Shujuan Mao

smao@jsg.utexas.edu • www.shujuanmao.com
Google scholar profile

Research Interests: 4D Seismology, Environmental Geophysics, Groundwater Hydrology, Geothermal Energy, Volcano Monitoring, Induced Seismicity, Seismic Interferometry

Education

- **Ph.D. in Geophysics** 2015–2021
  Massachusetts Institute of Technology, Cambridge, MA
  - Thesis: *Monitoring and Imaging Seismic Velocity Changes Across Temporal and Spatial Scales*
- **B.S. in Geophysics** 2011–2015
  Peking University, Beijing, China
  - Thesis: *Detection and Relocation of Micro-Seismicity Around Zipingpu Reservoir in Sichuan, China*

Academic Appointments

- **Assistant Professor** 2024–present
  The University of Texas at Austin, Dept. of Earth and Planetary Sciences
- **CNRS Postdoctoral Researcher** 2024
  Institut des Sciences de la Terre, Grenoble, France
  - Advisor: Prof. Michel Campillo
- **George A. Thompson Postdoctoral Fellow** 2022–2024
  Stanford Univeristy, Doerr School of Sustainability, Dept. of Geophysics
  - Co-advisors: Prof. Gregory C. Beroza and Prof. William L. Ellsworth
- **Research Assistant/Specialist** 2016–2021
  Massachusetts Institute of Technology, Dept. of Earth, Atmos. & Planet. Sci.
  - Co-advisors: Prof. Robert D. van der Hilst and Prof. Michel Campillo
- **Visiting Scholar** 2016–2021
  Institut des Sciences de la Terre, Grenoble, France
- **Research Intern** 2014
  University of Toronto, Dept. of Physics
  - Advisor: Prof. Qinya Liu

Honors & Awards

- 2026 Keiiti Aki Early Career Award (American Geophysical Union)
- 2025 Edwin Allday Centennial Chair Research Award (Jackson School of Geosciences, UT)
- 2024 Early Career Travel Award (Seismological Society of America)
- 2022 George A. Thompson Postdoctoral Fellowship (Stanford University)
- 2021 Top 5 Most Cited Papers in 2020 (Mao et al., 2020, *Geophysical Journal International*)
- 2020 Top Downloaded Paper 2018–2019 (Mao et al., 2019, *Geophysical Research Letters*)
- 2015 M. Nafi Toksöz Fellowship (Massachusetts Institute of Technology)

- 2015 Outstanding Graduate of Peking University
- 2014 Guang-Hua Scholarship (Peking University)
- 2014 Globalink Research Fellowship (Mitacs Foundation, Canada)
- 2013 Liu Guang-Ding Geophysics Scholarship (Peking University)
- 2012 Merit Student of Peking University
- 2010 First Prize, *National High School Mathematics League, China*
- 2010 Silver Medal, *China Girls Mathematical Olympiad* (with female participants from China, Russia, Singapore, U.K., U.S., etc.)

