

Kurama Okubo

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EDUCATION

2018/11	Ph.D.*	Earth Sciences, Environments and Planets Institut de Physique du Globe de Paris, France
2015/03	M.E.	Civil and Earth Resources Engineering Kyoto University, Japan
2014/06	M.S.	Earth Sciences, Environments and Planets Institut de Physique du Globe de Paris, France
2013/03	B.E.	Civil, Environmental and Resources Engineering Kyoto University, Japan

*Advisors: Prof. Harsha S. Bhat, Prof. Yann Klinger, and Prof. Esteban Rougier

RESEARCH EXPERIENCE

2026.01 - Present	Chief Researcher at NIED, Japan
2020.10 - 2025.12	Contract Researcher at NIED, Japan
2019.01 - 2020.09	Post-Doctoral Fellow at EPS, Harvard University
2016.05 - 2018.12	Working at Laboratoire de Géologie, Ecole Normale Supérieure
2017.10 - 2017.12	Research internship at Los Alamos National Laboratory
2016.11 - 2016.12	Research internship at Los Alamos National Laboratory

FUNDING & GRANTS

2022.04 - 2027.03	JSPS KAKENHI (Co-Investigator, Scientific Research (B), 23K22592)
2021.04 - 2025.03	JSPS KAKENHI (PI, Early-Career Scientists, 21K14020)
2015.10 - 2018.09	PhD fellowship: Contrats doctoraux Université Sorbonne Paris Cité 2015 (Volant International)

AWARDS

- [1] 2026: [EGU Division Outstanding Early Career Scientist Awards](#) Seismology (SM) Division
- [2] 2024: [Technical Development Award](#) from the Seismological Society of Japan (co-awarded)
- [3] 2020: [PhD Thesis Award](#) from Comité National Français de Géodésie et Géophysique (CNFGG)
Four theses awarded per year in France
- [4] 2018: [EGU Outstanding Student Poster and PICO \(OSPP\) Awards](#) Seismology (SM) Division

REFEREED PUBLICATIONS & PAPERS IN REVIEW

- [1] Okubo, K., Yamashita, F. & Fukuyama, E. Dynamics of non-self-similar earthquakes illuminated by a controlled fault asperity, *in revision*. DOI: [10.21203/rs.3.rs-6553961/v1](https://doi.org/10.21203/rs.3.rs-6553961/v1).
- [2] Okubo, K., Delbridge, B. G. & Denolle, M. A. Monitoring Velocity Change Over 20 Years at Parkfield, *J. Geophys. Res.* DOI: [10.1029/2023jb028084](https://doi.org/10.1029/2023jb028084) (2024).
- [3] Takemura, S., Hamada, Y., Okuda, H., Okada, Y., Okubo, K., Akuhara, T., Noda, A. & Tonegawa, T. A review of shallow slow earthquakes along the Nankai Trough, *Earth, Planets and Space*. DOI: [10.1186/s40623-023-01920-6](https://doi.org/10.1186/s40623-023-01920-6) (2023).
- [4] Yang, X., Bryan, J., Okubo, K., Jiang, C., Clements, T. & Denolle, M. A. Optimal stacking of noise cross-correlation functions, *Geophys. J. Int.* DOI: [10.1093/gji/ggac410](https://doi.org/10.1093/gji/ggac410) (2022).

- [5] Jara, J., Bruhat, L., Thomas, M. Y., Antoine, S. L., Okubo, K., Rougier, E., Rosakis, A. J., Sammis, C. G., Klinger, Y., Jolivet, R. & Bhat, H. S. Signature of transition to supershear rupture speed in the coseismic off-fault damage zone, *Proc. R. Soc. Lond. A*. DOI: [10.1098/rspa.2021.0364](https://doi.org/10.1098/rspa.2021.0364) (2021).
- [6] Jones, J. P., Okubo, K., Clements, T. & Denolle, M. A. SeisIO: A Fast, Efficient Geophysical Data Architecture for the Julia Language, *Seismol. Res. Lett.* DOI: [10.1785/0220190295](https://doi.org/10.1785/0220190295) (2020).
- [7] Knight, E. E., Rougier, E., Lei, Z., Euser, B., Chau, V., Boyce, S. H., Gao, K., Okubo, K. & Froment, M. HOSS: an implementation of the combined finite-discrete element method, *Computational Particle Mechanics*. DOI: [10.1007/s40571-020-00349-y](https://doi.org/10.1007/s40571-020-00349-y) (2020).
- [8] Okubo, K., Bhat, H. S., Rougier, E., Marty, S., Schubnel, A., Lei, Z., Knight, E. E. & Klinger, Y. Dynamics, Radiation, and Overall Energy Budget of Earthquake Rupture With Coseismic Off-Fault Damage, *J. Geophys. Res.* DOI: [10.1029/2019jb017304](https://doi.org/10.1029/2019jb017304) (2019).
- [9] Okubo, K. Dynamic earthquake ruptures on multiscale fault and fracture networks, PhD thesis (Institut de Physique du Globe de Paris, 2018).
- [10] Klinger, Y., Okubo, K., Vallage, A., Champenois, J., Delorme, A., Rougier, E., Lei, Z., Knight, E. E., Munjiza, A., Satriano, C., *et al.* Earthquake damage patterns resolve complex rupture processes, *Geophys. Res. Lett.* DOI: [10.1029/2018gl078842](https://doi.org/10.1029/2018gl078842) (2018).

