

Curriculum Vitae

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Homepage: <https://osm3dan.github.io/en/index>

Research Interest

- Physical mechanisms of volcanic earthquakes, particularly, associated to caldera structures.
- Numerical simulations of tsunami wave generation/propagation processes.
- Crustal deformation of earthquakes and volcanoes.
- Moment tensor inversion analysis of seismic waves.

Positions

2020.04 – Present	Research Fellow of Japan Society for the Promotion of Science (PD), Earthquake and Tsunami Research Division, National Research Institute for Earth Science and Disaster Resilience
2019.07 – 2019.09	Visiting Researcher at Seismological Laboratory, California Institute of Technology
2017.04 – 2020.03	Research Fellow of Japan Society for the Promotion of Science (DC1)

Education

2017.04 – 2020.03	Ph.D., Earthquake Research Institute, Department of Earth and Planetary Science, The University of Tokyo
2015.04 – 2017.03	M.S., Earthquake Research Institute, Department of Earth and Planetary Science, The University of Tokyo

Publications

Published Articles

1. Kubota, T., T. Saito, N. Y. Chikasada, and **O. Sandanbata** (2021). Meteotsunami observed by the deep-ocean seafloor pressure gauge network off northeastern Japan, *Geophysical Research Letters*, 48(21) e2021GL094255, <https://doi.org/10.1029/2021GL094255>.
2. Lai, V. H., Z. Zhan, Q. Brissaud, **O. Sandanbata**, and M. S. Miller (2021). Inflation and Asymmetric Collapse at Kilauea Summit during the 2018 Eruption from Seismic and Infrasound Analyses, *Journal of Geophysical Research: Solid Earth*, 126(10), e2021JB022139, <https://doi.org/10.1029/2021JB022139>.
3. **Sandanbata, O.**, H. Kanamori, L. Rivera, Z. Zhan, S. Watada, and K. Satake (2021). Moment tensors of ring-faulting at active volcanoes: Insights into vertical-CLVD earthquakes at the Sierra Negra caldera, Galápagos Islands, *Journal of Geophysical Research: Solid Earth*, 126(6), e2021JB021693: <https://doi.org/10.1029/2021JB021693>.
4. **Sandanbata, O.**, S. Watada, T-C. Ho, and K. Satake (2021). Phase delay of short-period tsunamis in the density-stratified compressible ocean over the elastic Earth, *Geophysical Journal International*, 226(3), 1975–1985, <https://doi.org/10.1093/gji/ggab192>.
5. Saito, T., T. Kubota, N. Y. Chikasada, Y. Tanaka, and **O. Sandanbata** (2021). Meteorological tsunami generation due to sea-surface pressure change: Three-dimensional theory and synthetics of ocean-bottom pressure change, *Journal of Geophysical Research: Oceans*, 126(5), e2020JC017011, <https://doi.org/10.1029/2020JC017011>.
6. Heidarzadeh, M., T. Ishibe, **O. Sandanbata**, A. Muhari, and A. B. Wijanarto (2020). Numerical modeling of the subaerial landslide source of the 22 December 2018 Anak Krakatoa volcanic tsunami, Indonesia, *Ocean Engineering*, 195, 106733, <https://doi.org/10.1016/j.oceaneng.2019.106733>
7. Wang, Y., K. Satake, **O. Sandanbata**, T. Maeda, and H. Su (2019). Tsunami data assimilation of cabled ocean bottom pressure records for the 2015 torishima volcanic tsunami earthquake, *Journal of Geophysical Research: Solid Earth*, 124(10), 10413–10422, <https://doi.org/10.1029/2019JB018056>
8. **Sandanbata, O.**, H. Shiobara, S. Kusumoto, H. J. Kim, A. Oba, Q. Liu, T. Ueda, M. Ogawa, K. Takano, I. Kotobuki, and Y. Wang (2018). Equipment of Miniature Instruments to Measure Tsunami Waves in an Experimental Tank (in Japanese), *Technical Research Report, Earthquake Research Institute, the University of Tokyo*, 24, 29–34, http://www.eri.u-tokyo.ac.jp/GIHOU/archive/24_029-034.pdf
9. **Sandanbata, O.**, S. Watada, K. Satake, Y. Fukao, H. Sugioka, A. Ito, and H. Shiobara (2018). Ray Tracing for Dispersive Tsunamis and Source Amplitude Estimation Based on Green's Law: Application to the 2015 Volcanic Tsunami Earthquake Near Torishima, South of Japan, *Pure and Applied Geophysics*, 175, 1371–1385, <https://doi.org/10.1007/s00024-017-1746-0>.
10. Fukao, Y., **O. Sandanbata**, H. Sugioka, A. Ito, H. Shiobara, S. Watada, and K. Satake (2018). "Mechanism of the 2015 volcanic tsunami earthquake near Torishima, Japan." *Science advances* 4, no. 4, eaao0219,

