ZHE JIA

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PROFESSIONAL PREPARATION

Scripps Institution of Oceanography, UCSD	Green Postdoc Fellow	2022-present
California Institute of Technology	Ph.D. (Geophysics)	2019-2022
	M.S. (Geophysics)	2016-2019
University of Science and Technology of China	M.S. (Geophysics)	2013-2016
	B.S. (Geophysics)	2009-2013

AWARDS

- China Outstanding Self-Financed Student Award · · · · · · 2023
- UCSD Cecil H. and Ida M. Green Postdoc Fellowship · · · · · · 2022
- Seismological Society of America Student Presentation Award · · · · · · 2022
- Caltech GPS Graduate Fellowship · · · · · · 2016
- China National Scholarship for Graduate Students · · · · · · 2015
- USTC Outstanding Undergraduate Student Award · · · · · · 2013
- USTC Outstanding Undergraduate Student Scholarship · · · · · · 2011
- USTC Outstanding Freshman Scholarship · · · · · · 2009

PUBLICATIONS

Peer reviewed

17. **Jia, Z.**, Jin, Z., Marchandon, M., Ulrich, T., Gabriel, A., Fan, W., Shearer, P.M., Zou, X., Rekoske, J., Bulut, F., Garagon, A., Fialko, Y. (2023) The complex dynamics of the 2023 Kahramanmaraş, Turkey, Mw 7.8-7.7 earthquake doublet. *Science*. doi.org/10.1126/science.adi0685 PDF

16. **Jia, Z.**, Zhan, Z., Kanamori, H. (2022) The 2021 South Sandwich Island M_w 8.2 earthquake: a slow event sandwiched between regular ruptures. *Geophysical Research Letters*. doi.org/10.1029/2021GL097104 PDF

15. **Jia, Z.**, Zhan, Z., Helmberger, D. (2022), Bayesian differential moment tensor inversion: theory and application to the North Korea nuclear tests. *Geophysical Journal International*. doi.org/10.1093/gji/ggac053 PDF

14. **Jia, Z.**, Clayton, R. (2021), Determination of near surface shear-wave velocities in the central Los Angeles Basin with dense arrays. *Journal of Geophysical Research: Solid Earth*. doi.org/10.1029/2020JB021369 PDF

13. Liu, H., Gurnis, M., Leng, W., **Jia, Z.**, Zhan Z. (2021), Tonga slab morphology and stress variations controlled by a relic slab: Implications for deep earthquakes in the Tonga-Fiji region, *Geophysical Research Letters*. doi.org/10.1029/2020GL091331 PDF

12. **Jia, Z.**, Wang, X., Zhan, Z. (2020), Multifault models of the 2019 Ridgecrest sequence highlight complementary slip and fault junction instability. *Geophysical Research Letters*. doi.org/10.1029/2020GL089802 PDF

11. **Jia, Z.**, Shen, Z., Zhan, Z., Li, C., Peng, Z., Gurnis, M., (2020), The 2018 Fiji Mw 8.2 and 7.9 deep earthquakes: One doublet in two slabs. *Earth and Planetary Science Letters*. doi.org/10.1016/j.epsl.2019.115997 PDF

10. Zhang, X., **Jia, Z.**[*], Ross, Z., Clayton, R. (2020), Extracting dispersion curves from ambient noise correlations using deep learning. *IEEE Transactions on Geoscience and Remote Sensing*. doi.org/10.1109/TGRS.2020.2992043 PDF

9. Bai, Q., Ni, S., Chu, R., **Jia, Z.**[*] (2020), gCAPjoint, A software package for full moment tensor inversion of moderately strong earthquakes with local and teleseismic waveforms, *Seismological Research Letters*. doi.org/10.1785/0220200031 PDF

8. Ross, Z.E., Idini, B., **Jia, Z.**, Stephenson, O.L., Zhong, M., Wang, X., Zhan, Z., Simons, M., Fielding, E.J., Yun, S.H. and Hauksson, E. (2019), Hierarchical interlocked orthogonal faulting in the 2019 Ridgecrest earthquake sequence. *Science*. doi.org/10.1126/science.aaz0109 PDF

7. Zha, X., **Jia, Z.**, Dai, Z., Lu, Z. (2019), The cause of the 2011 Hawthorne (Nevada) earthquake swarm constrained by seismic and InSAR methods. *Journal of Geodesy*. doi.org/10.1007/s00190-018-1212-5 PDF

6. **Jia, Z.**, Ni, S., Chu, R., Zhan, Z. (2017), Joint inversion for earthquake depths using local waveforms and amplitude spectra of Rayleigh waves. *Pure and Applied Geophysics*. doi.org/10.1007/s00024-016-1373-1 PDF

