James Atterholt

PhD Candidate in Geophysics, California Institute of Technology

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Education

2019-present	California Institute of Technology (Caltech), Pasadena, CA PhD (in progress), Geophysics Advisors: Zhongwen Zhan & Zachary E. Ross Thesis: In progress
2015-2019	Indiana University (IU), Bloomington, IN BS Mathematics & BS Geological Sciences Advisor: Gary L. Pavlis Thesis: Measurements of P-wave anisotropy in the Homestake Mine

Appointments

2019-present	Graduate Student Researcher, Caltech Seismological Laboratory
2019	NAGT Summer Intern, United States Geological Survey, Golden, CO
2015-2019	STARS Undergraduate Research Assistant, IU Geophysics Laboratory
2017	IRIS Intern, Los Alamos National Laboratory, Los Alamos, NM

Awards and Honors

2020	NSF Graduate Research Fellowship
2019	Faculty Senior Award, IU Geological Sciences
2019	Cora B. Hennel Memorial Scholarship, IU Mathematics
2019	Margaret Russell Edmondson Award, IU Phi Beta Kappa Chapter
2017	Undergraduate Prize, Mineralogical Society of America

Teaching Experience

2022	Teaching Assistant, GE 165 – Geophysical Data Analysis, Caltech
2022	Instructor, Caltech Earthquake Fellows Program
2021	Teaching Assistant, GE 162 - Seismology, Caltech

Service

2022-present	Manuscript Reviewer, *Seismological Research Letters*
2022-present	Curriculum Developer / Instructor, Caltech Earthquake Fellows Program
2021-2022	Organizer, Caltech Seismological Laboratory Seminar
2016-2019	Editorial Board Member, *IU Journal of Undergraduate Research*

Journal Publications

[7] **Atterholt, J**., Ross, Z.E. (*in review*). Finite Source Properties of Large Strike-Slip Earthquakes. *Earth and Space Science Open Archive,* doi: 10.22541/essoar.167898487.74643181/v1

[6] **Atterholt, J**., Zhan, Z., and Yang, Y. (2022). Fault zone imaging with distributed acoustic sensing: body-to-surface wave scattering. *Journal of Geophysical Research: Solid Earth*, doi: 10.1029/2022JB025052

[5] Yang, Y., Zhan, Z., Shen, Z., and **Atterholt, J.** (2022). Fault zone imaging with distributed acoustic sensing: surface-to-surface wave scattering. *Journal of Geophysical Research: Solid Earth*, doi: 10.1029/2022JB024329.

[4] **Atterholt, J.** and Ross, Z. E. (2022) Bayesian framework for inversion of second-order stress glut moments: application to the 2019 Ridgecrest sequence mainshock. *Journal of Geophysical Research: Solid Earth*, doi: 10.1029/2021JB023780

[3] **Atterholt, J.**, Zhan, Z., Shen, Z., and Li, Z. (2021) A unified wavefield partitioning approach for distributed acoustic sensing. *Geophysical Journal International*, doi: 10.1093/gji/ggab407

[2] Yang Y., **Atterholt, J.**, Shen, Z., Muir, J.B., Williams, W.F., Zhan, Z. (2021) Sub-kilometer correlation between near-surface structure and ground motion measured with distributed acoustic sensing. *Geophysical Research Letters*, doi: 10.1029/2021GL096503

[1] **Atterholt, J.**, Brownlee, S.J., and Pavlis, G.L. (2021). Direct P-wave anisotropy measurements at Homestake Mine: implications for wave propagation in the continental crust. *Geophysical Journal International*, doi: 10.1093/gji/ggaa416

Invited Seminars

[1] **Lawrence Livermore National Laboratory**, GMP Guest Seminar, 2023
Title: Illuminating the Multiscale Structure of the Garlock Fault Zone with Distributed Acoustic Sensing

Select Oral Presentations

[2] **Atterholt, J.**, Zhan, Z., Yang, Y., and Zhu, W. (2022) Imaging the Garlock Fault Zone using distributed acoustic sensing. AGU Fall Meeting, Chicago.

[1] **Atterholt, J.** and Ross, Z.E. (2022). Global evaluation of large strike-slip ruptures using a Bayesian estimation of stress glut second moments. AGU Fall Meeting, Chicago.

Select Poster Presentations

[7] **Atterholt, J.** and Ross, Z.E. (2021) Bayesian framework for inversion of second-order stress glut moments: application to the 2019 Ridgecrest sequence mainshock. AGU Fall Meeting, New Orleans.

[6] **Atterholt, J.**, and Zhan, Z. (2021). Fault zone mapping at intermediate scales using scattered waves recorded by distributed acoustic sensing. AGU Fall Meeting, New Orleans.

[5] Yang, Y., **Atterholt, J.**, Shen, Z., Muir, J.B., Williams, E.F., and Zhan, Z. (2021). Urban seismic hazard mapping with distributed acoustic sensing. AGU Fall Meeting, New Orleans.

[4] **Atterholt, J.**, Zhan, Z., Shen, Z., and Li, Z. (2020). A unified wavefield partitioning approach for distributed acoustic sensing. AGU Fall Meeting, Online.

[3] Williams, E.F., Martins, H.F., Fernandez-Ruiz, M.R., **Atterholt, J.**, Shen, Z., Martin-Lopez, S., Gonzalez-Herraez, M., Callies, J., and Zhan, Z. (2020). Ocean surface gravity wave interferometry with seafloor DAS. AGU Fall Meeting, Online.

[2] **Atterholt, J.** and Pavlis, G.L. (2018). Measurements of P wave anisotropy using active source seismic data in the Homestake Mine. GSA Annual Meeting, Indianapolis.

[1] **Atterholt, J.**, Chen, T., Snelson, and C.M., Mellors, R.J. (2017). Attenuation model using the large-N array from the Source Physics Experiment. AGU Fall Meeting, New Orleans.

Field Experience

2022	Designer and organizer, Seismic survey across Garlock Fault, Caltech
2019	Contributor, Seismic survey across Seattle Fault, USGS
2019	Contributor, Seismic survey in Wabash Valley Fault Zone, USGS
2018	Student, Field mapping in the Tobacco Root Mountains, IU