

# Wade L. Aubin

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Colorado Mesa University  
1100 North Avenue  
Grand Junction, CO 81501

## EDUCATION

**The University of Texas at Austin, Ph.D.** Geology 2019 – 2024

Thesis Title: Explosive volcanic eruptions: Physical processes from depth to the surface of the Earth

Advisor: James Gardner

**Washington State University, M.S.** Geology 1997 – 2000

Thesis Title: Ignimbrites of the Deschutes Formation: A record of crustal melting and magma mixing

Advisor: John Wolff

**Humboldt State University, B.S.** Geology 1993 – 1997

Thesis Title: Late Pleistocene glacial sequence, petrology, and geochemistry of Ship Mountain, Siskiyou Mountains, Klamath Mountains, Northwestern California

Advisors: John Longshore and Raymond "Bud" Burke

## Short Courses

Acquisition, visualization, and analysis of X-ray CT (XCT) data of geological samples

Instructor: Romy Hana, The University of Texas at Austin August, 2021

Melts, Glasses, and Magmas

Instructor: Donald Dingwell, Ludwig Maximilian University of Munich May, 2020

## Other Education

U.S. Army Command and General Staff College 2018

U.S. Dept. of Defense Executive Leadership Development Program 2016

## PROFESSIONAL APPOINTMENTS

Assistant Professor, Dept. of Physical and Environmental Sciences, Colorado Mesa University 2024 – Present

Associate Professor, Dept. of Military Science, University of Texas at Austin 2012 – 2014

## PUBLICATIONS

**Aubin, W.L.**, and Gardner, J.E., 2024. The influence of Fe-Ti oxides on bubble nucleation in rhyolitic melts. *Journal of Volcanology and Geothermal Research*, 456, 108218. doi: 10.1016/j.jvolgeores.2024.108218

**Aubin, W.**, Gardner, J., Watkins, J., and Lloyd, M., 2023, Construction of obsidian during explosive-effusive eruptions: Insights from microlite crystals in obsidian pyroclasts. *Frontiers in Earth Science*, 11:1183923. doi: 10.3389/feart.2023.1183923.

## POSTER (\*) AND ORAL (\*\*) PRESENTATIONS

\*\*Invited Talk - Four Corners Geological Society, Durango, CO, March 2025

**Aubin, W.L.**, Unraveling deposition and erosion processes in large, fast-moving pyroclastic density currents

\*AGU Fall Meeting, Washington D. C., 2024

**Aubin, W.L.**, and Gardner, J.E., "Heterogenous bubble nucleation on magnetite in rhyolitic melts".

\*\*Invited Presentation - AGU Fall Meeting, San Francisco, CA, 2023

**Aubin, W.L.**, Gardner, J.E., and Watkins, J.M., "Dynamics of explosive-effusive eruptions: clues from obsidian".

\*AGU Fall Meeting, San Francisco, CA, 2023

Sun, J.G., **Aubin, W.L.**, and Gardner, J.E., "Bubble nucleation in silicic magmas: the role for pre-existing crystals".

\*\* Lithosphere and Deep Earth Seminar Series, Jackson School of Geosciences, 2023

**Aubin, W.L.**, "Construction of obsidian during explosive-effusive eruptions".

\*\* AGU Fall Meeting, Chicago, IL, 2022

**Aubin, W.L.**, Gardner, J.E., and Trolese, M. "Investigating the thermal evolution and air entrainment in a fast-moving Pyroclastic Density Current".

\* AGU Fall Meeting, New Orleans, LA, 2021

**Aubin, W.L.**, and Gardner, J.E. "What do microlites tell us about obsidian pyroclasts?"

\*\* AGU Fall Meeting, San Francisco, CA, 2000

**Aubin, W.L.**, Wolff, J.A., and Conrey, R.M. "Crustal melting beneath the Oregon Cascade Range: The ignimbrite record".