Publications

- Lima, E., Weiss, B., **Mao, S.**, Schmitt, H., Fu, R., McDonald, C., Hodges, K. No Impact-Generated Magnetic Fields Recorded by A Young Apollo 17 Impact Glass. Under review at *Science Advances*.
- Li, L., Zeng, X., McBrearty, I., Cui, X., Tan, X., **Mao, S.**, Beroza, G. C., Tan, J., Liu, J., Segall, P., & Ellsworth, W. L. (2026). Permeability Heterogeneity Controls Fluid Migration and Microseismicity Evolution in The Geysers Geothermal Field, California. *Nature Communications* **pdf**
- Luo, W., Fang, H., **Mao, S.**, Shi, Z., & Fang, Z. (2026). Environmental Controls on the Near-Surface Seismic Velocity Changes in the South China Coastal Area. *The Seismic Record*, 6(1), 34-43. **pdf**
- Li, H., Liu, J., **Mao, S.**, Yuan, S., Clapp, R. G., & Biondi, B. L. (2025). Daily Groundwater Monitoring Using Vehicle-DAS Elastic Full-Waveform Inversion. *Geophysical Research Letters*, 52 (20), e2025GL117610. **pdf**
- **Mao, S.**, Ellsworth, W. L., Zheng, Y., & Beroza, G. C. (2025). Depth-Dependent Seismic Sensing of Groundwater Recovery from the Atmospheric-River Storms of 2023. *Science*, 387, 758-763. **pdf** Covered by *[Perspective, Science] [Stanford Report] [Los Angeles Times] [New Scientist] [Science News] [SSA Highlight] [The Hill] [CalMatters] [The Daily Texan] [ScienMag] [EarthScope News] [AGU Eos Spotlight] [Physics Today]*
- **Mao, S.**, Ellsworth, W. L., & Beroza, G. C. (2023). Adaptive Coda-Wave Imaging with Voronoi Tessellation. *Journal of Geophysical Research: Solid Earth*, e2023JB026592. **pdf**
- **Mao, S.**, Lecointre, A., van der Hilst, R. D., & Campillo, M. (2022). Space-Time Monitoring of Groundwater Fluctuations with Passive Seismic Interferometry. *Nature Communications*, 13, 4643. **pdf** Covered by *[MIT News] [AGU Eos Spotlight] [EGU Blogs] [SCEC Newsletter]*
- **Mao, S.** (2021). Monitoring and Imaging Seismic Velocity Changes Across Temporal and Spatial Scales. *Doctoral Dissertation, Massachusetts Institute of Technology.* **pdf**
- **Mao, S.**, Mordret, A., Campillo, M., Fang, H., & van der Hilst, R. D. (2020). On The Measurement of Seismic Traveltime Changes in the Time-Frequency Domain with Wavelet Cross-Spectrum Analysis. *Geophysical Journal International*, 221(1), 550-568. **pdf** *[Top 5 Most Cited Papers, GJI, 2020)] [Featured in MATLAB's Official Documentation]*
- Mordret, A., Courbis, R., Brenguier, F., Chmiel, M., Garambois, S., **Mao, S.**, Boué P., Campmen, X., Lecocq, T., van der Veen, W., & Hollis, D. (2020). Noise-based Ballistic Wave Passive Seismic Monitoring–Part 2: Surface Waves. *Geophysical Journal International*,

221(1), 692-705. ***pdf***

- **Mao, S.**, Campillo, M., van der Hilst, R. D., Brenguier, F., Stehly, L., & Hillers, G. (2019). High Temporal Resolution Monitoring of Small Variations in Crustal Strain by Dense Seismic Arrays. *Geophysical Research Letters*, 46(1), 128-137. ***pdf*** *[Top Downloaded Paper, GRL, 2018-2019]*
- Brenguier, F., Mordret, A., Lynch, R., Courbis, R., Campbell, X., Boué P., Chmiel, M., Garambois, S., **Mao, S.**, Takano T., & Lecocq T.(2019). Monitoring of fields using body and surface waves reconstructed from passive seismic ambient noise. *SEG International Exposition and Annual Meeting*, p. D043S104R007, SEG. ***pdf***
- Wu, M., **Mao, S.**, Ning, J., Tang, Q., & Jiang, Y. (2018). Fault Structure Detection by Matched Filter Technique. *Peking University Academic Journal*, 54(4), 730-738. (In Chinese) ***pdf***

