Marissa E. Mnich

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Education:

Ph.D. University of Massachusetts Amherst, September 2019.
Dissertation: Petrogenesis of basaltic lavas in Iceland and the Springerville Volcanic Field, U.S.A: The Influence of tectonic setting, depth of melting and volatiles

M.S. University of Massachusetts Amherst, Geosciences, February 2013
Thesis: An Integrated Study of the South-central Part of the Springerville Volcanic Field; The Final Piece

B.S. Cornell University, Cum Laude, Science of Earth Systems with a concentration in Geology, May 2010

Experience:

August 2020-Present: Assistant Professor, Sonoma State University.

January 2020-May 2020: **Lecturer** for the honors course "The Earth" within the Commonwealth Honors College at UMass Amherst.

September 2019-December 2019: **Lecturer** at Smith College. Instructor for the course, "Exploring the Local Geologic Landscape" (Geology 102).

September 2018-December 2018: **Visiting Instructor** at Smith College. Instructor for the course, "Exploring the Local Geologic Landscape" (Geology 102).

September 2018-December 2018: **Instructor** for a first-year seminar within the College of Natural Science entitled "Volcanoes: They'll Blow Your Mind!"-UMass Amherst.

September 2017-May 2018: **Teaching Assistant**-UMass Amherst.

September 2017-December 2017: **Instructor** for a first-year seminar within the College of Natural Science entitled "Volcanoes: They'll Blow Your Mind!"-UMass Amherst.

September-December 2016: **Visiting Instructor** at Middlebury College. Taught the course, "The Dynamic Earth" (Geology 170).

September 2014-May 2016: **Research Assistant**- UMass Amherst.

February 2014: FEMA Volcanic Crises Awareness Course-two-day training on volcanic disaster preparedness.

August 2013-May 2014: **Teaching Assistant**-University at Buffalo.

January 2013: **Sample Analysis-**Massachusetts Geologic Survey geothermal study UMass Amherst.

November 2012-December 2012: **XRF Lab sample preparation** – UMass Amherst.

September 2010-May 2012: **Teaching Assistant** - UMass Amherst.

September 2009-May 2010: **Undergraduate Research Assistant** working on detecting volcanic hotspots in the Andes using ASTER data – Cornell University.

May 2009: **Intern** at the USGS Hawaiian Volcano Observatory-brief internship concluding a semester long program in Hawaii.

Teaching Experience:

January 2020-May 2020: Lecturer for the honors course "The Earth" within the Commonwealth Honors College at UMass Amherst.

September 2019-December 2019: Lecturer at Smith College for the course, "Exploring the Local Geologic Landscape" (Geology 102). Taught a field based course that meets for one 4 hour session per week.

September 2018-December 2018: Visiting instructor at Smith College for the course, "Exploring the Local Geologic Landscape" (Geology 102). Taught a field based course that meets for one 4 hour session per week.

September 2018-December 2018: Instructor for three sections containing 19 students each of a first year seminar, entitled "Volcanoes: They'll Blow Your Mind!" within the College of Natural Science at UMass Amherst. This course is an independently designed one credit course for first year students with an interest in the sciences.

January 2018-May 2018: Teaching assistant for Petrology at UMass Amherst. Duties include designing and teaching labs, grading and holding office hours.

December 2017: Became a Center for the Integration of Research, Teaching and Learning (CIRTL) Associate.

September 2017-December 2017: Instructor for three sections containing 19 students each of a first year seminar, entitled "Volcanoes: They'll Blow Your Mind!" within the College of Natural Science at UMass Amherst. This course is an independently designed one credit course for first year students with an interest in the sciences.

September 2017-December 2017: Teaching assistant for Mineralogy at UMass Amherst. Duties include designing and teaching labs, grading, and holding office hours.

January 2017-May 2017: Teaching assistant for Petrology at UMass Amherst. Duties included frequently teaching the lecture portion of the course and general assisting with the lecture portion, creating or modifying labs, teaching two lab sections a week, holding office hours and grading.

September-December 2016: Visiting Instructor at Middlebury College. Taught the course, "The Dynamic Earth" (Geology 170). This course is an introductory geology course that consisted of three lectures a week and a laboratory session.

August 2013-May 2014: Teaching Assistant for Structural Geology (fall) and Petrology (spring) at the University at Buffalo. Duties included assisting with lecture related work, holding office hours and all laboratory responsibilities, including creating the labs, teaching two lab sections a week and grading.

September 2011-May 2012: Teaching assistant for Mineralogy (fall) and Petrology (spring) at UMass Amherst. Duties included assisting with lectured related work, holding office hours, assisting with field trips, assisting with one lab section a week and independently teaching one lab section a week, as well as grading lab assignments.

