

SONGQIAO “SHAWN” WEI

EDUCATION

- **Ph.D.**, 2016, Geophysics, Washington University, St. Louis, MO, USA
- **M.A.**, 2012 Geophysics, Washington University, St. Louis, MO, USA
- **M.Sc.**, 2010, Geophysics, Peking University, Beijing, China
- **Undergrad.**, 2007, Geology, Peking University, Beijing, China

PROFESSIONAL APPOINTMENTS

- 2018–present (mid-term reappointment granted in 2021), Assistant Professor (Endowed Assistant Professor of Geological Sciences from 2018 to 2022), Department of Earth and Environmental Sciences, Michigan State University
- 2021–present, Adjunct Assistant Professor, Department of Computational Mathematics, Science and Engineering, Michigan State University
- 2016–2017, Green Scholar Postdoctoral Fellow, Institute of Geophysics and Planetary Physics, Scripps Institution of Oceanography, University of California, San Diego

AWARDS & HONORS

- 2021, National Science Foundation CAREER Award
- 2018–2022, Geological Sciences Endowment, Michigan State University
- 2016–2017, Green Scholar, IGPP, Scripps Institution of Oceanography, UC San Diego
- 2016, Chinese Government Award for Outstanding Self-Financed Students Abroad
- 2015, Commencement speaker, School of Earth & Space Sci., Peking University
- 2012, Antarctica Service Medal, National Science Foundation
- 2010–2015, McDonnell Scholar (5-year scholarship), Washington University in St. Louis

PROFESSIONAL SERVICE

- 2023, Member, PI Instrumentation Advisory Committee, EarthScope Consortium
- 2022–, Member, Subduction Zone in Four Dimensions (SZ4D) Faulting and Earthquake Cycles (FEC) working group
- 2020–2022, Member, IRIS GSN standing committee
- Reviewer of manuscripts for *Nature Geoscience*, *Science Advances*, *Nature Reviews Earth & Environment*, *Nature Communications*, *Earth and Planetary Science Letters*, *Geophysical Research Letters*, *Geology*, *Journal of Geophysical Research-Solid Earth*, *Geochemistry Geophysics Geosystems*, *Geophysical Journal International*, *Tectonophysics*, *Tectonics*, *Physics of the Earth and Planetary Interiors*, *Surveys in Geophysics*, *International Geology Review*, *Earth, Planets and Space*, and *Scientific Reports*
- Reviewer and panelist for *National Science Foundation* and *Earth Observatory of Singapore*

INSTITUTIONAL SERVICE

- 2023–present, EarthScope Consortium representative of Michigan State University
- 2021–2023, Faculty Advisory Committee (elected, Chair in 2021–2023), Department of Earth and Environmental Sciences, Michigan State University

- 2021–2023, Faculty Advisory Council, College of Natural Science, Michigan State University
- 2021–2022, Diversity, Equity & Inclusion Advisory Council, College of Natural Science, Michigan State University
- 2021–2022, Diversity, Equity & Inclusion Coordinator, Department of Earth and Environmental Sciences, Michigan State University
- 2020–2021, Faculty advisor of Geology Club, Michigan State University
- 2020, Ad hoc committee of drafting the departmental code of conduct, Department of Earth and Environmental Sciences, Michigan State University
- 2020–2021, Meeting Recruitment Coordinator to enhance departmental diversity, Department of Earth and Environmental Sciences, Michigan State University
- 2019, Faculty search committee for planetary science, Department of Earth and Environmental Sciences, Michigan State University
- 2018–2019, AGU booth manager, Department of Earth and Environmental Sciences, Michigan State University
- 2018–2022, IRIS representative of Michigan State University

RESEARCH ADVISING

- **Postdoctoral Supervisees:** Dongdong Tian (8/2018–9/2021), Nooshin Saloor (9/2020–8/2021)
- **Primary Graduate Advisees:** Fan Wang (8/2018–present), Yurong Zhang (9/2020–present), Ziyi Xi (8/2021–present, co-advised by Min Chen), Yaqi Jie (8/2021–present, co-advised by Min Chen), Zhuoran Zhang (9/2021–present)
- **Graduate Thesis Committee Member for** Garrett Diedrich (advised by Susannah Dorfman), Connor Drooff (advised by Jeffery Freymueller), Heidi N Krauss (advised by Allen McNamara), Junjie Liu (advised by Min Chen), Luis B. Martinetti (advised by Kevin Mackey), R. Alexander Steiner (advised by Tyrone Rooney), Katarina Vance (advised by Jeffery Freymueller), Xueming Xue (advised by Jeffery Freymueller), Jiaxin Zhang (advised by Allen McNamara), Zechao Zhuo (advised by Jeffery Freymueller)
- **Undergraduate Research Supervisees:** Grace Ward (1/2022–8/2022), Aracely Garcia (GeoCaFES intern from UTEP, 7/2021–8/2021), Sydney Gable (5/2019–8/2020), Dzharif Tahamat (5/2019–3/2020), Trevor Khone (5/2019–9/2019), Max Fierro (5/2019–9/2019), Yurong Zhang (summer intern from USTC, 7/2019–8/2019), Travis Alongi (IRIS summer intern from UC Santa Cruz, 7/2017–9/2017)

GRANTS (PI for >\$1m from NSF)

- MSU DFI, **\$49k**. The roles of water in the Alaska subduction zone: From megathrust earthquakes to arc magmatism, 2022–2023. **Sole PI: S. Wei (100%)**.
- NSF-EAR-Geophysics 2152253, **\$264k**. Collaborative Research: The 2020-2021 Alaska-Aleutian Earthquake Sequence: Cascading Events & Stress Loading of the Shallow Megathrust, 2021–2026. PI: J. Elliott, **Co-PIs: J. Freymueller and S. Wei (33%)**. Other PI: R. Grapenthin (UAF).
- NSF-EAR-Geophysics 2147422, **\$72k**. Collaborative Research: RAPID: Response to the 29 July 2021 Chignik M8.2 Earthquake, 2021–2022. PI: J. Freymueller, **Co-PIs: J. Elliott and S. Wei (20%)**. Other PI: Geoffrey Abers (Cornell).

