

William Floyd Hoover, PhD

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NSF Postdoctoral Fellow 2021-present
Department of Earth and Space Sciences
University of Washington, Seattle, WA

Graduate and Teaching Assistant 2016-2021
Department of Geology
University of Maryland, College Park, MD

Program Manager 2018-2020
Kids Excelling in Math and Science
Hyattsville Middle School, Hyattsville, MD

Geotechnical Field Technician 2014-2015
ECS Mid-Atlantic LLC
Moorestown, NJ

Core Library Intern Summer 2012 & 2013
Pennsylvania Bureau of Topographic and Geologic Survey
Middletown, PA

Education:

PhD Geology | University of Maryland 2016-2021
Advisor: S. Penniston-Dorland
Selected Coursework: economic geology, geostatistics,
thermodynamics, geochemistry

BA Geology, *summa cum laude* | Oberlin College 2010-2014
Advisors: F.Z. Page and S. Wojtal

Publications

- Hoover, W., Penniston-Dorland, S., Piccoli, P. and Kylander-Clark, A., (2023), Reaction-induced porosity in an eclogite-facies vein selvage (Monviso Ophiolite, W. Alps): Textural evidence and *in situ* trace elements and Sr isotopes in apatite, *Journal of Petrology* **64** (1), egac128. <https://doi.org/10.1093/petrology/egac128>
- Hoover, W., Condit, C., Lindquist, P., Moser, A and Guevara, V., (2022a), Episodic slow slip hosted by talc-bearing metasomatic rocks: High strain rates and stress amplification in a chemically reacting shear zone, *Geophysical Research Letters* **49** (21), e2022GL101083. <https://doi.org/10.1029/2022GL101083>
- Hoover, W., Penniston-Dorland, S., Baumgartner, L., Bouvier, A.-S. and Dragovic, B., (2022b), Episodic fluid flow in an eclogite-facies shear zone: Insights from Li isotope zoning in garnet, *Geology* **50** (6), 746-750. <https://doi.org/10.1130/G49737.1>
- Hoover, W., Penniston-Dorland, S., Baumgartner, L., Bouvier, A.-S., Baker, D., Dragovic, B. and Gion, A., (2021), A method for SIMS analysis of lithium isotopes in garnet: The utility of glass reference materials, *Geostandards and Geoanalytical Research* **45**, 477-499. <https://doi.org/10.1111/ggr.12383>
- Hoover, W., Page, F.Z., Schulze, D., Kitajima, K. and Valley, J. (2020a), Massive fluid influx beneath the Colorado Plateau (USA) related to slab removal and diatreme emplacement: Evidence from oxygen isotope zoning in eclogite xenoliths, *Journal of Petrology* **61**. <https://doi.org/10.1093/petrology/egaa102>
- Barnes, J., Penniston-Dorland, S., Bebout, G., Hoover, W., Beaudoin, G. and Agard, P. (2019), Chlorine and lithium behavior in metasedimentary rocks during prograde metamorphism: A comparative study of exhumed subduction complexes (Catalina Schist and Schistes Lustrés), *Lithos* **336-337**, 40-53. <https://doi.org/10.1016/j.lithos.2019.03.028>
- Hoover, W., Condit, C., Moser, A, Mulcahy, S., Pike, C., Lindquist, P., and Guevara, V., (in prep), Forming a slow slipping subduction interface: P-T-t-X history of metasomatic rocks.

Hoover, W., Penniston-Dorland, S., Teng, F.-Z., (in prep), Fault-valve-style fluid flow at the subduction interface: Lithium diffusion chronometry of amphibolite-facies mélange blocks (Catalina Schist, CA).

