

# CURRICULUM VITAE

Shengji Wei

Assistant Professor

Asian School of the Environment

## Academic Qualifications

2009 PhD (Geophysics), University of Science and Technology of China

2004 BSc (Geophysics), University of Science and Technology of China

## Professional Qualifications / Memberships

2012 - Present Member, Seismological Society of America USA

2008 - Present Member, American Geophysical Union USA

## Summary of Working Experience

July 2020 – Present User Committee for HPCC, NTU

Feb 2020 - Present Assistant Chair for Research at ASE, NTU

Oct 2014 - Present Assistant Professor, Asian School of Environment, NTU

Oct 2014 - Present Principal Investigator, Earth Observatory of Singapore, NTU

Jul 2009 - Oct 2014 Research Fellow, Seismological Laboratory, Caltech, USA

## Academic Honours and Awards

| Year | Academic Honour / Award   |
|------|---|
| 2019 | AGU2018 Editor's Citation for Excellence in Refereeing - Geophysical Research Letters |

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## RESEARCH SUMMARY

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### Key Areas of Research

I use modern seismology and geophysics approaches to obtain quantitative observations, develop models and gain physical insights for a wide range of fundamental plate tectonic and earthquake physics questions. My research interests focus on seismic source studies at city to global scales, and building seismic networks in metropolis and SE Asia to address neotectonics, geodynamics and urban environmental questions. My research can be divided into the following four categories:

- Earthquake rupture process imaging and focal mechanism inversion

This work aims to develop and apply advanced methods to precisely and accurately determine kinematic and geometry parameters of earthquakes, because quantifying these parameters are critical to understand seismic hazard, earthquake physics and plate tectonics.

- SE Asia and seismology

This work focuses on acquiring modern seismic observations in SE Asia countries (e.g. Myanmar and Indonesia) to study earthquakes, volcanoes and earth structure. The outcomes of the project will improve seismic hazard planning and the understanding of plate tectonics.

- Urban Seismology

This work aims to use dense seismic observations in metropolis (e.g. Hongkong, Singapore) to understand and precisely monitor the man-made seismic sources (e.g. traffic, construction explosions), engineering responses to the seismic events and atmospheric originated seismic sources (e.g. thunders and airplanes).

- Crustal to upper mantle scale velocity structure modelling/inversion

The goal of this work is to image earth structure at a range of spatial scales (i.e., a few km to hundreds of km), and interpret the results to better understand geologic and dynamic processes of the earth.

### **Invited Presentations**

1. "Thermal squeezing of the seismogenic zone controlled multiple ruptures of the volcano-rooted Flores Thrust", April 24<sup>th</sup>, 2020, Department Seminar (online) at School of Earth and Space Science, University of Science and Technology of China
2. "An integrated 3D velocity structure imaging in Myanmar region", 2020, AOGS, Vivaldi Park, Hongcheon-gun, South Korea (The meeting was cancelled due to the COVID-19)
3. "The 2018 Mw7.5 Palu Earthquake, a Gradually Accelerating Super-shear Rupture Stopped by Stress Shadows in a Complex Fault System", 2019, AOGS annual meeting, Singapore
4. "The 2018 Mw7.5 Palu Earthquake, a Gradually Accelerating Super-shear Rupture Stopped by Stress Shadows in a Complex Fault System", 2019, Chinese Geoscience Union annual meeting ,Beijing, China
5. "Challenges and opportunities in high frequency waveform seismology", Nov, 2018, workshop for 90<sup>th</sup> anniversary of Institute of Earth Sciences (IES), Academia Sinica
6. "Multiple point source inversion and its application to the 2016 Kumamoto Mw6.2 foreshock", July 17<sup>th</sup>, 2017, workshop on "large earthquake rupture imaging and deep earth dynamic processes", organized by China University of Geosciences (Wuhan), China
7. "Source model and ground shaking of the 2015 Gorkha, Nepal Mw7.8 Earthquake", 2015, Chinese Geoscience Union annual meeting ,Beijing, China
8. "The 2012 Brawley Swarm triggered by induced aseismic slip", 2015, SSA Annual meeting, Pasadena, USA
9. "High Resolution Finite Fault Modelling of the Largest Events (M>4.8) in the 2012 Brawley Swarm", 2013, SCEC Annual Meeting, Palm Spring, USA

## Research Funding

### External Grants

| Role       | Year      | Project Title   | Amount (S\$) | Source of Grant |
|------------|-----------|---|--------------|-----------------|
| Project PI | 2021-2024 | Atom Interferometer based Gravimetry: Development and Application             |              | NRF             |
| PI         | 2020-2023 | New Constraints on Fault Geometry and Rupture Propagation of Mega-earthquakes |              | MOE-Tier2       |
| PI         | 2017-2019 | Earthquake Physics: Dynamics Of The Lithosphere-Asthenosphere System          |              | MOE-Tier1       |
| PI         | 2017-2019 | Integrated studies of the strength of Earth's lithosphere                     |              | MOE-Tier1       |
| Co-PI      | 2021-2024 | Understanding cascading earthquake ruptures on orthogonal faults              |              | MOE-Tier2       |
| Co-PI      | 2020-2023 | Multi-Scale Seismic Modelling and Imaging of Southeast Asia                   |              | MOE-Tier2       |

