

Curriculum Vitae

Dr. MADISON L. MYERS

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EDUCATION

University of Oregon September 2012-June 2017

Ph.D. in Geological Sciences

Dissertation Title: *Storage, Ascent, and Release of Silicic Magma in Caldera-Forming Eruptions*

University of Idaho September 2010-May 2012

M.S. in Geology

Thesis Title: *Pre-eruptive Volatile Concentrations in Magma from Explosive Eruptions of Tungurahua*

University of New Hampshire September 2006-May 2010

B.S. in Geology (Departmental Honors), Minor in Applied Mathematics

Undergraduate Thesis: *Reconstructing Mount Etna's Ancient Magmatic Plumbing System*

WORK EXPERIENCE

Postdoctoral Research Fellowship (LMV- UCA) October 2017-present

Graduate Teaching Fellowship (UO) Sept. 2012-June 2017

East Asia Pacific Summer Institute (Singapore) Summer 2015

Idaho Geological Survey Summer 2011

NSF GK-12 Fellowship: 9th grade Physical Science Teacher May 2011-May 2012

Graduate Teaching Assistantship (UI) Sept. 2010-May 2011

PEER REVIEWED PUBLICATIONS

Myers, M.L., Wallace, P.J., Wilson, C.J.N., Walkins, J., Liu, Y., Morgan, D. (*in press, American Mineralogist*) Ascent rates of rhyolitic magma during the opening stages of explosive caldera-forming eruptions

Miller, S. A., Myers, M., Fahnestock, M. F., Bryce, J. G., & Blichert-Toft, J. (2017). Magma dynamics of ancient Mt. Etna inferred from clinopyroxene isotopic and trace element systematics. *Geochemical Perspective Letters*, 4, 47-52.

Regier, M., Hervig, R.L., Myers, M.L., Roggensack, K., Wilson, Colin J.N., (2016) Analyzing nitrogen in natural and synthetic silicate glasses by secondary ion mass spectrometry. *Chemical Geology*.

Myers, M.L., Wallace, P.J., Wilson, C.J.N., Morter, B.K. and Swallow, E.J. (2016) Prolonged ascent and episodic venting of discrete magma batches at the onset of the Huckleberry Ridge supereruption, Yellowstone. *Earth and Planetary Science Letters*, 451, 285-297.

Myers, M.L., Geist, D.J., Rowe, M.C., Harpp, K.S., Wallace, P.J., and Dufek, J. (2014) Replenishment of volatile-rich mafic magma into a degassed chamber drives mixing and eruption of Tungurahua volcano. *Bulletin of Volcanology*, 76 (11), 1-17.

PUBLICATIONS IN PREPARATION AND IN REVIEW

Swallow, E.J. Wilson, C.J.N., Myers, M.L., Wallace, P.J. (*resubmitted, Contributions to Mineralogy and Petrology*) Evacuation of multiple magma bodies and the onset of caldera collapse in a supereruption, captured in glass and mineral chemistries

Myers, M.L., Dungan, M.A., Wallace, P.J., Lipman, P.W. (*in prep for Lithos*) Petrological constraints on the Cebolla Creek Tuff- testing the rejuvenation model

Myers, M.L., Wallace, P.J., Wilson, C.J.N. (*in prep for JVGR*) Inferring Magma Ascent Times and Conduit Processes in Rhyolitic Explosive Eruptions Using Diffusive Losses of Hydrogen From Melt Inclusions

ORAL PRESENTATIONS (*invited)

AGU (New Orleans, LA)*	December 2017
GeoPRISMs TEI RIE (Albuquerque, NM)*	February 2017
Woods Hole (Falmouth, MA)*	January 2017
AGU (San Francisco, CA)	December 2013, 2014, 2016
USGS (CVO: Vancouver, WA)*	October 2016
USGS (Menlo Park, CA)*	April 2015
Goldschmidt (Sacramento, CA)	June 2014

SELECT PUBLISHED ABSTRACTS

Myers, M.L., Wallace, P.J., Wilson, C.J.N., Walkins, J., Liu, Y., Morgan, D. Ascent rates of rhyolitic magma during the opening stages of explosive caldera-forming eruptions. *AGU Fall Meeting Abstracts, 2016*

Myers, M.L., Wallace, P.J., Wilson, C.J.N., Morter, B.J., Swallow, E. J. Prolonged ascent and episodic venting of discrete magma batches at the onset of the Huckleberry Ridge supereruption, Yellowstone. *AGU Fall Meeting Abstracts, 2015*

Wallace, P.J., Myers, M.L., Wilson, C.J.N. Inferring Magma Ascent Times and Conduit Processes for Rhyolitic Eruptions Using Diffusive Loss of Hydrogen From Melt Inclusions. *AGU Fall Meeting Abstracts, 2015*.

Wilson, C.J.N., Barker, S., Myers, M.L., Swallow, E. J., Wallace, P.J. Timescales of Human Interest in the Geological Records of Rhyolite Eruptions. *AGU Fall Meeting Abstracts, 2015*.

Rowe, M.J., Berry, A., O'Neill, H., Myers, M.L. Redox-Limited Magmatic Degassing. *Goldschmidt Abstracts, 2015*.

Myers, M.L., Wallace, P.J. & Wilson, C.J.N. Timescales of depressurization and ascent at the onset of the Huckleberry Ridge Tuff eruption. Abstracts, *Tephra Workshop, Portland, Oregon, 2014*.

Myers, M.L., Geist, D.J., Rowe, M.C., Harpp, K.S., Wallace, P.J., Dufek, J. Melt inclusion data from the July/August 2006 and May 2010 eruptions of Tungurahua volcano, Ecuador. *AGU Fall Meeting Abstracts, 2011*.