Conference Abstracts

* mentee

Easthouse, G.*, **Hoover, W.**, Teng, F., Condit, C., Berg, A., and Pike, C.* (2023), Tracing the formation of talc rich mélange rocks with magnesium isotopes, *GSA Cordilleran Section Meeting, Reno, NV, May 2023.*

Hoover, W., Condit, C., Moser, A, Mulcahy, S., Pike, C.*, Lindquist, P., and Guevara, V., (2023), Forming a slow slipping subduction interface: P-T-t-X history of metasomatic rocks, *GSA Cordilleran Section Meeting, Reno, NV, May 2023.*

Aikin, N.*, **Hoover, W.** and Condit, C. (2022), Boots on the Ground: Going Beyond Land Acknowledgements with the Heron's Nest Land Back Project, *AGU Fall Meeting, Chicago, IL, December 2022.*

Pike, C.*, **Hoover, W.** and Condit, C. (2022), Metasomatism and Fluid Infiltration of Actinolite, Talc-, and Chlorite-Actinolite Schist during Subduction on Santa Catalina Island, California: An Isocon Analysis, *AGU Fall Meeting, Chicago, IL, December 2022.*

Hoover, W., Condit, C., Moser, A., Lindquist, P. and Guevara, V., (2022c), The role of metasomatism in episodic tremor and slow slip: stress and strain rate variations in a chemically reacting shear zone, *GSA Annual Meeting, Denver, CO, October 2022*

Lindquist, P.*, Condit, C., Guevara, V., Hernández Uribe, D. and **Hoover, W.**, (2022), Fluid release and silica metasomatism near the plate interface beneath Guerrero, Mexico: predicting talc production at the conditions of episodic tremor and slow slip, *GSA Annual Meeting, Denver, CO, October 2022*

Hoover, W., Condit, C., Moser, A., Lindquist, P. and Guevara, V., (2022d), Stress and strain rate variations in a chemically reacting shear zone: the role of metasomatism in producing slow slip and tremor, *Goldschmidt Conference, Honolulu, HI, July 2022.*

Hoover, W. and Penniston-Dorland, S. (2021), Rapid, uniform fluid flow at the subduction interface: Lithium chronometry of amphibolite-facies mélange blocks (Catalina Schist, CA), *AGU Fall Meeting, New Orleans, LA, December 2021.*

Hoover, W., Penniston-Dorland, S., Baumgartner, L., Bouvier, A.-S. and Dragovic, B. (2020b), Cyclic fluid flow in a high-pressure shear zone: Insights from Li isotope zoning in garnet, *AGU Fall Meeting*, December 2020.

Boak, A.*, **Hoover, W.**, Penniston-Dorland, S., Piccoli, P. and Ash, R. (2019), Understanding fluid behavior in Monviso using chlorite-bearing altered eclogites from the Lower Shear Zone, *AGU Fall Meeting, San Francisco, CA*, December 2019.

Hoover, W., Penniston-Dorland, S. and Piccoli, P. (2019a), Multiple fluid compositions preserved in an eclogite-facies apatite vein (Monviso Ophiolite, Western Alps), *Emile Argand Conference on Alpine Geological Studies, Sion, Switzerland*, September 2019.

Hoover, W., Penniston-Dorland, S., and Piccoli, P. (2019b), Low-salinity fluids in an intra-slab shear zone: Insights into fluid salinity from apatite in the Monviso Ophiolite, *GeoPRISMS TEI, San Antonio, TX*, February 2019.

Goltz, A., **Hoover, W.**, Page, F. Z., Moreira, H., Storey, C., Kitajima, K. and Valley, J. (2017), Microanalyzing Metasomatism: Correlative Microanalysis of Trace Elements and Oxygen Isotopes in the Franciscan, *AGU Fall Meeting, New Orleans, LA*, December 2017.

Hoover, W., Penniston-Dorland, S., Bebout, G. (2017), Lithium mobility during dehydration, fact or fiction?: Insights from Li isotopes in Alpine metasedimentary rocks, *GSA Annual Meeting, Seattle, WA*, October 2017.

Hoover, W., Page, F.Z., Schulze, D., Kitajima, K. and Valley, J. (2014), Are Colorado Plateau Eclogite Xenoliths Franciscan?: Oxygen Isotope Evidence From Zoned Garnet, *AGU Fall Meeting, San Francisco, CA*, December 2014.