<https://doi.org/10.1126/sciadv.aao0219>.

11. **Sandanbata, O.**, K. Obara, T. Maeda, R. Takagi, and K. Satake (2015). Sudden changes in the amplitude-frequency distribution of long-period tremors at Aso volcano, southwest Japan, *Geophysical Research Letters*, 42, no. 23, 10-256, <https://doi.org/10.1002/2015GL066443>.

Awards

1. Student Presentation Award, Seismological Society of Japan Fall Meeting 2018, 2018.
2. Outstanding Student Presentation Award, JpGU Annual Meeting 2018, 2018.
3. Outstanding Student Presentation Award, JpGU-AGU Joint Meeting 2017, 2017.
4. Best Student Poster Award, Asia Oceania Geoscience Society 13th Annual Meeting, 2016.
5. Outstanding Student Presentation Award, JpGU Annual Meeting 2016, 2016.

International Conference

1. **Sandanbata, O.**, H. Kanamori, L. Rivera, Z. Zhan, S. Watada, K. Satake, and V. H. Lai (2021). Teleseismic moment tensor inversion for ring-faulting at active calderas: Case studies at Sierra Negra in the Galápagos Islands and Kilauea in Hawaii, AGU 2021 Fall Meeting, V25D-0155, Online, December 2021.
2. **Sandanbata, O.**, S. Watada, K. Satake, H. Kanamori, L. Rivera, and Z. Zhan (2020). Unexpectedly large tsunamis generated by submarine volcanic earthquakes: Evidence of trapdoor faulting at a submarine caldera, AGU 2020 Fall Meeting, V043-04, Online, December 2020.
3. Lai, V. H., **O. Sandanbata**, Z. Zhan, and M. S. Miller (2020). Seismic characterization of explosive and collapse events at the Kilauea summit during the 2018 eruption, AGU 2020 Fall Meeting, V002-0012, Online, December 2020.
4. **Sandanbata, O.**, S. Watada, K. Satake, H. Kanamori, L. Rivera, and Z. Zhan (2020). Volcanic tsunami earthquakes repeating at submarine calderas (1): Physical mechanism, JpGU-AGU Joint Meeting 2020, SVC45-36, Online, July 2020.
5. **Sandanbata, O.**, S. Watada, K. Satake, H. Kanamori, L. Rivera, and Z. Zhan (2020). Volcanic tsunami earthquakes repeating at submarine calderas (2): Kinematic source modeling of the 2015 Torishima earthquake, JpGU-AGU Joint Meeting 2020, HDS08-P07, Online, July 2020.
6. Wang, Y., **O. Sandanbata**, K., Satake, T. Maeda, and H. Su (2019). “Tsunami Data Assimilation of the 2015 Torishima Earthquake, AGU 2019 Fall Meeting, NH43F-0995, San Francisco, U.S., December 2019.
7. **Sandanbata, O.**, S. Watada, and K. Satake (2018). Abrupt large uplift caused by volcanic tsunami earthquakes near the Kermadec Islands, AGU 2018 Fall Meeting, NH33A-06, Washington, D.C, U.S., December 2018.
8. **Sandanbata, O.**, S. Watada, K. Satake, Y. Fukao, H. Sugioka, A. Ito, and H. Shiobara (2018). Tsunami Source Modeling for the 2015 Volcanic Tsunami Earthquake Near Torishima, South of Japan, AOGS 2018

Annual Meeting, IG03-D3-PM1-323A-015, Honolulu, U.S., June 2018.

