Alexis Katherine Ault

Department of Geosciences
Utah State University
4505 Old Main Hill
Logan, UT 84322

Phone: 757.784.6452 (cell)
Fax: 435.797.1588
Email: alexis.ault@usu.edu
Website: www.alexiskault.weebly.com

Curriculum vitae

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

PROFESSIONAL EXPERIENCE

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

RESEARCH

HONORS AND AWARDS

2023	Kavli Fellow, National Academy of Sciences
2020	*Geology* Outstanding Reviewer
2018	Early Career Award, International Standing Committee on Thermochronology
2018	USU College of Science Researcher of the Year
2017	NSF CAREER Award
2012-2014	NSF Postdoctoral Fellowship
2005-2010	NSF Graduate Research Fellowship

PUBLICATIONS

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

38. *DiMonte, A.A, **Ault, A.K.**, Hirth, G., Meyers, C., *in review*, Hematite frictional behavior and He loss during slow slip deformation experiments, *JGR – Solid Earth*.
37. *Armstrong, E.M., **Ault, A.K.**, ⬩Kaempfer, J.M., Guenthner, W.R, *in revision*, Connecting visual metamictization to radiation damage to expand applications of zircon (U-Th)/He thermochronometry, *Chemical Geology.*
36. *Jensen, J.L., **Ault, A.K.**, Geissman, J.W., 2023, Evaluating the compatibility of hematite (U-Th)/He data and hematite-carried secondary magnetizations: an example from the Colorado Front Range, *Geochemistry, Geophysics, Geosystems*, v. 24, e2023GC010993, doi: 10.1029/ e2023GC010993.
35. *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, *Journal of Geophysical Research: Solid Earth*, v. 128, e2022JB025069, doi: 10.1029/2022JB025069.
34. *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, California, USA, *Geology*, v. 50, 1443-1447, doi: 10.1130/G50489.1.
33. ⬩Odlum, M.L., Rittenour, T., **Ault, A.K**., Nelson, M., Ramos, E., 2022, Investigation of quartz luminescence properties in bedrock faults: fault slip processes reduce trap depths, lifetimes, and sensitivity, *Radiation Measurements*, v. 155, 106784, doi:10.1016/j.radmeas.2022.106784.
32. *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, doi: 10.1029/2021GC010291.
31. ⬩Odlum, M.L., **Ault, A.K**., *Channer, M.A., ⬩Calzolari, G., 2022, Seismicity recorded on hematite fault mirrors in the Rio Grande rift, *Geosphere*, v. 18, p. 241-260, doi:10.1130/GES02426.1
30. Provow, A.W., Newell, D.L., Dehler, C.M., **Ault, A.K.**, Yonkee, W.A., Thomson, S.N., Mahan, K.H., 2022, Revised maximum depositional age for the Ediacaran Browns Hole Formation: Implications

for western Laurentia Neoproterozoic stratigraphy, *Lithosphere,* doi: 10.2113/1757114.

29. *Moser, A.C., **Ault, A.K.**, Stearns, M.A., Evans, J.P., Guenthner, W.R., 2021, Late Oligocene-early Miocene detachment faulting in crystalline basement, Mecca Hills, CA, documented with zircon (U-Th)/He date-eU-visual radiation damage patterns, *Tectonics,* v. 40, doi: 10.1029/2021TC006809.
28. **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*, v. 48, e2021GL094379, doi: 10.1029/2021GL094379.
27. *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*, v. 563, 1116872, doi: 10.1016/j.epsl.2021.116872.
26. *Houser, L.M., **Ault, A.K.**, Newell, D.L., Evans, J.P., Shen, F.-A., Van Devener, B.R., 2021, Nanoscale textural and geochemical evolution of silica fault mirrors in the Wasatch fault damage zone, Utah, USA, *Geochemistry, Geophysics, Geosystems,* v. 22, doi:10.1029/2020GC009368.
25. Cooperdock, E.H.G., and **Ault, A.K.**, 2020, Fe-oxide (U-Th)/He thermochronology: new perspectives on faults, fluids, and heat, ***invited*** review article, *Elements,* v. 16, p. 319-324.
24. ♦Calzolari, G., **Ault, A.K.**, Hirth, G.E., *McDermott, R.G., 2020*,* Hematite (U-Th)/He thermochronometry detects asperity flash heating during laboratory earthquakes, *Geology*, v. 48, p. 509-513, doi: 10.1130/G46965.1.
23. **Ault, A.K.**, 2020, Hematite fault rock thermochronometry and textures inform fault zone processes, ***invited*** review article, *Journal of Structural Geology,* v. 133, p. 104002, doi: 10.1016/j.jsg.2020.104002.
22. **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*, v. 47, p. 1203-1207, doi:10.1130/G46317.1
21. **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*, v. 38, p. 3705-3739, doi: 10.1029/2018TC005312.
20. *McDermott, R.G., **Ault, A.K.**, Caine, J.S., Thomson, S.N., 2019, Thermotectonic history of the Kluane Ranges and evolution of the eastern Denali fault zone in southwest Yukon, Canada, *Tectonics*, v. 38, p. 2983-3010, doi: 10.1029/2019TC005545.
19. **Jensen, J.L., Siddoway, C.S., Reiners, P.W., **Ault, A.K.**, Thomson, S.N., Steele-MacInnis, M., 2018*,* Single-crystal hematite (U-Th)/He dates and fluid inclusions document widespread Cryogenian sand injection in crystalline basement, *Earth and Planetary Science Letters*, v. 500, p. 145-155, doi: 10.1016/j.epsl.2018.08.021.
18. **Ault, A.K.**, Guenthner, W.R., *Moser, A.C., Miller, G.H., Refsnider, K.A., 2018, Zircon selection reveals (de)coupled metamictization, radiation damage, and He diffusivity, *Chemical Geology*, v. 490, p. 1-12, doi: 10.1016/j.chemgeo.2018.04.023.
17. ♦Calzolari, G., Rossetti, F., **Ault, A.K.**, Lucci, F., Olivetti, V., Nozaem, R., 2018, Hematite (U-Th)/He thermochronometry constrains strike-slip faulting on the Kuh-e-Faghan fault, central Iran*,* *Tectonophysics,* v. 728-729, p. 41-54, doi: 10.1016/j.tecto.2018.01.023.
16. Huntington, K.W., and Klepeis, K.A., with 66 community contributors, 2018, Challenges and opportunities for research in tectonics: Understanding deformation and the processes that link Earth systems, from geologic time to human time. A community vision document submitted to the U.S. National Science Foundation. University of Washington, 84 pp., doi: 10.6069/H52R3PQ5.
15. DeLucia, M.S., Guenthner, W.R., Marshak, S., Thomson, S.N., **Ault A.K.**, 2018, Thermochronology links denudation of the Great Unconformity surface to the supercontinent cycle and snowball Earth, *Geology*, v. 46, p. 167-170, doi: 10.1130/G39525.1.
14. *Moser, A.C, Evans, J.P., **Ault, A.K.**, Janecke, S.U., Bradbury, K.K., 2017, (U-Th)/He thermochronometry reveals Pleistocene punctuated deformation and synkinematic hematite mineralization in the Mecca Hills, southernmost San Andreas Fault zone, *Earth and Planetary Science Letters*, v. 476, p. 87-99, doi: 10.1016:/j.epsl.2017.07.039.
13. *McDermott, R.G., **Ault, A.K.**, Evans, J.P., Reiners, P.W., 2017, Thermochronometric and textural

evidence for seismicity via asperity flash heating on exhumed hematite fault mirrors, Wasatch fault zone, UT, USA, *Earth and Planetary Science Letters*, v. 471, p. 85-93, doi: 10.1016/j.epsl.2017.04.020.