### Earth Observatory of Singapore Internal Grants

| Role | Year      | Project Title           | Amount (S\$) | Source of Grant |
|------|-----------|-------------------------|--------------|-----------------|
| PI   | 2019-2022 | Rupture Imaging         |              | RCE (MOE AcRF)  |
| PI   | 2019-2022 | Smart City to Tectonics |              | RCE (MOE AcRF)  |
| PI   | 2018-2022 | Indonesia Seismology    |              | RCE (MOE AcRF)  |
| PI   | 2016-2022 | Myanmar Seismology      |              | RCE (MOE AcRF)  |
| PI   | 2017-2020 | Tsunami Earthquake      |              | RCE (MOE AcRF)  |
| PI   | 2017-2019 | Short Period Array      |              | RCE (MOE AcRF)  |
| PI   | 2016-2019 | Sumatran Seismic        |              | RCE (MOE AcRF)  |

### Citation Summary (by Oct. 1<sup>st</sup>, 2021)

| Database       | Number of Publication | Citation Count         |                     | H-index |
|----------------|-----------------------|------------------------|---------------------|---------|
|                |                       | without self-citations | with self-citations |         |
| Web of Science | 84                    | 2514                   | 2375                | 24      |
| Google Scholar | 84                    | 3911                   |                     | 31      |

### Publications (in chronological order, starting with the most recent)

|                  |   |
|------------------|---|
| <b>Bold</b>      | Denotes main author<br>(the person who has made the most scientific/ intellectual contribution)   |
| <u>Underline</u> | Denotes 1st academic author<br>(only one 1st faculty author for each publication and this refers to a faculty and not a student. Faculty can be the 1st academic author if he is the main supervisor or co-supervisor. Being the 1st academic author, faculty name) |

|    |   |
|----|---|
|    | should be preceded by student/ research staff (can be more than one) and that faculty's student/research staff is the first author. |
| ^  | Denotes corresponding author  |
| ~  | Denotes PI/ Supervisor/Team Lead  |
| ** | Denotes directly supervised research staff, i.e. POs, RAs, RFs, postdocs, etc.  |
| *  | Denotes PhD or research students (supervised or co-supervised)  |
| +  | Denotes other students and research staff   |
| ## | Denotes Tier 1A papers  |
| #  | Denotes Tier 1B papers  |
| §  | Denotes equal contributions of authorship   |

***In the candidate's field the priority authorship positions are first, corresponding, second and last***

#### **Five representative publications in the last 5-years:**

1. K Lythgoe\*\*, A Loasby, D Hidayat, S. Wei~, 2021, Seismic event detection in urban Singapore using a nodal array and frequency domain array detector: earthquakes, blasts and thunderquakes, *Geophysical Journal International* 226 (3), 1542-1557#
2. H. Zeng\*, S. Wei^~ and WB Wu, 2020, Sources of uncertainties and artefacts in back-projection results, *Geophysical Journal International*, 220 (2), 876-891. #
3. Y Qian\*\*, S. Wei^~, W Wu, H Zeng, A Coudurier-Curveur and S Ni, (2019) Teleseismic waveform complexities caused by near trench structures and their impacts on earthquake source study: application to the 2015 Illapel aftershocks (Central Chile), *Journal of Geophysical Research Solid Earth*.##
4. S. Wei^~, M Chen\*\*, X Wang\*\*, R Graves, E Lindsey, T Wang\*\*, Ç Karakaş and D Helmlinger, (2018) The 2015 Gorkha (Nepal) earthquake sequence: I. Source modeling and deterministic 3D ground shaking, *Tectonophysics* 722, 447-461. ##
5. T. Wang\*\*, Q. Shi\*, M. Nikkhoo, S. Wei^~, S. Barbot, D. Dreger, R. Bürgmann, M. Motagh, and Q.F. Chen, 2018. The rise, collapse, and compaction of Mt. Mantap from the 3 September 2017 North Korean nuclear test. *Science*, 361(6398), pp.166-170. ##

#### **Full publication list:**

2021

1. D Nurfiani\*, X Wang, H Gunawan, H Triastuty, D Hidayat, SJ Wei, B Taisne, C Bouvet de Maisonneuve, 2021, Combining petrology and seismology to unravel the plumbing system of a typical arc volcano: An example from Marapi, West Sumatra, Indonesia, *Geochemistry, Geophysics, Geosystems* 22 (4), e2020GC009524#
2. A F Sarjan, Z Zulfakriza, A Nugraha, S Rosalia, S Wei, S Widiyantoro, P Cummins, M Muzli, D Sahara, N Puspito, A Priyono, H Afif, 2021, Delineation of Upper Crustal Structure Beneath the Island of Lombok, Indonesia, Using Ambient Seismic Noise Tomography, *Frontiers in Earth Science* 9, 269#
3. W Liu\*, H Yao, S Wei, 2021, Frequency- Dependent Rupture Characteristics of the 30 October 2016 Mw 6.5 Norcia, Italy Earthquake Inferred From Joint Multi- Scale Slip Inversion, *Journal of Geophysical Research: Solid Earth* 126 (5), e2020JB020706##