- NSF-EAR-Geophysics 2052558, **\$582k**. Collaborative Research: The M7.8 Simeonof earthquake: Untangling Slip from Seconds to Years across the edge of the Shumagin Seismic Gap, 2021–2025. PI: J. Freymueller, **Co-PIs: J. Elliott and S. Wei (6%)**. Other PI: R. Grapenthin (UAF).
- NSF-EAR-Geophysics 2042553, **\$502k**. CAREER: Investigating composition and rheology of circum-Pacific mantle wedges with body-wave attenuation, 2021–2026. **Sole PI: S. Wei (100%)**.
- NSF-EAR-Geophysics 1942431, **\$560k**. CAREER: Modification of a Continent: Seismic Tomography and Imaging of the Northern American Lithosphere, 2020–2025. **Sole PI: S. Wei (100%) (Transferred from previous PI Dr. Min Chen)**.
- NSF-OCE-MG&G 1928946, **\$337k**. Collaborative Research: Interactions between the Tonga-Lau subduction system and the Samoan plume, 2020–2024. **Lead PI: S. Wei (100%)**, Other PIs: D. A. Wiens (WUSTL), M. Jackson (UCSB), D. Stegman (UCSD). **Total budget: \$1.12 million in addition to \$4.16 million worth of ship time and instrument usage.**
- NSF-OCE-MG&G 1842989, **\$204k** (including \$25k supplements awarded to NSF-OCE-MG&G 2111715). Imaging the hydrous Tonga slab in the fastest and coldest subduction zone, 2019–2021. **Sole PI: S. Wei (100%)**.
- NSF-EAR-Geophysics 1802247, **\$331k**. Collaborative Research: Exploring the nature of deep-focus earthquakes in the Japan, Kuril, and Izu-Bonin subduction zones, 2018–2022. **PI: S. Wei (100%) (Transferred from previous PI Dr. Min Chen)**.

PUBLICATIONS (* denotes student/postdoc advisee)

Peer-reviewed Articles

- [] Pavlis, G., M. Jadamec, M. E. Mann, Z. Yang, A. Schaeffer, **S. S. Wei**, and K. Fischer (submitted), Synthesis of the Seismic Structure of the Greater Alaska Region: Subducting Slab Geometry.
- [] Yang, X., M. E. Mann, K. Fischer, M. Jadamec, **S. S. Wei**, G. Pavlis, and A. Schaeffer (submitted), Synthesis of the Seismic Structure of the Greater Alaska Region: Continental Lithosphere.
- [] Staats, K. Aderhold, K. Hafner, C. Dalton, M. Flanagan, H. Lau, F. J. Simons, M. Vallée, **S. S. Wei**, W. Yeck, A. Frassetto, and R. Busby (submitted), Inconsistent Citation of the Global Seismographic Network in Scientific Publications.
- [] Hudson, T., J. M. Kendall, J. Blundy, M. Pritchard, P. MacQueen, **S. S. Wei**, J. Gottsmann, and S. Lapins (in revision), Hydrothermal fluids and where to find them: Using seismic attenuation and anisotropy to map fluids beneath Uturuncu volcano, Bolivia.
- [24] Hicks, S. P., L. Bie, C. A. Rychert, N. Harmon, S. Goes, A. Rietbrock, **S. S. Wei**, J. S. Collier, T. J. Henstock, L. Lynch, J. Prytulak, C. G. Macpherson, D. Schlaphorst, J. J. Wilkinson, J. D. Blundy, G. F. Cooper, R. G. Davy, and J.-M. Kendall (2023), Slab to back-arc to arc: Fluid and melt pathways through the mantle wedge beneath the Lesser Antilles, *Science Advances*, 9(5), eadd2143, doi: doi:10.1126/sciadv.add2143.
- [23] **Tian, D*., S. S. Wei**, W. Wang, and **F. Wang*** (2022), Stress Drops of Intermediate-Depth and Deep Earthquakes in the Tonga Slab, *Journal of Geophysical Research: Solid Earth*, 127(10), e2022JB025109, doi: 10.1029/2022JB025109.
- [22] Yuen, D. A., M. A. Scruggs, F. J. Spera, Y. Zheng, H. Hu, S. R. McNutt, G. Thompson, K. Mandli, B. R. Keller, **S. S. Wei**, Z. Peng, Z. Zhou, F. Mulargia, and Y. Tanioka (2022),