\* GSA Annual Meeting, Denver, CO, 1999

**Aubin, W.L.**, Wolff, J.A., and Conrey, R.M. "Progressive crustal melting recorded in the Deschutes Formation, north-central Oregon".

\* GSA Cordilleran Section Meeting, Portland, OR, 1996

**Aubin, W.L.** and Lee, D.R. "Petrology and geochemistry of a portion of the Trinity ultramafic sheet near Kangaroo Lake, Klamath Mountains, Northwestern California".

## RESEARCH GRANTS, SCHOLARSHIPS, AND FELLOWSHIPS

Denison, Rodger Espy "Tim" Endowment Fellowship	2024
Veterans Memorial Scholarship, Rocky Mountain Association of Geologists	2022
Charles D. Campbell Endowment Award, Washington State University	1999
Geological Society of America Student Research Grant	1999
Gregg Ranch Foundation Undergraduate Research Grant,	1996

## AWARDS

1 <sup>st</sup> place, Petrography Contest, Jackson School of Geosciences	2023
2 <sup>nd</sup> place, Petrography Contest, Jackson School of Geosciences	2022
Outstanding Teaching Assistant Award, Jackson School of Geosciences	2019
Outstanding Student Research Award, Geological Society of America	1999
John Young Award (Best Senior Thesis), Geology, Humboldt State University	1997
Received 12 military awards for excellence including the Bronze Star Medal	

## TEACHING EXPERIENCE

**Assistant Professor**, Colorado Mesa University 2024 - Present

*Geosciences*

Courses taught:

- Geology 340 / 340L - Igneous and Metamorphic Petrology
- Geology 111 / 111L - Introduction to Physical Geology
- Geology 480 - Field Camp
- Geology 496 - Volcanology
- Geology 109 - Geologic wonders of our National Parks

**Associate Professor**, The University of Texas at Austin 2012 - 2014

*Military Science (Army ROTC)*

- Associate Professor and Deputy Department Chair for a military science department with over 100 cadets including satellite programs at four other colleges in the Austin, TX area.
- Taught two military science courses (5 credit hours) per semester. Developed teaching standardization program to ensure quality of instruction for five instructors teaching five separate classes per semester.
- Personally mentored over 50 cadets, inspiring 17 of them to volunteer to become officers in the National Guard.
- Received excellent student evaluations.
- Acting Professor of Military Science and Department Chair for a two-month period.

**Instructor**, Washington State University Fall, 2000

*Geology 101 - General Geology*

- Instructor for one, three-credit lecture section of General Geology for 74 undergraduate students from diverse fields of study.

**Instructor**, National Guard Bureau, Austin, TX

2006 - 2010

*Combat Search and Rescue*

- Instructor and curriculum developer for a 10-person team teaching Army Combat Search and Rescue (CSAR) and High Risk of Isolation (HRI) training to deploying National Guard and Army Reserve units and Soldiers.
- Personally trained over 5,000 people over a four-year period. Conducted one-to-five-day training events across the United States, training deploying units and unit directors and their staffs. Instructed and coached these units to develop CSAR plans and exercise drills.
- Received excellent student reviews and 3 military awards for excellence.

**Assistant Instructor and Teaching Assistant**, The University of Texas at Austin 2022 - 2024

*Geology 660A & B - Field Camp*

- Managed transportation, lodging, and meals for 32 people (students, TAs and instructors) during 6-week field camps that covered 4500 miles through TX, NM, UT, WY, MT, and CO.
- Instructed field geology skills including mapping and interpretation of rocks and structures to 26 geosciences undergraduate students.
- Instructor rating 4.9/5

**Teaching Assistant**, The University of Texas at Austin

*Geology 385K - Volcanology*

Fall, 2023

- Prepared and led weekly hands-on laboratories for 15 geology major students. Developed new teaching material and methods to improve student engagement.
- Instructor rating: 4.9/5

*Geology 426P - Igneous and Metamorphic Petrology*

Spring, 2022

- Prepared and led weekly hands-on laboratories for 12 geology major students. Edited laboratory teaching presentations to improve student engagement and understanding. Developed practice exam study guides for laboratory exams.
- Instructor rating: 4.8/5