4. W Fadil\*, EO Lindsey, Y Wang, PM Maung, H Luo, TL Swe, PP Tun, **S Wei^~**, 2021, The January 11, 2018, Mw 6.0 Bago-Yoma, Myanmar Earthquake: A Shallow Thrust Event Within the Deforming Bago-Yoma Range, *Journal of Geophysical Research: Solid Earth* 126 (7), e2020JB021313##
5. K Lythgoe\*\*, A Loasby, D Hidayat, **S Wei~**, 2021, Seismic event detection in urban Singapore using a nodal array and frequency domain array detector: earthquakes, blasts and thunderquakes, *Geophysical Journal International* 226 (3), 1542-1557#
6. A Priyono, A Nugraha, M Muzli, A Ardianto, A Aulia, B Prabowo, Z Zulfakriza, S Rosalia, A Sasmi, H Afif, D Sahara, S Widiyantoro, S Wei, Y Husni, A Sarjan, 2021, Seismic Attenuation Tomography of the 2018 Lombok, Indonesia, Earthquake Aftershocks, *Frontiers in Earth Science*, 9, 191#
7. ND Hananto, F Leclerc, L Li, M Etchebes, H Carton, P Tapponnier, Y Qin, P Avianto, SC Singh, S Wei, 2021, Tsunami earthquakes: Vertical pop-up expulsion at the forefront of subduction megathrust: Reply to Commentary, *Earth and Planetary Science Letters*, 557, 116744##
8. J Yao+, S Liu+, S Wei~, J Hubbard, BS Huang, M Chen, P Tong, 2021, Slab Models Beneath Central Myanmar Revealed by a Joint Inversion of Regional and Teleseismic Traveltime Data, *Journal of Geophysical Research: Solid Earth* 126 (2), e2020JB020164##
9. JC Neo\*\*, Y Huang, D Yao, S Wei~, 2021, Is the Aftershock Zone Area a Good Proxy for the Mainshock Rupture Area? *Bulletin of the Seismological Society of America*, 111 (1), 424-438#
10. H. Luo+, T. Wang, **S. Wei~**, M. Liao and J. Gong, 2021. Deriving Centimeter-Level Coseismic Deformation and Fault Geometries of Small-To-Moderate Earthquakes From Time-Series Sentinel-1 SAR Images. *Frontiers in Earth Science*, 9, p.32.#
11. S. Wu+, J. Yao+, S. Wei~, J. Hubbard, Y. Wang, Y.M.M. Htwe, M. Thant, X. Wang, K. Wang, T. Liu, and Q. Liu, Q., 2021. New insights into the structural heterogeneity and geodynamics of the Indo-Burma subduction zone from ambient noise tomography. *Earth and Planetary Science Letters*, 562, p.116856.##
12. K. Lythgoe\*\*, M. Muzli\*\*, K. Bradley, T. Wang, A. Nugraha, Z. Zulfakriza, S. Widiyantoro, **S. Wei~**, 2021, Thermal squeezing of the seismogenic zone controlled rupture of the volcano-rooted Flores Thrust, *Science Advances*##

2020

13. P. Nanjundiah\*, S. Barbot and **S. Wei~**, 2020. Static source properties of slow and fast earthquakes. *Journal of Geophysical Research: Solid Earth*, p.e2019JB019028.##
14. T. Wang\*\*, L. Jiao, P. Tapponnier, X. Shi, **S. Wei~**, 2020. Space imaging geodesy reveals near circular, coseismic block rotation during the 2016 Mw7. 8 Kaikōura earthquake, New Zealand. *Geophysical Research Letters*, p.e2020GL090206.##
15. X. Wang\*\*, Q.F. Chen, F. Niu, **S. Wei**, Ning, J. Li, W. Wang, J. Buchen, and L. Liu, 2020. Distinct slab interfaces imaged within the mantle transition zone. *Nature Geoscience*, pp.1-6.##
16. Q. Shi\*, and **S. Wei^~**, 2020. Highly heterogeneous pore fluid pressure enabled rupture of orthogonal faults during the 2019 Ridgecrest Mw7. 0 earthquake. *Geophysical Research Letters*, 47(20), p.e2020GL089827.##
17. A.T. Sasmi, A.D. Nugraha, M. Muzli\*\*, S. Widiyantoro, Z. Zulfakriza, S. Wei, D.P. Sahara, A. Riyanto, N.T. Puspito, A. Priyono and T. Greenfield, 2020. Hypocenter

and Magnitude Analysis of Aftershocks of the 2018 Lombok, Indonesia, Earthquakes Using Local Seismographic Networks. *Seismological Research Letters*. #

