

# Emily E. Mixon

PhD Candidate, Geoscience, University of Wisconsin-Madison  
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## EDUCATION

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**PhD Geological Sciences** (*University of Wisconsin-Madison Department of Geoscience*) **Expected 2024**

Advisor: Annie Bauer

Dissertation: *An Integrative in situ Geochemical Lens on Continental Growth from the Archean to the Proterozoic*

**B.S. Geological Sciences** (*University of Texas at Austin, Jackson School of Geosciences*) **2018**

**B.S Environmental Sciences, Geography** (*University of Texas at Austin, College of Liberal Arts*) **2015**

**B.A. Plan II Honors** (*University of Texas at Austin, College of Liberal Arts*)

**RELEVANT COURSEWORK** (\*Graduate level coursework) Geodynamics\*, Quantitative Methods in MATLAB\*, Geochronology\*, SEM/EPMA Methods\*, Advanced Igneous Petrology & Geochemistry\*, Rhythms in Global Climate\*, Geochemistry of Sediments\*, Risk Communication\*, University of Texas at Austin Field Camp, Structural Geology, Sedimentary Rocks; Igneous & Metamorphic Petrology; Isotope Geochemistry\*; High Temperature Geochemistry\*; Physical & Chemical Hydrogeology; Soils; Morphodynamics/Quantitative Stratigraphy\*; GIS

## PROFESSIONAL EXPERIENCE

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**aci Group, LLC** **July 2015-May 2018**

**Environmental Scientist**

**Austin, TX**

- Collaborated with a team to plan and execute field surveys for environmental features + hazardous materials
- Wrote relevant technical reports, including creation of GIS exhibits and drafting of cave/subsurface feature maps
- Communicated with a variety of stakeholders (engineers, regulators, and private clients)

## RESEARCH EXPERIENCE

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**NSF GRFP Fellow & UW-Madison Isotope Lab Research Assistant** **September 2020-August 2024**

Advisor: Annie Bauer

- Use U-Pb, Lu-Hf, Sm-Nd and O isotopic systems to investigate fundamental questions related to continental crust generation and the partitioning of elements into Earth's geochemical reservoirs.
- Experience with sample preparation, clean-lab protocols, LA-ICP-MS, SIMS, TIMS, Raman, and SEM.

**NSF GRFP Fellow & WiscAr Lab Research Assistant** **September 2018-September 2020**

Advisor: Brad Singer

- Produced research combining the methods of geological mapping, chronostratigraphy and geochemistry of volcanoes in the Chilean Southern Volcanic Zone (SVZ) to characterize the eruptive history of the arc.
- Gained experience with <sup>40</sup>Ar and <sup>3</sup>He chronologies, developed workflow for new noble gas mass spectrometer.
- Used integrated Python based sample database 'PyChron' to enhance inter-lab calibration and transparency.

**UT Austin Jackson School of Geosciences Catalyst Program** **May 2017-May 2018**

Advisors: Whitney Behr and Alissa Kotowski

- Characterized the structural and rheological evolution of high-pressure systems utilizing Rb-Sr geochronometry techniques on an equilibrium mineral assemblage formed in blueschist samples from Syros, Greece.

## PEER-REVIEWED PUBLICATIONS

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5. **Mixon, E.E.**, Bauer, A.M., Blum, T.B., Valley, J.W., Rizo, H., O'Neil, J., Kitajima, K. (*in review at Proceedings of the National Academy of Sciences (PNAS) 03/2024*). Earliest Evolved Terranes Record Arc-Like Zircon Geochemistry at 3.9 Ga.
4. **Mixon, E.E.**, Bauer, A.M., O'Neil, J., Rizo, H. Blum, T.B., Valley, J. (2023). Mechanisms for generating elevated zircon  $\delta^{18}\text{O}$  in Archean crust: Insights from the Saglek-Hebron Complex, Canada. *Earth and Planetary Science Letters*. Vol. 624. <https://doi.org/10.1016/j.epsl.2023.118443>
3. Klug, J.D., Ramirez, A., Singer, B.S., Jicha, B.R., **Mixon, E.E.**, Martinez, P. (2022) Intercalibration of the Servicio Nacional de Geología y Minería (SERNAGEOMIN), Chile and WiscAr <sup>40</sup>Ar/<sup>39</sup>Ar laboratories for Quaternary dating. *Quaternary Geochronology*, Vol. 72. <https://doi.org/10.1016/j.quageo.2022.101354>