*Geology 401 - Physical Geology*

- Prepared and led weekly hands-on laboratories for 45 undergraduate students from diverse fields of study. Edited "canned" teaching presentations to improve student engagement and understanding.
- Developed practice exam study guides for lab exams. Student responses to this were overwhelmingly positive.
- Instructor rating: 5/5, 4.8/5, 4.6/5

## **Teaching Assistant**, Washington State University

*Fall Semesters - Geology 356 - Optical Mineralogy and Igneous Petrology* 1997 - 2000

*Spring Semesters - Geology 362 - Metamorphic Petrology*

- Prepared and led weekly hands-on laboratories for ~10 geology major students.
- Instructor rating: 4.6/5, 4.6/5

*Geology 102 - Physical Geology*

Fall, 2001

- Prepared and led weekly hands-on laboratories for ~30-40 undergraduate students.

## **STUDENT MENTORSHIP**

### ➤ *Colorado Mesa University*

- Jacob Kitchens - Will graduate, May 2026.
- For his senior project Jacob is studying the petrogenesis of ~16-12 Ma high silica dike swarms in the western San Juan Mtns. Joint research with Dave Gonzales at Fort Lewis College

### ➤ *The University of Texas at Austin*

- James Sun - Graduated, May 2024; M.S. student at University of Arizona  
Thesis: "Heterogeneous bubble nucleation on magnetite in high-silica rhyolites."
- Eleanor Connelly - Graduated, August 2024; Hillcorp  
No thesis - Eleanor performed bubble nucleation experiments in phonolitic melts.
- Madeline Lloyd - Graduated, May 2023  
Thesis: "Microlite morphologies in obsidian pyroclasts: evidence for multiple cycles of in-conduit sintering."

## **SELECTED RESEARCH EXPERIENCE**

**Research Assistant**, The University of Texas at Austin

2020 - 2024

Supervisor, Dr. James Gardner

Experimental Petrology:

Project: Constrain timescales of obsidian formation during explosive-effusive eruptions.

- Conduct temperature (T), pressure (P) and time (t) controlled experiments to investigate microlite growth under different conditions in volcanic glass (obsidian) to constrain sintering timescales in pyroclastic obsidian.
- Measured microlite and vesicle orientations and crystal morphologies in obsidian pyroclasts to investigate temporal changes in physical conditions in the volcanic conduit.

Project: Heterogeneous nucleation of bubbles in silicic magmas.

- Conduct T, P, and time-controlled experiments to investigate heterogeneous nucleation of bubbles on magnetite and pyroxene crystals in silicic melts.

- Vary melt composition (rhyolite-trachyte-phonolite) and seed crystal size fractions and abundances to develop a bubble nucleation data set covering a large range of silicic melt compositions.

#### Pyroclastic Density Currents (PDCs) and Paleomagnetism:

Project: Investigate the erosive capabilities and deposition of material by large volume fast moving PDCs.

- Use remanent magnetism of accidental rock fragments (lithic clasts) and pumice clasts from PDC deposits of the Crater Lake, OR, U.S.A. culminating eruption to demonstrate that most of the current deposits were emplaced relatively cool.
- Use this data to develop models for erosion by PDCs generated during large eruptions.

## **Professional Service**

Coordinator, CMU Geosciences Semester Newsletter	Fall, 2024 - Present
CMU Peer Coaching Program	Fall, 2024 - Present
Panel Member, Navigating Difficult Conversations in the Classroom, CMU Teacher 2	
Teacher Mentoring program	Fall, 2024
Coordinator, Lithosphere and Deep Earth Seminar Series, Jackson School of Geosciences	2023 - 2024
Treasurer / Professional Development Coordinator, Graduate Student Executive Committee, Jackson School of Geosciences	2020 - 2021
Geoscience Ambassadors, Jackson School of Geosciences	2019 - 2020
<a href="https://www.geoscienceambassadors.net/wade-aubin">https://www.geoscienceambassadors.net/wade-aubin</a>	