12. **Ault, A.K.**, Frenzel, M., Reiners, P.W., Woodcock, N.H., and Thomson, S.N., 2016, Record of paleofluid circulation in faults revealed by hematite (U-Th)/He and apatite fission-track dating: an example from Gower Peninsula fault fissures, Wales, *Lithosphere*, v. 8, p. 379-385, doi: 10.1130/L522.1.
11. Condit, C., Mahan, K.M., **Ault, A.K.**, and Flowers, R.M., 2015, Foreland-directed propagation of high-grade tectonism in the deep roots of a Paleoproterozoic collisional orogen, SW Montana, USA, *Lithosphere*, v. 7, p. 625-645, doi: 10.1130/L460.1.
10. **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*, v. 43, p. 771-774, doi: 10.1130/G36897.1.
9. **Ault, A.K.**, Flowers, R.M., and Bowring, S.A., 2015, Synchroneity of cratonic burial phases and gaps in the kimberlite record: episodic magmatism or preservational bias? *Earth and Planetary Science Letters*, v. 410, p. 97-104, doi: 10.1016/j.epsl.2014.11.017.
8. Evans, J.P, Prante, M.R., Janecke, S.U., **Ault, A.K.,** and Newell, D.L., 2014, Hot faults: Iridescent slip surfaces with metallic luster document high-temperature ancient seismicity in the Wasatch fault zone, *Geology*, v. 42, p. 623-626, doi: 10.1130/G35617.1.
7. **Ault, A.K.**, Flowers, R.M., and Bowring, S.A., 2013, Phanerozoic surface history of the Slave craton: *Tectonics*, v. 32, p. 1066-1083, doi: 10.1002/tect.20069.
6. **Ault, A.K.,** Flowers, R.M., and Mahan, K.H., 2012, Quartz shielding of sub-10 um zircons from radiation damage-enhanced Pb loss: an example from a metamorphosed mafic dike, northwestern Wyoming craton: *Earth and Planetary Science Letters*, v. 339-340, p. 57-66, doi: 10.1016/j.epsl.2012.04.025.
5. Flowers, R.M., **Ault, A.K.**, Kelley, S.A., Zhang, N., and Zhong, S., 2012, Epeirogeny or Eustasy? Paleozoic-Mesozoic vertical motion of the North American continental interior from thermochronometry and implications for mantle dynamics, *Earth and Planetary Science Letters*, v. 317-318, p. 436-445, doi: 10.1016/j.epsl.2011.11.015.
4. **Ault, A.K.,** and Flowers, R.M., 2012, Is apatite U-Th zonation information necessary for accurate interpretation of apatite (U-Th)/He thermochronometry data?, *Geochimica et Cosmochimica Acta*, v. 79, 60-78, doi: 10.1016/j.gca.2011.11.037.
3. **Ault, A.K.**, Flowers, R.M., and Bowring, S.A., 2009, Phanerozoic burial and unroofing of the western Slave craton and Wopmay orogen from apatite (U-Th)/He thermochronometry, *Earth and Planetary Science Letters*, v. 284, p. 1-11, doi: 10.1016/j.epsl.2009.02.035.
2. **Ault, A.K.** and Selverstone, J., 2008, Microtextural constraints on the interplay between fluid-rock reactions and deformation, *Contributions to Mineralogy and Petrology*, v. 156, 501-515, doi:10.1007/s00410-008-0298-9.
1. Wawrzyniec, T.F, **Ault, A.K.**, Geissman, J.W., Erslev, E.A., and Fankhauser, S.D., 2007, Paleomagnetic dating of fault slip in the southern Rocky Mountains, USA, and its importance to an integrated Laramide foreland strain field, *Geosphere*, v. 3, p. 16-25, doi: 10.1130/GES00066.1.

GRANT FUNDING

Pending

2024-2025 **USGS Earthquake Hazards Program,** Characterizing the frictional strength, stability, and fabric evolution of the Wasatch fault zone through laboratory experiments, Co-I with lead PI S. Shreedharan (USU), **$66,380**

Active

2023-2024 **NSF EAR-2335077**, Collaborative Research: RAPID: Fault rock and spring sampling of the 2023 Kahramanmaras, Turkey, earthquake sequence ruptures, lead PI with Co-PIs D. Newell (USU) and S. Akçiz (CSUF), $24,045

2023-2024 **SCEC 23081**, **Southern California Earthquake Center**, Bridging nano- and macroscale observations to investigate shallow on-fault deformation of the southern San Andreas fault, Coachella Valley segment, lead PI, Co-PI G. Hirth (Brown), **$24,359**

2023-2024 **USU SPARC**, Integrating geologic and geophysical data to inform shallow earthquake processes, lead PI, Co-PI B. Cox (USU, CEE), **$34,834**

2021-2024 **NSF EAR-2039727,** Collaborative Research: Identifying shallow slow slip using hematite textures and (U-Th)/He thermochronometry of exhumed and experimental faults, lead PI, Co-PI G. Hirth (Brown), **$591,131**

2017-2023 **NSF EAR-1654628**, CAREER: Thermochronometric and textural signatures of fault damage zone microseismicity and igniting middle school student interest in earthquake science, sole PI, **$677,468**

Past

2022-2023 **SCEC 22082**, **Southern California Earthquake Center**, Collaborative Research: Documenting the formation, frictional properties, and slip history of shallow fault damage with natural and experimental mixed hematite-clay faults, lead PI, Co-PI G. Hirth (Brown), **$32,025**

2021-2023 **SCEC 21068**, **Southern California Earthquake Center**, Collaborative Research: Characterizing shallow fault friction with slow slip hematite deformation experiments and hematite (U-Th)/He thermochronometry, lead PI, Co-PI G. Hirth (Brown), **$25,000**

2020-2022 **SCEC 20153, Southern California Earthquake Center**, Creating a multi-proxy approach to robustly capture earthquake temperature rise at the Punchbowl fault, lead PI, co-PIs H. Savage (UCSC) and P. Polissar (UCSC), **$34,998**

2018-2022 **NSF MRI-1826921**, Acquisition of a noble gas multi-collector mass spectrometer for geochronology and geochemistry research, co-PI, with PI P. Reiners (UA) and Co-PIs G. Gehrels (UA), T. Swindle (UA), and L. Ma (UTEP), **$880,722**

2017-2019 **SCEC 17164, Southern California Earthquake Center,** Detecting asperity flash heating on hematite faults with laboratory experiments and hematite (U-Th)/He thermochronometry, sole PI, **$20,000**

2016-2017 **USU Research Catalyst,** New approaches to deciphering billion-year tectonic histories from zircon (U-Th)/He thermochronology, sole PI, **$20,000**

2014-2019 **NSF EAR-1419828,** Collaborative Research: Development of hematite (U-Th)/He chronology to directly date fault slip and ancient seismicity, lead PI, co-PIs J. Evans (USU), P. Reiners (UA), and D. Shuster (BGC), **$487,365**

2014-2015 **SCEC 14125, Southern California Earthquake Center,** How and when do faults get hot? Surface chemistry and geochronological investigations of seismic slip? Co-PI, lead PI J. Evans (USU), **$20,000**

2012-2014 **NSF PF-1144905, Postdoctoral Fellowship and Tectonics Programs,** Constraining the burial and unroofing history of the Rae craton, Baffin Island, from multiple low temperature thermochronometers and secondary Fe-oxide (U-Th)/He dating, sole PI, **$170,000**

INVITED TALKS *(not repeated in abstract list at end; denotes *graduate, **undergraduate mentee)*

11. **Ault, A.K.**, 2023, What can hematite tell us about deformation throughout the earthquake cycle? Invited Keynote Speaker, Montana State University Earth Sciences Student Colloquium, April 2023.
10. **Ault, A.K.**, 2021, What can hematite (U-Th)/He thermochronometry tell us about fault mechanics in the shallow crust?, Invited Plenary Speaker, Southern California Earthquake Center Annual Meeting, Virtual, September 2021.
9. **Ault, A.K.**, 2018, Transient rheology during earthquakes: insight from nanotextures and (U-Th)/He thermochronometry of hematite fault mirrors: Invited speaker, Gordon Research Conference on Rock Deformation, Proctor Academy, New Hampshire, August 2018.
8. **Ault, A.K.**, 2018, Record of seismic and aseismic deformation in exhumed western North America fault damage zones: insights from hematite microtextures and fault rock thermochronometry: Structural Geology and Tectonics Forum, Tempe, AZ, January 2018.
7. **Ault, A.K.**, Guenthner, W.R., *McDermott, R.G., 2017, Speed Dating!: Advice on Sampling and Applications for (U-Th)/He Thermochronometry, Pardee Symposium, Geological Society of America *Abstracts with Programs,* v. 48, no. 7.