18. Q. Qiu\*\*, S. Barbot, T. Wang, and S. Wei~, 2020. Slip Complementarity and Triggering between the Foreshock, Mainshock, and Afterslip of the 2019 Ridgecrest Rupture Sequence. *Bulletin of the Seismological Society of America*. #
19. S.S. Martin\*\*, Y. Wang, M. Muzli and S. Wei~, 2020. The 1922 Peninsula Malaysia Earthquakes: Rare Intraplate Seismicity within the Sundaland Block in Southeast Asia. *Seismological Research Letters*.#
20. R. Salman+, E. Lindsey, K. Lythgoe, K. Bradley, M. Muzli, S.H. Yun, S.T. Chin, C.W. Tay, F. Costa, S. Wei, and E.M. Hill, 2020. Cascading Partial Rupture of the Flores Thrust during the 2018 Lombok Earthquake Sequence, Indonesia. *Seismological Research Letters*.#
21. M.D. Ramos+, J.C. Neo, P. Thakur, Y. Huang, and S. Wei, 2020. Stress Changes on the Garlock fault during and after the 2019 Ridgecrest Earthquake Sequence. *Bulletin of the Seismological Society of America*. #
22. N.D. Hananto, F. Leclerc, L. Li, M. Etchebes, H. Carton, P. Tapponnier, Y. Qin, P. Avianto, S.C. Singh, and S. Wei, 2020, Tsunami earthquakes: Vertical pop-up expulsion at the forefront of subduction megathrust. *Earth and Planetary Science Letters*, 538, p.116197.##
23. Q. Shi\*, S. Barbot, S. Wei~, P. Tapponnier, T. Matsuzawa, B. Shibazaki, 2020, Structural control and system-level behavior of the seismic cycle at the Nankai Trough. *Earth, Planets and Space (Online)*, 72(1).#
24. H. Zeng\*, S. Wei^~ and WB Wu, 2020, Sources of uncertainties and artefacts in back-projection results, *Geophysical Journal International*, 220 (2), 876-891. #
25. R. Salman+, E.O. Lindsey, L. Feng, K. Bradley, S. Wei, T. Wang, M.R. Daryono, and E.M. Hill, 2020, Structural Controls on Rupture Extent of Recent Sumatran Fault Zone Earthquakes, Indonesia, *Journal of Geophysical Research: Solid Earth*, p.e2019JB018101##
26. K. Lythgoe\*\*, M. Qing, and S. Wei~, (2020), Large-scale crustal structure beneath Singapore using receiver functions from a dense urban nodal array. *Geophysical Research Letters*.##

2019

27. K. Bradley, Y. Qin, H. Carton, N. Hananto, F. Villanueva- Robles, F. Leclerc, S. Wei, P. Tapponnier, K. Sieh and S. Singh, (2019). Stratigraphic control of frontal décollement level and structural vergence and implications for tsunamigenic earthquake hazard in Sumatra, Indonesia. *Geochemistry, Geophysics, Geosystems*, 20(3), pp.1646-1664. #
28. K. Bradley, R. Mallick, H. Andikagumi, J. Hubbard, E. Meilianda, A. Switzer, N. Du, G. Brocard, D. Alfian, B. Benazir, G. Feng, S. Yun, J. Majewski, S. Wei and E. Hill, (2019). Earthquake-triggered 2018 Palu Valley landslides enabled by wet rice cultivation. *Nature Geoscience*, 12(11), pp.935-939.##
29. Y Qian\*\*, X Chen, H Luo, S. Wei~, T Wang, Z Zhang, X Luo (2019), An extremely shallow Mw4. 1 thrust earthquake in the eastern Sichuan Basin (China) likely triggered by unloading during infrastructure construction, *Geophysical Research Letters*. ##
30. X Shi+, P Tapponnier, T Wang, S. Wei, Y Wang, X Wang, L Jiao (2019), Triple junction kinematics accounts for the 2016 Mw 7.8 Kaikoura earthquake rupture

complexity, Proceedings of the National Academy of Sciences 116 (52), 26367-26375.##

31. LT Aung+, SS Martin, Y Wang, S. Wei, M Thant, KN Htay, HM Aung, TZ Kyaw, S Min, K Sithu, and T Naing, (2019). A comprehensive assessment of ground motions from two 2016 intra-slab earthquakes in Myanmar. Tectonophysics.##
32. Y Qian\*\*, S. Wei~, W Wu, H Zeng, A Coudurier-Curveur and S Ni, (2019) Teleseismic waveform complexities caused by near trench structures and their impacts on earthquake source study: application to the 2015 Illapel aftershocks (Central Chile), Journal of Geophysical Research Solid Earth.##
33. M Chen\*\*, S. Wei~, (2019), The 2015 Gorkha (Nepal) Earthquake sequence: II. Broadband simulation of ground motion in Kathmandu, Bulletin of the Seismological Society of America.#
34. X. Wang\*\*, S. Wei~, Y Wang, P. Maung-Maung, J Hubbard, P Banerjee, B Huang, K Moe-Oo, T. Bodin, A Foster and R Almeida, (2019) A 3D Shear-Wave Velocity Model for Myanmar Region, Journal of Geophysical Research Solid Earth. ##
35. K Materna+, S. Wei~, X Wang\*\*, H Luo\*\*, T Wang\*\*, W Chen\*\*, R Salman, R Bürgmann (2019), Source characteristics of the 2017 Mw 6.4 Mojabana, Botswana earthquake, a rare lower-crustal event within an ancient zone of weakness, Earth and Planetary Science Letters. ##