## **Professional Society Memberships**

American Geophysical Union (AGU)  
 International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)  
 Geological Society of America (GSA)  
 Rocky Mountain Association of Geologists (RMAG)  
 Mono Lake Foundation  
 National Guard Association of Texas (NGAT)

## **Web and Social Media**

LinkedIn: <https://www.linkedin.com/in/wadeaubin/>  
 Google Scholar: <https://scholar.google.com/citations?user=8CQtbJEAAAAJ&hl=en>  
 Research Gate: <https://www.researchgate.net/profile/Wade-Aubin>  
 ORCID: <https://orcid.org/0000-0001-7969-8779>

## **Other Applicable Skills**

- Proficient in MATLAB and Python programming and associated applications.
- Well-versed in modern communications and social media.

- Thoroughly experienced with Windows, Microsoft Office, and many Adobe products.
- Spanish language; Studied 4 years in high school and 1 year in college.
- Proficient with hand and power tools. Comfortable with mechanics, maintenance, and machinery.
- Excellent physical condition. CrossFit Master's athlete and former CrossFit coach.

## OTHER WORK EXPERIENCE

**Geologist**, Oregon Department of Transportation, La Grande, OR Feb - Aug 2003

- Supervised and logged four drilling projects using four different types of drill equipment (HQ+advancer, core, auger, and air track).
- Constructed drill logs for geotechnical reports using the gINT (v.5) software package.
- Installed pizometers; monitored water levels in pizometers over a three-month period.
- Contracted and supervised well pump tests, well drawdown tests, and water quality tests.

**Deputy Director of Operations**, U.S. Army, III Corps, Fort Hood, TX 2018 - 2019

Principal Deputy to the Director of Current Operations of an 88,000 person U.S. Army organization spread over three States and two time zones, encompassing 40% of the U.S. Army's combat power.

- Led a team of 18 experts from 13 different operational functions to design a scenario-based exercise to test new operational tactics and techniques developed by the U.S. Army's training and education center.
- Developed and implemented a quality assurance process for written directives that reduced the approval process for the directives by an average of three days (25% efficiency).
- Collaborated daily in cross-functional teams across 13 functions to design processes to plan and critique operations and improve products.
- Conducted during and post-performance evaluations of operations and training, including safety standards evaluations.
- Managed and directed the assignment of duties and quality of work of 18 military and six civilian employees.

**Senior Director to U.S. Department of State**, U.S. Army, Baghdad, Iraq 2017 - 2018

Senior U.S. Department of Defense (DoD) Director and Liaison to the U.S. Department of State (DoS) at the world's largest U.S. diplomatic site at Baghdad International Airport, Iraq.

- Developed innovative policies for the 850 U.S. service members on the diplomatic site, resulting in a 100% decrease in complaints from DoS executives.
- Developed strategies to more efficiently manage housing and life-support services for 1,100 U.S. and foreign military personnel, resulting in a 22% increase in available housing.
- Directly responsible for the leadership, career guidance, management and accountability of a seven-person team.
- Collaboratively established team goals and success-oriented strategies, resulting in efficiencies that created a 50% increase in services to customer (DoS).
- Planned and conducted over 1,200 Distinguished Visitor visits to the base including U.S. cabinet-level executives such as the U.S. Secretary of Defense.
- Supervised a 45% expansion in contracted vehicles with no loss of equipment or delay in service.
- Received three military awards and commendations for excellence.

**Deputy Director of Operations,** Texas National Guard Counterdrug Task Force, Austin, TX  
2015 - 2017

Principal deputy to the Director of Operations of a 300 person Texas Counterdrug Task Force; a full-time National Guard unit supporting Federal, State and local Law Enforcement Agencies (LEAs) in counter-narcotic investigations across Texas.