9. **Sandanbata, O.**, S. Watada, K. Satake, Y. Fukao, H. Sugioka, A. Ito, and H. Shiobara (2017). Tsunami Source Modeling of the 2015 Volcanic Tsunami Earthquake near Torishima, South of Japan, AGU 2017 Fall Meeting, NH23A-0231, New Orleans, U.S., December 2017.
10. **Sandanbata, O.**, S. Watada, K. Satake, Y. Fukao, H. Sugioka, A. Ito, and H. Shiobara (2017). Ray tracing for dispersive tsunamis and estimation of initial sea-surface displacement: Application to the 2015 Smith Caldera earthquake, JpGU-AGU Joint Meeting 2017, HDS16-12, Chiba, Japan, May 2017.
11. **Sandanbata, O.**, S. Watada, K. Satake, Y. Fukao, H. Sugioka, A. Ito, and H. Shiobara (2016). 2015 volcanic tsunami earthquake near Torishima Island: Ray tracing analysis of dispersive tsunami wave, AGU 2016 Fall Meeting, NH43B-1838, San Francisco, U.S., December 2016.
12. **Sandanbata, O.**, S. Watada, K. Satake, Y. Fukao, H. Sugioka, A. Ito, and H. Shiobara (2016). 2015 Torishima Tsunami Earthquake: Ray Tracing Analysis Of Dispersive Tsunami Wave, AOGS 2016 Annual Meeting, OS22-SE37-D4-PM2-P-008, Beijing, China, August 2016.
13. **Sandanbata, O.**, K. Obara, T. Maeda, R. Takagi, and K. Satake (2015). Step-wise temporal change in the frequency-amplitude distribution of volcanic long period tremors at Aso volcano, Workshop ERI-IPGP, Paris, France, September 2015.

Invited Talk

1. **Sandanbata, O.**, Investigations of ring-faulting at active calderas: Case studies at Sierra Negra caldera in Galápagos, and Smith caldera in Japan, Volcano Group Meeting, *University of Leeds, UK* (2021.04).
2. **Sandanbata, O.**, Abnormal tsunamis caused by trapdoor faulting repeating at submarine volcanic calderas", Geophysics Seminar, Stanford University, US (2021.04).

Fellowships and Grants

Fellowship

1. Japan Society for the Promotion of Science (JSPS) Research fellow (PD), 2020.04 – Present.
2. Japan Society for the Promotion of Science (JSPS) Research fellow (DC1), 2017.04 – 2020.03.

Grants

1. Grant-in-Aid for JSPS Fellows, 20J01689, 2020.04 – Present.
2. Grant-in-Aid for JSPS Fellows, 17J02919, 2017.04 – 2020.03.

Thesis Titles

- Ph.D.** Physical mechanism of volcanic tsunami earthquakes repeating at submarine volcanoes.
(Supervisor: Dr. Kenji Satake)

- M.S.** Ray Tracing for Dispersive Tsunamis and Estimation of Initial Sea-surface Deformation from Array Data: Application to the 2015 Volcanic Tsunami Earthquake near Smith Caldera, South of Japan. (Supervisor: Dr. Kenji Satake)
- B.S.** Step-wise changes in the amplitude-frequency distribution of long-period tremors at Aso volcano (in Japanese). (Supervisor: Dr. Kazushige Obara)

Teaching Experiences

- 2017.06 – 2017.07 Tutor for two international internship students of *University of Tokyo Research Internship Program*, The University of Tokyo.
- 2017.04 – 2017.09 Teaching Assistant, *Seismic Wave Theory*, The University of Tokyo.
- 2016.09 – 2017.03 Mentor for an international student in master program, The University of Tokyo.
- 2016.06 – 2016.07 Tutor for two international internship students of *University of Tokyo Research Internship Program*, The University of Tokyo.
- 2015.06 – 2015.07 Tutor for two international internship students of *Sakura Science Plan*, Earthquake Research Institute, The University of Tokyo.
- 2014.11 – 2014.11 Tutor for three international internship students of *Sakura Science Plan*, Earthquake Research Institute, The University of Tokyo.
- 2014.04 – 2015.03 Teaching Assistant, *Basic Japanese Language*, The University of Tokyo.

Outreach Experiences

- 2015.08, 2016.08, and 2018.08
- Open-laboratory experiment of tsunami generation/propagations in a miniature tank, Earthquake Research Institute, The University of Tokyo.