September 2010-May 2011: Teaching assistant for the 300-student Introductory Oceanography course at UMass Amherst. Duties included assisting with lectures, grading in class assignments, entering exam grades online and holding office hours.

Field Experience:

July 23-28, 2016: Attended the Deep Carbon Observatory Second Summer School in Yellowstone National Park. School consisted of two days of field trips into the

park to study the unique volcanology and microbiology of the area, one day of sampling for aqueous and gas geochemistry and two days of lectures.

July 2015-Spent 3.5 weeks in Iceland sampling different volcanic units to assess volatile concentration.

May 2014-Ten-day field course in New Mexico and Colorado on Volcanic Rocks.

June 2013-Spent 3.5 weeks in central Nevada studying and sampling the Lunar Crater Volcanic Field.

June-July 2011-Spent 7 weeks mapping and sampling basaltic lava flows in the Springerville Volcanic Field in east-central Arizona.

June-August 2010-Spent 8 weeks mapping and sampling basaltic lava flows in the Springerville Volcanic Field in east-central Arizona.
March 2010-Completed a week-long field trip to New Mexico as part of the course The Rio Grande Rift.

January-May 2009-Participated in Cornell University's Sustainable Semester in Hawaii. This was a field based program that included the courses Field Study of Earth System, Biogeochemistry of Hawaii and Conservation Oceanography. This program culminated in a 3.5 week internship that was completed at the Hawaiian Volcano Observatory.

Publications:

Mnich, M.E. and Condit, C.D., 2018. Basaltic magmatic mapping: A suggested methodology and resulting petrologic and volcanic hazard implications from the Springerville Volcanic Field, East central Arizona. Journal of Volcanology and Geothermal Research, v. 366, p. 58-73.

Mnich, M.E. and Condit, C.D, In Prep. Magmatic Mapping Constraints on the Petrogenetic Processes in the Springerville Volcanic Field.

Mnich, M.E. and Seaman, S.J., In prep. Volatiles in melt inclusions and nominally anhydrous minerals in Icelandic basalts: Variations over space and time.

Mnich, M.E., 2013. An integrated study of the south-central part of the Springerville Volcanic Field; The final piece. Masters Thesis, 132p.

J.A. Jay, M. Welch, M.E. Pritchard, P.J. Mares, **M.E. Mnich**, A.K. Melkonian, F. Aguilera, J.A. Naranjo, M. Sunagua and J. Clavero, 2013. Volcanic hotspots of the central and

southern Andes as seen from space by ASTER and MODVOLC between the years 2000 and 2010. *Geological Society of London Special Publication,* 380.

Conference Papers:

Henderson, S.T., Pritchard, M.E., Jay, J.A., Welch, M., Mares, P.J., **Mnich, M.E**., Melkonian, A.K., Aguilera, F., Naranjo, J.A., Clavero, J., Minaya, E., Sunagua, M., Glass, B., Barrientos, S., 2012. Searching for Activity in the Andean Central Volcanic Zone: Thermal Anomalies, Seismicity, and Deformation Over a Timespan of 1-20 years. XIII Congresso Geologico Chileno, pp. 594-596.

Conference Abstracts:

Mnich, Marissa E. and Condit, Christopher D., 2018. Magmatic mapping: Providing the temporal link between lava flow chemistry, volume, petrogenesis and the mantle at the edge of the Colorado Plateau. AGU Fall Meeting 2018, V53B-01.

Mnich, Marissa E. and Condit, Christopher D., 2017. Basaltic magmatic mapping: a suggested methodology and results from the Springerville Volcanic Field. Geological Society of America Abstracts with Programs, Vol. 49, No. 6.

Mnich, Marissa E. and Seaman, Sheila J., 2016. Volatiles in nominally anhydrous minerals and melt inclusions in Iceland: Variations over space and time. AGU Fall Meeting 2016, V31A-3087.

Condit, Christopher D. and **Mnich, Marissa E**., 2016. Magmatic Mapping: A suggested methodology and results from the Springerville Volcanic Field, East-central Arizona, USA. AGU Fall Meeting 2016, P33D-2189.

Mnich, Marissa E., Seaman, Sheila J., Doiron, Nadine, 2016. Volatiles in nominally anhydrous minerals and melt inclusions in Icelandic basalts: Variations over space and time. Geological Society of America Northeast Section Abstracts with Programs Vol. 48, No. 2, Abstract No: 272666.

Mnich, Marissa E., Condit, Christopher D., Seaman, Sheila J., 2015. A Petrogenetic Model for the Springerville Basalts in East-central Arizona. Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p. 352.

Condit, Christopher D., **Mnich, Marissa,** 2013. The Completed Dynamic Digital Map of the Springerville Field in East-central Arizona: The Perfect Compliment to Magmatic Mapping. Geological Society of America Rocky Mountain Section, Abstracts with Programs, Vol. 45, No. 5, p. 36.