5. Chen, W., Ni, S., Kanamori, H., Wei, S., **Jia, Z.**, Zhu, L. (2015), CAPjoint, a computer software package for joint inversion of moderate earthquake source parameters with local and teleseismic waveforms. *Seismological Research Letters*. doi.org/10.1785/0220140167 PDF

4. **Jia, Z.**, Chen, W., Chu, R. (2013), Preliminary study on aftershock decay rate of the 2013 Ms7.0 Lushan earthquake, *Earthquake Science*. doi.org/10.1007/s11589-013-0050-z PDF

Non-peer reviewed

3. **Jia, Z.**, (2022), Resolving earthquake source complexities in the heterogeneous Earth, Ph.D. Thesis, *California Institute of Technology*. doi.org/10.7907/na72-6395 PDF

2. Zhan Z., **Jia, Z.**, Helmberger, D., (2020), Bayesian differential moment tensor inversion of clustered nuclear tests, *AFRL Technical Report*. PDF

1. **Jia, Z.**, (2016), Joint inversion methods for source parameter determination under point source approximation, M.S. Thesis, *University of Science and Technology of China*. Link

[*] student mentor

GRANTS

UC San Diego IGPP Green Scholar Award, $138k, PI: Zhe Jia   2022-24

- Understanding earthquakes in diverse earth environments.

USGS Award G19AP00030, $93k, PI: Zhongwen Zhan   2019-20

- Rapid Characterization of First-Order complexity of Large Earthquakes.
    ZJ contributed the scientific justification of the proposal and executed the work.

AFRL Award FA9453-18-C-0058, >$200k, PI: Zhongwen Zhan, Don V Helmberger   2018-20

- Bayesian differential moment tensor inversion of clustered nuclear tests.
    ZJ contributed the scientific justification of the proposal and executed the work.

INVITED TALKS

- Seismological Laboratory Seminar Series, 10/2023
- Hydro90 Community Seminar Series, 09/2023
- Dept of Earth and Space Sciences Seminar Series, Southern University of Science and Technology, 09/2023
- Lithospheric Dynamics Seminar Series, University of Southern California, 08/2023
- Symposium on Applied Technologies for Earthquake and Tsunami Monitoring, National Tsunami Warning Center, China, 12/2022
- IGPP Seminar Series, Scripps Institution of Oceanography, 09/2022
- Scripps Institution of Oceanography STOP seminar, 08/2022
- Key Laboratory of Ocean and Marginal Sea Geology seminar, Chinese Academy of Sciences, 07/2022
- Seismological Society of America annual meeting, Bellevue, 04/2022
- Los Alamos National Lab geophysics seminar, 04/2022
- Air Force Research Laboratory Technical Interchange Meeting, 01/2021
- Caltech Special Seismo Lab Seminar on the 2019 Ridgecrest earthquake sequence, 07/2019
- Dept. of Earth and Space Sciences seminar, Southern University of Science and Technology, 03/2019
- Institute of Geodesy and Geophysics seminar, Chinese Academy of Sciences, 03/2019
- School of Earth and Space Sciences seminar, Peking University, 02/2019
- Air Force Research Laboratory Technical Interchange Meeting, 01/2019

CONFERENCE PRESENTATIONS

- Rupture directivities of 70 M 3.5-5.5 Ridgecrest earthquakes obtained from energy envelope deconvolution, SCEC annual meeting, 2023

- Rapid seismic source characterizations: from large to small magnitudes, GAGE-SAGE meeting 2023

- Source complexities from inversion of both high- and low-frequency waveforms, AGU Fall Meeting (oral), 2022

- Multiple subevent inversion: towards bridging point sources and finite slip models for geometrically complex earthquakes, AGU Fall Meeting (oral), 2022

- The 2021 South Sandwich Island Mw 8.2 earthquake: a slow event sandwiched between regular ruptures, SSA Annual Meeting (oral), 2022

- Spatial heterogeneities of Peru intermediate depth earthquake properties and the relationship with regional temperature, AGU Fall Meeting (oral), 2021

- Rupture processes and interactions of the 2020-2021 offshore Alaska Peninsula earthquakes, AGU Fall Meeting, 2021

- Evaluating a unified 3D velocity model for the Los Angeles Basin using ambient noise dispersions and earthquakes, SCEC annual meeting, 2021

- Determination of the near surface shear wave velocities in the central Los Angeles Basin using dense arrays, SSA annual meeting, 2021

- Multi-fault models of the 2019 Ridgecrest sequence highlight complementary slip and fault junction instability. AGU Fall Meeting, 2020

- Geometrically complex rupture processes of the 2019 M6. 4 and M7. 1 Ridgecrest sequence. AGU Fall Meeting (oral), 2019

- Shallow velocity structure of Los Angeles Basin from ambient noise tomography with dense seismic arrays. SCEC annual meeting, 2019

