Lowell R. Moore

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EDUCATION

Doctor of Philosophy in Geosciences, *Virginia Tech* 2019
Master of Science in Geosciences, *Virginia Tech* 2014
Bachelor of Science in Geology, *James Madison University* 2012

SERVICE ACTIVITIES

Reviewer – *Journal of Petrology*, *Journal of Volcanology & Geothermal Research*, *Chemical Geology*, *Canadian Mineralogist*, *American Mineralogist*, *MDPI geosciences* 2017-present

Session Co-convener – Minerals, Melts, Fluids, and Mixtures: Unraveling Magmatic Processes from the Petrologic Record (Oral + Poster, AGU session V11A) Fall 2019

Workshop contributor – *Workshop on Mineral Hosted Melt Inclusions* 2017, 2018

- Provided lecture and contributed to summary volume for international workshop on melt inclusions hosted by Woods Hole Oceanographic Institute (Woods Hole, MA)

Workshop contributor – *Workshop on carbon in the deep earth* 2017, 2018

- Provided lecture and contributed to summary volume for international workshop on carbon forms, pathways, and processes in the earth hosted by the Lake Como School (Como, Italy)

PUBLICATIONS

Rose-Koga E.F. and 73 others including **Moore, L.R.** (2021) "Silicate melt inclusions in the new millennium: A review of recommended practices for preparation, analysis, and data presentation," Chemical Geology, 570, p. 1-26.

Lerner, A.H., Wallace, P.J., Shea, T., Mourey, A.J., Kelley, P.J., Nadeau, P.A., Elias, T., Kern, C., Clor, L.E., Gansecki, C., Lee, R.L., **Moore, L.R.**, Werner, C.A. (2021) "The petrologic and degassing behavior of sulfur and other magmatic volatiles from the 2018

eruption of Kīlauea, Hawai‘i: melt concentrations, magma storage depths, and magma recycling," Bulletin of Volcanology, 83, 6, p. 1-32.

Yuan, Y., Moore, L.R., McAleer, R.J., Yuan, S., Ouyang, H., Belken, H.E., Mao, J., Sublett, D.M., Bodnar, R.J. (2021) "Formation of miarolitic-class, segregation-type pegmatites in the Taishanmiao batholith, China: The role of pressure fluctuations and volatile exsolution during pegmatite formation in a closed, isochoric system" American Mineralogist, 106, 10, p. 1559-1573.

Moore, L.R., Gazel, E., Bodnar, R.J. (2021) "The volatile budget of Hawaiian magmatism: Constraints from melt inclusions from Haleakala volcano, Hawaii," Journal of Volcanology and Geothermal Research, v. 410.

Moore, L.R., Bodnar, R.J. (2019) "A Pedagogical Approach to Estimating the CO_2 Budget of Magmas," Journal of the Geological Society of London, published online January 2019.

Moore, L.R., Mironov, N., Portnyagin, M., Gazel, E., Bodnar, R.J. (2018) "A comparative study of volatile contents of primitive arc bubble-bearing melt inclusions determined by mass-balance versus experimental homogenization methods," *Journal of Volcanology and Geothermal Research*.

Trela, J., Gazel, E., **Moore**, L., Sobolev, A., Bizimis, M., Jicha, B., Batanova, V., (2017). "The hottest lavas of the Phanerozoic and the survival of ancient Archean reservoirs," *Nature Geoscience*, **10**, 451-456.

Steele-MacInnis, M., Esposito, R., **Moore**, L.R., Hartley, M.E. (2017) "Heterogeneously entrapped, vapor-rich melt inclusions record pre-eruptive magmatic volatile contents" *Contributions to Mineralogy and Petrology*, **172**, 18 p.

Lamadrid, H.M., **Moore**, L.R., Moncada, D., Rimstidt, J.D., Burruss, R.C., Bodnar, R.J. (2016) "Reassessment of the Raman CO_2 densimeter," *Chemical Geology*, 14 p.

Aster E.M., Wallace P.J., **Moore** L.R., Watkins J., Gazel E., Bodnar R.J. (2016) "Reconstructing CO_2 concentrations in basaltic melt inclusions using Raman analysis of vapor bubbles." *Journal of Volcanology and Geothermal Research*, **323**, 148-16.

Moore, L.R., Gazel, E., Tuohy, R., Lloyd, A.S., Esposito, R., Steele-Macinnis, M., Hauri, E.R., Wallace, P.J., Plank, T., Bodnar, R.J. (2015) "Bubbles matter: An assessment of the contribution of vapor bubbles to melt inclusion budgets" *American Mineralogist*, **100**, 806-823.