2018

36. S Liu+, I Suardi, D Yang, S. Wei, P Tong, (2019) Teleseismic traveltimes tomography of the northern Sumatra, Geophysical Research Letters. ##
37. L. Jiao+, P. Tapponnier, F. Costa, F. Donzé, L. Scholtès, B. Taisne and S. Wei (2018), Necking and fracturing may explain stationary seismicity and full degassing in volcanic silicic spine extrusion. Earth and Planetary Science Letters, Volume: 503 , Pages: 47-57##
38. T. Wang\*\*, Q. Shi\*, M. Nikkhoo, S. Wei~, S. Barbot, D. Dreger, R. Bürgmann, M. Motagh, and Q.F. Chen, 2018. The rise, collapse, and compaction of Mt. Mantap from the 3 September 2017 North Korean nuclear test. Science, 361(6398), pp.166-170. ##
39. M Muzli\*\*, M Umar, AD Nugraha, KE Bradle, S Widiyantoro, K Erbas, P Jousset, S Rohadi, I Nurdin, S. Wei~. (2018) The 2016 M w 6.5 Pidie Jaya, Aceh, North Sumatra, Earthquake: Reactivation of an Unidentified Sinistral Fault in a Region of Distributed Deformation. Seismological Research Letters. 2018 Jul 25. #
40. W Wu+, S Ni, Z Zhan, S. Wei. (2018) An SEM-DSM three-dimensional hybrid method for modelling teleseismic waves with complicated source-side structures. Geophysical Journal International. 215(1):133-54. #
41. Q. Shi\*, S. Wei~. and M. Chen^, 2018. An MCMC multiple point sources inversion scheme and its application to the 2016 Kumamoto Mw 6.2 earthquake. Geophysical Journal International. #
42. X Wang\*\*, KE Bradley, S. Wei~, W Wu, (2018) Active backstop faults in the Mentawai region of Sumatra, Indonesia, revealed by teleseismic broadband waveform modeling, Earth and Planetary Science Letters 483, 29-38. ##
43. T Wang\*\*, S. Wei~, X Shi, Q Qiu, L Li, D Peng, RJ Weldon, S Barbot, (2018) The 2016 Kaikōura earthquake: Simultaneous rupture of the subduction interface and overlying faults, Earth and Planetary Science Letters 482, 44-51. ##

44. **S. Wei**<sup>^~</sup>, M Chen<sup>\*\*</sup>, X Wang<sup>\*\*</sup>, R Graves, E Lindsey, T Wang<sup>\*\*</sup>, Ç Karakaş and D Helmberger, (2018) The 2015 Gorkha (Nepal) earthquake sequence: I. Source modeling and deterministic 3D ground shaking, *Tectonophysics* 722, 447-461. ##

2017

45. X Wang<sup>\*\*</sup>, **S. Wei**<sup>^~</sup>, W Wu, (2017) Double-ramp on the Main Himalayan Thrust revealed by broadband waveform modeling of the 2015 Gorkha earthquake sequence, *Earth and Planetary Science Letters* 473, 83-93##
46. Y Qian<sup>\*\*</sup>, S Ni, **S. Wei**<sup>~</sup>, R Almeida, H Zhang, (2017) The effects of core-reflected waves on finite fault inversions with teleseismic body wave data, *Geophysical Journal International* 211 (2), 958-973. #
47. X Xiong, B Shan, YM Zhou, S Wei, YD Li, RJ Wang, Y Zheng, (2017) Coulomb Stress Transfer and Accumulation on the Sagaing Fault, Myanmar over the Past 110 years and Its Implications for Seismic Hazard, *Geophysical Research Letters*, <https://doi.org/10.1002/2017GL072770>. ##
48. J. Moore+, H. Yu, C-H. Tang, T. Wang, S. Barbot, D.J. Peng, S. Masuti, J. Dauwels, Y-J. Hsu, V. Lambert, P. Nanjudiah, S Wei, E. Lindsey, L. Feng and B. Shibazaki (2017), Imaging the distribution of transient viscosity after the 2016 Mw 7.1 Kumamoto earthquake, *Science*. ##
49. Y. Wang+, **S. Wei**, X. Wang<sup>\*\*</sup>, E. Lindsey, F. Tongkul, K. Bradley, C. Han, E. Hill, K. Sieh. (2017) The 2015 Mw 6.0 Mt. Kinabalu Earthquake: An Infrequent Fault Rupture within the Crocker Fault System of East Malaysia, *Geoscience Letters*.
50. R. Chu, J. Ko, S. Wei, Z. Zhan and D. Helmberger, (2017) Lithospheric Radial Anisotropy beneath the Gulf of Mexico, *Earth and Planetary Science Letters*. ##
51. V. Lai+, R. Graves, S. Wei, DV Helmberger, (2017) Evidence for strong lateral seismic velocity variation in the lower crust and upper mantle beneath the California margin, *Earth and Planetary Science Letters*, 463, pp.202-211. ##
52. X Shi+, Y Wang, J Liu-Zeng, R Weldon, S Wei, T Wang, K Sieh, (2017) How complex is the 2016 M w 7.8 Kaikoura earthquake, South Island, New Zealand? *Science Bulletin*.#
53. S. Singh, N. Hananto, Y. Qin, F. Leclerc, P. Avianto, P. Tapponnier, H. Carton, S. Wei, A. Nugroho, W. Gemilang, K. Sieh, S. Barbot. 2017, The discovery of a conjugate system of faults in the Wharton Basin intraplate deformation zone. *Science Advances*, 3(1):e1601689. ##