6. **Ault, A.K.**, *McDermott, R.G., *Moser, A.C., Evans, J.P., Reiners, P.W., 2017, Hematite texture and (U-Th)/He thermochronometry inform seismic and aseismic fault processes: Keynote Speaker, Goldschmidt Conference, Paris, France, August 2017.
5. **Ault, A.K.**, 2017, Hematite textural and (U-Th)/He thermochronometry constraints on seismic and aseismic fault damage zone processes: Keynote speaker, Geological Association of Canada-Mineralogical Association of Canada, May 2017.
4. **Ault, A.K.**, 2015, Advances in low temperature thermochronology and applications to structural geology and tectonics: Keynote Speaker, Structural Geology and Tectonics Division 35th Anniversary Symposium, Geological Society of America *Abstracts with Programs*, v. 47, no. 7.
3. **Ault, A.K.**, Reiners, P.W., Thomson, S.N., and Miller, G.H., 2015, Inverted apatite (U-Th)/He and fission-track dates from the Rae craton, Baffin Island, Canada and implications for apatite radiation damage-He diffusivity models: AGU Fall Meeting, San Francisco, CA, V32B-04.
2. **Ault, A.K.** and Reiners, P.W., 2014, Dating brittle deformation with hematite (U-Th)/He chronometry: Structural Geology and Tectonics Forum, Golden, CA, June 2014.
1. **Ault, A.K.**, Reiners, P.W., Evans, J.E., Frenzel, M., and Woodcock, N.H., 2014, Direct dating of brittle deformation with hematite (U-Th)/He chronology: Goldschmidt Conference, Sacramento, CA, June 2014.

INVITED DEPARTMENTAL AND INSTITUTE SEMINARS

2023 Cooperative Institute for Dynamic Earth Research, University of California Berkeley
University of California Berkeley, Active Tectonics Group
2022 California State University Northridge, Department of Geological Sciences
University of Indiana Bloomington, Department of Earth and Atmospheric Sciences
University of California Santa Barbara, Department of Earth Sciences
Northern Illinois University, Department of Geology and Environmental Geosciences
Idaho State University, Department of Geosciences
2021 USGS, Earthquake Science Center
University of California Santa Cruz, Department of Earth and Planetary Sciences
Brown University, Rock Mechanics Group and CORD
University of Minnesota, Department of Earth Sciences
University of California Davis, Department of Earth and Planetary Sciences
California State University Fullerton, Department of Geological Sciences
University of Washington, Department of Earth and Space Sciences
2020 Colorado College, Department of Geology
University of Texas, Austin, Jackson School of Geosciences
San Jose State University, Department of Geology
University of Utah, Department Geology and Geophysics
2019 University of Southern California, Department of Earth Sciences
Brigham Young University, Department of Geological Sciences
New Mexico Tech, Department of Earth and Environmental Science
2018 University of Arizona, Department of Geosciences
Cornell University, Department of Earth and Atmospheric Sciences
University of Wyoming, Department of Geology and Geophysics
2017 University of Wisconsin, Department of Geoscience
Weber State University, Department of Geology
2016 University of Wyoming, Department of Geology and Geophysics
University of Illinois at Champaign-Urbana, Department of Geology
2014 Idaho State University, Department of Geosciences
Utah Valley University, Department of Earth Science
Wellesley College, Department of Geology
University of California Berkeley, Department of Earth and Planetary Science
2013 Utah State University, Department of Geology
2012 University of Utah, Department of Geology and Geophysics
University of Arizona, Department of Geosciences
University of Saskatchewan, Department of Geology

INVITED NON-DEPARTMENTAL SEMINARS

2019 *USU Sunrise Session*, Salt Lake City, UT
2019 *Sunday Under the Trees*, Summer Citizens Program, Utah State University
2019 Utah State University, Center for Women and Gender
2018 Utah State University, Emeriti Faculty Foundation
2018 Geologists of Jackson Hole, 2 invited seminars
2018 Board of Trustees Meeting, USU Research Foundation
2017 Utah Geological Association, Salt Lake City, UT
2016 *Sunday Under the Trees*, Summer Citizens Program, Utah State University

TEACHING

POSTDOCTORAL MENTOR

Jenna Kaempfer, 2021-present (PhD, University of Illinois at Urbana-Champaign)

Margo Odlum, 2019-2021 (PhD, University of Texas, Austin), ***NSF Postdoctoral Fellow***

Gabriele Calzolari, 2017-2019 (PhD, Universita Roma Tre)

GRADUATE ADVISOR

Alexandra DiMonte, PhD, 2022-present

Emma Armstrong, PhD, 2021-present, ***NSF Graduate Research Fellow***

Jordan Jensen, PhD 2021-present, ***Presidential Doctoral Research Fellow***

Alexandra DiMonte, MSc, 2019-2022, *Natural and experimental slow slip observed along shallow hematite faults*

Emma Armstrong, MSc, 2019-2021, *Multi-proxy approach to robustly capture earthquake temperature rise at the Punchbowl fault, California* (co-advisor Kelly Bradbury), ***NSF Graduate Research Fellow***

Robert McDermott, PhD, 2014-2020, ***Presidential Doctoral Research Fellow***, *A thermochronometric, microtextural, and modeling approach to deciphering the rock record of deformation processes in the Wasatch and Denali fault zones*

Leah Houser, MSc, 2017-2019, *Nanotextural and nanochemical constraints on the role of heat in the development of crystalline-hosted, silica-rich fault mirrors, Wasatch fault damage zone, Utah, USA*

Michael Channer, MSc, 2014-2017, *(U-Th)/He constraints on secondary Fe-oxide mineralization in southwestern New Mexico*

THESIS SUPERVISORY COMMITTEES

Active

Samina Anee (PhD), Kayla Chaudoir (MSc), Coleman Hiett (PhD), Amanda Leaman (MSc), Nishkarsha Dawadi (PhD, Civil and Environmental Engineering, USU), Brandon Levenstein (PhD, University of Arizona), Tori Pavlovics (MSc, University of Utah), Nina Zamanialavijeh (PhD, University of Houston)

Past

Connor Frederickson (MSc, 2022), Emily Haugen (MSc, 2017), David Jenkins (AEG MSc, 2016), Jordan Jensen (MSc, 2018, University of Arizona), Jace Koger (MSc, 2017), Amy Moser (MSc, 2017), Ashley Provow (MSc, 2019), Jesse Scholpp (MSc, 2019), Brandt Scott (MSc, 2019), Gabriela St. Pierre (PhD, University of Utah, 2021), Caroline Studnicky (MSc, 2021), Heather Upin (MSc, 2021), Krishna Borhara (PhD, switched programs)

UNDERGRADUATE RESEARCH ASSISTANTS

Jacob Cooley (2023, Geology major)
Michelle Normen (2023, Geology major)
Sarah Robertson (2022, Geology major)
Ryker Tracy (2020-2021, Geology major)

Madison Taylor (2018-2020, Geology major, 2019 Peak Summer Research Fellow, recipient of 2019 USU Undergraduate Research and Creative Opportunities Grant and 2019 College of Science Minigrant)
Kelsey Wetzel (2017-2018, Geology major)
Christopher Ammon (2016, Geology major)
Jordan Jensen (2015-2016, Geology major, College of Science Scholar of the Year. NSF Graduate Research Fellow recipient 2018 (declined) and Honorable Mention 2016)
Ashley Provow (2015, Weber State University geology major)

