Curriculum Vitae

Sin-Mei Wu

9/26/2025

Assistant Professor
Department of Earth Sciences
University of Hawai'i at Mānoa
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Website: https://sites.google.com/view/sinmeiwu/home
Google Scholar: https://scholar.google.com.tw/citations?user=t4xmUVoAAAAJ&hl=en

RESEARCH INTERESTS

Seismic imaging and monitoring of geothermal, hydrothermal, and volcanic systems; seismic interferometry; environmental seismology; crustal dynamics; Earth's interior.

POSITIONS

Assistant Professor at Department of Earth Sciences, University of Hawai'i at Mānoa, USA — 2024.Aug–
Postdoctoral Scholar at Lawrence Berkeley National Laboratory, USA — 2023.Jul–2024.Jul
Postdoctoral Scholar at Swiss Seismological Service, ETH Zürich, Switzerland — 2021.Jun–2023.May
Postdoctoral Scholar at Seismograph Stations and Department of Geology and Geophysics, University of Utah, USA — 2020.Dec–2021.May
Graduate Research Assistant at Department of Geology and Geophysics, University of Utah, USA — 2015.Aug–2020.Dec

EDUCATION

Ph.D. in Geophysics, University of Utah, United States — 2015.Aug–2020.Dec
M.S. in Geosciences, National Taiwan University, Taiwan — 2012.Sep–2014.Jun
B.S. in Earth Sciences, National Central University, Taiwan — 2008.Sep–2012.Jun

FUNDING

PI/co-PI

DOE LBNL Subcontract — 2024–2026
Joint Passive Seismic Imaging for Cape Modern EGS System
PI = **S.-M. Wu** (UHM)
Total to Wu: $58,412

Unfunded Collaborator

NSF GEO/EAR — 2025–2027
REU Site: Earth Science on Volcanic Islands
PI: B. Smith-Konter (UHM), Co-PI: S. Coats, Senior Personnel: H. Dulaiova, X. Geng, A. Haroon, B. Houghton, H. Janiszewski, P. Jiang, A. Kamanu, H. Kane, A. Nugent, B. Popp, J. Potemra, C. Shuler, C. Wall, **S.-M. Wu**.
Total: $675,795

PEER-REVIEWED PUBLICATIONS

†*advised graduate student*

xx. Chen, L.-W., Chen, K.-X., **Wu, S.-M.**, Chen, Y.-N., Gung, Y., & Nakata, N. Integration of Seismic Velocity and Azimuthal Anisotropy from Ambient Noise Tomography for Enhanced Groundwater Aquifer Characterization, *submitted*.

xx. Junker, J.†, Maurer, H., Zappone, A., **Wu, S.-M.**, & Obermann, A. Feasibility of Crosshole Seismic Tomography for Monitoring in-situ CO2 Mineral Storage in Basalts: A Rock Physics- and Seismic-Modelling Study, *under review at Geochemistry, Geophysics, Geosystems*.

xx. Li, J., **Wu, S.-M.**, Sánchez-Pastor, P., Ermert, L. & Obermann, A. Distant storms can affect seismic noise crustal monitoring, *under review at Geophysical Research Letters*.

20. **Wu, S.-M.**, Lin, G. & Shearer, P. (2025). Seismic Velocity Monitoring Reveals Complex Magma Transport Dynamics at Kīlauea Volcano Prior to the 2018 Eruption, *in press at AGU Advances*

19. **Wu, S.-M.**, Sánchez-Pastor, P., Ágústsdóttir, T., Hersir, G., Mordret, M., Hjörleifsdóttir, V., Obermann, A. (2024). Crustal characterization of the Hengill geothermal fields: Insights from isotropic and anisotropic seismic noise imaging using a 500-node array, *Journal of Geophysical Research: Solid Earth*, https://doi.org/10.1029/2024JB028915

18. Sánchez-Pastor, P., **Wu, S.-M.**, Hokstad, K., Kristjánsson, B., Drouin V., Ducrocq, C., Gunnarsson, G., Rinaldi, A., Obermann, A., & Wiemer, S. (2023). Steam caps in geothermal reservoirs can be monitored using seismic noise interferometry, *Communications Earth & Environment*, https://doi.org/10.1038/s43247-023-01122-8