REVIEWING ACTIVITIES

Journal of Geophysical Research: Solid Earth Tectonics Geophysical Research Letters Geophysical Journal International Computational Particle Mechanics Earth, Planets and Space Seismica Pure and Applied Geophysics Physical Review Letters Nature Nature Communications Scientific Reports

PRESENTATIONS

► Oral presentations

- [1] Okubo, K., Yamashita, F., Matsumoto, Y. & Fukuyama, E. Fracture energy evaluation based on optimized estimation of rupture velocity on a 6-meter laboratory fault, **12th ACES International Workshop** (Taipei, Taiwan., 2025).
- [2] Okubo, K., Yamashita, F. & Fukuyama, E. Non-self-similar scaling of laboratory earthquakes and their source mechanisms: recent progress with M-7 events, **Slow-to-Fast Earthquake Workshop in Chile** (Santiago, Chile., 2025).
- [3] Okubo, K., Yamashita, F. & Fukuyama, E. Non-self-similarity of Laboratory Microearthquakes Generated by Controlled Gouge Patch (**invited**), **AGU Fall Meeting** (Washington, D.C., USA, 2024).
- [4] Okubo, K., Villafuerte, C., Rougier, E. & Bhat, H. S. Near-field strong pulse caused by the coseismic off-fault damage on the 2016 Kumamoto earthquake, **EARTHQUAKES 4th edition: Cargèse international workshop on earthquakes** (Cargèse, France, 2024).
- [5] Okubo, K., Yamashita, F. & Fukuyama, E. Dynamic rupture modeling of non-self-similar seismic events generated by a controlled gouge patch, **International Joint Workshop on Slow-to-Fast Earthquakes** (Beppu, Oita, Japan, 2024).
- [6] Okubo, K., Yamashita, F. & Fukuyama, E. Constraining Source Parameters of Seismic Events Generated by Circular Gouge Patches on 4-meter-long Laboratory Fault, **SSA Annual Meeting** (Anchorage, Alaska, USA, 2024).
- [7] Okubo, K., Yamashita, F. & Fukuyama, E. Validation of Fiber Bragg Grating sensors for strain measurement on giant biaxial rock friction experiments, **JpGU Meeting** (Makuhari Messe, Chiba, Japan, 2024).

- [8] Okubo, K., Yamashita, F. & Fukuyama, E. Foreshocks Generated by Simulated Gouge Patches on 4-meter-long Laboratory Fault, **AGU Fall Meeting** (San Francisco, CA, USA, 2023).
- [9] Okubo, K., Carlos, V., Esteban, R. & Bhat, H. S. Dynamic earthquake ruptures and its radiations with off-fault fracture network in various spatial resolutions, **JpGU Meeting** (Makuhari Messe, Chiba, Japan, 2023).
- [10] Okubo, K., Yamashita, F. & Fukuyama, E. Estimate the source properties of foreshocks that occurred during stick-slip experiments using the 4-meter-long biaxial rock friction apparatus (**invited**), **AGU Fall Meeting** (Chicago, IL, 2022).
- [11] Okubo, K., Yamashita, F. & Fukuyama, E. Estimation of source properties with foreshocks on a 4-meter-long laboratory fault using synthetic Green's function (**invited**), **JpGU Meeting** (Makuhari Messe, Chiba, Japan, 2022).
- [12] Okubo, K., Delbridge, B. G. & Denolle, M. A. Two decades continuous monitoring of seismic velocity change at Parkfield to identify its origins, **Joint Scientific Assembly IAGA-IASPEI 2021** (S4 CoSOI Seismic scattering, absorption, ambient noise, and monitoring Earth's structure, 2021).
- [13] Okubo, K., Delbridge, B. G. & Denolle, M. A. Continuous monitoring of seismic velocity change at Parkfield towards identifying the strain accumulation, **JpGU Meeting** (2021).
- [14] Okubo, K., Bhat, H. S., Rougier, E. & Denolle, M. A. Coseismic off-fault damage, its implications on the rupture dynamics, and building seismic observables, **Numerical Modeling of Earthquake Motions: Waves and Ruptures (NMEM)** (Smolenice Castle, Slovakia, 2019).
- [15] Okubo, K., Bhat, H. S. & Rougier, E. Dynamic earthquake ruptures with coseismic off-fault damage on finite faults and fault kinks, **EGU General Assembly Conference** (Vienna, Austria, 2019).
- [16] Okubo, K., Bhat, H. S., Rougier, E., Lei, Z., Earl, K. E. & Klinger, Y. Dynamic fracture network around faults: implications for earthquake ruptures, ground motion and energy budget, **AGU Fall Meeting** (New Orleans, USA, 2017).
- [17] Okubo, K., Bhat, H. S., Klinger, Y. & Rougier, E. Modeling dynamic earthquake rupture with coseismic off-fault damage, **IAG-IASPEI Symposia** (Kobe, Japan, 2017).
- [18] Okubo, K., Bhat, H. S., Klinger, Y. & Rougier, E. Earthquake rupture modelling on complex fault systems and complex media, **6th International Conference on Coupled THMC Processes in Geosystems** (Paris, France, 2017).
- [19] Okubo, K., Bhat, H. S., Klinger, Y. & Rougier, E. Modelling earthquake ruptures with dynamic off-fault damage, **EGU General Assembly Conference** (Vienna, Austria, 2017).

COMPUTER SKILLS

Languages & Software: C/C++, Fortran90/95, Julia, Python, Matlab, Cubit (Trelis).

LANGUAGES

English (Fluently), French (Basic), Japanese (Native).