CLASSES TAUGHT

F 2014, 2016, S 2023	GEOL 4700, Field Methods, 3 credits
F 2022	GEOL 6050/7050, Rocky Mountain Tectonics, 3 credits
F 2015, 2017, 2019 2022, F 2023	GEOL 6580/7580, Geochronology and Thermochronology, 3 (or 2) S credits
S 2017, 2019	GEOL 6200/7200, Radiogenic Isotopic Geochemistry and Geochronology, 2 credits
Su 2015-2022	GEOL 5200, Field Camp, Director, 5 credits
S 2016, 2018, 2020	GEOL 3400, Communicating Geoscience, 3 credits
S 2016	GEOL 2500, Geology Field Excursion, 1 credit

SERVICE

PROFESSIONAL SERVICE

2021-present	Associate Editor, *Tectonics*
2018-present	GSA Rocky Mountain Section Executive Board Member-at-Large
2021-2023	GSA Structural Geology and Tectonics Division Outstanding Paper Award Committee
2020-2022	Co-Chair, 2022 Joint Cordillera-Rocky Mountain GSA Section Meeting, Las Vegas, NV
2019-2021	Thermo 2021 Organizing Committee for biennial Thermochronology Conference, September 2021 in Santa Fe

SESSION CONVENER AT NATIONAL MEETINGS

Session chair, co-convener, *T017: Observations of distributed deformation and transient fault behavior from the ductile to brittle crust and implications for models of lithospheric-scale deformation*, AGU Fall Meeting, San Francisco, CA, 2023

Session chair, co-convener, *T008: Frictional, geological, and geophysical signatures of fault healing: mechanisms and implications for deformation during the earthquake cycle*, AGU Fall Meeting, Chicago, IL, 2022

Session chair, convener, *T61: Fossil Magnetism and Paleopoles; Tectonics, Stratigraphy, Geochronology, and Geomorphology; Geoscience Challenges and Education: A Celebration of John Geissman's Career*, GSA Annual Meeting, Phoenix, AZ, 2019

Session chair, co-convener, *T209: Challenges in Tectonics 1: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle*, GSA Annual Meeting, Seattle, CO, 2017

Session chair, co-convener, *T208: Deconstructing Damage: Holistic Perspectives on the Spatiotemporal Evolution of Brittle Fault Zones*, GSA Annual Meeting, Denver, CO, 2016

Session chair, convener, and OSPA judge, *T008: Characterizing fault zones in space, time, temperature, and texture*: AGU Fall Meeting, San Francisco, CA, 2015

Session chair, lead convener, *T215: Novel methods, applications, and data interpretations in thermochronology*: GSA Annual Meeting, Baltimore, MD, 2015

Session chair, co-convener, and OSPA judge, *T31D, T34B: Innovative approaches to constraining lithospheric deformation in space and time:* AGU Fall Meeting, San Francisco, CA 2013

REFEREE AND PANELIST FOR JOURNALS AND PROPOSALS

Referee for academic journals: Chemical Geology, Earth and Planetary Science Letters, Geochimica et Cosmochimica Acta, Geology, Geochronology, Geological Society of America Bulletin, Geophysical Research Letters, Geostandards and Geoanalytical Research, International Journal of Earth Science, Journal of Geophysical Research – Earth Surface, Journal of Marine and Petroleum Geology, Journal of Structural Geology, Lithosphere, Minerals, Nature Communications, Nature Scientific Reports, Science Advances, Tectonics, Terra Nova

Referee for NSF proposals: Tectonics program, Geophysics program, Geoinformatics program, Cyberinfrastructure program

Referee for other programs: American Chemical Society Petroleum Research Fund, NSERC

Panelist for NSF: Tectonics program, EAR Postdoctoral Fellowship program, Earthcube program, Graduate Research Fellowship Program

External Examiner for Dissertations: University of Queensland, Australia

UNIVERSITY SERVICE

2015-present	Utah State University Microscopy Core Facility Faculty Advisory Board
2022	USU Undergraduate Research Fellows Applicant Reviewer
2019	USU Honors Program Applicant Reviewer
2019	GrTS panel – Data Visualization
2018	College of Science Scholar Program Exploratory Committee

DEPARTMENTAL SERVICE

2022-present	Chair, Geosciences Scholarship Committee
2022-2023	Chair, Geosciences Department faculty search, Assistant or Associate Professor in Solid Earth Geohazards
2021-2022	Committee member, Geosciences Department faculty search, Assistant Professor in Lithospheric Dynamics and Evolution
2019-2020	Search Committee Chair, Geosciences Department faculty search, Professional Practice Assistant Professor in STEM education and applied geosciences
2018	Geology Department Strategic Planning committee
2018	Search committee chair, Geology Department front office
2015-2016	Geology Department Distinguished Lecture Series organizer
2015	Geology Department front office undergraduate employee hiring committee
2015	Chair of Instrument Manager position search committee
2014-2015	Assist with organization of Geology Department Distinguished Lecture Series
2014	Writing course subcommittee for new core curriculum undergraduate course

SYNERGISTIC ACTIVITIES

(1) ***Developing Middle school STEM identities and earthquake education*** Creator and leader of field, laboratory, and classroom education activities with 5th and 6th grade students from Promontory School of Expeditionary Learning (Perry, Utah). 3-part series on *"It's my fault!"*, Spring 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2021.

(2) ***Mentoring of underserved groups*** Supervisor and laboratory host of undergraduates in the Native American Student Mentoring Program in the Mineral Microscopy and Separation Laboratory, May 2016 and 2017.

(3) ***Community engagement*** Invited speaker for USU Sunrise Session, presented by the USU Office of Research, November 2019; and Sunday Under the Trees for USU Summer Citizens, July 2016 and 2019. Invited field trip leader for Utah Geological Survey Geologic Mapping Field Review in the Brigham City quad, October 2015.

(4) ***Service to geoscience community*** *Tectonics* Associate Editor; Reviewer of ~12-15 manuscripts per year for peer-reviewed journals; NSF reviewer and panelist; convener of multiple sessions at AGU and GSA.

(5) ***Career development*** Convener and leader of *Preparing and Applying for Graduate School in Earth Sciences*, October 2015 and 2016, USU. Invited speaker and panelist at November 2014 Wellesley College Geoscience alumnae career panel.

(6) ***Dissemination of research products to public*** Research featured in AGU New, Science Daily, and Utah Public Radio; research and outreach featured in NSF EAR Newsletter, https://www.nsf.gov/news/news_summ.jsp?cntn_id=245441&org=EAR; Ogden Standard Examiner, http://www.standard.net/Education/2016/03/31/Perry-students-learn-about-earthquake-fault-in-Wasatch.html; multiple *USU Today* articles for earthquake science research

PROFESSIONAL ORGANIZATIONS
Geological Society of America
American Geophysical Union

MEETING ABSTRACTS *(denotes ⬩postdoctoral, *graduate, and **undergraduate mentee)*

110. **Ault, A.K.**, Akçiz, S.O., Newell, D.L., *DiMonte, A.A., Hirth, G., Zabcı, C., 2023, The 2023 Kahramanmaraş, Turkey, earthquake sequence surface ruptures modified multi-earthquake cycle fault damage and spring hydrology, American Geophysical Union Fall Meeting, San Francisco, CA, T33D-0344.

109. *DiMonte, A.A., **Ault, A.K.**, Hirth, G.H., Meyers, C. 2023, Correlation of textures and slip behavior of hematite in natural and experimental faults, American Geophysical Union Fall Meeting, San Francisco, CA.