Invited Talks

"Subduction zone seismicity hosted by chemically-reacting rocks", University of Illinois, Chicago, Department of Earth and Environmental Science, March 2023.

"Subduction zone seismicity hosted by chemically-altered rocks", Occidental College, Department of Geology Seminar, November 2022.

"Chemically-reacting shear zones and subduction zone seismicity", Central Washington University, Geology Seminar Series, November 2022.

Over 18k views on YouTube:

https://www.youtube.com/watch?v=93YO_IJi7YQ&t=1052s

“Chemo-mechanical interactions at the subduction interface: Insights from the rock record on Pimu/Catalina Island, CA”, University of Washington, Seismolunch, March 2022.

“Episodic fluid transport in a subduction shear zone: Insights from Li isotope zoning in garnet”, University of Washington, Earth and Space Sciences Colloquium, October 2021.

“Episodic fluid transport in a subduction shear zone: Application of a novel in situ method for Li isotope measurement”, University of Southern California Lithospheric Dynamics Seminar, September 2021.

“Episodic fluid transport in a subduction shear zone: Application of a novel in situ method for Li isotope measurement”, E-FIRE Research Showcase, April 2021.

“Fluid history of an eclogite-facies apatite vein: Evolving fluid composition or multiple sources”, University of Lausanne, Petrology Seminar, November 2019.

Theses

Hoover, W. (2021), Characterizing the duration, periodicity and chemical impact of fluid transport in the subducting slab: Insights from isotope geochemistry of high-pressure metamorphosed oceanic crust, University of Maryland PhD dissertation, p. 306.

Hoover, W. (2014), Eclogites and eclogites: Oxygen isotope evidence of a shared subduction origin for Franciscan eclogites and Moses Rock eclogite xenoliths, Oberlin College Undergraduate Honors Thesis, p. 68.

Grants

Pending	NSF Petrology & Geochemistry - <i>How does water move through the subducting slab? Slab-scale fluid pathways and deformation-fluid flow feedbacks at eclogite facies.</i> PI: W. Hoover (\$397,722)
2021	NSF EAR Postdoctoral Fellowship - <i>What is the role of metasomatic alteration in subduction zone episodic tremor and slip?</i> PI: W. Hoover (\$174,000)
2018	Geological Society of America - Graduate Research Grant (\$2100)
2018	Sigma Xi - Grants-in-Aid of Research (\$800)

Honors and Awards

- 2021 Graduate Award for Excellence in Outreach - Department of Geology, University of Maryland
- 2020 Green Fellowship in Global Climate Change - Department of Geology, University of Maryland
- 2019 Earth System Science Interdisciplinary Center Travel Grant - University of Maryland
- 2018 Best Talk Award, PhD Candidate - Dept. of Geology Graduate Seminar, University of Maryland
- 2017 Dean's Fellowship - College of Natural Sciences, University of Maryland
- 2017 Petrochronology Short Course Travel Grant - Mineralogical Society of America
- 2017 Northeast Section Travel Grant - Geological Society of America
- 2017 Jacob K. Goldhaber Travel Grant - University of Maryland
- 2017 Earth System Science Interdisciplinary Center Travel Grant - University of Maryland
- 2015 Geologist-in-Training Certification – Association of State Boards of Geology
- 2014 Wharton Prize – Oberlin College
- 2014 Rick and Robin Black Field Camp Scholarship - Oberlin College
- 2014 Anadarko Field Camp Scholarship - Indiana University

Teaching

- Teaching Assistant** | University of Maryland
 - Physical Geology Laboratory (GEOL 110) Spring 2019 and Spring 2020
 - Sedimentation and Stratigraphy (GEOL 342) Fall 2017

- Teaching Assistant** | Oberlin College
 - Earth's Environments (GEO 120) Fall 2013

