Haiyang Liam Kehoe

Contact

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Research Appointments

U.S. Geological Survey — **Golden, CO**
Mendenhall Postdoctoral Fellow — 2023–Present
Pathways Intern — 2021–2023

Education

University of Arizona — **Tucson, AZ**
Ph.D. Geosciences — 2023
Advisor: Eric Kiser

University of California, San Diego — **La Jolla, CA**
B.S. Physics — 2017

Publications (in prep.)

9. **Kehoe, H. L.**, E. Bozdağ, O. S. Boyd, M. P. Moschetti, E. A. Wirth, & W. J. Stephenson (in prep.). Evaluation of Puget Lowland basin velocity models in Washington State using high-frequency 3D wavefield simulations.
8. Dingo, H. C.[†], **H. L. Kehoe**, & M. P. Moschetti (in prep.). Microtremor and earthquake horizontal-to-vertical spectral ratios in Puerto Rico and the U.S. Virgin Islands.
7. **Kehoe, H. L.**, O. S. Boyd, J. Atterholt, M. P. Moschetti, E. Bozdağ, & E. A. Caylor (in prep.). Geologic controls on seismic hazard across the continental United States using horizontal-to-vertical spectral ratios.

Publications (in review)

6. Goldberg, D. E., W. L. Yeck, C. Hanagan, J. Atterholt, **H. L. Kehoe**, N. G. Reitman, W. D. Barnhart, D. R. Shelly, A. E. Hatem, D. J. Wald, & P. S. Earle (submitted). Ultralong, Supershear Rupture of the 2025 Myanmar Earthquake Reveals Unaccounted Hazard.

Publications

5. **Kehoe, H. L.** & E. D. Kiser (2024). Moment-dependent rupture properties of deep-focus earthquakes in the Izu-Bonin subduction zone. *Geophysical Journal International*, 237 (2), 663–678. https://doi.org/10.1093/gji/ggae062
4. Kiser, E. D. & **H. L. Kehoe** (2021). The hazard of coseismic gaps: the 2021 Fukushima earthquake. *Geophysical Journal International*, 227 (1), 54–57. https://doi.org/10.1093/gji/ggab208
3. Kiser, E. D., **H. L. Kehoe**, M. Chen, & A. N. Hughes (2021). Lower Mantle Seismicity Following the 2015 M_w 7.9 Bonin Islands Deep-Focus Earthquake. *Geophysical Research Letters*, 48 (13), e2021GL093111. https://doi.org/10.1029/2021GL093111
2. **Kehoe, H. L.** & E. D. Kiser (2020). Evidence of a Supershear Transition Across a Fault Stepover. *Geophysical Research Letters*, 47 (10), e2020GL087400. https://doi.org/10.1029/2020GL087400
1. **Kehoe, H. L.**, E. D. Kiser, & P. G. Okubo (2019). The Rupture Process of the 2018 M_w 6.9 Hawai'i Earthquake as Imaged by a Genetic Algorithm-Based Back-Projection Technique. *Geophysical Research Letters*, 46 (5), 2467–2474. https://doi.org/10.1029/2018GL080397

[†]Student

Other Publications

3. **Kehoe, H. L.**, O. S. Boyd, A. M. Dunham, E. Bozdağ, M. P. Moschetti, E. A. Wirth, & W.J. Stephenson (2025). Improving seismic hazard estimates with ground-motion simulations. Newsletter at the Computational Infrastructure for Geodynamics. https://geodynamics.org/highlight-may2025
2. Stamps, D. S., Z. Eilon, W. Fan, C. Lynner, **H. L. Kehoe**, H. A. Ford, S. Wei, C. Rollins, C. G. Barcheck, N. J. Lindsey, M. R. Siegfried, & S. Naif (2020). An Early Career Investigator Community Vision for the Future NSF Geophysical Facility: Instrumentation Services Needs. White Paper. https://doi.org/10.6084/m9.figshare.12398288.v1
1. Ford, H. A., M. Floyd, D. S. Stamps, M. Mendoza, E. Bozdağ, D. Bowden, J. Byrnes, W. Fan, **H. L. Kehoe**, E. Chaussard, N. J. Lindsey, S. Wei, G. Barcheck, T. S. de Smet, H. Janiszewski, E. Lindsey, J. K. MacCarthy, K. Materna, S. Naif, D. Portner, D. Trugman, & I. Wang (2020). An Early Career Investigator Community Vision for the Future NSF Geophysical Facility: Data Services Needs. White Paper. https://doi.org/10.6084/m9.figshare.12398321.v1