108. ⬩Bailey, L., **Ault, A.K.,** Hemming, S., *DiMonte, A.A., Hirth, G., 2023, Can clay minerals record dates and rates of deformation during earthquake cycles?, American Geophysical Union Fall Meeting, San Francisco, CA, T54A-03.

107. Lin, J., Fang, J., Mao, W., Armstrong, E.M., Zhuo, Z., Hooker, J.N., Hirth, G., Fisher, D.M., **Ault, A.K.**, Freymueller, J.T., Billen, M.I., 2023, Influence of subducting sediment properties and fluid pressure on seismic activity along the subduction zone interface, American Geophysical Union Fall Meeting, San Francisco, CA, T41D-025.

106. Zhuo, Z., Fang, J., Mao, W., Lin, J., Armstrong, E.M., Hirth, G., Fisher, D.M., Ault, A.K., Hooker, J.N., Freymueller, J.T., Billen, M.I., 2023, Rheological insights into seismogenic zone locking depths: unifying creep laws and their global implications, American Geophysical Union Fall Meeting, San Francisco, CA, T43B-05.

105. *Jensen, J.L., **Ault, A.K.**, Geissman, J.E., 2023, Evaluating the compatibility between hematite-carried secondary magnetizations and (U-Th)/He data of hematite-coated fault surfaces: an example from the Colorado Front Range, USA, American Geophysical Union Fall Meeting, San Francisco, CA.

104. *Armstrong, E.M., **Ault, A.K.**, 2023, Paleoearthquakes in the rock record: can the zircon (U-Th)/He system be reset by shallow seismic slip?, American Geophysical Union Fall Meeting, San Francisco, CA, T21B-07

103. ⬩Kaempfer, J.M., **Ault, A.K.**, van Devener, B.R., Poulson, R., 2023, Slip localization in epidote-quartz veins: observations from the Wasatch Front, UT, American Geophysical Union Fall Meeting, San Francisco, CA.

102. ⬩Odlum, M.A., **Ault, A.K.**, Rittenour, T.M., 2023, Microstructural and luminescence signatures of fast fault slip along the Hurricane fault, Utah, USA, GSA Annual Meeting, Pittsburgh, PA, *Abstracts with Programs.*

101. Chaudoir, K.M., Newell, D.L., **Ault, A.K.,** Jessup, M.J., Shaw, C.A., Grambling, T.A., 2023, Development of silica fault mirrors via slip localization along the Cordillera Blanca detachment fault, Peru, GSA Annual Meeting, Pittsburgh, PA, *Abstracts with Programs.*

100. **Ault, A.K.**, *DiMonte, A.A, Hirth, G., Meyers, C.D., Bradbury, K.K., 2023, Development of shallow fault damage along the southern San Andreas fault system, Japanese-American-German (Kavli) Frontiers of Science Symposium.

99. **Ault, A.K.**, Akçiz, S.O., Newell, D.L., Balkaya, M., *DiMonte, A.A., Hirth, G., Zabcı, C., 2023, The 2023 Kahramanmaraş, Turkey, earthquake sequence surface ruptures modified multi-earthquake cycle

fault damage and spring hydrology, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 130.

98. ❜Bailey, L., **Ault, A.K.,** Hemming, S., *DiMonte, A.A., Hirth, G., 2023, What can clay minerals tell us about fault mechanics and deformation during the earthquake cycle? Insights from the Hidden Spring fault, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 082.
97. *DiMonte, A.A., **Ault, A.K.**, Hirth, G.H., Meyers, C. 2023, On-fault damage along the southern San Andreas fault: material characterization from natural and experimental clay-rich faults, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 144.
96. ❜Odlum, M.A., **Ault, A.K.**, Rittenour, T.M., 2023, Novel approaches to identifying earthquakes along bedrock fault scarps using quartz luminescence: an example from the Hurricane fault, UT, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 081.
95. ❜Kaempfer, J.M., Guenthner, W.R., **Ault, A.K.**, 2023, Evaluating the role of radiation damage zonation on zircon (U-Th)/He date-eU patterns, Thermo2023: 18th International Conference on Thermochronology, Riva del Garda, Italy.
94. *Armstrong, E.M. and **Ault, A.K.**, 2023, Paleoearthquakes in the rock record: can the zircon (U-Th)/He system be reset by shallow seismic slip?, Thermo2023: 18th International Conference on Thermochronology, Riva del Garda, Italy.
93. **Ault, A.K.**, Hirth, G., *DiMonte, A.A., 2022, Do hematite precipitation textures seed subsequent slip rates and mechanisms? GSA Annual Meeting, Denver, CO, *Abstracts with Programs.*
92. *Armstrong, E.M., **Ault, A.K.**, ❜Kaempfer, J.M., Guenthner, W.R., 2022, Zircon visual metamictization tracks effective radiation damage: implications for zircon (U-Th)/He date-eU patterns, GSA Annual Meeting, Denver, CO, *Abstracts with Programs.*
91. ❜Kaempfer, J.M., **Ault, A.K.,** 2022, Slip localization in epidote: observations from the Wasatch Front, UT, GSA Annual Meeting, Denver, CO, *Abstracts with Programs.*
90. *Jensen, J.L., **Ault, A.K.**, McLean, N., 2022, U-series disequilibrium effects on (U-Th)/He chronometry of <1 Ma secondary Fe-oxides, GSA Annual Meeting, Denver, CO, *Abstracts with Programs.*
89. *Armstrong, E.M., **Ault, A.K.**, 2022, Evaluating high spatial resolution zircon (U-Th)/He thermochronometry as a fault slip paleothermometer, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 1XX.
88. **Ault, A.K.**, *DiMonte, A.A, *Jensen, J.L., Hirth, G., Meyers, C.D., Bradbury, K.K., 2022, Shallow, transient slow slip in the southern San Andreas fault system: insights from natural and experimental hematite and hematite-clay slip surfaces, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 1XX.
87. **Ault, A.K.**, Hirth, G., *DiMonte, A.A., Do hematite precipitation textures seed subsequent slip rates and mechanisms? Gordon Research Conference on Rock Deformation, Bates, ME.
86. ❜Kaempfer, J.M., **Ault, A.K.** 2022, Slip localization in epidote: observations from the Wasatch Front, UT, Gordon Research Conference on Rock Deformation, Bates, ME.
85. *DiMonte, A.A., **Ault, A.K.**, Hirth, G., 2022, Comparison of natural and experimental hematite faults informs transient, shallow slow slip processes, Gordon Research Conference on Rock Deformation, Bates, ME.
84. *Jensen, J.L., **Ault, A.K.**, 2022, Can martite formation and (U-Th)/He chronometry record the development of ancient nonconformities? GSA Cordilleran-Rocky Mountain Section Meeting, GSA *Abstracts with Programs.*
83. *DiMonte, A.A., **Ault, A.K.**, Hirth, G., 2022, Fluid-rock interaction and distributed deformation along shallow hematite-clay faults in the southernmost San Andreas fault system, GSA Cordilleran-Rocky Mountain Section Meeting, GSA *Abstracts with Programs.*
82. *Armstrong, E.M., **Ault, A.K.**, Kaempfer, J.M., Guenthner, W.R., 2022, Expanding applications of zircon (U-Th)/He thermochronometry by evaluating visual metamictization as a reliable proxy for accumulated radiation damage, GSA Cordilleran-Rocky Mountain Section Meeting, GSA *Abstracts with Programs.*
81. ❜Odlum, M.L., **Ault, A.K.,** Rittenour, T.M., Nelson, M.S., 2022, Microstructural and luminescence

evidence of fault material transformation and coseismic heating along the Hurricane fault, UT, GSA Cordilleran-Rocky Mountain Section Meeting, GSA *Abstracts with Programs.*