- Under the surface: Pressure-induced planetary-scale waves, volcanic lightning, and gaseous clouds caused by the submarine eruption of Hunga Tonga-Hunga Ha'apai volcano, *Earthquake Research Advances*, 2(3), 100134, doi: 10.1016/j.eqrea.2022.100134.
- [21] Glišović, P., S. Grand, C. Lu, A. Forte, and **S. S. Wei** (2022), The effects of discontinuity topography in the mantle transition zone on global geodynamic observables and mantle heterogeneity, *Geophys J Int*, 230(1), 623-642, doi: 10.1093/gji/ggac074.
- [20] **Wei, S. S.**, P. Ruprecht, **S. L. Gable***, E. Huggins, N. Ruppert, L. Gao, and H. Zhang (2021), Along-strike variations in intermediate-depth seismicity and arc magmatism along the Alaska Peninsula, *Earth Planet. Sci. Lett.*, 563, 116878, doi: 10.1016/j.epsl.2021.116878.
- [19] **Wei, S. S.**, P. M. Shearer, C. Lithgow-Bertelloni, L. Stixrude, and **D. Tian*** (2020), Oceanic plateau of the Hawaiian mantle plume head subducted to the uppermost lower mantle, *Science*, 370(6519), 983-987, doi: 10.1126/science.abd0312.
- [18] **Tian, D.***, M. Lv, **S. S. Wei**, S. M. Dorfman, and P. M. Shearer (2020), Global variations of the 520- and 560-km discontinuities, *Earth Planet. Sci. Lett.*, 552, 116600, doi: 10.1016/j.epsl.2020.116600.
- [17] An, C., **S. S. Wei**, C. Cai, and H. Yue (2020), Frequency limit for the pressure compliance correction of ocean-bottom seismic data, *Seismol. Res. Lett.*, 91(2A), 967-976, doi: 10.1785/0220190259.
- [16] **Wei, S. S.** and D. A. Wiens (2020), High bulk and shear attenuation due to partial melt in the Tonga-Lau back-arc mantle, *J. Geophys. Res.*, 125(1), e2019JB017527, doi: 10.1029/2019JB017527.
- [15] Fan, W., **S. S. Wei**, **D. Tian***, J. J. McGuire, and D. A. Wiens (2019), Complex and diverse rupture processes of the 2018 Mw 8.2 and Mw 7.9 Tonga-Fiji deep earthquakes, *Geophys. Res. Lett.*, 46(5), 2434-2448, doi: 10.1029/2018GL080997.
- [14] Chen, M., V. C. Manea, F. Niu, **S. S. Wei**, and E. Kiser (2019), Genesis of intermediate-depth and deep intraslab earthquakes beneath Japan constrained by seismic tomography, seismicity, and thermal modeling, *Geophys. Res. Lett.*, 46(4), 2025-2036, doi: 10.1029/2018GL080025.
- [13] Chen, J., Y. J. Chen, D. A. Wiens, **S. S. Wei**, Y. Zha, J. Julià, and C. Cai (2019), Crustal and lithospheric structure of inactive volcanic arc terrains in Fiji, *Tectonophysics*, 750, 394-403, doi: 10.1016/j.tecto.2018.07.014.
- [12] **Wei, S. S.** and D. A. Wiens (2018), *P*-wave attenuation structure of the Lau back-arc basin and implications for mantle wedge processes, *Earth Planet. Sci. Lett.*, 502, 187-199, doi: 10.1016/j.epsl.2018.09.005.
- [11] **Wei, S. S.** and P. M. Shearer (2017), A sporadic low-velocity layer atop the 410-km discontinuity beneath the Pacific Ocean, *J. Geophys. Res.*, 122(7), 5144–5159, doi: 10.1002/2017JB014100.
- [10] **Wei, S. S.**, D. A. Wiens, P. E. van Keken, and C. Cai (2017), Slab temperature controls on the Tonga double seismic zone and slab mantle dehydration, *Science Adv.*, 3(1), e1601755, doi: 10.1126/sciadv.1601755.
- [9] **Wei, S. S.**, Y. Zha, W. Shen, D. A. Wiens, J. A. Conder, and S. C. Webb (2016), Upper mantle structure of the Tonga-Lau-Fiji region from Rayleigh wave tomography, *Geochem. Geophys. Geosyst.*, 17(11), 4705-4724, doi: 10.1002/2016GC006656.

- [8] **Wei, S. S.** and Y. J. Chen, (2016), Seismic evidence of the Hainan mantle plume by receiver function analysis in southern China, *Geophys. Res. Lett.*, *43*(17), 8978-8985, doi:10.1002/2016GL069513.
- [7] Fan, W., Y. J. Chen, Y. Tang, S. Zhou, Y. Feng, H. Yue, H. Wang, G. Jin, **S. Wei**, Y. Wang, Z. Ge, and J. Ning, (2015), Crust and upper mantle velocity structure of the eastern Tibetan Plateau and adjacent regions from ambient noise tomography, *Chinese J. Geophys.* (in Chinese), *58*(5), 1568-1583, doi: 10.3969/j.issn.0001-5733.2011.08.008.
- [6] **Wei, S. S.**, D. A. Wiens, Y. Zha, T. Plank, S. C. Webb, D. K. Blackman, R. A. Dunn, and J. A. Conder (2015), Seismic evidence of effects of water on melt transport in the Lau back-arc mantle, *Nature*, *518*(7539), 395-398, doi: 10.1038/nature14113.
- [5] Zha, Y., S. C. Webb, **S. S. Wei**, D. A. Wiens, D. K. Blackman, W. Menke, R. A. Dunn, and J. A. Conder (2014), Seismological imaging of ridge–arc interaction beneath the Eastern Lau Spreading Center from OBS ambient noise tomography, *Earth Planet. Sci. Lett.*, *408*, 194-206, doi: 10.1016/j.epsl.2014.10.019.
- [4] Yue, H., Y. J. Chen, E. Sandvol, J. Ni, T. Hearn, S. Zhou, Y. Feng, Z. Ge, A. Trujillo, Y. Wang, G. Jin, M. Jiang, Y. Tang, X. Liang, **S. Wei**, H. Wang, W. Fan, and Z. Liu (2012). Lithospheric and upper mantle structure of the northeastern Tibetan Plateau, *J. Geophys. Res.*, *117*, B05307, doi: 10.1029/2011jb008545.
- [3] Tang, Y. C., Y. S. Chen, Y. J. Yang, Z. F. Ding, R. F. Liu, Y. G. Feng, P. Li, C. Q. Yu, **S. O. Wei**, W. Y. Fan, H. Y. Wang, S. Y. Zhou, and J. Y. Ning (2011), Ambient noise tomography in north China craton, *Chinese J. Geophys.* (in Chinese), *54*(8), 2011-2022, doi: 10.3969/j.issn.0001-5733.2011.08.008.
- [2] **Wei, S.**, Y. J. Chen, E. Sandvol, S. Zhou, H. Yue, G. Jin, T. M. Hearn, M. Jiang, H. Wang, W. Fan, Z. Liu, Z. Ge, Y. Wang, Y. Feng, and J. Ni (2010), Regional earthquakes in northern Tibetan Plateau: Implications for lithospheric strength in Tibet, *Geophys. Res. Lett.*, *37*(19), L19307, doi:10.1029/2010gl044800.
- [1] Tang, Y. C., Y. G. Feng, Y. S. J. Chen, S. Y. Zhou, J. Y. Ning, **S. O. Wei**, P. Li, C. Q. Yu, W. Y. Fan, and H. Y. Wang (2010), Receiver function analysis at Shanxi Rift, *Chinese J. Geophys.* (in Chinese), *53*(9), 2102-2109, doi: 10.3969/j.issn.0001-5733.2010.09.010.