Invited Presentations

7. **Kehoe, H. L.** (2025). Geologic controls on low-frequency seismic site response across the Central and Eastern United States. Invited oral presentation at the *U.S. Geological Survey Central and Eastern U.S. and Coastal Plains Amplification Working Group*, Golden, CO
6. **Kehoe, H. L.** (2025). Earthquake Ground Shaking, Hazards, and Resilience in Subduction Zones and Beyond. Invited oral presentation at the *University of Oregon*, Eugene, OR
5. **Kehoe, H. L.** (2024). Automated Microtremor Horizontal-to-Vertical Spectral Ratio (HVSR) measurements across the continental United States. Invited oral presentation at the *University of California, Los Angeles HVSR Meeting*, Los Angeles, CA.
4. **Kehoe, H. L.** (2024). Source, path, and site effects and their roles on earthquake ground motions. Invited oral presentation at the *Colorado School of Mines Heiland Lecture*, Golden, CO.
3. **Kehoe, H. L.** (2024). Source, path, and site effects and their roles on earthquake ground motions. Invited oral presentation at the *U.S. Geological Survey Earthquake Science Center Seminar*, Moffett Field, CA.
2. **Kehoe, H. L.** (2022). Improved constraints on back-projection source models using algorithmic seismic array design. Invited oral presentation at the *University of Utah SeismoTea Seminar*, Salt Lake City, UT.
1. **Kehoe, H. L.** (2022). Improved constraints on back-projection source models using algorithmic seismic array design. Invited oral presentation at the *Lawrence Livermore National Laboratory*, Livermore, CA.

Presentations

19. **Kehoe, H. L.**, O. S. Boyd, M. P. Moschetti, E. Bozdağ, & E. A. Caylor (2025). Subsurface Geologic Controls on Seismic Site Response Across the Continental United States. Oral presentation at the *Seismological Society of America Annual Meeting*, Baltimore, MD
18. Boyd, O. S., E. Bozdağ, **H. L. Kehoe**, & M. P. Moschetti (2025). Sensitivity of Focal Mechanism and Depth of the 2024 M4.8 Tewksbury Earthquake to Seismic Velocity Model and the Impacts on Earthquake Ground Motions. Poster presentation at the *Seismological Society of America Annual Meeting*, Baltimore, MD

17. Aagaard, B. T., A. Baltay, M. P. Moschetti, E. M. Thompson, N. Luco, O. S. Boyd, A. Grant, R. Graves, E. Hirakawa, S. E. Hough, **H. L. Kehoe**, A. J. Makdisi, G. A. Parker, M. D. Petersen, P. M. Powers, S. Rezaeian, W. J. Stephenson, I. Stone, D. J. Wald, E. A. Wirth, K. B. Withers, & A. Yong (2025). Research, Development and Implementation Priorities for Ground-motion Characterization in USGS Earthquake Hazards Program Hazard, Risk Assessment and Forecast Products. Oral presentation at the *Seismological Society of America Annual Meeting*, Baltimore, MD
16. Boyd, O. S., **H. L. Kehoe**, M. P. Moschetti, R. W. Graves, E. T. Hirakawa, & E. Bozdağ (2025). Improving Estimates of Earthquake Ground Motions With Three-Dimensional Simulations. Oral presentation at the *Geologic Mapping Forum*, Virtual
15. **Kehoe, H. L.**, E. Bozdağ, O. S. Boyd, E. A. Wirth, W. J. Stephenson, & M. P. Moschetti (2024). Selection of a Starting Model for Adjoint Tomography of the Pacific Northwest. Oral presentation at the *American Geophysical Union Annual Meeting*, Washington, DC.
14. Boyd, O. S., E. Bozdağ, **H. L. Kehoe**, & M. P. Moschetti (2024). Earthquake simulations of the 2024 M4.8 Tewksbury, New Jersey earthquake. Presentation at the *Eastern Section-Seismological Society of America Annual Meeting*, Atlanta, GA.
13. Dingo, H. C.†, **H. L. Kehoe**, & M. P. Moschetti (2024). Microtremor and Earthquake Horizontal-to-Vertical Spectral Ratio Measurements in Puerto Rico and the U.S. Virgin Islands. Oral presentation at the *2025 Puerto Rico and U.S. Virign Islands National Seismic Hazard Model Update & Beyond Workshop*, San Juan, PR.
12. **Kehoe, H. L.**, E. Bozdağ, O. S. Boyd, E. A. Wirth, W. J. Stephenson, & M. P. Moschetti (2024). Selection of a Starting Model for Adjoint Tomography of the Pacific Northwest. Poster presentation at the *Seismological Society of America Annual Meeting*, Anchorage, AK.
11. Ahdi, S. K., **H. L. Kehoe**, W. J. Stephenson, O. S. Boyd, M. P. Moschetti, N. S. Lindberg, & T. L. Pratt (2023). Assessing Site Characterization in Puerto Rico: Towards the 2025 Update of the Puerto Rico and Virgin Islands Portion of the USGS National Seismic Hazard Model. Oral presentation at the *Seismological Society of America Annual Meeting*, San Juan, PR.
10. **Kehoe, H. L.** & E. D. Kiser (2021). Source Imaging Constraints on Deep Earthquake Mechanisms. Poster presentation at the *American Geophysical Union Fall Meeting*, New Orleans, LA.
9. Chen, M., Z. Xi, E. D. Kiser, & **H. L. Kehoe** (2021). Slab Morphology at the Source Region of the 2015 Mw 7.9 Bonin Earthquake Imaged by Full Waveform Inversion. Oral presentation at the *Seismological Society of America Annual Meeting*, Virtual.
8. Kiser, E. D., **H. L. Kehoe**, M. Chen, & A. N. Hughes (2020). Conjugate Faulting, Lower Mantle Seismicity, and Slab Settling Associated with the 2015 Bonin Islands Deep-Focus Earthquake. Poster presentation at the *American Geophysical Union Fall Meeting*, Virtual.
7. **Kehoe, H. L.**, E. D. Kiser, & M. Chen (2020). Four-Dimensional Rupture Processes of Deep-Focus Earthquakes Near Japan. Poster presentation at the *American Geophysical Union Fall Meeting*, Virtual.
6. Chen, M., Z. Xi, E. D. Kiser, & **H. L. Kehoe** (2020). Slab morphology at the source region of the 2015 Mw 7.9 Bonin earthquake imaged by full waveform inversion. Poster presentation at the *American Geophysical Union Fall Meeting*, Virtual.
5. **Kehoe, H. L.** & E. D. Kiser (2019). A Genetic Algorithm-Based Back-Projection Method Reveals the Bilateral and Supershear Rupture of the 2017 Mw 7.8 Komandorsky Islands Earthquake. Poster presentation at the *American Geophysical Union Fall Meeting*, San Francisco, CA.