80. ♦Odlum, M.L., **Ault, A.K**., *Channer, M.A., ♦Calzolari, G., 2021, Microscale record of seismicity in hematite fault mirrors from the Rio Grande rift, AGU Fall Meeting, Virtual, invited talk.
79. Turner, H., Baughman, J.S., **Ault, A.K.**, Thompson, M.D., 2021, Burial and exhumation of the New England Avalon terrane coincident with Alleghenian orogenesis and continental breakup documented with zircon and apatite (U-Th)/He thermochronometry, AGU Fall Meeting, Virtual.
78. **Ault, A.K.**, Hirth, G., *DiMonte, A.A., 2021, What can hematite textures and (U-Th)/He thermochronometry tell us about fault mechanics in the shallow crust?, AGU Fall Meeting, Virtual.
77. *DiMonte, A.A., **Ault, A.K.**, Hirth, G., Meyers, C.D., 2021, Characterizing shallow slip with natural and experimental hematite slip surfaces, Southern California Earthquake Center Annual Meeting, Virtual.
76. *Armstrong, E.M., **Ault, A.K.**, Bradbury, K.K., Savage, H.M., Thomson, S.N., Polissar, P.J., 2021, Comparison of zircon (U-Th)/He and biomarker analyses to quantify coseismic temperature rise along the Punchbowl fault, CA, Southern California Earthquake Center Annual Meeting, Virtual.
75. *McDermott, R.G., **Ault, A.K.**, Evans, J.P., **Wetzel, K.F., Shen, F-A, 2021, Spatially variable coseismic temperature rise and transient rheology along hematite fault mirrors in the Wasatch fault zone, Utah, USA, GSA Annual Meeting, GSA *Abstracts with Programs.*
74. **Ault, A.K.**, *DiMonte, A.A., ♦Odlum, M.L., **Taylor, M.P., 2021, What can hematite (U-Th)/He thermochronometry tell us about earthquake mechanics in the shallow crust?, Thermo2021, Santa Fe, New Mexico.
73. ♦Odlum, M.L., **Ault, A.K.,** Rittenour, T.M., **Taylor, M.P., Newell, D.L., King, G.K., 2021, Developing a new brittle fault slip paleothermometer using quartz luminescence, Thermo2021, Santa Fe, New Mexico.
72. *DiMonte, A.A., **Ault, A.K.,** Hirth, G., Meyers, C., 2021, Comparison of natural and laboratory slow slip events in hematite fault surfaces using (U-Th)/He thermochronometry and microstructures, Thermo2021, Santa Fe, New Mexico.
71. *Jensen, J.L., **Ault, A.K**., Geissman, J.W., Reiners, P.W., 2021, Geochemical and textural controls on Fe-oxide (U-Th)/He thermochronometry data patterns from faults, Thermo2021, Santa Fe, New Mexico.
70. *Armstrong, E.M., **Ault, A.K.**, Bradbury, K.K., Savage, H.M., Thomson, S.N, Polissar, P.J., 2021, Comparison of zircon (U-Th)/He and biomarker analyses to quantify coseismic temperature rise along the Punchbowl fault, CA, Thermo2021, Santa Fe, New Mexico.
69. *McDermott, R.G., **Ault, A.K.**, 2021, Unraveling overprinting thermal signatures of alteration, deformation, and exhumation in fault rocks using numerical modeling: an example from the hematite (U-Th)/He system, Thermo2021, Santa Fe, New Mexico.
68. *McDermott, R.G., **Ault, A.K.**, 2020, Unraveling thermochronometry signatures of mineralization, deformation, and exhumation with hematite (U-Th)/He thermochronometry and thermal history modeling: an example from the Wasatch fault zone, northeastern UT, USA, AGU Fall Meeting, Virtual, V042-10.
67. *McDermott, R.G., Caine, J.S., **Ault, A.K.**, 2020, Integrated fault slip and hematite (U-Th)/He data document strain partitioning at million-year timescales within the eastern Denali fault zone, southwest Yukon, Canada, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 52, no. 6.
66. *DiMonte, A.A., **Ault, A.K.**, Bradbury, K.K., Hirth, G., 2020, Evidence for slow slip in Mecca Hills, CA, from microstructural and (U-Th)/He analysis of heterogeneous hematite coating on shallow fault surfaces, Southern California Earthquake Center Annual Meeting, Virtual, poster 137.
65. *Armstrong, E.M, **Ault, A.K.**, Bradbury, K.K., Savage, H.M., Polissar, P., 2020, Creating a multi-proxy approach to robustly capture earthquake temperature rise at the Punchbowl fault, Southern California Earthquake Center Annual Meeting, Virtual, poster 132.
64. **Ault, A.K.**, Reiners, P.R., Geissman, J.W., **Taylor, M.P., 2019, Hematite (U-Th)/He thermochronometry constraints on fault surface processes and open system (He) behavior: an example from the Front Range, Morrison, CO, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 51, no. 5.

63. ♦Calzolari, G., **Ault, A.K.,** Hirth, G., *McDermott, R.G., 2019, Asperity flash heating during laboratory earthquakes detected with hematite (U-Th)/He thermochronometry, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 51, no. 5.
62. **Taylor, M.P., **Ault, A.K.**, Newell, D.L., 2019, Hematite microtextures and (U-Th)/He thermochronometry of the Hurricane fault, southwestern Utah: evidence for a paleoearthquake? GSA Annual Meeting, GSA *Abstracts with Programs,* v. 51, no. 5.
61. *McDermott, R.G., **Ault, A.K.**, Caine, J.S., Reiners, P.W., 2019, Hematite (U-Th)/He constraints on synchronous deformation, hydrothermal alteration, and surface uplift in the eastern Denali fault zone, Yukon, Canada, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 51, no. 5.
60. **Ault, A.K.,** ♦Calzolari, G., Hirth, G., *McDermott, R.G., 2019, Asperity flash heating during laboratory earthquakes detected with hematite (U-Th)/He thermochronometry, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 157.
59. ♦Calzolari, G., **Ault, A.K.,** Hirth, G., 2018, Thermomechanical evolution of experimentally-derived hematite slip surfaces, AGU Fall Meeting, Washington, D.C.
58. *McDermott, R.G., **Ault, A.K.,** **Wetzel, K.F., 2018, Localization of seismic and aseismic strain in hematite vein-fault mirror pairs, AGU Fall Meeting, Washington, D.C.
57. *Houser, L.M., **Ault, A.K.,** Shen, F.-A., 2018, Nanotextural and nanochemical constraints on the role of heat in development of crystalline-hosted, silica-rich fault mirrors in the Wasatch fault damage zone, Utah, USA, AGU Fall Meeting, Washington, D.C.
56. **Ault, A.K.**, *McDermott, R.G., **Jensen, J.L., 2018, Transient rheology during earthquakes: insight from nanotextures and (U-Th)/He thermochronometry of hematite fault mirrors, Thermo2018, Quedlinburg, Germany.
55. ♦Calzolari, G., **Ault, A.K.,** Hirth, G., 2018, Preliminary data on detecting asperity flash heating on hematite faults with laboratory experiments and hematite (U-Th)/He thermochronometry, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 176.
54. **Ault, A.K.**, **Jensen, J.L., *McDermott, R.G., 2018, Nanoscale evidence for transient rheology during an earthquake, 2018, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 173.
53. **Ault, A.K.**, Guenthner, W.R., Reiners, P.R., *Moser, A.C., Miller, G.H., Refsnider, K.A., 2017, (De)coupled zircon damage, metamictization, and He diffusivity, AGU Fall Meeting, New Orleans, LA.
52. *Moser, A.C., **Ault, A.K.,** Evans, J.P., Reiners, P.W., Stearns, M.A., Guenthner, W.R., 2017, Using zircon (U-Th)/He damage-diffusivity patterns to quantify detachment-related basement exhumation in the Mecca Hills, CA, AGU Fall Meeting, New Orleans, LA.
51. Guenthner, W.R., DeLucia, M., Marshak, S., Reiners, P.W., Drake, H., Thomson, S.N., **Ault, A.K.**, Tillberg, M., 2017, Radiation damage-He diffusivity model applied to deep-time thermochronology: Zircon and titanite (U-Th)/He datasets from cratonic settings, AGU Fall Meeting, New Orleans, LA.
50. **Ault, A.K.**, **Jensen, J.L., *McDermott, R.G., Van Devener, B.R., Shen, F-A., 2017, Nano-scale evidence for dynamic weakening and healing during an earthquake on a hematite fault mirror, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 48, no. 7.
49. *McDermott, R.G., **Ault, A.K.**, Caine, J.S., Reiners, P.W., Thomson, S.N., 2017, Evolution of exhumation from multi-method thermochronometry in the eastern Kluane Ranges, Yukon, Canada, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 48, no. 7.
48. ♦Calzolari, G., **Ault, A.K.**, Rosetti, F., Lucci, F., Olivetti, V., 2017, Hematite (U-Th)/He thermochronometry constraints on intraplate strik-slip tectonics, the Kuh-e-Faghan Fault, central Iran, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 48, no. 7.
47. Provow, A.W., Newell, D.L., Mahan, K.H., Yonkee, A., Pulsipher, M., **Ault, A.K.**, Dehler, C.M., 2017, Documenting the nature and timing of fluid-rock interaction in Neoproterozoic siliciclastic rocks of northern Utah, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 48, no. 7.
46. Guenthner, W.R., DeLucia, M., Marshak, S., Reiners, P.W., Drake, H., Thomson, S.N., **Ault, A.K.**, Tillberg, M., 2017, Zircon (U-Th)/He data reveals deep-time thermal histories of cratons and the Great Unconformity surface, GSA Annual Meeting, GSA *Abstracts with Programs,* v. 48, no. 7.