PRESENTATIONS & PUBLISHED ABSTRACTS

Lerner, A.H., Wallace, P.J., Shea, T., Mourey, A., Kelley, P.J., Nadeau, P.A., Elias, T., Kern, C., Clor, L.E., Gansecki, C.A., Lee, R.L., **Moore**, L.R., Werner, C.A. (2020) "Magma source depths and magma recycling in the 2018 eruption of Kīlauea, Hawai'i based on volatiles in melt inclusions," AGU Fall 2020 virtual meeting.

Lerner, A., Wallace, P., Mourney, A., deGraffenried, R., Shea, T., Lee, R.L., Gansecki, C., Nadeau, P., Elias, T., Kern, C., Clor, L., Kelley, P., Werner, C., **Moore**, L. (2019) "Sulfur concentrations and oxidation states of products from the 2018 Kīlauea; fissure eruption

based on melt inclusions, embayments, and matrix glasses." AGU Fall 2019 Poster, San Francisco, CA.

Shea, T., Lerner, A., **Moore**, L., Powers, N., Wallace, P., Cluzel, N., deGraffenried, R., Mourney, A., Konter, J., Gansecki, C., Lee, R.L., Kent, A. (2019) "Storage conditions and longevity of rift zone magmas at Kīlauea Volcano, Hawai'i; melt inclusion insights from the 2018 lower east rift zone eruption," AGU Fall 2019 Poster, San Francisco, CA.

Moore, L.R., Gazel, E., Bodnar, R.J. "The volatile budget of Haleakala (Maui): implications for melting, crystallization, and degassing recorded by melt inclusions," AGU Fall meeting, December 2018.

Invited – **Moore**, L.R. "Applications of Raman spectroscopy for fluid and solid inclusions" *Mineral Sciences department seminar*, Smithsonian Institution NMNH, November 2018.

Invited – **Moore**, L.R., Bodnar, R.J. "Fluid bubbles in mineral-hosted melt inclusions," *Mineral-hosted melt inclusion workshop,* Woods Hole Oceanographic Institute, August 2018.

Moore, L.R., Gazel, E., Bodnar, R.J., Carracedo, J. "Volcanic volatile budgets and fluxes inferred from melt inclusions from post-shield volcanoes in Hawaii and the Canary Islands," *AGU Fall meeting*, December 2017.

Invited – **Moore**, L.R., Bodnar, R.J. "The CO_2 Budgets of Magmas, Carbon Forms, Pathways, and Processes," *Lake Como School*, Como, Italy, August 2017.

Moore, L.R., Nironov, N., Portnyagin, M., Gazel, E., Bodnar, R.J. "A comparative study of volatile contents of primitive arc bubble-bearing melt inclusions determined by Raman-spectroscopy and mass-balance versus experimental homogenization methods," *American Geophysical Union*, December 2016.

Invited – **Moore**, L.R., Gazel, E., Tuohy, R., Lloyd, A.S., Esposito, R., Steele-Macinnis, M., Hauri, E.R., Wallace, P.J., Plank, T., Bodnar, R.J. "Bubbles matter: An assessment of the contribution of vapor bubbles to melt inclusion budgets," *Geology and Environmental Science department seminar,* James Madison University, October 2015.

Moore, L.R., Lamadrid, H.M., Moncada, D., Bodnar, R.J., "Dependence of the Calculated CO_2 Content of Silicate Melt Inclusions on the Choice of Raman Densimeter Used to Estimate CO_2 Density," *AGU/GAC/MAC/CGU Joint assembly*, Montreal, May 2015.

Moore, L.R., Lamadrid, H.M., Moncada, D., Bodnar, R.J. "The effects of densimeter choice on reconstructing the pre-eruptive CO_2 content of magmas based on Raman analysis of vapor bubbles in melt inclusions," *The Sorby Conference on Fluid and Melt Inclusions,* Leeds, United Kingdom, June 2015.

Moore L.R., Gazel, E., Esposito, R., Bodnar, R.J., "Micro Raman densimetry of vapor bubbles and applications for melt inclusions", *Deep Carbon Observatory Thematic Institute*, Berkeley, California, July 2015**.**

Moore, L., Esposito, R., Gazel, E., Touhy, R., Wallace, P., Bodnar, R. J., "Hawaiian melt inclusion 'shrinkage bubbles' contain dense CO_2 vapor: Implications for inferred CO_2 contents of the trapped melts" *European Current Research on Fluid Inclusions*, Antalya, Turkey, June 2013.

ACADEMIC AWARDS & HONORS

Charles E. and Frances P. Sears Summer Scholarship	2016
David R. Wones Research Scholarship	2015
Geological Society of America graduate student research grant: $1000	2014
Geological Society of America graduate student research grant: $1200	2015