

Alexis Katherine Ault

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Curriculum vitae

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Employment

Professor	Department of Geosciences, Utah State University	2025-present
Associate Professor	Department of Geosciences, Utah State University	2020-2025
Assistant Professor	Department of Geosciences, Utah State University	2014-2020
NSF Postdoctoral Fellow	Department of Geosciences, University of Arizona	2012-2014

Education

PhD	University of Colorado Boulder, Geological Sciences	2012
MSc	University of New Mexico, Earth and Planetary Sciences	2007
BA	Wellesley College, Geology, Political Science	2003

Narrative of research experience

My research investigates how fault material properties and rheology govern earthquake processes and interseismic deformation across spatial and temporal scales. I developed paired hematite (U-Th)/He thermochronometry and nanotextural analysis as a tool to directly date fault slip, detect past earthquakes, quantify coseismic temperature rise, and identify shallow slow slip preserved in the rock record. My group connects these exhumed fault rock observations with laboratory friction experiments and geodetic data to understand how shallow fault zones accommodate deformation throughout the seismic cycle. This work spans active fault systems including the San Andreas, Wasatch, Denali, and East Anatolian faults, and the 2023 Türkiye earthquake ruptures. I have published 42 peer-reviewed articles (32 as first or mentoring author), secured \$5.8M in extramural funding as PI from NSF, SCEC, USGS EHP, and the State of Utah, and trained 6 postdoctoral fellows, 11 graduate students, and 11 undergraduate researchers.

Select publications

*Denotes *postdoctoral, *graduate, and **undergraduate mentee*

- *Armstrong, E.A., **Ault, A.K.**, Evans, E.L., 2026, Linking thermochronometry and geodesy to track pulsed vertical deformation in strike-slip fault systems, *Geology*, 10.1130/g54172.1.
- *DiMonte, A.A., **Ault, A.K.**, Shreedharan, S., Hirth, G., 2025, Frictional behavior of the shallow southern San Andreas fault reveals ability to host slow slip events, *Geophysical Research Letters*, 52, e2025GL116498.
- Shreedharan, S., **Ault, A.K.**, *Jensen, J.L., 2025, Frictional and microstructural evidence for a weak Wasatch fault zone, *Geology*, 10.1130/G52606.1.
- *Jensen, J.L. and **Ault, A.K.**, 2025, Tracking ancient nonconformity development with martite (U-Th)/He thermochronometry, *Geology*, 10.1130/G53010.1.
- *DiMonte, A.A., **Ault, A.K.**, Hirth, G., Meyers, C., 2024, Hematite frictional behavior and He loss during slow slip deformation experiments, *JGR: Solid Earth*, e2023JB027514.
- *Jensen, J.L., **Ault, A.K.**, Geissman, J.W., 2023, Evaluating the compatibility of hematite (U-Th)/He data and hematite-carried secondary magnetizations, *Geochemistry, Geophysics, Geosystems*, 24, e2023GC010993.
- *McDermott, R.G., **Ault, A.K.**, **Wetzel, K., Evans, J.P., Shen, F.-A., 2023, Microscale spatial variations in coseismic temperature rise on hematite fault mirrors, *JGR: Solid Earth*, v. 128, e2022JB025069.
- *DiMonte, A.A., **Ault, A.K.**, Hirth, G., Bradbury, K.K., 2022, Hematite accommodated shallow, transient Pleistocene slow slip along the exhumed southern San Andreas fault system, *Geology*, 50, 1443–1447, 10.1130/G50489.1

- *Armstrong, E.M., **Ault, A.K.**, Bradbury, K.K., Savage, H.M., Thomson, S.N., Polissar, P., 2022, A multi-proxy approach to robustly capture earthquake temperature rise on the Punchbowl fault, CA, *Geochemistry, Geophysics, Geosystems*, 23, e2021GC01029, 10.1029/2021GC010291.
- **Taylor, M.P., **Ault, A.K.**, *Odlum, M.L., Newell, D.L., 2021, Shallow rupture propagation of Pleistocene earthquakes along the Hurricane fault, UT, revealed by hematite (U-Th)/He thermochronometry and textures, *Geophysical Research Letters*, 48, e2021GL094379.
- *McDermott, R.G., **Ault, A.K.**, Caine, J.S., 2021, Dating fault damage along the eastern Denali fault zone with hematite (U-Th)/He thermochronometry, *Earth and Planetary Science Letters*, 563, 1116872, 10.1016/j.epsl.2021.116872.
- Ault, A.K.**, 2020, Hematite fault rock thermochronometry and textures inform fault zone processes, invited review article, *Journal of Structural Geology*, 133, 104002, 10.1016/j.jsg.2020.104002.
- Ault, A.K.**, **Jensen, J.L., *McDermott, R.G., Shen, F.-A., Van Devener, B.R., 2019, Nanoscale evidence for temperature-induced transient rheology and post-seismic fault healing, *Geology*, 47, 1203-1207, 10.1130/G46317.1
- Ault, A.K.**, Gautheron, C., King, G., 2019, Innovations in (U-Th)/He, fission track, and trapped charge thermochronometry with applications to earthquakes, weathering, surface-mantle connections, and growth and decay of mountains, invited review article for AGU Centennial, *Tectonics*, 38, 3705–3739, 10.1029/2018TC005312.
- Ault, A.K.**, Reiners, P.W., Evans, J.P., and Thomson, S.N., 2015, Linking hematite (U-Th)/He dating with the microtextural record of seismicity in the Wasatch fault damage zone, Utah, *Geology*, 43, 771-774, 10.1130/G36897.1.

Honors, awards, and fellowships

USU President's Leadership Academy	2026–2027
USU College of Science Graduate Mentor of the Year	2024
Kavli Fellow, National Academy of Sciences	2023
Geology Outstanding Reviewer	2020
Early Career Award, International Standing Committee on Thermochronology	2018
USU College of Science Researcher of the Year	2018
NSF CAREER Award	2017
NSF Postdoctoral Fellowship	2012–2014
NSF Graduate Research Fellowship	2005–2010

Professional Society Memberships

American Geophysical Union; Geological Society of America

Select service activities

Associate Editor, *Tectonics* (2021–present); GSA Rocky Mountain Section Executive Board Member-at-Large (2018–2025); Co-Chair, 2022 Joint Cordillera–Rocky Mountain GSA Section Meeting; GSA Structural Geology and Tectonics Division Career Achievement and Outstanding Paper Award Committees (2021–present); GSA Geology and Public Policy Committee (2025–present); Convener of 9 sessions at AGU and GSA

Mentoring

Postdoctoral fellows (n = 7): E. Curtiss (2026–present); P. Zhai (2026–present); C. Howlett (2025–present), L. Bailey (2023–2024, Harvard Daly Fellow), J. Kaempfer (2022–2024), M. Odlum (2019–2021, NSF Postdoctoral Fellow), G. Calzolari (2017–2019)

Graduate advisor (n = 11): L. Garcia (PhD, current), L. Broderick (MSc, current), A. DiMonte (PhD, current), E. Armstrong (PhD, current, NSF GRFP), J. Jensen (PhD, 2026, Presidential Doctoral Research Fellow), A. DiMonte (MSc, 2022), E. Armstrong (MSc, 2021, NSF GRFP), R. McDermott (PhD, 2020, Presidential Doctoral Research Fellow), L. Houser (MSc, 2019), M. Channer (MSc, 2017), A. Moser (MSc, 2017).

Thesis supervisory committees: PhD (12), MSc (15). Undergraduate research assistants (11).