

# Coleman Hiett

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## EDUCATION

- 2018 – **Ph.D. Candidate, Geology – Utah State University**  
Advisor: Dr. Dennis Newell  
Research Focus: Mantle and crustal fluid geochemistry and interactions with the continental lithosphere in flat-slab subduction zones, observations from geothermal systems, xenoliths, and volcanism
- 2013 – 2017 **B.A., Geological Sciences – University of Colorado Boulder**  
*summa cum laude*

## APPOINTMENTS

- Spring 2022 Instructor of Record – Utah State University, Geosciences
- 2019 – NSF Graduate Research Fellow – Utah State University, Geosciences
- 2018 – 2019 Presidential Doctoral Research Fellow – Utah State University, Geosciences
- 2018 Physical Science Intern – Science and Resource Management, Grand Canyon National Park, AZ
- 2015 – 2016 Research & Laboratory Assistant – University of Colorado Thermochronology Research and Instrumentation Lab; Boulder, CO

## PUBLICATIONS

**Hiett, C.D.**, Newell, D.L., Jessup, M.J., Grambling, T.A., Scott, B.E., and Upin, H., 2022. Deep CO<sub>2</sub> and N<sub>2</sub> emissions from Peruvian hot springs: Stable isotopic constraints on volatile cycling in a flat-slab subduction zone: *Chemical Geology*, v. 595, p. 120787, doi.org/10.1016/j.chemgeo.2022.120787

**Hiett, C.D.**, Newell, D.L., and Jessup, M.J., 2021. <sup>3</sup>He evidence for fluid transfer and continental hydration above a flat slab: *Earth and Planetary Science Letters*, v. 556, p. 116722, doi:10.1016/j.epsl.2020.116722.

*manuscripts submitted, in-review, or in-preparation*

Newell, D.L., Benowitz, J.A., Regan, S., and **Hiett, C.D.**, Roadblocks and speed limits: mantle-to-surface volatile flux through the lithospheric-scale Denali fault, Alaska: (submitted to *Geology*)

Grambling T.A., Jessup M.J., Newell D.L., Grambling N.L., and **Hiett, C.D.**, Protracted magmatism and rapid intrusion in the high Andes: Contrasting magmatic conditions preceding synconvergent extension above the Peruvian flat slab: (submitted to *Geosphere*)

**Hiett C.D.** and Newell D. L., Metasomatic enrichment of the northern Altiplano lithosphere constrained by isotopic and trace element characteristics of biotite monzogabbro and pyroxenite xenoliths: (in-prep for *G-Cubed*)

*non peer-reviewed*

**Hiett, C. D.**, 2017. Constraining the Timing of River Incision in the Upper Colorado Drainage Basin Using Apatite (U-Th)/He Thermochronology in the Elk Mountains, Western Colorado. *University of Colorado Undergraduate Honors Theses*. 1367. [https://scholar.colorado.edu/honr\\_theses/1367](https://scholar.colorado.edu/honr_theses/1367)

## GRANTS & FELLOWSHIPS

- 2022 Geological Society of America - Rocky Mountain Division Student Travel Grant (\$175)  
USU School of Graduate Studies Travel Grant (\$200)
- 2021 USU School of Graduate Studies Travel Grant (\$200)
- 2019 **National Science Foundation Graduate Research Fellowship** (\$138,000 – includes research funding, tuition, and stipend; support from 08/20 to 8/23)  
Geological Society of America / MGPV Division Lipman Research Award (\$2,500)  
USU School of Graduate Studies Travel Grant (\$200)
- 2018 **Presidential Doctoral Research Fellowship - Utah State University**  
Undergraduate Research Opportunity Grant - University of Colorado (\$2,090)  
Tim Wawrzyniec Fellowship in Support of Geological Research at the Rocky Mtn. Bio Lab (named undergraduate researcher, Lead PI: Lon Abbott, \$5,810)
- 2016 T. Keith Marks Scholarship for Outstanding Geology Majors - University of Colorado (\$3,500)

### *funding declined*

- 2019 National Geographic Society Exploration Grant (contributing author and named doctoral student, lead PI: Newell, \$129,580)  
NSF Graduate Research Internship Program (AFO for GRFP Fellowship; \$5,000)  
Sigma Xi Grant in Aid of Research (\$1,000)

## AWARDS & RECOGNITION

- 2022 Geology PhD Researcher of the Year - Utah State University Geosciences Department
- 2020 Geology PhD Researcher of the Year - Utah State University Geosciences Department
- 2017 Neal J. Harr Outstanding Student Award - Rocky Mountain Association of Geologists  
University of Colorado Dean's List
- 2018 University of Colorado Dean's List
- 2015 University of Colorado Dean's List