17. **Wu, S.-M.**, Huang, H.-H., Lin, F.-C., Farrell, J., & Schmandt, B. (2023). Extreme Anisotropy Indicates Shallow Accumulation of Magmatic Sills beneath Yellowstone Caldera, *Earth and Planetary Science Letters*, https://doi.org/10.1016/j.epsl.2023.118244

16. Pang, G., Koper, K., **Wu, S.-M.**, & Wang, W., Lasbleis, M., & G. Euler. (2023). Enhanced Inner Core Fine-Scale Heterogeneity toward the Earth's Center, *Nature*, https://doi.org/10.1038/s41586-023-06213-2

15. Liu., C.-N., Lin, F.-C., Manga, M., Farrell, J., **Wu, S.-M.**, Reed, M., Barth, A., Hungerford, J., & White, E. (2023). Short and long-term thumping cycle variations of Doublet Pool in Yellowstone National Park, USA, *Geophysical Research Letters,* http://dx.doi.org/10.1029/2022GL101175

14. Obermann, A., **Wu, S.-M.**, Agustsdottir, T., Duran, A., Diehl, T., Sánchez-Pastor, P., Kristjansdottir, S., Hjörleifsdóttir, V., Wiemer, S., & Hersir, G. (2022). Seismicity and 3-D body-wave velocity models across the Hengill geothermal field, SW Iceland, *Frontiers in Earth Science*, https://doi.org/10.3389/feart.2022.96983

13. Vera Rodriguez, I., Isken, M. P., Dahm, T., Kraft, T., Lamb, O. D., **Wu, S.-M.**, Kristjánsdóttir, S., Jónsdóttir, K., Sánchez-Pastor, P., Clinton, J., Wollin, C., Baird, A. F., Wüstefeld, A., Booz, B., Eibl, E. P. S., Heimann, S., Goertz-Allmann, B., Jousset, P., Oye, V., & Obermann, A. (2022). Acoustic signals of a meteoroid recorded on a large-N seismic network and fibre optic cables, *Seismological Research Letter*, https://doi.org/10.1785/0220220236

12. **Wu, S.-M.**, Pang, G., Koper, K., & Euler, G. (2022). A Search for Large-scale Variations in the Fine-Scale Structure of Earth's Inner Core, *Journal of Geophysical Research: Solid Earth,* https://doi.org/10.1029/2022JB024420

11. Obermann, A., Sánchez-Pastor, P., **Wu, S.-M.**, Wollin, C., Baird, A., Isken, M. P., Clinton, J., Gyger, L., Goertz-Allmann, B., Dahm, T., Wüstefeld, A., Jousset, P., Hjörleifsdóttir, V., & Wiemer, S. (2022). Combined large-N seismic arrays and DAS fibre optic cables across the Hengill geothermal field, Iceland, *Seismological Research Letter*, https://doi.org/10.1785/0220220073.

10. Rabade, S., **Wu, S.-M.**, Lin, F.-C., & Chambers, D. J. A. (2022). Isolating and tracking noise sources across an active longwall mine using seismic interferometry, *Bulletin of the Seismological Society of America*, 112 (5). https://doi.org/10.1785/0120220031.

9. **Wu, S.-M.**, Lin, F.-C., Farrell, J., Keller, W., White, E., & Hungerford, J. (2021). Imaging the Subsurface Plumbing Complex of Steamboat Geyser and Cistern Spring with Hydrothermal Tremor Migration using Seismic Interferometry, *Journal of Geophysical Research: Solid Earth*, 126, e2020JB021128. https://doi.org/10.1029/2020JB021128.

8. Reed, M. H., Muñoz-Saez, C., Hajimirza, S., **Wu, S.-M.**, Barth, A., Girona, T., Rasht-Behesht, M., White, E., Karplus, M. S., Hurwitz, S., & Manga, M. (2021). The 2018 reawakening and eruption dynamics of Steamboat Geyser, the world's tallest active geyser, *Proceedings of the National Academy of Sciences*, 118. https://doi.org/10.1073/pnas.2020943118.

7. **Wu, S.-M**., Lin, F.-C., Farrell, J., Shiro, B., Karlstrom, L., Okubo, P., & Koper, K. (2020). Spatiotemporal Seismic Structure Variations Associated with the 2018 Kīlauea Eruption based on Temporary

Dense Geophone Arrays, *Geophysical Research Letters*, 47, e2019GL086668. https://doi.org/10.1029/2019GL086668.