2016

54. S. Lui+, D. V. Helmberger, J. Yu, S. Wei, Rapid Assessment of Earthquake Source Characteristics, *Bulletin of the Seismological Society of America*, 106(6), pp.2490-2499. #
55. X. Wang\*, Q. F. Chen, J. Li and **S. Wei**, Seismic sensor misorientation measurement using P wave particle motion: an application to the NECsaids Array, *Seismological Research Letters*, 87 (4), 901-911#

2015

56. T. Wang, S. Wei, and S. Jonsson, Coseismic displacements from SAR image offsets between different satellite sensors: Application to the 2001 Bhuj (India) earthquake, *Geophysical Research Letters*. 42 (17), 7022-7030##
57. J. P. Avouac, L. S. Meng, S. Wei, T. Wang and J. P. Ampuero, Lower edge of locked Main Himalayan Thrust unzipped by the 2015 Gorkha earthquake, (2015), *Nature Geoscience*, doi:10.1038/ngeo2518. ##



58. **S. Wei**<sup>^</sup>, J. P. Avouac, K. Hudnut, J. Paker, D. Andrea, R. Graves, D. Helmberger, E. Fielding, Z. Liu, F. Cappa and M. Eneva, (2015), The 2012 Brawley Swarm triggered by induced aseismic slip, *Earth and Planetary Science Letters*, 422 (2015) 115–125. ##
59. W. W. Chen, S. D. Ni, H. Kanamori, S. Wei, Z. Jia and L. P. Zhu, CAPjoint, A Computer Software Package for Joint Inversion of Moderate Earthquake Source Parameters with Local and Teleseismic Waveforms, *Seismological Research Letters*, 2015, 86 (2A), 432-441. #
60. **S. Wei**<sup>^</sup>, S. Barbot, R. W. Graves, J. J. Lienkaemper, T. Wang, K. Hudnut, Y. N. Fu and D. Helmberger, The 2014 Mw6.1 South Napa Earthquake: A unilateral rupture with shallow asperity and rapid afterslip, *Seismological Research Letters*, 2015, 86 (2A), 344-354. #
61. S. Lui, D. V. Helmberger, S. Wei, Y. H. Huang and R. Graves, Interrogation of the megathrust zone in the Tohoku-Oki seismic region by waveform complexity: intraslab earthquake rupture and reactivation, *Pure Applied Geophysics*, 2015, DOI 10.1007/s00024-015-1042-9.

#### 2014

62. J. P. Avouac, F. Ayoub, S. Wei, J. P. Ampureo, L. S. Meng, S. Leprince, R. Jolivet, Z. Duputel and D. V. Helmberger, The 2013, Mw 7.7 Balochistan earthquake, energetic strike-slip reactivation of a thrust fault, *Earth and Planetary Science Letters*, 2014, <http://dx.doi.org/10.1016/j.epsl.2014.01.036>. ##
63. Z. W. Zhan, H. Kanamori, V. Tsai, D. V. Helmberger and S. Wei, Rupture complexity of the 1994 Bolivia and 2013 Sea of Okhotsk deep earthquakes, *Earth and Planetary Science Letters*, 2013, 385, 89-96. ##

#### 2013

64. E. Hauksson, J. Stock, R. Bilham, M. Boese, X. Chen, E. Fielding, J. Galetzka, K. Hudnut, K. Hutton, L. Jones, and K. Kanamori, P. Shearer, J. Steidl, J. Treiman, S. Wei and W. Yang, 2013, Report on the August 2012 Brawley earthquake swarm in Imperial Valley, southern California. *Seismological Research Letters*, 84(2), pp.177-189. #
65. **S. Wei**<sup>^</sup>, D. V. Helmberger and J. P. Avouac, Modeling the 2012 Wharton Basin Earthquakes off-Sumatra; Complete Lithospheric Failure, *Journal of Geophysical Research Solid Earth*, 2013, 118, 3592–3609, doi:10.1002/jgrb.50267. ##
66. **S. Wei**<sup>^</sup>, D. V. Helmberger, S. Owen, R. W. Graves, K. W. Hudnut and E. Fielding, Complementary slip distributions of the largest earthquakes in the 2012 Brawley swarm, Imperial Valley, California, *Geophysical Research Letters*, 2013, 40, 1–6, doi:10.1002/grl.50259. ##
67. **S. Wei**<sup>^</sup>, D. V. Helmberger, Z.W. Zhan and R. W. Graves, Rupture complexity of the Mw 8.3 Sea of Okhotsk earthquake: rapid triggering of complementary earthquakes?, *Geophysical Research Letters*, 2013, 40, 1-6, doi: 10.1002/grl.50977. ##