Mnich, M. E., Condit, C. D., 2013, The Vital Statistics for a Continental Monogenetic Volcanic Field: The Final Data for the Springerville Field, in East-central Arizona, Geological Society of America Northeast Section Abstracts with Programs Vol. 45, No. 1, Abstract No: 216167.

Condit, Christopher D., **Mnich, Marissa**. Dynamic Digital Maps as Vehicles for Distributing Digital Geologic Maps and Embedded Analytical Data and Multimedia. American Geophysical Union Fall Meeting 2012, Abstract #V33B-2857.

Jay, J.; Pritchard, M. E.; Mares, P. J.; **Mnich, M. E.**; Welch, M. D.; Melkonian, A. K.; Aguilera, F.; Naranjo, J.; Sunagua, M.; Clavero, J. E. Volcanic hotspots of the central and southern Andes as seen from space by ASTER and MODVOLC between the years 2000-2010. American Geophysical Union, Fall Meeting 2011, Abstract #V53E-2659.

Mnich, Marissa, Condit, Christopher D., Santangelo, Leah, 2011, Geologic Mapping Completed in the Springerville Volcanic Field, East-Central Arizona. Geological Society of America Abstracts with Programs, Vol. 43, No. 5, p. 626.

L. Brown, C. Condit, S. Kelemensky, **M. Mnich**, and T. Smith. Use of paleomagnetism to aid in stratigraphy and chronology in the monogenic Springerville Volcanic Field, Arizona, USA. Abstract submitted to the International Union of Geodesy and Geophysics IVACEI conference, 2011.

Smith, Taylor T., **Mnich, Marissa**, Condit, Christopher D., 2010, Progress Towards Completed Mapping of the Springerville Volcanic Field, East-Central Arizona. Geological Society of America Abstracts with Programs, Vol. 42, No. 5, p. 281.

Goman, Michelle, Joyce, Arthur, Malik, Farah, **Mnich, Marissa**, Middleton, William, Mueller, Raymond. Paleoenvironmental Reconstructions at the U2 Archaeological Feature, Lower Rio Verde Valley, Oaxaca. American Association of Geographers 2011.

Dang, George, Davis, Bradley, Gould, Salley, Ha, Grace, Hass, Bridget, Meyer, Jacqueline, **Mnich, Marissa**, Slovin, Noah, Wells, Victoria, and Moore, Alexandra. What Does It Take to Be Carbon-Neutral? Geological Society of America Abstracts with Programs, Vol. 41, No. 7, p. 315.

Invited Talks:

Smith College, October 2018: Basaltic magmatic mapping: Methodology and results from the Springerville Volcanic Field.

Middlebury College, November 2016: All about basalt: Volcanism in the Springerville Volcanic Field and Iceland.

Grant Received:

2015 Massachusetts Space Grant Consortium Travel Grant, Provided funding to attend the 2015 Geological Society of America Conference, $500.

2015 UMass Amherst Department of Geosciences Student Grant, "Assessing Volatile Concentrations within the Springerville Volcanic Field", $370.

2015 Massachusetts Space Grant Consortium Summer Fellowship, $5,500.

2015-2016 Leifur Eiriksson Foundation Scholarship, "Determining Water Concentrations in Icelandic Lavas and it's Effect on Eruptions"; Funding for field work and research related expenses, $25,000.

2012 Massachusetts Space Grant Consortium Summer Fellowship, $5,500.
2012 UMass Amherst Department of Geosciences Student Grant, "Age Dating of Samples from the 2010 and 2011 Mapped Portions of the Springerville Volcanic Field", $500.

2012 Geological Society of America Graduate Student Research Grant, "Dating the Stratigraphic Top of the Lavas in the Springerville Volcanic Field, East-Central Arizona", $2,500.

2011 UMass Amherst Department of Geosciences Student Grant, "Age Dating of Samples from the 2010 and 2011 Mapped Portions of the Springerville Volcanic Field", $700.

2011 USGS EDMAP Grant, "Geologic Mapping in the Springerville Volcanic Field, East-Central Arizona, 2011", $27,500.

Professional Affiliations:

Geological Society of America

International Association of Volcanology and Chemistry of the Earth's Interior

American Geophysical Union

Ancillary Activities:

September 2014-2019: Coordinator of the rock preparation facility at UMass Amherst. Includes maintaining the facility, training students and ensuring safety regulations are met.

March 2018: Spoke with a group of seventeen high school students about the geology of Iceland.

September 2017-May 2018: Mentor for an upper level undergraduate student majoring in geology at UMass Amherst. The includes regular meetings to discuss the students course choices, careers and graduate school.

2014-2019: Identified rocks and minerals brought in by the public at the annual Western Massachusetts Mineral Show.