Invited Talks

† denotes virtual presentation

- 05/2027 Summer School: *Passive Imaging & Monitoring in Wave Physics* (Cargèse, France)
- 03/2027 Environmental Seismology Workshop: *from Rock Physics and Fracture Mechanics to Hydrology and Cryoseismology* (Autrans, France)
- 11/2026 SEG Hydrogeophysics Webinar†
- 07/2026 Asia-Pacific Summer School on *Passive Imaging & Monitoring* (Dali, China)†
- 05/2026 Scripps Institute of Oceanography, Geophysics and Planetary Seminar
- 04/2026 Permian Basin Water in Energy Conference (Midland, TX)
- 04/2026 Saint Louis University, Dept of Earth, Environmental and Geospatial Science
- 03/2026 Colorado School of Mines, Dept of Geophysics Heiland Lecture
- 02/2026 Columbia University, Lamont-Doherty Earth Observatory Colloquium
- 02/2026 EarthScope-CUAHSI Webinar on *Integrating Hydrology and Geophysics* (944 registrants)†
- 01/2026 UT Carbon Capture and Storage Showcase
- 12/2025 UC Berkeley, Berkeley Seismology Laboratory Seminar
- 12/2025 University of Washington, Marine Geology and Geophysics Seminar†
- 11/2025 UT Dallas, Dept of Sustainable Earth Systems Sciences Seminar†
- 10/2025 Stony Brook University, Dept of Geosciences Colloquium
- 10/2025 UT Institute for Geophysics Seminar
- 08/2025 IMAGE '25, *Special Session: Infrastructure and Urban Geophysics* (Houston, TX)
- 08/2025 IMAGE '25, *Special Session: Monitoring of the Near-Surface Earth* (Houston, TX)
- 06/2025 Edwards Aquifer Authority (San Antonio, TX)†
- 05/2025 Texas Water Research Network-Wide Meeting
- 04/2025 Gulf Coast Carbon Center Seminar
- 04/2025 Chinese Academy of Sciences, Institute of Geology and Geophysics†
- 03/2025 University of Science and Technology of China, School of Earth and Space Sci.†

- 02/2025 California Institute of Technology, Seismology Laboratory Seminar
- 10/2024 University of Utah, Dept of Geology and Geophysics
- 10/2024 Eastern Section-Seismological Society of America Annual Meeting (Atlanta, GA)
- 09/2024 Bureau of Economic Geology Seminar
- 09/2024 Orange County Water District, Hydrogeology Department (Fountain Valley, CA)
- 07/2024 Sorbonne Université, Hydrogeophysics Research Exchange (Paris, France)†
- 06/2024 Summer School: *Passive Imaging & Monitoring in Wave Physics* (Cargèse, France)
- 04/2024 Colorado State University, Hydrology Research Seminar†
- 02/2024 UC Los Angeles, Dept of Earth, Planetary and Space Sciences
- 10/2023 Tongji University, State Key Lab of Marine Geology (Shanghai, China)†
- 10/2023 University of Wisconsin-Madison, Dept of Geosciences
- 10/2023 Rice University, Dept of Earth, Environmental and Planetary Sciences
- 08/2023 IMAGE '23, *Special Session: SEG-AGU Hydrogeophysics* (Houston, TX)
- 07/2023 Summer School on *Algorithms and Programs in Seismology* (USTC and Seismological Society of China)
- 07/2023 Zhejiang University, School of Earth Sciences (Hangzhou, China)
- 04/2023 EGU General Assembly, Session *Advances in monitoring and studying the presence and migration of fluids within the crust using multi-disciplinary approaches* (Vienna, Austria)
- 03/2023 UT Austin, Dept of Geological Sciences
- 03/2023 EarthScope Monthly Webinar†
- 03/2023 University of Toronto, Dept of Earth Sciences
- 03/2023 University of Connecticut, Dept of Earth Sciences
- 02/2023 Munich Earth Winter School: *Environmental Seismology* (Bayrischzell, Germany)†
- 01/2023 UC Santa Cruz, Dept of Earth and Planetary Sciences
- 12/2022 EAGE Workshop on *Geophysical Aspects of Smart Cities* (Hong Kong, China)
- 11/2022 UC Riverside, Dept of Earth and Planetary Sciences
- 10/2022 Georgia Institute of Technology, Geophysics Seminar†
- 10/2022 UC Berkeley, Berkeley Seismology Laboratory Seminar
- 10/2022 Stanford Center for Induced and Triggered Seismicity (SCITS) Affiliates Meeting
- 08/2022 Geophysics Summer School (Peking University & Geophysical Society of Beijing)†
- 06/2022 Plenary talk, NSF SAGE/GAGE Community Science Workshop (Pittsburgh, U.S.)
- 04/2022 Summer School: *Passive Imaging & Monitoring in Wave Physics* (Cargèse, France)
- 12/2021 AGU Fall Meeting, Session: *Advancing the Use of Geophysical & Geodetic Methods for Groundwater Science and Management* (New Orleans, LA)†
- 11/2021 University of Toronto, Geophysics Seminar Series†
- 09/2021 IMAGE '21 Post-Convention Workshop on *Geophysical Methods and Applications for Sustainable Cities* (Denver, CO)†
- 04/2021 California Institute of Technology, Seismology Laboratory Special Seminar†
- 04/2021 Stanford University, Geophysics Departmental Colloquium†
- 04/2021 National University of Singapore, Sustainability Geophysics Project†