4. **Kehoe, H. L.**, E. D. Kiser, & P. G. Okubo (2018). The Rupture Process of the 2018 Mw 6.9 Hawai'i Earthquake as Revealed by a Genetic Algorithm-Based Source Imaging Technique. Oral presentation at the *American Geophysical Union Fall Meeting*, Washington, DC.
3. **Kehoe, H. L.** & E. D. Kiser (2018). Back-Projection Results of the 4 May 2018 Hawai'i Earthquake using a Genetically Optimized Sub-Array Selection Scheme. Poster presentation at the *IRIS Workshop*, Albuquerque, NM.
2. **Kehoe, H. L.**, S. Chakraborty, T. L. C. Pham, E. Alvarado, & M. H. Thiemens (2016). $\Delta^{17}O$ Trends of Collected Atmospheric CO_2 Resulting from Seasonal Changes in the Biosphere. Poster presentation at the *American Geophysical Union Fall Meeting*, San Francisco, CA.
1. Chakraborty S., **H. L. Kehoe**, & M. H. Thiemens (2016). New Experimental Evidence of Silicate Formation with Meteorite Like Oxygen Isotopes on a Dust Surface Analog. Oral Presentation at the *Lunar Planetary Science Conference XXXXVII*, Houston, TX.

Awarded Grants

1. **U.S. Geological Survey Mendenhall Postdoctoral Fellowship**: Applications of full-waveform inversion for high-resolution seismic velocity models and site response in support of earthquake ground motion investigations ($224,000, 2023–2025, PI: **H. L. Kehoe**)

Teaching Experience

Guest Lecturer (Colorado School of Mines)

GPGN 498: Geohazards	Spring 2025

Graduate Teaching Assistant (University of Arizona)

GEOS 322: Introduction to Geophysics	Spring 2018
GEOS 212: Introduction to Oceanography	Fall 2017

Field Experience

IRIS PASSCAL Training	2020
Lassen Volcanic National Park Nodal Experiment	2019
White Wolf Fault Active Source Nodal Experiment	2019
Grand Teton National Park Nodal Experiment	2018
Raton, New Mexico Nodal Experiment	2018
Joshua Tree National Park Nodal Experiment	2017

Service

Grant Reviewer: *National Science Foundation*
Journal Reviewer: *Science Advances*, *Geophysical Research Letters*, *Geophysical Journal International*, *Seismological Research Letters*
Session Convener: *AGU Fall Meeting* (2020)

(Current as of 12 August 2025)