Non-reviewed white papers

- Stamps, D. S., Z. Eilon, W. Fan, C. Lynner, H. Kehoe, H. A. Ford, **S. 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, 3 p., 10.6084/m9.figshare.12398288.
- Ford, H. A., M. Floyd, D. S. Stamps, M. Mendoza, E. Bozdag, D. Bowden, J. Byrnes, W. Fan, H. Kehoe, E. Chaussard, N. J. Lindsey, **S. 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, 3 p., 10.6084/m9.figshare.12398321.
- Byrnes, J., H. Janiszewski, Z. Eilon, C. Rollins, C. Lynner, **S. S. Wei**, E. Fredrickson, S. Naif, B. Shuck, N. Bartlow (2020), An Early Career Investigator Vision for Shoreline-Crossing Geophysics at the NSF Future Geophysical Facility.
- Dalton, C. and the GSN Standing Committee members including **S. S. Wei** (2020), GSN

standing committee response to the Dear Colleague Letter issued by NSF regarding a single, unified geophysical facility as the successor to SAGE and GAGE.

FIELD EXPERIENCE

- 2023–2024 (planned), Lead PI and Chief Scientist, SaLOON (**S**amoa-**L**au **O**cean **O**bserving **N**etwork): Operating 30 OBSs and 2 island-based seismic stations for 18 months in the Tonga-Samoa region.
- 2018, PI and lead field scientist, LEEP (**L**ake **E**rie **E**arthquake **e**x**P**eriment): Installing 8 temporary seismic stations around Lake Erie.
- 2013, Shipboard Scientist, R/V Melville to Marianas: Recovering 30 OBSs and 5 island-based seismic stations.
- 2011–2012, Assistant Researcher, POLENET (The Polar Earth Observing Network): Servicing and installing 9 temporary seismic stations near the South Pole.
- 2011–2012, Assistant Researcher, SPREE (**S**u**P**erior **R**ifting **E**arthscope **E**xperiment): Installing and servicing more than 20 seismic stations in Minnesota and Wisconsin.
- 2008–2009, Lead Researcher, LE-MUSE (**L**eizhou **p**Eninsula **M**antle **p**lUme **S**eismic **E**xploration): Installing, servicing, and recovering 13 seismic stations in southern China.
- 2009, Assistant Researcher, INDEPTH (**I**nter**N**ational **D**Eep **P**rofilin**G** of **T**ibet and the **H**imalayas) IV: Recovering more than 30 temporary seismic stations in northwestern Tibetan Plateau.
- 2008, Assistant Researcher, RISE (**R**esearch of **T**ibetan **R**ift): Recovering 8 temporary seismic stations in southern Tibetan Plateau.
- 2007–2009, Assistant Researcher, COLT (**C**irum-**O**rdos **L**ithospheric **T**ransfer): Installing, servicing, and recovering more than 50 seismic stations in northern China.

COURSES

- GLG 471 Applied Geophysics
- GLG 871 Introduction to Seismology
- GLG 898 Integrative Earth Sciences
- ISP 203B Natural Hazards and Environment

INTERVIEWS & PUBLIC TALKS

- 2022, Interview, MSU Today, *Ask the expert: Understanding the nature of big earthquakes.*
- 2022, Interview, MSU Today, *Ask the expert: Why is the Tonga eruption important?*
- 2022, Interviews, Al Jazeera English, CGTN, and 21st Century Business Herald, *2022 Hunga-Tonga volcanic eruption,*
- 2021, Interview, MSU Today, *Songqiao “Shawn” Wei: Imaging Earth’s structure*
- 2021, Mentor, Seismological Society of America, *Advice for Students and Early-Career Members*
- 2021, Interview, Seismological Society of America, *At Work column*
- 2021, Interview, MSU College of Natural Science, *Early CAREER award offers a new view of Earths’ interior*
- 2021, Interview, Incorporated Research Institutions for Seismology, *The mystery of the missing plume head*

- 2020, Interview, MSU Today, *MSU researchers discover ‘missing’ piece of Hawaii’s formation*
- 2019, Interview, WILX-TV, *Science Says: Recent earthquakes rattle California; can happen in Michigan*, Lansing, MI
- 2019, Interview, Michigan State University, *Speaking Science: Natural disasters: earthquakes*
- 2018, Public talk, *Astronomy on Tap: Plate tectonics and Earth’s deep water cycle*, Lansing, MI
- 2017, Interview, Washington University in St. Louis, *Release of water shakes Pacific Plate at depth*
- 2015, Interview, Washington University in St. Louis, *Hold That Though - Discovery in the Lau Basin*
- 2015, Interview, Washington University in St. Louis, *To speed up magma, add water*