- 04/2019 Passive Seismic Functional-Image Workshop (Grenoble, France)
- 06/2017 MIT Earth Resources Laboratory Affiliates Meeting (Cambridge, MA)

Mentoring & Teaching

- **Teaching at UT Austin**
  - Instructor for *GEO354/384D Physics of Earth* (SP 2025, SP 2026)
  - Instructor for *GEO392P Python for Geoscience Research* (FA 2026)
  - Co-Instructor for *GEO391 Environmental and Earthquake Seismology* (FA 2025)
  - Organizer of *GEO114G Geophysics Colloquium* (SP 2026)
- **Qualifying/Thesis Examining Committee at UT Austin** for:
  Akashika Rohatgi (2024), Rui Gong (2024), Megan Kerr (2024), Isabelle Lambert (2025), Timothy Xiong (2025), Hongrui Peng (2025), Odai Hezam (2027)
- **Summer/Winter School Lecturer**
  - Cargèse Summer School on *Passive Imaging & Monitoring in Wave Physics: From Seismology to Ultrasound* (2022, 2024, 2027)
  - Autrans Environmental Seismology Workshop (2027)
  - Asian-Pacific Summer School on *Passive Imaging & Monitoring* (2026)
  - Chinese Summer School on *Algorithms and Programs in Seismology* (2023)
  - Munich Earth *Skience* Winter School on *Environmental Seismology* (2023)
- **Mentor** in Clean Water Science Network (CWSN) Mentorship Program, 2022–23
- **Guest lecturer** for *GP130 Introduction to Seismology* at Stanford University, FA 2022
- **Mentor** in ESAC (Student Advisory Committee in the Dept of EAPS, MIT) Peer Mentoring Program in 2017–18 and 2020–21

Academic Services

- **Advisory/Technical Committee**
  - AGU-SEG Collaboration Committee (2025–present)
  - EarthScope PI Instrumentation Advisory Committee (2025–28)
  - AGU Hydrogeophysics Technical Committee (2024–present)
  - SEG Passive Seismic Committee (2024–present)
- **Planning Committee**
  - 2026 SEG-AGU *Hydrogeophysics Workshop* (Boise, ID)
  - 2025 Seismological Society of America *Environmental Seismology Workshop* (Denver, CO)
- **Editorial**
  - Co-organizer of the AGU Special Collection on *Advancing Hydrogeophysics: New Observations, Data–Model Integration, and Laboratory Insights* (2026–27)
- **Internal Service**
  - EPS High-Performance Computing Cluster Steering Committee (2025–present)
  - EPS Search Committee: Computational Geoscientist (2025)
  - EPS Search Committee: Solid-Earth Geophysics Assistant Professor (2024–25)
- **Conference Convener/Chair**

- AGU Fall Meetings (2022, 2023, 2024, 2025, 2026)
- SSA Annual Meetings (2024, 2025, 2027)
- NSF National Geophsyical Facility Community Science Workshop (2024, 2026)
- SEG-AGU and SSA Topical Workshops (2025, 2026)
- IMAGE Special Session (2025)

- **Proposal Reviewer** for NSF (2025, 2026)
- **Journal Reviewer** for *Science*, *Earth and Planetary Science Letters*, *Geophysical Journal International*, *Geophysical Research Letters*, *IEEE Transactions on Geoscience and Remote Sensing*, *Journal of Geophysical Research: Solid Earth*, *Seismological Research Letters*, *The Seismic Record*, and *Water Resources Research*