#### 2012

68. **S. Wei**<sup>^</sup>, Z. W. Zhan, Y. Tan, S. D. Ni and D. Helmberger, Locating earthquake with surface waves and centroid moment tensor estimation, *Journal of Geophysical Research Solid Earth*, 2012, 117, doi:10.1029/2011JB008501. ##
69. **S. Wei**<sup>^</sup>, R. W. Graves, D. V. Helmberger, J-P. Avouac and J. L. Jiang, Different rupture sources of shaking and flooding during the Tohoku-Oki Earthquake: a mixture of rupture style, *Earth and Planetary Science Letters*, 2012, 91-100. ##

70. R. S. Chu, S. Wei, D. Helmberger, Z. W. Zhan, L. P. Zhu and H. Kanamori, Initiation of the great Mw 9.0 Tohoku–Oki earthquake, *Earth and Planetary Science Letters*, 2011, doi:10.1016/j.epsl.2011.06.031. ##
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## TEACHING SUMMARY

### Courses Taught (since joining NTU)

| <i>Course Code</i> | <i>Course Title</i>                     | <i>Academic Year</i> | <i>Course Level</i> |
|--------------------|---|----------------------|---------------------|
| ES4092/7008        | Geophysical Data Analysis               | AY15 – present       | UG+PG               |
| ES7016/4911        | Observational Seismology                | AY15 – present       | UG+PG               |
| ES7001/8001        | Natural Hazards and Society             | AY15 – present       | UG+PG               |
| ES7002             | Research Skills in Earth System Science | AY15 – AY17          | PG                  |

### Academic Supervision and Mentoring

#### PhD students

| No.              | PhD Student  | Period         | Role            | Thesis/ Project Title  | Current Status |
|------------------|--------------|----------------|-----------------|--|----------------|
| <b>Current</b>   |              |                |                 |  |                |
| 1                | Win          | 2021-present   | Sole            | Myanmar earthquake seismology                                    |                |
| 2                | Wardah FADIL | 2017 – present | Sole Supervisor | Myanmar seismology and neotectonics                              |                |
| 3                | ZENG Hongyu  | 2020-present   | Sole Supervisor | Back-projection earthquake source imaging and earthquake physics |                |
| 4                | LI Tianjue   | 2020-present   | Co-supervisor   | Lithospheric scale velocity structure in Myanmar                 | SPMS/NTU       |
| <b>Graduated</b> |              |                |                 |  |                |

|   |   |                |                 |   |   |
|---|---|----------------|-----------------|---|---|
| 1 | SHI Qibin                                   | 2016 - present | Sole Supervisor | Multiple point source inversion for medium to large earthquakes in complex structure                          | Postdoc at University of Washington   |
| 2 | Nanjundiah Priyamvada                       | 2015 – 2020    | Main Supervisor | Kinematic slip model inversion and statistics for large earthquakes   | Research Assistant at EOS   |
| 3 | Mele Veedu Deepa                            | 2014-2019      | Main Supervisor | Slow and fast slip events near the stability transition from laboratory experiments and numerical simulations | Research Fellow at EOS  |
| 4 | QIAN Yunyi (visiting PhD student from USTC) | 2017 – 2018    | Co-Supervisor   | Earthquake focal mechanism with sparse network  | Research Assistant Professor at Southern University of Science and Technology |
| 5 | LUO Heng (visiting PhD student)             | 2017 - 2018    | Co-supervisor   | High-resolution surface deformation from small to moderate size earthquakes                                   | PhD student at Wuhan University   |

### Masters students (By Coursework) & Undergraduate Students

| No. Graduated<br>[Since joining NTU] |  |       |                    | No. Currently Supervising |     |  |                       |
|--------------------------------------|--|-------|--------------------|---------------------------|-----|--|-----------------------|
| MSc <sup>#</sup>                     | FYP  | URECA | CNYang             | MSc <sup>#</sup>          | FYP | URECA  | CNYang                |
|                                      | 3 (Fang Shiyuan, Jing-Ci Neo, Ong Su Qing) |       | 1 (Sun Huiwen-ASE) |                           |     | 2 (Wilson Thurman Teng - CS, Athaya Qasamah Jauhari – CEE) | 1 (Choong Zheng Yang) |

<sup>#</sup> MSc students (by coursework), include those taking either dissertation or Independent Study Module

### Post-doctoral fellows

| No.                  | Post-doc Fellow | Appointment      | Period | Project Title         | Current Status |
|----------------------|-----------------|------------------|--------|-----------------------|----------------|
| <b>In employment</b> |                 |                  |        |                       |                |
| 1                    | Karen           | NTU Presidential | 2018 – | Urban and dense array |                |