INVITED PRESENTATIONS

- 2022, 2022 AGU Fall Meeting, Chicago, IL: *Stress drops of small-to-moderate earthquakes beneath the Alaska Peninsula.*
- 2022, Geophysical Department, University of Zawia, Virtual on Zoom: *Compositional heterogeneities in the mid-mantle revealed by seismic discontinuities and reflectors.*
- 2022, Department of Geological Sciences, Chungnam National University, Virtual on Zoom: *Seismic imaging of partial melting in the Tonga mantle wedge.*
- 2022, SSA Annual Meeting 2022, Bellevue, WA: *Panel discussion: The Future of Subduction Zone Science* (together with John Power, Laura Wallace, moderated by Anne Sheehan).
- 2022, Earth System Science Programme, The Chinese University of Hong Kong, Virtual on Zoom: *Intermediate-depth intra-plate earthquakes and slab dehydration.*
- 2021, 2021 AGU Fall Meeting, New Orleans, LA: *New advances in body-wave attenuation studies of the Tonga subduction zone.*
- 2021, 2021 AGU Fall Meeting, New Orleans, LA: *Slab morphology in western Pacific subduction zones constrained by various seismic techniques.*
- 2021, Japan Geoscience Union Meeting 2021, Virtual: *Intra-slab earthquakes and slab dehydration in the Tonga subduction zone.*
- 2020, Department of Earth and Space Sciences, Southern University of Science and Technology, Virtual on VooV Meeting: *Compositional heterogeneities in the mid-mantle revealed by seismic discontinuities and reflectors.*
- 2020, IGPP, Scripps Institution of Oceanography, UC San Diego, Virtual on Zoom: *Intermediate-depth intra-plate earthquakes and slab dehydration.*
- 2020, Geophysics and Tectonics Seminar, University of Kentucky, Virtual on Zoom: *Compositional heterogeneities in the mid-mantle revealed by seismic discontinuities and reflectors.*
- 2020, Geodesy and Geophysics Seminars of the Upper Midwest, Virtual on Zoom: *Intermediate-depth intra-plate earthquakes and slab dehydration.*
- 2020, School of Earth Sciences, Zhejiang University, Virtual on Zoom: *Compositional heterogeneities in the mid-mantle revealed by seismic discontinuities and reflectors.*
- 2020, Heiland Lecture, Department of Geophysics, Colorado School of Mines, Golden, CO:

- Seismic imaging of partial melting in the Tonga mantle wedge.*
- 2019, Department of Earth and Atmospheric Sciences, University of Houston, Houston, TX: *Seismic imaging of partial melting in the Tonga mantle wedge.*
 - 2019, Department of Earth and Planetary Sciences, Northwestern University, Evanston, IL: *New seismic constraints on Earth’s deep water cycle: From the Tonga mantle wedge to the transition zone.*
 - 2018, 2018 Asian Oceania Geosciences Society (AOGS) Annual Meeting, Honolulu, HI: *Significant shear and bulk attenuation in the Tonga-Lau subduction system.*
 - 2018, Department of Earth and Atmospheric Sciences, University of Houston, Houston, TX: *Flat slabs in the lower mantle and mantle discontinuities.*
 - 2017, Earthquake Research Institute, The University of Tokyo, Tokyo, Japan: *Seismic attenuation in the Tonga-Lau subduction system and beyond.*
 - 2017, Department of Earth, Environmental and Planetary Sciences, Rice University, Houston, TX: *Seismic detection of water in the Tonga subduction zone and beyond.*
 - 2017, Department of Earth and Environmental Sciences, Michigan State University, East Lansing, MI (job interview talk): *Seismic constraints on Earth’s deep water cycle: From the Tonga mantle wedge to the transition zone.*
 - 2016, Institute of Geophysics and Planetary Physics, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, CA: *Imaging mantle wedge melting of the Tonga-Lau-Fiji subduction system.*
 - 2015, OBS Symposium, Vancouver, WA: *Seismic velocity and attenuation tomography of the Tonga arc and Lau back-arc basin.*
 - 2015, Institute of Geophysics, China Earthquake Administration, Beijing, China: *Effects of dehydration of the Tonga subduction zone on back-arc mantle melting.*
 - 2015, Department of Terrestrial Magnetism, Carnegie Institution for Science, Washington DC: *Imaging mantle melting beneath the Lau back-arc basin.*
 - 2014, Department of Earth and Planetary Sciences, McGill University, Montréal, QC, Canada: *Imaging partial melt beneath the Lau back-arc basin.*
 - 2014, LDEO Seismology Student Workshop, Columbia University, Palisade, NY: *Seismic attenuation beneath the Lau back-arc basin.*

MEETING SERVICE

- 2021, Session chair, S22: *Seismology Contributions: Structural Seismology II*, 2021 AGU Fall Meeting
- 2021, Session convener, GD2.1: *Melts and volatiles in Earth and planetary interiors: from atmosphere to core, from global cycles to the micro-scale, from transport dynamics to storage to geophysical detection*, 2021 EGU General Assembly
- 2019, Session convener, T045: *Seismic Imaging and Geodynamical Modeling of Lithosphere and Mantle*, 2019 AGU Fall Meeting
- 2018, Session convener and chair, DI016: *Petrological and thermal structure of the mantle from the transition zone to the CMB: Causes and consequences of phase transitions*, 2018 AGU Fall Meeting
- 2018, Session chair, DI018: *Subducting slabs in the mantle*, 2018 AGU Fall Meeting
- 2016, Session convener and chair, DI009: *The distribution and pathways of melts, fluids and volatiles in subduction systems: A multidisciplinary approach*, 2016 AGU Fall Meeting

- 2015, Session leader, Interior of the Earth, Gordon Research Seminar

CONFERENCE ABSTRACTS (* denotes student/postdoc, not complete)

