

Phone: (+1) 701.678.5626

Email: jmwrage@umich.edu

Website: www.jackiewrage.com

LinkedIn: www.linkedin.com/in/jackie-wrage

ORCID ID: 0000-0002-4581-1478

Jackie M. Wrage

Education

- 2018–current **Graduate Student** | Department of Earth and Environmental Sciences, University of Michigan
Research: Experimental Petrology, Economic Geology, Geochemistry | Magma mixing experiments to study the ability of magmatic volatile phases to transport metals and sulfur in subduction zones. | Adviser: Adam Simon
- 2012–2015 **B.S. Geosciences** | North Dakota State University, Fargo | Fall 2015 Commencement speaker
GPA - 3.95/4.0 (Summa Cum Laude); chemistry minor
-

Skills

Analytical

EPMA, SEM, XANES
Mineral characterization
SIMS, XRF, XRD

Software/programming

ArcGIS
Neuralog, Petra
Adobe Illustrator
PHREEQC
Python, R, Java

Language

Fluent Spanish

Professional Membership

Geochemical Society
GSA, AAPG, SEG
Assoc. of Women in Science

Work & Research Experience

PhD research

Aug 2018 – current | Advisor: Dr. Adam Simon – University of Michigan, Ann Arbor, MI
Project I: Extending the sulfur-in-apatite oxybarometer for intermediate magma compositions: Reconstructing redox processes in subduction zones.
Project II: Redox condition of Archean arc-magmatic systems: constraints from sulfur-in-apatite oxybarometry | *Collaboration with geoscientists at Laurentian University, Sudbury, ON*

Wyoming State Geological Survey

Oct 2017 – Jun 2018 | Supervisors: Dr. Ranie Lynds, PG, & Rachel Toner, PG -- Laramie, WY
Contractor: Upper Cretaceous unconventional reservoir project

- Created the base map of the subsurface in the Powder River Basin for use in future WSGS unconventional oil and gas surveys and studies

May – Sep 2017 | Supervisor: Dr. Ranie Lynds, PG
Contractor: StateMap program – mapping the Fort Steele 7.5' quadrangle

- Conducted field work and assisted in publishing a 1:24,000-scale bedrock map

Student Fulbright Research

Mar – Dec 2016 | Advisor: Dr. Martin Reich, Professor, Universidad de Chile -- Santiago, Chile

- Implemented geochemical tools to investigate structural controls on geothermal fluid development in the Southern Volcanic Zone of Chile
- Published results as first author in the journal *Chemical Geology*

Field experience

- | | |
|-------------|--|
| Summer 2017 | Field work for the Fort Steele 1:24,000-scale quadrangle, south-central WY |
| Nov 2016 | Field work at El Tatio geyser field, Atacama Desert |
| Sept 2014 | Field Geology mapping course – western ND |
| Sept 2013 | North Shore Lake Superior field course |

Conferences

- | | |
|----------|--|
| Mar 2019 | Poster presentation – Prospectors & Developers Association of Canada, Toronto, Ontario won 3rd place |
| Aug 2018 | Poster presentation – Gordon Research Conference, Waterville Valley, NH |
| Nov 2015 | Oral presentation – Geological Society of America (GSA) conference, Baltimore, MD |
| Mar 2015 | Poster presentation – American Chemical Society conference, Denver, CO |

Coursework – Mineralogy & petrology, structural geology, sedimentology/stratigraphy, GIS, organic & inorganic chemistry, geochemistry, soils, field geology, calculus, isotope geochemistry, determinative methods, renewable energy policy, python

Selected Publications

Lynds, R.M., and [Wrage, J.M.](#), 2017. Preliminary geologic map of the Fort Steele quadrangle, Carbon County, Wyoming. Wyoming State Geological Survey Open File Report 2017-5, 1:24,000-scale.

[Wrage, J.](#), Tardani, D., Reich, M., Daniele, L., Arancibia, G., Cembrano, J., Sanchez-Alfaro, P., Morata, D., Perez-Moreno, R., 2017. Geochemistry of thermal waters in the Southern Volcanic Zone, Chile—Implications for structural controls on geothermal fluid composition. *Chemical Geology* 466, 545–561.

Tardani, D., Reich, M., Deditius, A., Chrystoulis, S., Sánchez-Alfaro, P., [Wrage, J.](#), 2017. Cu-As decoupling in an active geothermal system: a link between pyrite and fluid composition. *Geochimica et Cosmochimica Acta* 204, 179–204.