## TEACHING & MENTORSHIP

### *Instructor of Record*

#### GEO2800 – Minerals and Rocks

- Redesigned and created new course material utilizing a new online open-access course textbook.
- Lead a two-day field trip to Topaz Mountain and Eureka Mining District, UT
- Supervised a graduate student TA who oversaw two lab sections.
- Feedback includes formal course evaluation by students and formal teaching evaluation by tenured faculty member

### *Graduate Mentor for Undergraduate Researchers*

- Jacob Ladner – Igneous Petrology of lava flows in the Peruvian Altiplano. USU Undergraduate Creative Opportunities Research Grant (URCO) awarded Fall 2022 (\$2,000).
- Alyssa Shiwal – Isotopic Analysis of Hydrous Phenocrysts in Lava Flows of the Peruvian Altiplano Plateau: Testing for a Subduction Signature. Presented at USU's Student Research Symposium in Spring 2022.

*Mentor for NSF GRFP Grant Writing Workshop - Fall 2019, 2020, 2021, 2022*

Served as fellowship awardee mentor for applicants writing grant proposals for NSF Graduate Research Program. Workshop held by USU Science Writing Center. Eight applicants mentored to date. One mentee was offered the award (AJ Walters, 2022) and two received honorable mentions (Valerie Martin, 2021; Maria Stahl 2022).

**PROFESSIONAL INVOLVEMENT & SERVICE****External**

2022 *Reviewer*, Journal of Applied Volcanology  
*Reviewer*, Geophysical Research Letters  
*Proposal Reviewer*, Graduate Woman in Science National Fellowship Program

**Utah State University**

2022 *Working group member*, Unlearning Racism in Geosciences (URGE), USU Geo Pod  
 2021 *Proposal Reviewer*, Undergraduate Research and Creative Opportunities Grant Program  
 2020 *Graduate representative*, College of Science Graduate Student Council  
*Graduate representative*, Geoscience Department  
*Proposal Reviewer*, Undergraduate Research and Creative Opportunities Grant Program  
 2019 *Student Committee Member*, Department of Geosciences Faculty Search Committee  
*Proposal Reviewer*, Undergraduate Research and Creative Opportunities Grant proposals  
 2019 *Student judge*, Student Research Symposium  
*Panelist*, Undergraduate Research Fellows (URF) Mentor Relationships Workshop  
*Volunteer*, Department of Geoscience's Annual Rock and Fossil Day  
 2018 *Volunteer*, Science Unwrapped, Presentation by Dr. Carol Dehler

**Universidad del San Antonia Abad – Cusco, Peru**

2019 *Guest Lecturer*, "Thermal springs of the Peruvian Andes - evidence for mantle-to-crust fluid connections in a flat-slab subduction setting" (co-presented with Dr. Dennis Newell)

**Community**

2019 *Guest judge*, Cache Valley, UT K-12 Homeschool Science Fair

**Grand Canyon National Park**

2017 *Associate Naturalist* – Interpretation Division, delivered geology talks on the rim and volunteered at park visitor's center

**University of Colorado – Boulder**

2016 – 2017 *Student Mentor*, Undergraduate Research Seminar

**CONFERENCE PRESENTATIONS (\* indicates student mentee)**

**Hiett, C.D.**, Newell, D.L., and \*Schiwal, A., Metasomatic enrichment of the northern Altiplano lithosphere constrained by isotopic and trace element characteristics of biotite monzogabbro and pyroxenite xenoliths: Geological Society of America *Abstracts with Programs*, 2022 (oral presentation)

\*Schiwal, A., **Hiett, C.D.**, and Newell, D.L., Isotopic analysis of hydrous phenocrysts in lava flows of the Peruvian Altiplano Plateau: Testing for a subduction signature: Utah State University Student Research Symposium, Spring 2022

**Hiett, C.D.**, Newell, D.L., Jessup, M.J., Grambling, T.A., Scott, B.E., and Upin, H., From Mantle to Surface in the Absence of Magmatism: Mantle Gases in Peruvian Hot Springs and Implications for Volatile Cycling in Flat-Slab Subduction Zones: AGU Fall Meeting Abstracts, 2021 (oral presentation)

Abbott, L.D., Flowers, R.M., Metcalf, J.R., **Hiett, C.D.**, Kelleher, R., Camm, H., Ramba, M., McCorkel, N., and Riccio, E., The Gothic Dome: Kilometer-scale Miocene Exhumation in Colorado's Elk and West Elk Mountains: AGU Fall Meeting Abstracts, 2021 <https://doi.org/10.1002/essoar.10508533.1>