- **Wei, S. S.** and D. Tian (2022), Stress drops of small-to-moderate earthquakes beneath the Alaska Peninsula (Invited), *2022 AGU Fall Meeting*, Chicago, IL.
- Jie, Y.* , **S. S. Wei**, and W. Zhu (2022), Earthquake statistics at the Alaska Peninsula empowered by deep learning, *2022 AGU Fall Meeting*, Chicago, IL.
- Wang, F.* , **S. S. Wei**, J. Elliott, J. T. Freymueller, C. Drooff, N. A. Ruppert, and H. Zhang (2022), Subduction fluids control slab slip behaviors and megathrust earthquakes at the Alaska Peninsula, *2022 AGU Fall Meeting*, Chicago, IL.
- Xi, Z.* , **S. S. Wei**, N. Saloor*, W. Zhu, and G. C. Beroza (2022), Detecting converted seismic phases of Tonga deep earthquakes: insights from deep-learning methods, *2022 AGU Fall Meeting*, Chicago, IL.
- Zhang, Y.* , **S. S. Wei**, J. S. Byrnes, D. Tian, F. Wang* , and M. Bezada (2022), Earthquake statistics at the Alaska Peninsula empowered by deep learning, *2022 AGU Fall Meeting*, Chicago, IL.
- Zhang, Z.* and **S. S. Wei** (2022), Seismic Attenuation of the Alaska Peninsula Section of the Alaska-Aleutian Subduction Zone, *2022 AGU Fall Meeting*, Chicago, IL.
- Grapenthin, R., Z. Xiao, J. Elliott, D. Nicolisky, R. M. Parameswaran, **S. S. Wei**, and J. F. Freymueller (2022), Did the Megathrust Slip during the 2020 M7.6 Sand Point, Alaska, Strike-Slip Earthquake?, *2022 AGU Fall Meeting*, Chicago, IL.
- Hicks, S., L. Bie, C. Rychert, N. Harman, S. Goes, A. Rietbrock, **S. S. Wei**, J. Collier, T. Henstock, L. Lynch, J. Prytulak, C. Macpherson, D. Schlaphorst, J. Wilkinson, J. Blundy, G. Cooper, R. Davy, and J. M. Kendall (2022), Slab to back-arc to arc: fluid and melt pathways through the mantle wedge beneath the Lesser Antilles from seismic attenuation tomography, *2022 AGU Fall Meeting*, Chicago, IL.
- Hudson, T., J. M. Kendall, J. Blundy, M. Pritchard, P. MacQueen, J. Gottsmann, **S. S. Wei**, S. Lapins, and Y. Liu (2022), Metal-Rich Brines and Where to Find Them: Using Seismic Attenuation to Image and Identify Fluids Beneath Uturuncu Volcano, Bolivia, *2022 AGU Fall Meeting*, Chicago, IL.
- **Wei, S. S.**, Y. Zhang* , D. Tian* , and D. A. Wiens (2021), New advances in body-wave attenuation studies of the Tonga subduction zone (Invited), *2021 AGU Fall Meeting*, New Orleans, LA.
- **Wei, S. S.**, F. Wang* , Z. Xi* , and M. Chen (2021), Slab morphology in western Pacific subduction zones constrained by various seismic techniques (Invited), *2021 AGU Fall Meeting*, New Orleans, LA.
- Tian, D.* and **S. S. Wei** (2021), Source Spectra and Stress Drops of Small-to-Moderate Earthquakes Beneath the Alaska Peninsula, *2021 AGU Fall Meeting*, New Orleans, LA.
- Jie, Y.* , G. Li, M. Chen, and **S. S. Wei** (2021), Shear Wave Speed Imaging of the East African Rift System – Implication to Magma-poor Rift Process, *2021 AGU Fall Meeting*, New Orleans, LA.
- Wang, F.* , **S. S. Wei**, A. N. Adams, and D. A. Wiens (2021), 3D seismic velocity structure of the Tonga subduction zone constrained by body-wave tomography, *2021 AGU Fall Meeting*, New Orleans, LA.
- Wang, F.* , **S. S. Wei**, N. A. Ruppert, and H. Zhang (2021), Seismic imaging of the Alaska