45. **Ault, A.K.**, *McDermott, R.G., *Moser, A.C., Evans, J.P., 2017, Hematite nano- to micro-textures and (U-Th)/He thermochronometry inform seismic and aseismic fault damage zone processes, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 111.
44. *McDermott, R.M., **Ault, A.K.**, Evans, J.P., 2017, Examining earthquake processes with microtextural analysis and (U-Th)/He thermochronometry: a case study from hematite fault mirrors in the Wasatch fault zone. Southern California Earthquake Center Annual Meeting, Palm Springs, CA, poster 109.
43. Jensen, J.L., Reiners, P.W., Steele-MacInnis, M., **Ault, A.K.**, Siddoway, C.S., 2017, Age, emplacement conditions, and thermal history of a Neoproterozoic clastic dike by hematite (U-Th)/He dating and fluid inclusion analysis, Goldschmidt Conference, Paris, France, August 2017.
42. *McDermott, R.G., **Ault, A.K.,** Caine, J.S., 2017, Exhumation and fluid flow history of the eastern Denali fault zone, Yukon, Canada, from multi-method thermochronometry, Utah State University Student Research Symposium, Logan, UT, April 2017.
41. *Hill, B.V., **Ault, A.K.**, Caine, J.S., 2017, Hematite and zircon (U-Th)/He thermochronometry from Deadman Creek, Sangre de Cristo Mountain Range, Colorado, Utah State University Student Research Symposium, Logan, UT, April 2017.
40. **Ault, A.K.**, Evans, J.P., *McDermott, R.G., **Jensen, J.L., *Channer, M.A., 2016, "Mirrored" hematite and silica fault surfaces reveal textural evidence of coseismic(?) elevated temperatures in fault damage zones, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 48, no. 7, paper no. 84-7.
39. *McDermott, R.M., **Ault, A.K.**, Evans, J.P., Reiners, P.W., 2016, Asperity flash heating and dynamic weakening of hematite-coated fault surfaces from microtextural analysis, (U-Th)/He thermochronology, and thermomechanical modeling, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 48, no. 7, paper no. 25-10.
38. Siddoway, C.S., **Ault, A.K.**, Reiners, P.W., 2016, A hematite (U-Th)/He minimum age for Cryogenian Tava sandstone, Colorado, and variations in detrital zircon provenance that illuminate the paleogeography of the region, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 48, no. 7, paper no. 317-5.
37. *Moser, A.C., Evans, J.P., **Ault, A.K.**, Bradbury, K.K., Janecke, S.U., 2016, Spatiotemporal evolution of San Andreas fault-related deformation in the Mecca Hills, southern California, from integrated fault zone characterization and low-temperature thermochronology, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 48, no. 7, paper no. 25-6.
36. *Channer, M.A., **Ault, A.K.**, Reiners, P.W., Stearns, M.A., 2016, Thermochronologic constraints on secondary Fe-oxide mineralization in southwestern New Mexico, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 48, no. 7, paper no. 171-8.
35. Calzolari G., Rossetti F., Della Seta M., Nozaem R., Olivetti V., Balestrieri M. L., Cosentino D., Faccenna C., Stuart F.M., **Ault A.**, and Vignaroli G., 2016, An insight on the spatio-temporal evolution of intraplate strike-slip faulting: the Neogene–Quaternary history of the Kuh-e-Faghan Fault system, central Iran, 88th congress of the Italian Geological Society (SGI), Naples, Italy, September 2016.
34. Shuster, D.L., Reiners, P.W., **Ault, A.K.**, Deng, X., Tremblay, M.M., 2016, Constraining time and temperature from $^{4}He/^{3}He$ thermochronometry of polycrystalline Fe- and Mn-oxides, Goldschmidt Conference, June 2016.
33. *McDermott, R.M., **Ault, A.K.**, Evans, J.P., Reiners, P.W., 2016, Deciphering the rock record of past seismicity from hematite-coated fault surfaces in the Wasatch Fault zone, Utah, Utah State University Student Research Symposium, Logan, UT, April 2016.
32. *Channer, M.A., **Ault, A.K.**, Reiners, P.W., and Shuster, D.L., 2016, (U-Th)/He thermochronologic constraints on secondary Fe-oxide mineralization in southwestern New Mexico, Utah State University Student Research Symposium, Logan, UT, April 2016.
31. **Ault, A.K.**, Frenzel, M., Reiners, P.W., Woodcock, N.H., Thomson, S.N., 2015, Hematite (U-Th)/He and apatite fission-track dating constrain paleofluid circulation in faults: an example from Gower Peninsula fissure fills, Wales, *Eos Trans. AGU* v. 97, Fall Meet. Suppl., Abstract V51H-07.
30. Evans, J.P., **Ault, A.K.**, Janecke, S.U., Prante, M.R., 2015, Hot, fast faults: evidence for high-temperature slip on exhumed faults and insights into seismic slip processes, *Eos Trans. AGU* v. 87, Fall Meet. Suppl., Abstract T54B-03.

29. *McDermott, R.G., **Ault, A.K.**, Evans, J.P., Reiners, P.W., Shuster, D.L. 2015, Integrating hematite (U-Th)/He dating, microtextural analysis, and thermomechanical modeling to date seismic slip, *Eos Trans. AGU* v. 87, Fall Meet. Suppl., Abstract T51A-2842.