6. **Wu, S.-M.**, Lin, F.-C., Allam, A., & Farrell, J. (2019). Imaging the deep subsurface plumbing of Old Faithful geyser from low-frequency hydrothermal tremor migration, *Geophysical Research Letters*, 46. https://doi.org/10.1029/2018GL081771.
5. Xu, D., Song, B., Zhang, R., Xie, Y., **Wu, S.-M.**, Lin, F.-C., & Song, W. (2019). Low-rank matrix completion for distributed ambient noise imaging systems, *2019 53nd Asilomar Conference Signals, Systems, and Computers*, IEEE, 1059–1065. DOI: 10.1109/IEEECONF44664.2019.9049077.
4. Farrell, J., **Wu, S.-M.**, Ward, K. M., & Lin, F.-C. (2018). Persistent noise signal in the FairfieldNodal three-component 5-Hz geophones, *Seismological Research Letters*, 89(5), 1609-1617. doi: https://doi.org/10.1785/0220180073.
3. He, Xi., Xie, Y., **Wu, S.-M.**, & Lin, F.-C. (2018). Sequential Graph Scanning Statistic for Change-point Detection, *2018 52nd Asilomar Conference on Signals, Systems, and Computers*, IEEE, 1317-1321. DOI: 10.1109/ACSSC.2018.8645505.
2. Xie, L., Xie, Y., **Wu, S.-M.**, Lin, F.-C., & Song, W. (2018). Communication efficient signal detection for distributed ambient noise imaging, *2018 52nd Asilomar Conference Signals, Systems, and Computers*, IEEE, 1779–1783. DOI: 10.1109/ACSSC.2018.8645222
1. **Wu, S.-M.**, Ward, K. M., Farrell, J., Lin, F.-C., Karplus, M., & Smith, R. B. (2017). Anatomy of Old Faithful from subsurface seismic imaging of the Yellowstone Upper Geyser Basin*, Geophysical Research Letters*, 44(20). doi:10.1002/2017GL075255.

TEACHING

University of Hawai'i at Mānoa, Department of Earth Sciences

ERTH 635: Seismology	Spring 2026
ERTH 303: Natural Hazards and Geomechanics	Fall 2024, 2025

The University of Utah, Department of Geology and Geophysics

Guest lecturer of Signal Processing GEO5320/6320, University of Utah	Fall 2018
Teaching assistant of Seismology GEO-5210, University of Utah	Fall 2018
Teaching assistant of Seismic Imaging GEO-5220, University of Utah	Spring 2016 & 2017
Teaching assistant of Geophysics, National Taiwan University	Spring 2014

Other teaching services

Badan Meteorologi Klimatologi dan Geofisika Indonesia (BMKG) seismic imaging training course– lecturer and co-convener	August 23–24, 2022

AWARDS

Outstanding reviewer for JGR: Solid Earth	2022
University of Utah the Stokes-Eardley Fellowship – Grant $10,000	Fall 2020
University of Utah Department of Geology and Geophysics Outstanding PhD Student Award	2019–2020
University of Utah Graduate Research Fellowship – Grant $18,700	2019–2020
The David S. and Inga M. Chapman Fund scholarship – Grant $1,042	2019
Cooperative Institute for Dynamic Earth Research (CIDER) summer program	2019
Seismological Society of America Annual Meeting Travel Grant	2018
IRIS US Array Data Processing and Analysis Short Course – recipient	2016
IRIS Workshop: Emerging Fields and Technologies in Seismology – scholarship recipient.	2016
Excellent academic performance in the National Taiwan University 28th Youth Forum	2014
Excellent academic performance in the Taiwan College Student Earth Science project competition	2011
Presidential Award, National Central University	2010
Presidential Award, National Central University	2009

ACADEMIC ADVISING

Graduate Advisor

Urra Tapia, P. (current PhD student 2024–), University of Hawai'i at Mānoa

Junker, J. (2022). Master thesis at ETH Zürich: "*Seismic Monitoring Strategies for Carbon Dioxide Mineralization in Basalt*"

University of Hawai'i thesis committee

Wynn, I. (PhD student of Dr. Helen Janiszewski)

University of Hawai'i comprehensive exam committee

Robbins, M. (PhD student of Dr. Aaron Pietruszka)

Rojas-Churkovic, I. (PhD student of Dr. Helen Janiszewski)

University of Hawai'i qualifying exam committee

Tisdale, C. (Master student of Dr. Bruce Houghton)

