

Eric O. Lindsey

Research Fellow
Earth Observatory of Singapore
Nanyang Technological University
N2-01c-36, 50 Nanyang Avenue, Singapore 639798

elindsey@ntu.edu.sg
www.planetmechanic.net
+65 8303 3827
+1 (719) 482-6777

EMPLOYMENT AND EDUCATION

From January 2021: Assistant Professor, University of New Mexico

2015 – Present: Research Fellow, Earth Observatory of Singapore.

2015 – 2017: Visiting Scholar, University of California, Berkeley.

2015: Ph.D. Earth Sciences, Scripps Institution of Oceanography,
University of California, San Diego.

2010: M.S. Physics, University of Oregon, Eugene, Oregon.

2008: B.A. Physics, Reed College, Portland, Oregon.

PUBLICATIONS:

25. Mallick, R., A. J. Meltzner, L. L. H. Tsang, **E. O. Lindsey**, L. Feng, and E. M. Hill, Long-lived Shallow Slow-slip Events on the Sunda Megathrust, in review.
24. **Lindsey, E. O.**, R. Mallick, J. A. Hubbard, K. E. Bradley, R. Almeida, J. D. P. Moore, R. Bürgmann, and E. M. Hill, Slip rate deficit and earthquake potential on shallow megathrusts, in review.
23. Moore, J. D. P., G. Pozzi, S. Nielsen, L. N. Hansen, N. De Paola, **E. O. Lindsey**, and J. Muto, Ductile deformation explains the physics of rock friction, in review.
22. Materna, K., L. Feng, **E. O. Lindsey**, E. M. Hill, A. Ahsan, A. Khorsed, K. M. Oo, O. Than, T. Aung, S. N. Khaing, and R. Burgmann, GNSS characterization of hydrological loading in South and Southeast Asia, in review.
22. Mallick, R., J. A. Hubbard, **E. O. Lindsey**, K. E. Bradley, J. D. P. Moore, and E. M. Hill, Subduction initiation and the rise of the Shillong Plateau, *Earth Planet. Sci. Lett.*, in press, 2020.
20. Salman, R., **E. O. Lindsey**, K. H. Lythgoe, K. E. Bradley, M. Muzli, S.-H. Yun, S. T. Chin, C. W. Tay, F. R. Costa, S. Wei, and E. M. Hill, Cascading partial rupture of the Flores thrust during the 2018 Lombok earthquake sequence, Indonesia, *Seismol. Res. Lett.*, in press, 2020.
19. Park, E., E. Merino, Q. W. Lewis, **E. O. Lindsey**, and X. Yang, A Pathway to the Automated Global Assessment of Water Level in Reservoirs with Synthetic Aperture Radar (SAR). *Rem. Sens.* 12, 1353. [doi:10.3390/rs12081353](https://doi.org/10.3390/rs12081353), 2020.