Mentoring

- Peter Lindquist* – PhD student, 2021-present
- Nicole Aikin* – PhD student, 2022-present
- Griffin Easthouse* – undergraduate researcher, "Mg isotope geochemistry of seismogenic and metasomatic subduction interface rocks", 2022-present
- Marquis Richardson* – undergraduate researcher, "Provenance of garnet sand in the Olympic Peninsula", 2022-present
- Courteney Pike* – UNAVCO RESESS undergraduate intern, "Mass balance modeling of subduction interface metasomatism", Summer 2022

Justine Grabiec – University of Southern California PhD student, Spring 2022
 Nicole Ferrie* – undergraduate researcher, 2021-2022
 Zexing Zheng+ – “Investigating oxygen fugacity changes during subduction metamorphism”, undergraduate thesis, 2020.
 Sona Chaudhary+ – “Metasomatism in Monviso eclogites: Birth of the reaction rind”, undergraduate thesis, 2020.
 Abigail Boak+ – ExTerra Field Institute and Research Endeavor REU, Summer 2019
 Tyler Hicks+ – “P-T conditions and chemical changes of a vein and associated alteration in Monviso eclogites”, undergraduate thesis, 2018.
 *University of Washington; +University of Maryland

Outreach

University of Washington, Seattle, WA

Diversity, Equity and Inclusion Committee Member	
Dept. of Earth and Space Sciences	2023-present
Rockin' Out Educator	2023-present

Kids Excelling in Math and Science, Hyattsville Middle School, Hyattsville, MD

Executive Board Member	2020-2022
Program Manager	2018-2020
Member, Curriculum Committee	2017-2018
Mentor	2017-2020

University of Maryland, College Park, MD

Outreach Committee Member, Dept. of Geology	2020-2021
Maret School Field Trip Coordinator	2019
Two Rivers Public Charter School Outreach Coordinator	2018-2020
Interpretive Volunteer, Maryland Day	2017-2019

Professional Service

Convener, Petrolunch Seminar Series, University of Washington, 2022-present
 Session Convener, Goldschmidt Conference, 2023
 Old and new, light and heavy: stable isotopes in magmatic and metamorphic processes
 Session Convener, Goldschmidt Conference, 2022
 Fluid-rock interactions along plate margins and metamorphic belts
 Session Convener, AGU Annual Meeting, 2021
 Fluids in subduction zones: transport, behavior and consequences
 Reviewer

Journals - *Geology, American Mineralogist, Contributions to Mineralogy and Petrology, Geosphere, Geochimica et Cosmochimica Acta*
National Science Foundation – Petrology & Geochemistry, Geophysics
Co-convener, Geochemistry Seminar Series, University of Maryland, 2017-2018
Intern, Oahu Resource Conservation and Development Council, 2011

Workshops and Short Courses

SZ4D Community Meeting, Fall 2022
Second National Conference: Justice in the Geosciences, Summer 2022
Penrose Conference: The Geological Fingerprints of Slow Earthquakes, Spring 2022
Earth Educators' Rendezvous, Summer 2020
ExTerra Field Institute, Western Alps and Cycladic Islands, Summer 2019
Partial melting and magma transport, University of Lausanne Field Course, Pyrenees, Summer 2019
GeoPRISMS Theoretical and Experimental Institute, Houston, TX, 2019
DMG-MSA Diffusion Short Course, Ruhr-Universität Bochum, 2018
ExTerra Field Institute and Research Endeavor Workshop, Boston, MA, 2018
Petrochronology Workshop, GSA Annual Meeting, Seattle, WA, 2017
ExTerra Field Institute, Western Alps, 2017
Deep Earth Water Model Course, Johns Hopkins University, 2017
Ion Microprobe Workshop, University of California, Los Angeles, 2017
ExTerra Field Institute and Research Endeavor Workshop, San Francisco, CA, 2016
Study Abroad, Geology and Maori Studies, Victoria University, Wellington, NZ, 2013