

Jonathan Wolf

Address

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Education

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|----------------|---|
| 2019 – present | PhD · Geophysics · Yale University
Advised by Prof. Maureen D. Long |
| 2019 - 2021 | Master of Philosophy · Earth Science · Yale University
Advised by Prof. Maureen D. Long |
| 2015 – 2019 | Bachelor of Science · Geophysics · University of Münster, Germany
Advised by Prof. Christine Thomas |

Appointments

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| Upcoming | Miller Institute Postdoctoral Scholar · University of California, Berkeley ·
Advised by Weiqiang Zhu and Barbara Romanowicz |
| 2019 – present | Graduate student and teaching assistant · Yale University |
| 05/2019 – 06/2019 | Intern · Seismology · German Research Center for Geosciences Potsdam
Research focused on volcanos in Iceland using ambient noise tomography |
| 05/2018 – 02/2019 | Student Assistant · Seismology · University of Münster, Germany
Research focused on lowermost mantle anisotropy beneath Iceland |
| 09/2017 – 01/2018 | Intern · Seismology · Yale University
Research focused on lowermost mantle anisotropy beneath Iceland |

Honors and Recognition

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| Upcoming | Miller Institute Postdoctoral Fellowship · \$321,000 in personal and research funds |
| 05/2023 | Phillip M. Orville Prize · Yale University · \$1000
'for an outstanding dissertation in the earth sciences' |
| 05/2022 | Elias Loomis Prize · Yale University · \$1000
'for excellence on studies of physics of the earth' |
| 09/2017 – 01/2018 | Studienstiftung des deutschen Volkes scholarship · ~ €7000
For research at Yale University |
| 04/2016 – 02/2019 | Studienstiftung des deutschen Volkes scholarship · ~ €27000
Germany's most prestigious scholarship, awarded to <0.5% of top students |
| 10/2015 – 09/2016 | Deutschlandstipendium scholarship · €3600 (€1800 deferred)
For academic achievements, social engagement & social/family circumstances |

Publications

I. Peer-reviewed papers

14. **J Wolf**, MD Long (2024), ScS shear-wave splitting in the lowermost mantle: Practical challenges and new global measurements, *Seismica*, accepted

13. DA Frost, E Garnero, N Creasy, **J Wolf**, E Bozdog, M Long, A Aderoju, Reynaldo Vite (2024), Heterogeneous mantle effects on the behavior of SmKS waves and outermost core imaging, *Geophysical Journal International*; doi: 10.1093/gji/ggae135.
12. **J Wolf**, M Li, AA Haws, MD Long (2024), Strong seismic anisotropy due to upwelling flow at the root of the Yellowstone mantle plume, *Geology*, doi: 10.1130/G51919.1.
11. **J Wolf**, MD Long, DA Frost (2024), Ultralow velocity zone and deep mantle flow beneath the Himalayas linked to subducted slab, *Nature Geoscience*, doi: 10.1038/s41561-024-01386-5.
10. **J Wolf**, MD Long, M Li, E Garnero (2023), Global compilation of deep mantle anisotropy observations and possible correlation with low velocity provinces, *Geochemistry, Geophysics, Geosystems*, doi: 10.1029/2023GC011070.
9. **J Wolf**, MD Long (2023), Upper mantle anisotropy and flow beneath the Pacific Ocean from PS-SKS splitting, *Geophysical Research Letters*, doi: 10.1029/2023GL104402.
8. **J Wolf**, MD Long (2023), Lowermost mantle structure beneath the central Pacific Ocean: Ultralow velocity zones and seismic anisotropy, *Geochemistry, Geophysics, Geosystems*, doi: 10.1029/2022GC010853.
7. **J Wolf**, DA Frost, MD Long, AO Aderoju, N Creasy, E Garnero, E Bozdog (2023), Observations of mantle seismic anisotropy using array techniques: shear-wave splitting of beamformed SmKS phases, *Journal of Geophysical Research: Solid Earth*, doi: 10.1029/2022JB025556.
6. **J Wolf**, MD Long, N Creasy, E Garnero (2023), On the measurement of Sdiff splitting caused by lowermost mantle anisotropy, *Geophysical Journal International*, doi: 10.1093/gji/ggac490.
5. **J Wolf**, MD Long (2022), Slab-driven flow at the base of the mantle beneath the northeastern Pacific Ocean, *Earth and Planetary Science Letters*, doi: 10.1016/j.epsl.2022.117758.
4. **J Wolf**, MD Long, K Leng, T Nissen-Meyer (2022), Constraining deep mantle anisotropy with shear wave splitting measurements: Challenges and new measurement strategies, *Geophysical Journal International*; doi: 10.1093/gji/ggac055.
3. **J Wolf**, DAD Evans (2022), Reconciling supercontinent cycle models with ancient subduction zones, *Earth and Planetary Science Letters*; doi: 10.1016/j.epsl.2021.117293.
2. **J Wolf**, MD Long, K Leng, T Nissen-Meyer (2022), Sensitivity of SK(K)S and ScS phases to heterogeneous anisotropy in the lowermost mantle from global wavefield simulations, *Geophysical Journal International*; doi: 10.1093/gji/ggab347.
1. **J Wolf**, N Creasy, MD Long, C Thomas (2019), An investigation of seismic anisotropy in the lowermost mantle beneath Iceland, *Geophysical Journal International*; doi: 10.1093/gji/ggab347.

