

Hao Zhang

POSTDOCTORAL SCHOLAR · GEOPHYSICS

1200 E. California Blvd., Pasadena, CA 91125

☎ +1 213-255-6653 | ✉ haozhang@caltech.edu | 🏠 zhseess.github.io

Education

University of Southern California

Los Angeles, CA

PH.D. IN GEOPHYSICS

2021 - 2025

- Advisors: John E. Vidale & Yehuda Ben-Zion

Peking University

Beijing, China

B.S. IN GEOPHYSICS

2016 - 2020

- Research Advisor: Xiaofei Chen

Professional Appointments

2025 - Now **Postdoctoral Research Associate**, Seismological Laboratory, Caltech

2020 - 2021 **Research Assistant**, Institute of Geophysics, China Earthquake Administration

Awards & Honors

SELECTED AWARDS

2025	Cecil H. and Ida M. Green Postdoctoral Fellowship , UCSD Geophysics Option Postdoctoral Fellowship , Caltech	<i>Declined</i> \$75,000/yr
2024	Earth Sciences Graduate Student Research Award , USC	\$3,000
2023	Earth Sciences Graduate Student Research Award , USC	\$3,000
2020	Distinguished Graduate , PKU Distinguished Graduate , Beijing City	
2019	Outstanding Research Award , PKU	
2017	May Fourth Scholarship , PKU Merit Student , PKU	

Scientific Publications

IN PREPARATION

- [14] **Zhang, H.**, Zhan, Z. & Minchew, B., Seismic evidence of sediment accumulation beneath an Antarctic ice stream
- [13] Yao J., Wang W., Shearer P., Vidale J. E., Wang R., **Zhang H.**, Xu X. & Fialko Y., Tidal triggering of earthquakes intensified by abrupt stress changes within the Coso geothermal field

UNDER REVIEW

- [12] **Zhang, H.** & Zhan, Z., Illuminating ruptures of moderate earthquakes with multi-fibre networks, under review in *Sci. Adv.*
- [11] Cui, T., Wang, W., Vidale, J. E., **Zhang, H.**, Luo, H. & Ai, Y., Multidecadal-scale stability of multi-scale core-mantle boundary: insights from core-reflected waves of repeating earthquakes, under review in *Geophys. Res. Lett.*
- [10] **Zhang, H.** & Vidale, J. E., Earthquake Shaking Scales with Rupture Complexity Revealed by Aftershock Pattern, under review in *Proc. Nat. Acad. Sci.*

- [9] Zhang, S., Houston, H., Wang, B. & **Zhang, H.**, Mapping of absolute stresses around two California earthquakes reveals a very weak crust, under review in *Earth Planet. Sci. Lett.*

PUBLISHED

- [8] **Zhang, H.**, Barbot, S., Yang, Z., Zhang, L., Liu, M. & Platt, J., Large megathrust earthquakes in cold mantle wedge corners under lawsonite blueschist facies, accepted by *Nat. Commun.*
- [7] Wu, B., Li, B., **Zhang, H.**, Huang, S., Li, G. & Gabriel, A.-A., Near-fault Strong-motion of the 2023 Mw7.8 Kahramanmaraş Earthquake: Insights into High-frequency Radiation Mechanisms, *J. Geophys. Res.*, **130**, e2025JB031757, doi: 10.1029/2025JB031757
- [6] Barbot, S., Güvercin, S. E., Zhang, L., **Zhang, H.** & Yang, Z., Thermobaric activation of fault friction, *Geophys. Res. Lett.*, **52**, e2024GL112959, doi: 10.1029/2024GL112959
- [5] **Zhang, H.**, Vidale, J. E. & Wang, W., 2025. Aftershocks on the planar rupture surface of the deep-focus Mw 7.9 Bonin Islands earthquake, *The Seismic Record*, **5**(1): 35–43, doi: 10.1785/0320240035
- [4] **Zhang, H.**, Vidale, J. E. & Wang, W., 2024. Scattering evidence for an ancient subducted slab using the unique raypath P*PKP, *Geophys. Res. Lett.*, **51**, e2024GL110130, doi: 10.1029/2024GL110130
- [3] **Zhang, H.** & Ben-Zion, Y., 2024. Enhancing regional seismic velocity model with higher-resolution local results using sparse dictionary learning, *J. Geophys. Res.*, **129**, e2023JB027016, doi: 10.1029/2023JB027016
- [2] **Zhang, H.**, Meng, H. & Ben-Zion, Y., 2023. Lateral variations across the Southern San Andreas Fault Zone revealed from analysis of traffic signals at a dense seismic array, *Geophys. Res. Lett.*, **50**, e2023GL103759, doi: 10.1029/2023GL103759
- [1] Wang, L., Zhou, Y., Zhou, S. & **Zhang, H.**, 2023. Detection of fault zone head waves and the fault interface imaging in the Xi-anhuihe-Anninghe Fault Zone (Eastern Tibetan Plateau). *Geophys. J. Int.*, **234**(2), 1000-1100, doi: 10.1093/gji/ggad131

NON-PEER REVIEWED

- (ii) **Zhang, H.**, 2025. Dynamics and Structure of Subduction Zones Unveiled through Novel Seismic Techniques, Ph.D. Thesis, *University of Southern California*
- (i) **Zhang, H.**, 2020. Frequency-Bessel Transform Method to Extract Higher-Mode Rayleigh Dispersion Curves, B.S. Thesis, *Peking University*

Talks & Conference Contributions

INVITED TALKS

- 02/2026 **Lithospheric Dynamics Seminar**, USC
- 01/2026 **Geophysics and Tectonics Seminar**, UCLA
- 05/2025 **Seismo Lab Brown Bag Seminar**, Caltech
- 07/2023 **euSCI Geophysics Seminar**, PKU

CONFERENCE TALKS

- Zhang, H.**, 12/2024. A broken mirror in the mantle: seismic scattering evidence for an ancient subducted slab and its long-term stagnation. AGU Fall meeting, Washington, D.C.
- Zhang, H.**, 12/2019. A New Method to Detect and Pick the Fault Zone Head Wave Arrivals and its Application in Xiaojiang Fault Zone of West-Southern China. AGU Fall meeting, San Francisco, CA

Teaching Experience

- 2022 **Crises of a Planet**, Teaching Assistant
- 2019 **The Earth Gravity Field**, Teaching Assistant

USC
PKU

Outreach & Service

PROFESSIONAL SERVICE

2024-Now **Reviewer of *Nat. Commun.*, *JGR: Solid Earth*, *GRL*, and others**
2024-2025 **Lithospheric Dynamics Seminar Organizing Committee, member**
2025-2026 **AGU Seismology Section Early Career SubCommittee, member**

USC
AGU

MEDIA COVERAGE

01/2025 **Aftershock analysis challenges world's deepest earthquake claim, SSA**