- The 2018 Fiji Mw 8.2 and 7.9 deep earthquake: one doublet in two slabs. SSA annual meeting, 2019

- Multiple subevent inversion of teleseismic body waves: synthetic tests and application to the 2016 Italy earthquake sequence, SSA annual meeting, 2018

- Characterize kinematic rupture history of large earthquakes with Multiple Haskell sources. AGU Fall Meeting (oral), 2017

- Full moment tensor inversion of two Hindu Kush intermediate-depth earthquakes using teleseismic and region waveforms. AGU Fall Meeting, 2016

- Error estimation of focal depth determination under steep topography and strong lateral heterogeneity. Chinese Geosciences Union Fall Meeting (oral), 2015

- Improving constraints on centroid depth from joint Inversion of teleseismic body-wave and spectral amplitude of Rayleigh waves. AGU Fall Meeting (oral), 2014

SELECTED MEDIA COVERAGE

- Do earthquake warning apps really work?, National Geographic, 09/2023

- The Unexpected Physics Behind Turkey's Devastating 2023 Earthquakes, UCSD Today, 08/2023

- Study shows California can learn from Turkey's devastating earthquake, KBPS News, 08/2023

- Explaining the Slow Surprise in the Middle of the Sandwich, SSA News, 04/2022

- Source of mysterious global tsunami found near Antarctica, National Geographic, 02/2022

- Unravelling the mystery of the 2021 global tsunami, Daily Mail, 02/2022

- A tsunami caught experts by surprise. Now, they're starting to understand why, NBC News, 02/2022

- Caltech Researchers Uncover Source of Mysterious Tsunami, NBC Los Angeles, 02/2022

- Hidden magnitude-8.2 earthquake source of mysterious 2021 global tsunami, AGU press, 02/2022

- Biggest California earthquake in decades ruptured on at least 24 faults, LA Times, 11/2019

- Caltech, NASA Find Web of Ruptures in Ridgecrest Quake, NASA JPL News, 10/2019

- Lessons from Ridgecrest earthquake sequence, Caltech News, 10/2019

- Unprecedented movement detected on California earthquake fault capable of 8.0 temblor, LA Times, 10/2019

TEACHING AND MENTORING EXPERIENCE

Lecturer	SeismoChat (UCSD SIOG-239)	2022-23
Guest Lecturer	Introduction to Geophysics (Caltech Ge-102)	2017-18
Teaching Assistant	Plate Tectonics (Caltech Ge-161)	2020-21
	Seismology (Caltech Ge-162)	2019-20
	Earth and Environment (Caltech Ge-1)	2018-19
	Introduction to Geophysics (Caltech Ge-102)	2017-18
	Mechanics (USTC General)	2014-15
Research Mentoring	UCSD intern undergraduate student Lexi Yokomizo	2023
	Caltech PostDoc Qiushi Zhai	2022
	Caltech visiting graduate student Joses B Omojola	2022
	Caltech undergrade student Jim Zhang	2019-20
	USTC graduate student Kai Yang, Qipeng Bai	2015-16

EXPERIMENTAL AND FIELD EXPERIENCE

- Multiple deployments and retrievals of nodal seismometers for the San Bernardino Basin experiment, 2018-19

- Operation of Caltech Millikan Library shaker for active source experiment with the Pasadena Distributed Acoustic Sensing Array, 2018

- Multiple deployments and retrievals of nodal seismometers for the San Gabriel Basin experiment, 2017-19

- Seismometer deployment for recording noise in Zhoushan Island, Zhejiang, China, 2014

PROFESSIONAL SERVICE AND OUTREACH

Reviewer	National Science Foundation (NSF) proposals	2023-
	Nature Communications	2023-
	Scientific Reports	2023-
	Journal of Geophysical Research: Earth Surface	2022-
	Geophysical Journal International	2022-
	IEEE Transactions on Geoscience and Remote Sensing	2022-
	Bulletin of the Seismological Society of America	2022-
	Computers & Geosciences	2022-
	Chinese Journal of Geophysics	2022-
	Seismological Research Letters	2021-
	Journal of Geophysical Research: Solid Earth	2021-
	Geophysical Research Letters	2019-
Session Convener	American Geophysical Union Fall Meeting: Seismology S012	2023
	American Geophysical Union Fall Meeting: Seismology S001	2022
	UC San Diego Summer Research Conference	2022
Organizer	Scripps Institution of Oceanography IGPP Seminar Series	2022-23
	IGPP seismology and earthquake geodesy weekly chat	2022-23
	Caltech Seismological Laboratory Seminar Series	2018-19
	Caltech Geology and Planetary Sciences Social Events	2017-18

MEMBERSHIPS

- American Geophysical Union (AGU), 2014-
- Southern California Earthquake Center (SCEC), 2017-
- Seismological Society of America (SSA), 2018-