- Peninsula using the body-wave double-difference tomography, *2021 AGU Fall Meeting*, New Orleans, LA.
- Xi, Z.*, J. Li, M. Chen, and **S. S. Wei** (2021), A 3D Azimuthal Anisotropy Model Beneath the East Asia Continent and Western Pacific Subduction Zone, *2021 AGU Fall Meeting*, New Orleans, LA.
 - Xi, Z.*, J. Li, M. Chen, and **S. S. Wei** (2021), PyFK: A Fast MPI and CUDA Accelerated Python Package for Calculating Synthetic Seismograms Based on the Frequency–wavenumber Method, *2021 AGU Fall Meeting*, New Orleans, LA.
 - Zhang, Y.*, J. S. Byrnes, **S. S. Wei**, D. Tian*, F. Wang*, M. Bezada (2021), P-wave attenuation tomography of the Tonga-Lau mantle wedge improved by a Bayesian Monte Carlo approach and independently constrained source spectra, *2021 AGU Fall Meeting*, New Orleans, LA.
 - Yang, X., K. M. Fischer, M. A. Jadamec, M. E. Mann, G. L. Pavlis, A. Schaeffer, and **S. S. Wei** (2021), Seismic Constraints on the Structure of Alaska: A Review (Invited), *2021 AGU Fall Meeting*, New Orleans, LA.
 - Schrenk, M. O., B. Arroyo, J. Brito, R. P. Caballero-Gill, S. Dorfman, J. T. Freymueller, A. Garcia, D. Hardisty, J. H. Perez, M. Kauinana, J. C. Libarkin, C. McCallum, V. Mendoza, N. J. Moore, C. Osorio, S. Patel, A. Saavedra, E. Salas, K. Voglesonger, **S. S. Wei**, and P. Jaimes (2021), GeoCaFES: Communities and Future Earth Scientists, *2021 AGU Fall Meeting*, New Orleans, LA.
 - **Wei, S. S.**, D. Tian*, F. Wang*, and W. Wang (2021), Intra-slab earthquakes and slab dehydration in the Tonga subduction zone (Invited), *Japan Geoscience Union Meeting 2021*, Virtual.
 - **Wei, S. S.**, P. M. Shearer, C. Lithgow-Bertelloni, L. Stixrude, and D. Tian* (2021), Oceanic plateau of the Hawaiian mantle plume head subducted to the uppermost lower mantle, *2021 EGU General Assembly*, Virtual.
 - **Wei, S. S.**, P. Ruprecht, S. L. Gable*, E. Huggins, N. Ruppert, L. Gao, and H. Zhang (2021), Along-strike variations in intermediate-depth seismicity and arc magmatism along the Alaska Peninsula, *2021 SSA Annual Meeting*, Virtual.
 - **Wei, S. S.**, D. Tian*, P. M. Shearer, M. Lv, S. Dorfman, C. R. Lithgow-Bertelloni, and L. Stixrude (2020), Compositional heterogeneities in the mid-mantle revealed by seismic discontinuities and reflectors, *2020 AGU Fall Meeting*, Virtual.
 - Tian, D.*, W. Wang, F. Wang*, and **S. S. Wei** (2020), Source Spectra of Intermediate-depth and Deep Earthquakes in the Tonga Subduction Zone, *2020 AGU Fall Meeting*, Virtual.
 - Wang, F.* and **S. S. Wei** (2020), Deep low-velocity layer in the Tonga slab, *2020 AGU Fall Meeting*, Virtual.
 - Zhang, Y.*, **S. S. Wei**, and L. Linkimer (2020), Seismic attenuation above the Pampean flat slab in South America, *2020 AGU Fall Meeting*, Virtual.
 - Glisovic, P., S. P. Grand, C. Lu, A. M. Forte, and **S. S. Wei** (2020), Improved Joint Seismic-Geodynamic Tomography: Effects of Topography at Discontinuities in the Transition Zone on Mantle Heterogeneity and Convection-Related Observables, *2020 AGU Fall Meeting*, Virtual.
 - Adams, A. N., D. A. Wiens, J. A. Conder, **S. S. Wei**, and C. Cai (2020), Along Strike Variations in Structure and Melt Production in the Lau Back Arc Spreading Center from Body-wave Tomography, *2020 AGU Fall Meeting*, Virtual.
 - **Wei, S. S.**, D. Tian*, and P. M. Shearer (2020), Seismic discontinuities and compositional

- heterogeneities in the mid-mantle, *2020 SSA Annual Meeting*, Albuquerque, NM.
- **Wei, S. S.**, S. L. Gable*, N. Ruppert, and H. Zhang (2019), Along-strike segmentation of intermediate-depth seismicity along the Alaska Peninsula and implications for slab dehydration, *2019 AGU Fall Meeting*, San Francisco, CA.
 - Tian, D.*, W. Wang, and **S. S. Wei** (2019), Source spectra and stress drop of deep earthquakes in the Tonga subduction zone, *2019 AGU Fall Meeting*, San Francisco, CA.
 - Wang, F.* and **S. S. Wei** (2019), Seismic constraints on the hydrous state of the Tonga slab, *2019 AGU Fall Meeting*, San Francisco, CA.
 - Gable, S. L.* and **S. S. Wei** (2019), Along-strike variations in b-value for subduction zone earthquakes at the Alaska Peninsula, *2019 AGU Fall Meeting*, San Francisco, CA.
 - **Wei, S. S.**, S. L. Gable*, N. Ruppert, and H. Zhang (2019), Along-strike segmentation of intermediate-depth seismicity along the Alaska Peninsula, *2019 SAGE/GAGE Workshop*, Portland, OR.
 - **Wei, S. S.**, S. L. Gable*, N. Ruppert, and H. Zhang (2019), Along-strike segmentation of intermediate-depth seismicity along the Alaska Peninsula and implications for slab dehydration, *Aleutian-Alaska Workshop for GeoPRISMS Synthesis*, Palisade, NY.
 - **Wei, S. S.**, P. M. Shearer, and D. Tian* (2019), A strong seismic reflector above the Kamchatka slab in the lower mantle, *2019 Interior of the Earth Gordon Research Conference*, South Hadley, MA.
 - Tian, D.*, **S. S. Wei**, and P. M. Shearer (2019), Global variations of the 520-km discontinuity, *2019 Interior of the Earth Gordon Research Conference*, South Hadley, MA.
 - Wang, F.* and **S. S. Wei** (2019), Refining the Tonga slab surface with converted and guided waves, *2019 Interior of the Earth Gordon Research Conference*, South Hadley, MA.
 - **Wei, S. S.** and D. A. Wiens (2019), Significant bulk attenuation in the Tonga-Lau mantle wedge, *2019 SSA Annual Meeting*, Seattle, WA.
 - **Wei, S. S.** (2019), Seismic constraints on subducted hydrous minerals in the Tonga slab, *GeoPRISMS Synthesis & Integration Theoretical and Experimental Institute*, San Antonio, TX.
 - Tian, D.*, **S. S. Wei**, and P. M. Shearer (2018), Global variations of the 520-km discontinuity, *2018 AGU Fall Meeting*, Washington, DC.
 - **Wei, S. S.** and P. M. Shearer (2018), A strong seismic reflector above the Kamchatka slab in the lower mantle, *2018 AGU Fall Meeting*, Washington, DC.
 - **Wei, S. S.** and P. M. Shearer (2018), Flat slabs revealed by SS precursors, *2018 IRIS Annual Workshop*, Albuquerque, NM.
 - **Wei, S. S.** and P. M. Shearer (2017), Substructures of the mantle transition zone discontinuities and compositional heterogeneities in the mid-mantle, *2017 AGU Fall Meeting*, New Orleans, LA.
 - Alongi, T.*, **S. S. Wei**, and D. K. Blackman (2017), Refining the Tonga slab geometry using slab phases of seismic waves, *2017 AGU Fall Meeting*, New Orleans, LA.
 - **Wei, S. S.** and D. A. Wiens (2017), Significant shear and bulk attenuation in the Tonga-Lau subduction system, *2017 OBS Symposium*, Portland, ME.
 - **Wei, S. S.** and P. M. Shearer (2017), A sporadic low-velocity layer atop the 410-km discontinuity beneath the Pacific Ocean, *2017 Interior of the Earth Gordon Research Conference*, South Hadley, MA.
 - **Wei, S. S.** and D. A. Wiens (2017), Significant shear and bulk attenuation in the Tonga-Lau