2. **Mixon, E.E.**, Jicha, B.R., Tootell, D., Singer, B.S. (2022). Optimizing  $^{40}\text{Ar}/^{39}\text{Ar}$  analyses using an Isotopx NGX-600 mass spectrometer, *Chemical Geology*, Vol. 593. <https://doi.org/10.1016/j.chemgeo.2022.120753>
1. **Mixon, E.E.**, Singer, B.S., Jicha, B.R., Ramirez, A. (2021). Calbuco, a monotonous andesitic high-flux volcano in the Southern Andes, Chile, *Journal of Volcanology and Geothermal Research*, Vol. 416. <https://doi.org/10.1016/j.jvolgeores.2021.107279>

## **SHORT COURSES + WORKSHOPS + ACADEMIC FIELD EXPEDITIONS**

Quantitative Analysis, Visualization, and Modeling of Detrital Geochronology Data (GSA Fall meeting)	2022
Unlearning Racism in Geoscience (URGE) UW-Madison pod participant	2021
Stanford University Diversity in the Geosciences (DiG) Seminar	2021
Grand Canyon Vishnu Basement Field Forum III (Grand Canyon NP, AZ)	2021
NOLS 80hr Wilderness First Responder Certification (Austin, TX). Recertified 03/2023 (Madison, WI)	2021
Women in Science & Engineering Leadership Institute (WISELI) Breaking the Bias Habit workshop	2020
Geological Society of America Field Safety Leadership Workshop (GSA Fall meeting)	2020
Magma Chamber Simulator Workshop 2019 (AGU Fall Meeting)	2019
alphaMELTS Workshop 2019 (California Institute of Technology)	2019
Chilean Southern Volcanic Zone Field Season (Calbuco, Villarrica, Osorno Volcanoes)	2019
Short Course: "An Introduction to Mapping and Interpreting Deep Water Reservoirs" (Basin Dynamics, LLC)	2017
Roxanna Oil Exploration "Externship" (Houston, TX)	2017
Marathon Oil "Externship" (Houston, TX)	2017
Texas Hydrogeology Workshop (Boerne, TX)	2014

## **INSTRUMENTATION + LABORATORY EXPERTISE**

**Clean lab:** Ion exchange chromatographic methods, including calibration and use of Bio-Rad cation exchange columns; Calibration and use of 2-Hydroxyisobutyric acid ( $\alpha$ -HIBA) REE columns; Use of Sr-Spec Sr columns; Use and storage of HF and other reagents. **Mineral Separation:** Rock saw; Jaw crusher; Disk mill; Frantz; Gold table; Heavy liquids (MEI). **Instrumentation:** Nu Plasma II ICP-MS; Agilent 8900 QQQ ICP-MS; Isotopx NGX-600 Noble Gas Mass Spectrometer; Nu Noblesse Noble Gas Mass Spectrometer; Cameca IMS 1280 SIMS; Hitachi S3400N SEM; Horiba LabRAM HR Evo Raman Spectrometer.

## **PROFESSIONAL ORGANIZATIONS**

Geological Society of America, American Geophysical Union, Association for Women Geoscientists

## **HONORS + AWARDS**

University of Wisconsin-Madison Department of Geoscience Distinguished Graduate Student Award (\$2,000)	2024
University of Wisconsin-Madison Department of Geoscience Dissertator Fellowship (\$24,000)	2023
University of Wisconsin-Madison Department of Geoscience Summer Analytical Funding (\$2,500)	2022
University of Wisconsin-Madison Graduate Student Service Scholarship (\$1,000)	2022
James D. and Stella M. Robertson Research Assistantship (\$24,000)	2022
American Geophysical Union Lawrence A. Taylor Research Fund in Petrology & Geochemistry (\$4,000)	2021
Stanley A. Tyler Excellence in Teaching Award (\$500)	2021
Geological Society of America Graduate Research Fellowship (\$2,500)	2021
University of Wisconsin-Madison Department of Geoscience Summer Analytical Funding (\$2,000)	2019
Geological Society of America Graduate Research Fellowship (\$2,500)	2019
American Geosciences Institute Harriett Evelyn Wallace Scholarship (\$5,000)	2019
National Science Foundation Graduate Research Fellowship Program (\$138,000)	2018

## **SERVICE + LEADERSHIP + COMMUNICATION**

- GSA Geochronology Division Student Rep.
- UW-Madison Geoscience TOP (Diversity) Hiring Committee Student Representative
- UW-Madison Geoscience Graduate Worker Climate Survey Co-Founder
- UW-Madison Geoscience Diversity & Inclusion Committee Code of Conduct Development Lead
- Letters to a Pre-Scientist K-12 Pen Pal
- Future Rock Doc web content manager
- GEMS Graduate Application Mentor