- Established program to focus effort in high-operational tempo LEAs. Concentrated people into high impact positions, resulting in an increase of 15% in creditable drug seizures in 2016.
- Directed preparation for biennial federal Counterdrug Program Evaluation inspection across seven functional areas in the program. Passed inspection with a 98% compliance, ensuring program was funded at the highest level during 2017-18.
- Directed teams of up to 20 people from five different functions to develop and author program Standard Operating Procedures.
- Directly responsible for the leadership, career development, management, and accountability of up to seven people.
- Supervised the accountability and reconciliation of Federal and State operations budgets up to \$1.5 million.
- Reviewed Federal and State regulations, and agency policies and procedures to ensure program compliance.

**Budget Manager/Contract Supervisor,** U.S. Army, Ghazni, Afghanistan  
2010 - 2011  
Budgeting and contracting supervisor for an Agricultural Development Team in Ghazni Province, Afghanistan.

- Directly responsible for the preparation, accountability, reconciliation, and reporting of unit budget. This included 13 large-scale agricultural-focused infrastructure improvement projects, totaling over \$2.5 million, and an additional 81 smaller scope projects, totaling \$260,751.
- Directly responsible for the leadership, career development, management, and accountability of three contracting officers managing contracting and performance of 13 agricultural-focused projects.
- Developed and implemented a "quick turn-high impact" process to hire Afghan contractors with cash to work small (<\$2500) agricultural-focused projects with specific goals that had high positive impacts to the local population, without raising the interest of local enemy guerilla forces.
- Assisted Executive Director to develop budget priorities based on strategic goals and plans of the unit.
- Met bi-weekly with Afghan contractors, tribal leaders, Afghan government leaders, and Polish Army officials to ensure work was on schedule and to prevent delays in project delivery.
- Established and co-managed Coyote CrossFit Ghazni, a CrossFit military affiliate.

**Unit Director (Unit Commander),** Texas Army National Guard, Austin, TX 2007 – 2010  
Company Commander of a Texas Army National Guard 138-person long range surveillance (LRS) unit headquartered in Austin, TX.

- Established the vision and strategy of the unit.
- Directly responsible for the leadership, career guidance, managerial responsibilities, and accountability of four primary unit leaders.
- Directly responsible for the readiness, morale, welfare, and accountability of all 138 people.
- Directly responsible for the accountability and maintenance of unit equipment worth over \$10 million.
- Directed teams of up to 10 people across four functions to collaboratively plan and provide resources for long and short-term operations.
- Executed day to day operations in both office and field environments and executed short-term contingency operations while conducting constant operational performance assessments to increase operational efficiencies.
- Developed safety measures to mitigate risks for all operations.

**Director, Civilian to Military Operations,** U.S. Army, Baghdad, Iraq 2003 – 2005  
Director of Civilian to Military operations for a Washington Army National Guard Infantry unit conducting combat operations in south-east Baghdad, Iraq.

- Developed and submitted proposal for a \$21 million project to modernize the sewage transport and treatment system in south-east Baghdad. Project began in February 2005.
- Developed proposal for an agricultural assistance project based on needs of local Iraqi population. Organized and directly supervised distribution of over 15 tons of seed to local farmers in and around south-east Baghdad.
- Organized effort to provide winter clothing for needy children in south-east Baghdad. Personal family in U.S. shipped over 500 pounds of winter clothing to Baghdad. Distributed clothes to over 200 needy families.
- Used Executive Director's guidance and intent, coupled with local Iraqi vision to plan long and short-range humanitarian relief and infrastructure refurbishment goals. Developed strategies and processes to reach those goals.
- Directly responsible for the leadership, career development, management, and accountability of a three-person section.
- Conducted daily face-to-face meetings with local Iraqi leaders to develop and implement strategies for improving the area such as trash removal, school refurbishment, building soccer fields, and propane distribution.
- Directly responsible for the public image of the unit. Developed and implemented a media plan in accordance with the Executive Director's guidance and intent. Planned and facilitated news reporter embedment's into the unit. Solicited and facilitated media coverage of the unit and its activities.