- subduction system, *2017 JpGU-AGU Joint Meeting*, Chiba, Japan.
- **Wei, S. S.**, D. A. Wiens, P. E. van Keken, and C. Cai (2017), Slab temperature controls on the Tonga double seismic zone and slab mantle dehydration, *2017 JpGU-AGU Joint Meeting*, Chiba, Japan.
 - **Wei, S. S.** and P. M. Shearer (2017), A sporadic low-velocity layer atop the 410-km discontinuity beneath the Pacific Ocean, *2017 JpGU-AGU Joint Meeting*, Chiba, Japan.
 - **Wei, S. S.**, P. M. Shearer, and J. S. Buehler (2016), Lateral variations of mantle transition-zone discontinuities, *2016 AGU Fall Meeting*, San Francisco, CA.
 - **Wei, S. S.**, P. M. Shearer, and J. S. Buehler (2016), Preliminary results of searching for upper mantle discontinuities, *2016 IRIS Annual Workshop*, Vancouver, WA.
 - **Wei, S. S.**, D. A. Wiens, P. E. van Keken (2015), The intermediate-depth Tonga double-seismic zone and relationship to slab thermal structure, *2015 AGU Fall Meeting*, San Francisco, CA.
 - **Wei, S. S.**, and D. A. Wiens (2015), Mantle melting beneath the Lau back-arc basin from seismic imaging, *GeoPRISMS Theoretical and Experimental Institute for the Subduction Cycles and Deformation Initiative*, Redondo Beach, CA.
 - **Wei, S. S.**, Y. Zha, D. A. Wiens, and S. C. Webb (2015), Seismic velocity and attenuation tomography of the Tonga arc and Lau back-arc basin, *2015 Interior of the Earth Gordon Research Conference*, South Hadley, MA.
 - **Wei, S. S.**, Y. Zha, D. A. Wiens, and S. C. Webb (2015), Seismic velocity and attenuation tomography of the Tonga arc and Lau back-arc basin, *2015 SSA Annual Meeting*, Pasadena, CA.
 - **Wei, S. S.**, Y. Zha, D. A. Wiens, and S. C. Webb (2014), Seismic velocity and attenuation tomography of the Tonga arc and Lau back-arc basin, *2014 AGU Fall Meeting*, San Francisco, CA.
 - **Wei, S. S.**, D. A. Wiens, S. C. Webb, R. A. Dunn, and J. A. Conder (2014), Seismic attenuation structure of the Lau back-arc basin from a local amphibious array, *IRIS Workshop on the Future of the Amphibious Array*, Snowbird, UT.
 - **Wei, S. S.**, D. A. Wiens, S. C. Webb, D. K. Blackman, R. A. Dunn, and J. A. Conder (2014), Seismic attenuation structure of the Lau back-arc basin, *2014 IRIS Annual Workshop*, Sunriver, OR.
 - **Wei, S. S.**, H. N. Relyea, D. A. Wiens, S. C. Webb, D. K. Blackman, R. A. Dunn, and J. A. Conder (2013), 3-D distribution of partial melt beneath the Lau backarc basin from seismic attenuation tomography, *2013 AGU Fall Meeting*, San Francisco, CA.
 - **Wei, S. S.**, D. A. Wiens, S. C. Webb, D. K. Blackman, R. A. Dunn, and J. A. Conder (2013), Rayleigh wave tomography of the Lau back-arc basin, *OBS Workshop*, Redondo Beach, CA.
 - **Wei, S. S.**, H. N. Relyea, D. A. Wiens, S. C. Webb, D. K. Blackman, R. A. Dunn, and J. A. Conder (2013), Shear velocity and seismic attenuation tomography of the Lau backarc spreading centers, *CIDER Attenuation Workshop*, Palisades, NY.
 - **Wei, S. S.**, D. A. Wiens, S. C. Webb, D. K. Blackman, R. A. Dunn, and J. A. Conder (2012), Shear velocity structure of the Tonga arc and Lau backarc basin from Rayleigh wave tomography, *Talk at 2012 AGU Fall Meeting*, San Francisco, CA.
 - **Wei, S. S.**, and D. A. Wiens, (2012), Seismic structure of the Lau backarc spreading center from Rayleigh wave tomography, *2012 IRIS Annual Workshop*, Boise, ID.
 - **Wei, S.**, Y. J. Chen, H. Yue, G. Jin, X. Liang, S. Zhou, Z. Ge, Y. Feng, Y. Wang, Y. Tang,

H. Wang, Y. Cao, W. Fan, P. Li, R. Wang, E. Sandvol, T. M. Hearn, and J. Ni, (2009), INDEPTH IV passive seismic array: locating regional earthquakes in northern Tibet, *2009 AGU Fall Meeting*, San Francisco, CA.

- **Wei, S.**, G. Jin, and Y. J. Chen (2008), Preliminary evidence for the presence of the Hainan plume from shear wave splitting analyses of a temporary seismic array, *2008 AGU Fall Meeting*, San Francisco, CA.