II. Other contributions (not peer-reviewed)

2. B Fernando, **J Wolf**, K Leng, T Nissen-Meyer, W Eaton, M Styczinski, A Walker, TJ Craig, J Muir, C Nunn, MD Long (2024), AxiSEM3D - an introduction to using the code and its applications, *EarthArXiv*, doi: 10.31223/X5TH7P.
1. **J Wolf** (2024), Ultralow velocity zone and deep mantle flow beneath the Himalayas are linked to a subducted slab – Research Briefing, *Nature Geoscience*, doi: 10.1038/s41561-024-01387-4.

III. Data products

2. **J Wolf**, MD Long, M Li, E Garnero (2023), Global compilation of deep mantle anisotropy observations and possible correlation with low velocity provinces - Dataset, *Harvard Dataverse*, doi: 10.7910/DVN/EMJLDN.
1. **J Wolf**, DA Frost, MD Long, AO Aderoju, N Creasy, E Garnero, E Bozdog (2022), Observations of mantle seismic anisotropy using array techniques: shear-wave splitting of beamformed SmKS phases – Additional dataset, *Zenodo*; doi: 10.5281/zenodo.7299651.

IV. Manuscripts in review/revision

4. M Li, **J Wolf**, E Garnero, MD Long, Flow and deformation in Earth's deepest mantle from geodynamic modeling and implications for seismic anisotropy, doi: 10.22541/essoar.171052495.57595075/v1, in review.
3. **J Wolf**, MD Long, Redistribution of low-velocity heterogeneities through subducted material in the deep mantle beneath North America, in review.
2. **J Wolf**, MD Long, M Li, E Garnero, Advances in mapping lowermost mantle convective flow with seismic anisotropy observations, in review.
1. **J Wolf**, MD Long, T Nissen-Meyer, DA Frost, The expression of mantle seismic anisotropy in the global seismic wavefield, doi: 10.22541/essoar.168451055.50512317/v1 (preprint), in review.

V. Manuscripts in preparation

3. K Leng, C Haindl, B Fernando, W Eaton, **J Wolf**, L Ermert, J Muir, A Walker, A Szenicer, MD Long, J Thiyagalingam, T Nissen-Meyer, A versatile, efficient wavefield solver across scales and complexities: AxiSEM3D, in prep.
2. **J Wolf**, DA Frost, A Brewster, MD Long, E Garnero, Widespread lowermost mantle anisotropy beneath North America from *KS differential beam splitting, in prep.
1. E Xu, **J Wolf**, M Li, MD Long, Lowermost mantle anisotropy near Australia using array techniques: Deformation linked to low velocity anomaly reveals additional evidence for deep mantle upwelling, in prep.

Teaching Experience

Spring 2024	The Geology of North America through its National Parks (EPS210) Teaching Fellow · Yale University · for undergrads
04/2023	Global Tectonics field trip to Oman (EPS 212) · Grad student helper · Yale University · for undergrads
02/2023	Seismology 101 crash course · Yale University · for undergrads
06/2022	AxiSEM3D crash course · Yale University · for Yale seismology group
06/2022	Introduction to seismology course · Yale University · for undergrads
Spring 2022	Applied Numerical Methods for Differential Equations (ENAS441/ENAS748/MENG441) Teaching Fellow · Yale University · for grads and undergrads
Fall 2019	Introduction to Earth and Environmental Physics (Phys342) Teaching Fellow · Yale University · for grads and undergrads

Student Supervision and mentoring

Research advisor of the following undergrads:

2022-present **Ella Xu** · Yale University
Summer 2022 **Paleena Amy** · Washington College
Summer 2022 **Daphne (Dede) Chapline** · Pomona College

2018 – 2019 **Freshmen mentor** · University of Münster

Fieldwork

2019-2023 **Seismometer monitoring/installing** · Yale University · In NH, MA and ME, USA
As part of the NEST array project

2019 **Seismometer monitoring** · German Research Center for Geosciences · In Germany, Austria and Italy
As part of the AlpArray project

- 2018 **Seismics, Seismology, Magnetotellurics, Magnetics, GPR; joint analysis** · University of Münster
As part of an undergraduate field trip
- 2017 **Seismometer monitoring** · Yale University · In CT, USA
As part of the SEISConn project

