106665.
- Walowski, K. J.**, Kirstein, L., de Hoog, C.J., Elliot, T., Savov, I. (2019). Investigating ocean island mantle source heterogeneity with B isotopes in melt inclusions. *Earth and Planetary Science Letters*, 508, 97-108.
- Dixon, J. E., Bindeman, I. N., Kingsley, R. H., Simons, K. K., le Roux, P. J., Hajewski, T. R., Swart, P., Langmuir, C.H., Ryan, J.G., **Walowski, K.J.**, Wada I., Wallace, P.J. (2017). Light Stable Isotopic Compositions of Enriched Mantle Sources: Resolving the Dehydration Paradox. *Geochemistry, Geophysics, Geosystems*. 18(11), 3801-3839.
- \*indicates undergraduate student author*

- Walowski, K. J.**, Wallace, P.J., Clynnne, M.A., \*Rasmussen, D.J., & D. Weis (2016). Slab melting and magma formation beneath the southern Cascade Arc. *Earth and Planetary Science Letters*, 446, 100-112.
- Walowski, K. J.**, Wallace, P. J., Hauri, E. H., Wada, I., & Clynnne, M. A. (2015). Slab melting beneath the Cascade Arc driven by dehydration of altered oceanic peridotite. *Nature Geoscience*, 8(5), 404-408.

#### **PUBLICATIONS in review and preparation**

- Befus, K.S., **Walowski, K.J.**, Hervig, R.L., Cullen, J.T. (In Review). Hydrogen isotope compositions of quartz-hosted rhyolitic glass inclusions from the early Bishop Tuff, Long Valley caldera, USA. *Geochemistry, Geophysics, Geosystems*.
- Paul, A.N., Stewart, J.A., Elliott, T.R., Kirstein, L.A., Savov, I., De Hoog, J. C. M., Agostini A.E., **Walowski, K.J.** (In Prep). Reassessing the potential to measure boron in mantle derived rocks and glasses with implications for discriminating reservoir heterogeneity. *Chemical Geology*.
- Walowski, K. J.**, Kirstein, L., de Hoog, C.J., Elliot, T., Savov, I., Devey., C. (In Prep). Boron Recycling in the Mantle: Evidence from a global comparison of Ocean Island Basalts. *Geochimica et Cosmochimica Acta*.

#### **GRANTS AND AWARDS**

- ◆ Leverhulme Trust Visiting Professorship (host: Dr. Linda Kirstein, University of Edinburgh; £34,261; 3-month visit currently postponed due to COVID-19)
- ◆ Meierjurgan Faculty Fellow, University of Oregon (Term in residence, Winter 2021)
- ◆ Marion and Jasper Whiting Foundation Fellowship: “Life in the Shadow of the Goddess Pele” (3-week travel grant; \$6,215)
- ◆ NSF EAR RUI: Collaborative Research: How variable is magma decompression rate during a single eruption? (Co-PI; 2-year; \$286,530; Lead PI Megan Newcombe, University of Maryland)
- ◆ NSF EAR RUI: Collaborative Research: Testing the controls on eruption size and style at intermediate arc volcanoes: Evidence from the Holocene record at Augustine Volcano, USA (lead PI; 3-year; \$290,003; Co-PI Alison Koleszar, Colgate University)
- ◆ NASA Curation and Analysis Planning Team for Extraterrestrial Materials (CAPTEM) Proposal to analyze lunar basalts collected during Apollo 12, 15, and 17 (2019).
- ◆ John M. White '52 Research Fund (2017; 2018), Middlebury College.
- ◆ Middlebury Center for Teaching and Learning Pedagogy Enrichment Fund (2017).
- ◆ Ron and Jessica Liebowitz Fund for Teaching Innovation (2017), Middlebury College.
- ◆ NERC-IMF Facility Award (2015; 2016), University of Edinburgh.