SPECIAL AWARDS RECEIVED

Collapse Caldera Workshop (2016)

UO Research Excellence Award (2016)

Mineralogy, Geochemistry, Petrology, and Volcanology (MGPV) Student Award (2015)

GSA Research Award (2015) • (*returned, NSF funded*)

NSF- East Asian Pacific Summer Institute (2015) • Singapore Fellowship

GSA Lipman Research Award (2013) • Field Work in the San Juan Mountains

U.S.G.S. Jack Kleinman Memorial Fund for Volcano Research (2013) • Yellowstone

Waters of the West NSF Fellowship • (2011)

Total Scholarship Money Received: \$26,300 (*excluding \$30,000 NSF Fellowship*)

OUTREACH AND MENTORSHIP

Reviewer for Solid Earth and JVGR

Geogirls Volunteer, tephra chronology

Summer 2017

Joint Undergrad Graduate Program Director

Sept. 2016 – June 2017

Women in Graduate Sciences Board Member

Sept. 2016 – June 2017

Undergraduate Senior Research Thesis

- Chloe Elliot (2016-2017) Petrologic investigation of the Cebolla Creek Tuff
- Claire M. Getz (2015-2016; *now at University of Arizona pursuing a M.S*) Quantifying pumice textures from the initial fall deposit of the Huckleberry Ridge Tuff
- Beth J. Morter (2014-2015; *now in Kansas State pursuing a M.S*) Major, trace, and volatile analysis of obsidian pyroclasts from the Huckleberry Ridge Tuff

FIELD EXPERIENCES

Santorini

Three weeks of detailed field sampling and mapping of the opening explosive phases of the 3,600 year old Minoan eruption, the last caldera-forming event from Santorini volcano. Work included isopach and isopleth mapping of individual phases.

Yellowstone, Bishop, and Oruanui fall deposits

In total, five weeks of field sampling of fine-grained fall deposits preserved beneath subsequent ignimbrite deposits through the guidance and field expertise of Dr. Colin Wilson. Studies also included pumice and lithic counts, and mapping stratigraphic sections.

San Juan Volcanic Field

Collecting non-welded ignimbrite from ten units in the San Juan Volcanic Field with the guidance of Drs. Michael Dungan and Peter Lipman.

Volcanology Field Camp

Over two separate summers I assisted the University of Oregon field camp with groups reaching 30 students. Daily logistical and intellectual duties included assisting students with geological mapping and field relationships, and all food preparation.

Ecuador

Three weeks of flow mapping and sample collection at two volcanoes in Ecuador, Tungurahua and Cotopaxi, with the mentorship of Drs. Dennis Geist and Joseph Dufek. Fieldwork conducted daily included: sieve sections, levee counts and taking oriented paleomag measurements on juvenile and lithic clasts and mapping the flow boundaries of recent eruptions using GPS.

LAB EXPERIENCE

Raman

Water and silicate spectral analysis on glass at the Laboratoire Volcans et Magmas allowed for high-resolution profiles to be collected on transects along reentrants.

Secondary Electron Microscope (SEM)

Imaging pumices for microlites, vesicularity variability, and bubble number density analysis. Additionally, using both the SEM at the University of Oregon, and the University of Wellington, I used cathodoluminescence to investigate zoning textures in quartz.

Fourier Transform Infrared Spectroscopy (FTIR)

Both my Masters and Ph.D. have involved extensive practice doubly polishing material (quartz, olivine, pyroxene, feldspar, glasses) for water and carbon dioxide species analysis using the FTIR (University of Oregon). Experience also includes collecting and quantifying concentration maps and transects data, useful for creating profiles of H₂O and CO₂ gradients in obsidian glasses, plagioclase, or in reentrants (open melt inclusions).

Electron Microprobe (EPMA)

I have had ample experience using the EPMA at Massachusetts Institute of Technology (undergraduate), Washington State University (Masters), the University of Oregon (Ph.D.), and the Earth Observatory of Singapore (Ph.D.) to obtain major elemental data for melt inclusions, as well as evaluate chemical zonation in pyroxene, plagioclase, clinopyroxene, biotite, amphibole and olivine.

DelTec 1-Atm Furnace

Reheating experiments for crystallized or bubble-bearing quartz-hosted melt inclusions were conducting at the University of Oregon at temperatures ranging from 800-950 °C.

Laser Ablation ICP-MS

During my Ph.D. I utilized the LA-ICP-MS at both Oregon State University and the Earth Observatory of Singapore, for trace element collection in melt inclusions, amphibole, and olivine.

TEACHING ASSISTANT EXPERIENCE

Volcanology (2016) • Grading, guest lecture, lab design and excel tutorials

Head TA, Intro to Geology (2015) • Organizing and creating labs and materials. Guest lecturer.

Petrology (2015) • Teaching and grading laboratory exercises.

Aqueous Geochemistry (2014) • Grading all homework assignments.

Mineralogy (2013 & 2014) • Teaching and grading laboratory exercises.

Geology of the National Parks (2012-2013) • Teaching and grading laboratory exercises.

9th grade Physical Science (2011-2012) • Creating and teaching inquiry-based lessons.

Intro to Geology (2010; 2012) • Teaching and grading laboratory exercises.

PROFESSIONAL MEMBERSHIPS

Association for Women Geoscientists	March 2017-Present
American Association for the Advancement of Science (AAAS)	January 2017-Present
Goldschmidt	June 2014-Present
Intern. Assoc. Volcanol. Chem. of the Earths Interior (IAVCEI)	June 2013-Present
Geological Society of America (GSA)	January 2013-Present
American Geophysical Union (AGU)	December 2011-Present

REFERENCES

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