Service

- 2021-present **Member of Disability, Mental Health, and Chronic Illness working group** · Yale University, Earth and Planetary Science (EPS) Department
- 2022-2023 **Co-leader of Disability, Mental Health, and Chronic Illness working group** · Yale University, EPS Department
- 2022-2023 **IDEA (Inclusion, Diversity, Equity, Anti-racism) committee member** · Yale University, EPS Department
- 2020-2022 **Geophysics colloquium student representative** · Yale University, EPS Department
- 2019 - present **Manuscript reviewer**
For Geophysical Journal International, JGR: Solid Earth, Physics of Earth and Planetary Interiors, Tectonophysics
- 2018-2019 **Treasurer of Student Council** · University of Münster, Geophysics Department
- 2017-2019 **Member of Student Council** · University of Münster, Geophysics Department

Activities at scientific meetings

- EGU 2023 **Chair and co-convener** · Physics-based earthquake modeling and engineering.
- AGU 2022 **Co-convener** · Seismology Contributions: Structural Seismology 1-9.
- AGU 2022 **Co-Chair** · Seismology Contributions: Structural Seismology 1 (Oral), 8 (Poster), 9 (Poster).

Talks and Posters at scientific meetings (*=invited)

- LPSC 2024 Nunn+(**Wolf**), Poster: Global-scale seismic modeling for the next generation of planetary science missions
- AGU 2023 **Jonathan Wolf***, Talk: Deformation near ultralow velocity material in the deep mantle.
- AGU 2023 Xu+(**Wolf**), Poster: Investigating lowermost mantle anisotropy near Australia using a beamforming approach.
- AGU 2023 Löberich+(**Wolf**), Poster: Shear Wave Splitting Characteristics of Aligned Partial Melt Configurations in Subduction Zone Settings.
- AGU 2023 Aderoju+(**Wolf**), Poster: An Iterative Beamforming Methodology Applied to SmKS waves.
- GRS/GRC 2023 **Wolf & Long**, Poster: Probing lowermost mantle dynamics with observations of seismic anisotropy, (Gordon Research Seminar/Gordon Research Conference.)
- EGU 2023 **Wolf & Long**, Talk: Slab-driven transport of ultra-low velocity material in the deep mantle.
- GAGE/SAGE 2023 **Jonathan Wolf***, Talk: Probing lowermost mantle dynamics with observations of seismic anisotropy.
- AGU 2022 **Wolf+**, Talk: Slab-driven flow at the base of the mantle beneath the northeastern Pacific Ocean.

- AGU 2022 **Wolf+**, Poster: Reconciling observations of deep mantle anisotropy beneath the Pacific Ocean with predictions from mantle flow models.
- AGU 2022 Löberich+(**Wolf**), Poster: Effects of Partial Melt in the Uppermost Mantle on SKS Splitting: Global Wavefield Simulations and potential Applications.
- AGU 2022 Frazer+(**Wolf**), Poster: Improving Shear-wave Splitting Estimates with Multiple-taper Spectral Analysis.
- EGU 2022 **Wolf+**, Talk: Differential SKS-SKS splitting due to lowermost mantle anisotropy beneath Northern America from beamformed SmKS phases.
- AGU 2021 **Wolf+**, Poster: Improving resolution of mantle seismic anisotropy using array techniques: Shear wave splitting of beamformed SmKS phases.
- AGU 2021 Aderoju+(**Wolf**), Talk: Documenting SmKS Slowness, Back Azimuth, and Travel Time Anomalies using Seismic Array Methodologies.
- AGU 2021 **Wolf+**, Poster: Constraining deep mantle anisotropy with shear wave splitting measurements: Challenges and new measurement strategies.
- SFW 2021 **Jonathan Wolf**, Talk: Using full-wave simulations to better understand lowermost mantle anisotropy, (Seismology Frontiers Workshop, 2021, at Tokyo Tech.)
- AGU 2020 **Wolf+**, Poster: Full-wave modeling of lowermost mantle anisotropy scenarios using AxiSEM3D.
- EGU 2018 **Wolf+**, Poster: Seismic anisotropy in the lowermost mantle beneath Iceland and implications for mantle flow.

Invited seminars and colloquia

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- 2024 **Seminar at UC Santa Cruz**, Structures and dynamic processes in Earth's mantle from seismic anisotropy.
- 2024 **Geological and Planetary Sciences Seminar at Caltech**, Structures and dynamic processes in Earth's mantle from seismic anisotropy.
- 2023 **Colloquium at Dublin Institute for Advanced Studies**, New insights into deep mantle dynamics from seismic observations.
- 2023 **Seismology seminar at Karlsruhe Institute of Technology**, Full-wave modeling using AxiSEM3D.
- 2023 **Colloquium at Karlsruhe Institute of Technology**, Probing lowermost mantle dynamics with observations of seismic anisotropy.
- 2022 **Deep Earth Mini Symposium at University of Münster**, Probing lowermost mantle dynamics with observations of seismic anisotropy.
- 2022 **Geodynamics Seminar of GFZ Potsdam**, Inferring deep mantle dynamics from seismic anisotropy: New constraints and new directions.

New Haven; April 11, 2024