#### **INVITED PRESENTATIONS**

- ◆ Dartmouth College, Department Seminar Series (February, 2020)
- ◆ University of Maryland, Department Seminar Series (November, 2019)
- ◆ University of Vermont, Department Seminar Series (October, 2019)
- ◆ Woods Hole Oceanographic Institution, (July, 2019)
- ◆ Williams College (March, 2019)
- ◆ Lamont Doherty Earth Observatory (January, 2019)
- ◆ Geological Society of America Meeting (October, 2018)
- ◆ SUNY Binghamton (October, 2018)
- ◆ University of Nevada, Reno, Department of Geology (March, 2018)
- ◆ City University of New York, Division of Earth and Atmospheric Science (February, 2018)
- ◆ American Geophysical Union Fall Meeting (December, 2017)
- ◆ Brown University, Earth, Environmental and Planetary Science Dept. (November, 2017)

- ◆ Oxford University, Deep Volatiles Consortium Meeting (September, 2016)
- ◆ University of California, Davis, Earth and Planetary Science Dept. (March, 2016)
- ◆ Middlebury College, Department of Geology (December, 2015)
- ◆ American Geophysical Union Fall Meeting (December, 2015)
- ◆ University of Edinburgh, PVG Seminar Series (October, 2015)
- ◆ Theoretical and Experimental Institute for the GeoPRISMS SCD Initiative (October, 2015)
- ◆ GEOMAR, Kiel, Germany (September, 2015)

## **TEACHING EXPERIENCE**

- ◆ Assistant Professor of Geology (2017-present). Middlebury College.  
*Classes taught:* Introduction to Petrology (Spring 2017; 2019); Natural Hazards (Spring 2017, 2018, 2019, 2020); Bedrock Geology of Vermont (Fall 2017, 2018, 2019), Field Geology in Active Tectonic Environments (Winter, 2018); Senior Seminar (Fall, 2019); Plate Tectonics and World Geology (Spring, 2020).
- ◆ Guest instructor – University of Edinburgh, Igneous Petrology Field Course (2016). Trip lead by Linda A. Kirstein to the Isle of Mull, Scotland.
- ◆ Graduate Teaching Fellow (2010-2015). University of Oregon.  
*Classes taught:* Earth's Dynamic Interior (Fall 2010, Head TA - Fall 2014); Introduction to Surface Processes (Winter 2011); Introduction to Igneous and Metamorphic Petrology (Spring 2011, Spring 2012); Thermodynamic Geochemistry (Winter 2013, Spring 2015); Introduction to Field Methods (Spring 2014); Geology of the PNW (Winter, 2015)
- ◆ Guest Instructor – Northwest Outdoor High School (2013). Presented introductory geology lectures and led field trips for high school students (grades 9&10).
- ◆ Guest Instructor – The Oregon Volcano Experience (2014). Indiana University of Pennsylvania summer field course lead by Assistant Professor Nick Deardorff.

## **OTHER PROFESSIONAL ACTIVITIES**

- ◆ Elected Committee Member (2018-present) Council on Undergraduate Research, Geoscience Division.
- ◆ Health Professions Committee Member, Middlebury College (2018-present).
- ◆ Fulbright Interview Panelist, Middlebury College (Fall, 2018; Fall, 2019).
- ◆ Session Chair, AGU Fall Meeting (2017, 2019).
- ◆ Session Chair, Goldschmidt Conference (2017).
- ◆ Member (2017-present) Council on Undergraduate Research.
- ◆ Member (2017-present) National Association of Geoscience Teachers.
- ◆ Committee Member (2017-present). Faculty Advisor Board for International Study Programs, Middlebury College.
- ◆ GeoPRISMS AGU Student Prize Judge, AGU Fall Meeting (2015; 2017; 2018; 2019).
- ◆ Outstanding Student Presentation Award Judge, AGU Fall Meeting (2015; 2017; 2018; 2019).
- ◆ Member (2015-present). The European Association of Geochemistry.
- ◆ Member (2012-present). The Geochemical Society.
- ◆ Member (2009-present). American Geophysical Union.