OTHER PUBLICATIONS

Caldera Chronicles (U.S. Geological Survey Yellowstone Volcano Observatory weekly column): "New views of how magma is stored beneath Yellowstone provided by hundreds of seismic sensors" https://www.usgs.gov/observatories/yvo/news/new-views-how-magma-stored-beneath-yellowstone-provided-hundreds-seismic?utm_source=hootsuite&utm_medium=twitter&utm_term=86351cd2-ddb2-4e1b-81f6-df2d7ace368f&utm_content=usgsvolcanoes&utm_campaign=nh-volcanoes-fy23

Caldera Chronicles (U.S. Geological Survey Yellowstone Volcano Observatory weekly column): "The complex plumbing systems of Steamboat Geyser and Cistern Spring". https://www.usgs.gov/center-news/complex-plumbing-systems-steamboat-geyser-and-cistern-spring?qt-news_science_products=4#qt-news_science_products

Caldera Chronicles (U.S. Geological Survey Yellowstone Volcano Observatory weekly column): "A new view of Old Faithful's underground plumbing system". https://volcanoes.usgs.gov/volcanoes/yellowstone/article_home.html?vaid=210

Cover Image of 2018 Kīlauea Eruption for Geophysical Research Letters Volume47, Issue9 https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019GL086668

INVITED PRESENTATIONS

SeismoTea, Department of Geology and Geophysics, University of Utah	October 2023
Berkeley Seismology Lab Seminar	September 2023
School of Earth and Atmospheric Sciences, Georgia Institute of Technology	November 2022
Institute of Geophysics, ETH Zurich	October 2021
Department of Earth and Planetary Sciences, Harvard University	October 2020
Department of Geosciences, National Taiwan University.	October 2019
Institute of Earth Sciences, Academia Sinica, Taiwan.	October 2019
Department of Earth Sciences, National Central University, Taiwan.	October 2019
Workshop on Frontiers in Seismic Interferometry, Taipei, Taiwan	September 2019

RECENT AND SELECTED CONFERENCE PRESENTATIONS

†*advised graduate student,* **advised undergraduate student*

Smith-Polette, M.*, Janiszewski, H., Glasgow. M., **Wu, S.-M.**, & Bennington, N. (2025, December). Preliminary Focal Mechanism Solutions for Upper Mantle Earthquakes During the 2022 Pāhala Seismic Swarm, Island of Hawai'i. *In AGU Fall Meeting Abstracts*.

Schmandt, B., Kiser, E., Farrell, J., Hansen, S., Levander, A., Duan, **Wu, S.-M.**, Lin, F., Maguire, R.

(2025, December). Pushing the boundaries of onshore seismic imaging of magmatic systems at Mount St. Helens and Yellowstone. In *AGU Fall Meeting Abstracts.* (invited)

Urra Tapia, P.†, **Wu, S.-M.**, Janiszewski, H., & Bennington, N. (2025, December). New insights into crustal velocity structure of Kilauea volcano's Southwest rift zone using a temporary dense nodal array. In *AGU Fall Meeting Abstracts*.

Janiszewski, H. A., Bennington, N., Glasgow, M. E., Daly, K. A., Wight, J., & **Wu, S.-M.** (2024, December). Probing Deep Magma Storage and Transport Beneath Pāhala, Hawai'i. In *AGU Fall Meeting Abstracts* (Vol. 2024, No. 3206, pp. V43C-3206). (poster)

Chen, L. W., **Wu, S.-M.**, Nakata, N., Dadi, S., Chen, Y. N., Chen, K. X., & Gung, Y. (2024, December). Ambient Noise Tomography Using Dense Nodal Seismometers for Geothermal Reservoir Monitoring. In *AGU Fall Meeting Abstracts* (Vol. 2024, No. 1165, pp. NS43A-1165). (poster)

SanchezPastor, P., **Wu, S.-M.**, Obermann, A., Ágústsdóttir, T., Hersir, G. P., Hokstad, K., ... & Wiemer, S. (2024, December). Seismic Noise Interferometry in Geothermal Fields. In AGU Fall Meeting Abstracts (Vol. 2024, pp. S21A-04). (Oral, Invited)

Wu, S.-M., Pang, G., Koper, K. D. (2024). Illuminating Earth's inner core fine-scale heterogeneity with small aperture arrays, SSA annual meeting (Invited).

