

# William Floyd Hoover, PhD

Department of Earth and Space Sciences  
University of Washington  
4000 15th Ave NE  
Seattle, WA 98195  
unceded land of the Coast Salish Peoples  
wfhoover@uw.edu | (717) 462-0055  
willhoover.weebly.com

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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

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## 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

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## Publications

\* mentee

- Lindquist, P.\*, Condit, C., **Hoover, W.**, Hernández-Uribe, D., Guevara, V., (2023), Metasomatism and Slow Slip: Talc Production Along the Flat Subduction Plate Interface Beneath Mexico (Guerrero), *Geochemistry, Geophysics, Geosystems* **24** (8), e2023GC010981. <https://doi.org/10.1029/2023GC010981>
- 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., Teng, F.-Z., Moser, A., Schaen, A., Mulcahy, S., Easthouse, G.\*, Pike, C.\*, Lindquist, P.\*, and Guevara, V., (in prep), Forming a slow slipping subduction interface: P-T-t-X history of metasomatic rocks.

Easthouse, G.\*, **Hoover, W.**, Teng, F.-Z., Condit, C., Berg, A., Wynn, P., Pike, C.\*, and Wang, Z.-Z., (in prep), Subduction interface talc forms by Mg loss, not Si addition: Insights from Mg isotopes.

**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

**Hoover, W.**, Condit, C., Teng, F.-Z., Moser, A., Schaen, A., Mulcahy, S., Easthouse, G.\*, Pike, C.\*, Lindquist, P.\*, and Guevara, V., (2023), Forming a slow slipping subduction interface: P-T-t-X history of metasomatic rocks, *Goldschmidt Conference, Lyon, France, July 2023*.

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](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.

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## Grants

- 2023 NSF Petrology & Geochemistry - *How does water move through the subducting slab? Slab-scale fluid pathways and deformation-fluid flow feedbacks at eclogite facies.* PI: W. Hoover (**\$397,722**)
- 2021 NSF EAR Postdoctoral Fellowship - *What is the role of metasomatic alteration in subduction zone episodic tremor and slip?* PI: W. Hoover (**\$174,000**)
- 2018 Geological Society of America - Graduate Research Grant (**\$2100**)
- 2018 Sigma Xi - Grants-in-Aid of Research (**\$800**)

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## 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

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## 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

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## 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<sup>+</sup> – "Investigating oxygen fugacity changes during subduction metamorphism", undergraduate thesis, 2020.

Sona Chaudhary<sup>+</sup> – "Metasomatism in Monviso eclogites: Birth of the reaction rind", undergraduate thesis, 2020.

Abigail Boak<sup>+</sup> – ExTerra Field Institute and Research Endeavor REU, Summer 2019

Tyler Hicks<sup>+</sup> – "P-T conditions and chemical changes of a vein and associated alteration in Monviso eclogites", undergraduate thesis, 2018.

\*University of Washington; <sup>+</sup>University of Maryland

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## Outreach

**University of Washington, Seattle, WA**

Diversity, Equity and Inclusion Committee Member

Dept. of Earth and Spaces Sciences

2023

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

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## 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

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## 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