Grambling, T.A., Jessup M.J., Dygert, N., Newell, D.L., Grambling, N.L., and **Hiett C.D.**, Over dispersion of zircon crystallization ages in the Cordillera Blanca batholith, Central Peru: Lead loss or prolonged magmatism and protracted crystallization?: AGU Fall Meeting Abstracts, 2021

**Hiett, C.D.**, Newell, D.L., Upin, H., Jessup, M. J., Scott, B. E., Grambling, T. A., Hughes, C.A. and Shaw, C.A., 2020, Mantle-to-Surface Fluid Transit Times Estimated from Helium Isotopes in Thermal Springs above the Peruvian Flat Slab: Implications for Tectonic Controls during Flat Slab-to-Lithosphere Fluid Transfer. In AGU Fall Meeting Abstracts (Vol. 2020, pp. V046-06). (oral presentation)

**Hiett, C.D.**, Newell, D.L., Upin, H., Jessup, M.J., Scott, B.E., Grambling, T.A., Hughes, C.A. and Shaw, C.A., 2019, September. Mantle-to-Crust Fluid Transfer above the Peruvian Flat Slab: Insight from Helium Isotopes in Thermal Springs of the Peruvian Andes: Geological Society of America *Abstracts with Programs*. Vol. 51, No. 5. doi: 10.1130/abs/2019AM-336838 (oral presentation)

Newell, D.L., Jessup, M.J., Upin, H., Scott, B.E., Grambling, T.A., **Hiett, C.**, Shaw, C.A. and Hughes, C.A., 2019, September. He and CO<sub>2</sub> Flux from the Peruvian Flat Slab Estimated from Hot Spring Geochemistry: Geological Society of America *Abstracts with Programs*. Vol. 51, No. 5 doi:10.1130/abs/2019AM-336538

Abbott, L. D., Flowers, R. M., Metcalf, J. R., **Hiett, C.**, McCorkel, N., Schanock, E., and Gonzalez, N., 2018 Investigating a bull's-eye of late Miocene exhumation in Colorado's Elk and West Elk Mountains using (U-Th)/He thermochronology: Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6.

## LABORATORY EXPERIENCE

*Includes instruments that I have routinely used and/or have been trained to operate, unless otherwise stated*

### **Utah State University, Geosciences Department, various labs**

- Thermo Scientific Delta V Advantage Isotope Ratio MS (continuous flow) with TC/EA and GasBench II interfaces
  - Primary instrument utilized for PhD research, including method development, maintenance, and troubleshooting
- Agilent 8900 Triple-Quadrupole ICP-MS
- Horiba LabRAM HR Evolution Micro Raman
- Bruker Tracer III Handheld XRF
- Panalytical X'Pert Pro X-ray Diffraction Spectrometer

### **Utah State University Core Microscopy Facility**

- FEI Quanta FEG 650 SEM with Oxford EDS detector

### **University of Colorado Boulder TIMS Laboratory – PI Lang Farmer**

*Three-week visit (2022)*

- Sample digestion and column chromatography in preparation for Sr and Nd isotope analysis
- In situ micro-sampling of thin and thick rock sections with New Wave Micromilling device

### **USGS Noble Gas Laboratory – PI Andrew Hunt**

*One-week visit (2019)*

- Ultralow vacuum gas extraction line connected to gas-source, magnetic sector noble gas mass spectrometer (Mass Analyzer Products Model 215–50)

### **University of New Mexico Volatiles Laboratory – PI Tobias Fischer**

*One-week visit (2019)*

- Low vacuum gas extraction line connected to GOW-MAC Gas Chromatograph and Pfeiffer Quadrupole MS

**WORKSHOPS & SEMINARS ATTENDED**

- Aug 2021 Empowering Teaching Excellence (USU) - Pedagogies of Care: Community, Research, and Mentorship Virtual Conference
- Jun 2021 Council on Undergraduate Research - Centering DE&I in Undergraduate Research and Creative Activity Conference
- Spring 2021 Community Engagement in Research - PDRF coffee workshop series, Utah State University
- Jan 2021 Cultivating Leadership for Change and Justice in the Geosciences - Sponsored by Geoscientists of Color and Allies
- Spring 2019 Prepping for Post-Grad Career - PDRF coffee workshop series, Utah State University
- Sep 2018 Graduate Student Grant Writing Seminar - Utah State University

**PROFESSIONAL AFFILIATIONS**

- Council on Undergraduate Research, *Graduate Student Member since 2021*
- American Geophysical Union, *Student Member since 2020*
- Sigma Xi Scientific Research Honor Society, *Associate Member 2019*
- Geological Society of America, *Student Member since 2018*