|                     |                  |   |                |   |   |
|---------------------|------------------|---|----------------|---|---|
|                     | Lythgoe          | Postdoctoral Fellow (2018-20)                           | present        | seismology  |   |
| 2                   | Weiwen Chen      | Research Fellow   | 2015 - present | Joint inversion of regional and teleseismic waveforms for moment tensor inversion |   |
| 3                   | Chenyu Li        | Research Fellow   | 2021-present   | Earthquake and tremor detection   |   |
| 4                   | Yukuan Chen      | Research Fellow   | 2020 - present | Earthquake detection in SE Asia   |   |
| 5                   | Mele Veedu Deepa | Research Fellow (co-supervised with Prof. Ares Rosakis) | 2020-present   | Rock mechanics and earthquake dynamic simulations                                 |   |
| <b>Left service</b> |                  |   |                |   |   |
| 1                   | WANG Teng        | Senior Research Fellow                                  | 2017–2018      | SAR/InSAR observations for earthquakes and volcanoes                              | Assistant Professor at Peking University  |
| 2                   | WANG Xin         | Research Fellow   | 2017-2019      | Precise earthquake focal mechanism inversion                                      | Associate Professor at Institute of Geology and Geodynamics at Chinese Academic of Sciences |
| 3                   | CHEN Meng        | Research Fellow   | 2015 - 2019    | Broadband ground motion simulations for large earthquakes                         | Research Assistant Professor at University of Electronic Science and Technology of China    |
| 4                   | Muzli MUZLI      | Research Fellow   | 2015 – 2019    | Earthquake source parameter studies by using BMKG and temporary networks          | Research Scientist at BMKG  |

## SERVICE SUMMARY

### School

| Period of appointment | Role  |
|-----------------------|---|
| 2020 – present        | ASE Qualify Exam (QE) committee member      |
| 2020 – present        | Assistant Chair for Research at ASE         |
| 2019 - 2020           | Interim Assistant Chair for Research at ASE |

|                |   |
|----------------|---|
| 2018 - present | Chair of committee of High Performance Cluster at ASE/EOS |
| 2016           | PhD examiner of Dr. Qiang Qiu at ASE/EOS                  |
| 2014 - 2016    | Department seminar organizer                              |

### University

| Period of appointment | Role   |
|-----------------------|--|
| 2018 – Aug.           | Organized “Advanced Waveform Seismology” Workshop at NTU   |
| 2015 – Aug.           | Organized Sloan Foundation workshop “Frontiers in earthquake hazards science and earthquake preparedness: Reducing the risk and promoting resilience” at NTU |

### Academic Community

| Period of appointment | Role   |
|-----------------------|--|
| 2021 Oct - now        | Associate Editor of “Bulletin of the Seismological Society of America”   |
| 2021 Feb - now        | Editorial board of “Earthquake Science”  |
| 2021 Aug - now        | Associate Editor of “Geoscience Letters”   |
| 2019 - 2020           | Guest Editor of “Geoscience Letters”   |
| 2019 July             | Convener of AOGS annual meeting session “Integrating Our Understanding of the 2018 Mw 7.5 Palu Earthquakes and Its Tsunami”  |
| 2018 July             | Convener of AOGS annual meeting session “Seismic Modelling and Imaging: from Global to Local Scales”   |
| 2018 May              | External thesis reviewer for Dr. Yunyi QIAN from USTC (geophysics)   |
| 2017 May              | External thesis reviewer for Dr. Xiaohui HE from USTC (geophysics)   |
| 2015 April            | Convener of the “Advances in Earthquake Source Inversion” session in the Seismological Society of America (SSA) annual conference  |
| 2014 - present        | Served as reviewer for more than 150 papers for 10+ tier-1 journals (Science, Scientific Report, EPSL, GRL, JGR-solid earth, Tectonophysics, SRL, BSSA, GJI, Pure and Applied Geophysics, Geology, Geoscience Letters, JVGR, Earth and Planetary Science, Earth and Planetary Physics, Journal of Seismology, Geoscience Letters, Earth Science of China, Science China – Earth Science, Journal of Geophysics of China, Earthquake Science) |
| 2014 – present        | Served as reviewer for proposals from National Science Foundation (United States), Swiss National Science Foundation, Netherlands Space Office, and EOS internal applicants  |

### Other Service

| Period of appointment | Role  |
|-----------------------|---|
| 2014-present          | Appears 34 times in the media, providing expert commentaries on |

|              |   |
|--------------|---|
|              | earthquake events and research, such as for CNA and Lianhe Zaobao   |
| 2014-present | Volunteered 10+ times to provide tours for various groups and persons who visited EOS/ASE   |
| 2018-present | Panel member for Stephen Riady GeoScience Scholarship at ASE/EOS  |
| 2017-2018    | Served as faculty representative for the tectonics group  |
| 2015, 2016   | Recruit interview for ASE undergraduate students (2015, 2016 intake)  |
| 2015, 2016   | NTU open house service to recruit undergraduate students  |
| 2016         | Chief scientist, drafting the MoU between EOS/ASE and Department of Meteorology and Hydrology and Earthquake Committee of Myanmar                       |
| 2018         | Served as chief scientist in organizing the MoU between EOS/ASE and Syiah Kuala University (Indonesia)  |
| 2016, April  | Held a short training course for the STMKG (Research Institute of Indonesian Agency for Meteorology, Climatology and Geophysics) undergraduate students |
| 2018, Feb    | Held a workshop and training course for the geophysics students in Syiah Kuala University and its Tsunami and Disaster Mitigation Research Center       |
| 2019, Dec    | Held a workshop and training course for DMH staff and geophysics students at Naypyitaw, Myanmar   |