Wu, S.-M., Rosskopf, M., Villiger, L., Durand, V., & Obermann, A. (2023). Toward constructing an enhanced seismic catalog with event similarity in the Bedretto Underground Laboratory, Switzerland, AGU Fall Meeting. (Oral)

Wu, S.-M., Huang, H.-H., Lin, F.-C., Farrell, J., & Schmandt, B. (2023), Anisotropic melt organization of the Yellowstone magma reservoir depicted by seismic tomography using a dense nodal array, AGU Fall Meeting (Invited).

Wu, S.-M., Sánchez-Pastor, P., Agustsdottir, T., Obermann, A., Hersir, G., Mordret, A. (2022), High-Resolution Seismic Tomography across Hengill Geothermal Field in SW-Iceland using a Large-N Nodal Array, AGU Fall Meeting. (Oral)

Wu, S.-M., Huang, H.-H., Lin, F.-C., Farrell, J., & Schmandt, B. (2022), Imaging the Shallow Yellowstone Volcanic System using a Dense Geophone Array, AGU Fall Meeting (Invited)

Manga, M., Reed, M., Munoz-Saez, C., Hajimirza, S., **Wu, S.-M.**, Barth, A., Girona, T., Behesht, M., White, E., Karplus, M., & Hurwitz, S. (2022), The reactivation and monitoring of Steamboat geyser, the tallest geyser on Earth, EGU General Assembly 2022, EGU22-1851, https://doi.org/10.5194/egusphere-egu22-1851.

Wu, S.-M., Lin, F.-C., & Farrell, J. (2021), Imaging the Hydrothermal Plumbing Architecture of Steamboat Geyser Using a Dense Nodal Array and Seismic Interferometry. EGU. (Invited)

Wu, S.-M., Lin, F.-C., Farrell, J., Keller, W., White, E., & Hungerford, J. (2020), Interferometric-Based Polarization Analysis: Implications of Geyser Architecture and Dynamics at Steamboat Geyser in Yellowstone National Park. AGU Fall Meeting, Abstract S017-08. (Oral)

Lin, F.-C., **Wu, S.-M.**, Farrell, J., Shiro, B., & Karlstrom, L. (2020), High-Resolution Crustal Velocity Response to the 2018 Kīlauea Eruption Using Temporary Dense Geophone Arrays. AGU Fall Meeting, Abstract V006-02. (Oral, Invited)

PROFESSIONAL SERVICE

Journal Reviewer

Journal of Geophysical Research, Geophysical Research Letter, Seismological Research Letters, Bulletin of Volcanology, Geophysical Journal International, Volcanica, Journal of Volcanology and Geothermal Research, Bulletin of the Seismological Society of America, Comptes Rendus Géoscience, National Science Review

Proposal Reviewer

National Science Foundation, Deutsche Forschungsgemeinschaft (German Research Foundation)

Convener

Co-convener of SSA annual meeting 2026
Co-convener of AGU fall meeting (session S006) 2024

Co-convener of EGU General Assembly (session ERE2.4) 2023
Co-convener for the seismic imaging training course at BMKG, Indonesia 2022

INSTITUTIONAL SERVICE

University of Hawai'i at Mānoa

JEDI and Department Community Committee Member. 2024–
Faculty Search Committee Member (2 positions) 2024–

The University of Utah

Student representative at G&G faculty meeting 2018–2019
SeismoTea (Seminar) Event and lecture coordinator 2018
President of Taiwanese Student and Scholar Association at the University of Utah 2016–2017

OUTREACH AND MEDIA

Open house of Department Geology & Geophysics 2018
Environment and Sustainability Research Symposium 2017

FIELD WORK

Nodal Array Deployment

Kīlauea 2024-2025 eruption summit caldera, Volcano, HI August 2025
Cape Modern geothermal site, Milford, UT February 2024
Hengill geothermal field, Iceland August 2021
Ridgecrest Post-Mainshock, Ridgecrest, CA July 2019
Hawaii Lower East Rift Zone Array, Leilani Estates, HI March 2019
Cascadia Array, central Oregon, OR August 2018
Yellowstone Array, Yellowstone, WY November 2017
Old Faithful Transportable Array, Yellowstone, WY November 2016
PoroTomo Seismic Array, Brady Hot Springs, NV March 2016
Upper Geyser Basin Array, Yellowstone, WY November 2015

PROFESSIONAL SOCIETY MEMBER

American Geophysical Union
Seismological Society of America
European Geosciences Union
Society of Exploration Geophysicists