    ***McDermott wins Tectonophysics OSPA award*

28. *Moser, A.C., Evans, J.P., Bradbury, K.K., **Ault, A.K.**, 2015, Structural, geochemical, and thermal evolution of the southern San Andreas and parallel subsidiary faults in the Mecca Hills, Southern California, *Eos Trans. AGU* v. 87, Fall Meet. Suppl., Abstract T41A-2862.
27. **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, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 47, no. 7, p. 224.
26. *Channer, M.A., **Ault, A.K.**, Reiners, P.W., and Shuster, D.W., 2015, (U-Th)/He and $^{4}He/^{3}He$ constraints on secondary Fe-oxide mineralization in southwestern New Mexico, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 47, no. 7, p. 378.
25. *Moser, A.C., Evans, J.P., Ault, A.K., Janecke, S.U., Bradbury, K.K., Clausnitzer, S., 2015, Structural, geochemical, and thermal evolution of the southern San Andreas and parallel subsidiary faults in the Mecca Hills, Southern California, Annual SCEC Meeting, Palm Springs, CA, September 2015.
24. Flowers, R.M., **Ault, A.K.**, Zhong, S., Bowring, S.A., 2015, Relationships between kimberlite distributions, mantle dynamics, and the hypsometric history of the North American cratonic interior, AGU Joint Assembly, Montreal, Canada, May 2015.
23. *McDermott, R.G., **Ault, A.K.**, Evans, J.P., 2015, Hematite (U-Th)/He dating as a tool for reconstructing million-year earthquake chronologies on the Wasatch Fault, Utah, Utah State University, Student Research Symposium, Logan, UT, April 2015 (*Best Poster Honorable Mention).*
22. *Channer, M.A., and **Ault, A.K.**, 2015, (U-Th)/He chronologic constraints on secondary Fe-oxide mineralization and brittle deformation in the Rio Grande rift, New Mexico, Utah State University Student Research Symposium, Logan, UT, April 2015.
21. Flowers, R.M., Blackburn, T.J., Kelley, S.A., and **Ault, A.K**., 2013, Evidence for post-100 Ma deposition, erosion, and vertical motion of North American interior regions devoid of preserved Cretaceous cover, *EOS Trans. AGU*, v. 94, Fall Meeting Suppl., Abstract T42B-02.
20. **Ault, A.K.**, Reiners, P.W., Prante, M.R., Evans, J.P., and Janecke, S.U., 2013, Dating brittle deformation with hematite (U-Th)/He chronometry: an example from the Wasatch fault zone, Utah, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 45, no. 7, p. 223.
19. Condit, C.B., Mahan, K.M., **Ault, A.K**., and Flowers, R.M., 2013, New evidence for an exhumed crustal section from the Paleoproterozoic Big Sky Orogeny, N. Madison Range, SW Montana, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 45, no. 7, p. 310.
18. Condit, C.B., Mahan, K.M., **Ault, A.K**., and Flowers, R.M., 2013, New petrologic and geochronologic constraints on Paleoproterozoic tectonometamorphism along the NW margin of the Wyoming craton, N. Madison Range, SW Montana, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 45, no. 5, p. 37.
17. **Ault, A.K.**, Flowers, R.M., and Bowring, S.A., 2012, Phanerozoic deposition, erosion, and hypsometric history of the Slave craton from apatite (U-Th)/He thermochronometry, *EOS Trans. AGU*, v. 94, Fall Meeting Suppl., Abstract T21D-2601.
16. Condit, C.B., Mahan, K.H., **Ault, A.K.**, Flowers, R.M., Johnson, J.E., 2012, Integrating petrology, structure, and geochronology to evaluate a possible crustal cross-section on the NW margin of the Wyoming Province, SW Montana, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 44, no. 7, p. 586.
15. **Ault, A.K.** and Flowers, R.M., 2011, Significance of U-Th zonation in cratonic apatites for interpretation of (U-Th)/He thermochronometry data: an example from the Slave craton, *EOS Trans. AGU*, v. 93, Fall Meeting Suppl., Abstract V23A-2549.
14. Flowers, R.M., **Ault, A.K.**, Kelley, S.K., Zhang, N., and Zhong, S., 2011, Deciphering the history and causes of the cryptic rice and fall of continental interiors using low temperature thermochronology, *EOS Trans. AGU*, v. 93, Fall Meeting Suppl.
13. Flowers, R.M., **Ault, A.K.**, Kelley, S.A., Zhang, N., and Zhong, S., 2011, Testing mantle dynamic models from thermochronology constraints on the rise and fall of continental interiors: Invited Speaker,

Special meeting on Dynamic Topography organized by the Royal Astronomical Society, Geological Society and the British Geophysical Association, September 2011.

12. **Ault, A.K.**, Mahan, K.H., Flowers, R.M., Chamberlain, K.R., Appleby, S.K., and Schmitt, A.K., 2010, Dating sub-20 micron zircons in granulite-facies mafic dikes from SW Montana: a new approach using automated mineralogy and SIMS U-Pb geochronology: *EOS Trans. AGU*, v. 92, Fall Meeting Suppl., Abstract V33E-05.
11. **Ault, A.K.** and Flowers, R.M., 2010, Developing an approach for high fidelity apatite (U-Th)/He thermochronometry data acquisition from cratons to assess the epeirogenic deformation of continental interiors, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 42, no. 5, p. 370.
10. Flowers, R.M., **Ault, A.K.**, Wolin, E., Kelley, S., and Bowring, S.A., 2009, From Texas to the Northwest Territories: low temperature history of the North American craton using a radiation damage model for apatite He diffusion, *Eos Trans. AGU*, v. 91, Fall Meet. Suppl., Abstract V41D-2199.
9. **Ault, A.K.**, 2009, From the Avalon terrane to the Slave craton, examining the growth, stabilization, and reactivation of the North American craton: a tribute to Margaret Thompson, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 41, no. 3, p. 20.
8. **Ault, A.K.**, Flowers, R.M., and Bowring, S.A., 2008, Phanerozoic burial and unroofing of the western Slave craton and Wopmay orogen from apatite (U-Th)/He thermochronometry: assessing links between surface and deep-seated geodynamic processes, *Eos Trans. AGU*, v. 89, Fall Meet. Suppl., Abstract T11C-1880.
7. Wawrzyniec, T.F., Erslev, E.A., Geissman, J.W., and **Ault, A.K.**, 2007, Integrating the Laramide foreland strain field, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 39, no. 6, p. 52.
6. **Ault, A.K.** and Selverstone, J., 2006, Microtextural constraints on relationships between fluid-rock reactions and deformation, *Eos Trans. AGU* v. 87, Fall Meet. Suppl., Abstract V33F-04.
5. **Ault, A.K.**, Wawrzyniec, T.F., Geissman, J.W., Erslev, E.A., and Fankhauser, S.D, 2005, Paleomagnetic data bearing on the age of slip along the Picuris-Pecos Fault of New Mexico, Southwest USA, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 37, no. 7, p. 236.
4. Thompson, M.D., Grunow, A.M., **Ault, A.K.**, and Ramezani, J., 2005, Deciphering multiple magnetizations in Avalonian magmatic rocks of southeastern New England, Geological Association of Canada, Mineralogical Association of Canada *Abstracts with Programs*, v. 30, p. 193.
3. Thompson, M.D., Grunow, A.M., **Ault, A.K.**, and Ramezani, J., 2004, Neoproterozoic magnetization and Paleozoic overprint in the Southeastern New England Avalon Zone, GSA Annual Meeting, GSA *Abstracts with Programs*, v. 33, no. 6, p. 503-504.
2. **Ault, A.K.**, Thompson, M.D., Grunow, A.M., and Ramezani, J., 2004, Mafic Mattapan volcanism at Worlds End, Hingham, Massachusetts: new dimensions of arc activity in the Southeastern New England Avalon Zone, GSA *Abstracts with Programs*, v. 36, no. 2, p. 130.
1. **Ault, A.K.** and Thompson, M.D., 2003, Basaltic lava flows at Worlds End Reservation, Hingham, Massachusetts: Neoproterozoic (?) volcanism in the southeastern New England Avalon Zone, GSA *Abstracts with Programs*, v. 35, no. 3, p. 92.

THESES

Ault, A.K., 2012, Constraints on craton stability from thermochronologic and geochronologic studies of the Slave and Wyoming cratons: PhD Dissertation, University of Colorado at Boulder, 298 p.

Ault, A.K., 2007, Microtextural constraints on the relationships between fluid-rock reactions and deformation: MSc Thesis, University of New Mexico, 261 p.

Ault, A.K., 2003, Geology of Worlds End, Hingham, Massachusetts: sedimentation and volcanism within the Avalonian magmatic arc: Senior thesis, Wellesley College, 100 p.