18. Salman, R., **E. O. Lindsey**, L. Feng, K. Bradley, S. Wei, T. Wang, M. R. Daryono, and E. M. Hill, Structural controls on rupture extent of Sumatran Fault Zone earthquakes, Indonesia, *J. Geophys. Res. Solid Earth*, 125, [doi:10.1029/2019JB018101](https://doi.org/10.1029/2019JB018101), 2020.
17. Mallick, R., **E. O. Lindsey**, L. Feng, J. Hubbard, P. Banerjee, E. Hill, Active convergence of the India-Burma-Sunda plates revealed by a new continuous GPS network, *J. Geophys. Res. Solid Earth*, 124, 3155–3171, [doi:10.1029/2018JB016480](https://doi.org/10.1029/2018JB016480), 2019.
16. Xu, X., L. Ward, J. Jiang, B. Smith-Konter, E. Tymofeyeva, **E. O. Lindsey**, A. G. Sylvester and D. T. Sandwell, Surface Creep Rate of the Southern San Andreas Fault Modulated by Stress Perturbations from Nearby Large Events, *Geophys. Res. Lett.*, [doi:10.1029/2018GL080137](https://doi.org/10.1029/2018GL080137), 2018.
15. **Lindsey, E. O.**, R. Almeida, R. Mallick, J. Hubbard, K. Bradley, L. L. H. Tsang, Y. Liu, R. Burgmann, E. M. Hill, Structural Control on Down-dip Locking Extent of the Himalayan Megathrust, *J. Geophys. Res. Solid Earth*, 123, 5265–5278, [doi:10.1029/2018JB015868](https://doi.org/10.1029/2018JB015868), 2018.
14. Almeida, R., **Lindsey, E. O.**, K. Bradley, J. Hubbard, R. Mallick, E. M. Hill, Can the up-dip limit of frictional locking on megathrusts be detected geodetically? Quantifying the effect of stress shadows on near-trench coupling, *Geophys. Res. Lett.*, 45, 4754–4763, [doi:10.1029/2018GL077785](https://doi.org/10.1029/2018GL077785), 2018.
13. Wei, S., M. Chen, X. Wang, R. Graves, **E. O. Lindsey**, T. Wang, C. Karakas, D. Helmberger, The 2015 Gorkha (Nepal) Earthquake sequence: I. Source modeling and deterministic 3D ground shaking, *Tectonophysics*, 722, 447–461, [doi:10.1016/j.tecto.2017.11.024](https://doi.org/10.1016/j.tecto.2017.11.024), 2018.
12. Salman, R., E. M. Hill, L. Feng, **E. O. Lindsey**, P. Banerjee I. Hermawan, D. H. Natawidjaja, Piecemeal rupture of the Mentawai patch: The 2008 Mw 7.2 North Pagai earthquake sequence, *J. Geophys. Res. Solid Earth*, 122, 9404–9419, [doi:10.1002/2017JB014341](https://doi.org/10.1002/2017JB014341), 2017.
11. Moore, J. D. P., H. Yu, C.-H. Tang, T. Wang, S. Barbot, D. Peng, S. Masuti, J. Dauwels, Y. Hsu, V. Lambert, P. Nanjundiah, S. Wei, **E. O. Lindsey**, L. Feng and B. Shibazaki, Imaging the distribution of transient viscosity after the 2016 Mw 7.1 Kumamoto earthquake, *Science*, 356, 163–167, [doi:10.1126/science.aal3422](https://doi.org/10.1126/science.aal3422), 2017.
10. Wang, Y., S. Wei, W. Xin, **E. O. Lindsey**, F. Tongkul, K. Bradley, C. Chan, E. Hill, K. Sieh, The 2015 M_W 6.0 Mt. Kinabalu Earthquake: An Infrequent Fault Rupture within the Crocker Fault System of East Malaysia. *J. Asian Earth Sciences*, 4, [doi:10.1186/s40562-017-0072-9](https://doi.org/10.1186/s40562-017-0072-9), 2017.
9. Morgan, P., L. Feng, A. J. Meltzner, **E. O. Lindsey**, L. L. H. Tsang and E. M. Hill, Sibling earthquakes generated within a persistent rupture barrier on the Sunda megathrust under Simeulue Island, *Geophys. Res. Lett.*, 44, 2159–2166, [doi:10.1002/2016GL071901](https://doi.org/10.1002/2016GL071901), 2017.
8. Qiu, Q., E. M. Hill, S. Barbot, J. Hubbard, W. Feng, **E. O. Lindsey**, L. Feng, K. Dai, S. Samsonov, and P. Tapponnier, The mechanism of partial rupture of a locked megathrust: The role of fault morphology, *Geology*, 44, 875–878, [doi: 10.1130/G38178.1](https://doi.org/10.1130/G38178.1), 2016.
7. **Lindsey, E. O.** and Y. Fialko, Geodetic constraints on frictional properties and earthquake hazard in the Imperial Valley, southern California, *J. Geophys. Res. Solid Earth*, 121, 1097–1113, [doi: 10.1002/2015JB012516](https://doi.org/10.1002/2015JB012516), 2016.

6. Feng, W., **E. O. Lindsey**, S. Barbot, S. Samsonov, K. Dai, P. Li, Z. Li, R. Almeida, J. Chen, X. Xu, Source characteristics of the 2015 M_W 7.8 Gorkha (Nepal) earthquake and its M_W 7.2 aftershock from space geodesy, *Tectonophysics*, 712–713, 747–758, [doi:10.1016/j.tecto.2016.02.029](https://doi.org/10.1016/j.tecto.2016.02.029), 2016.
5. Galetzka, J., D. Melgar, J. F. Genrich, J. Geng, S. Owen, **E. O. Lindsey**, X. Xu, Y. Bock, J.-P. Avouac, L. B. Adhikari, B. N. Upreti, B. Pratt-Sitaula, T. N. Bhattarai, B. P. Sitaula, A. Moore, K. W. Hudnut, W. Szeliga, J. Normandeau, M. Fend, M. Flouzat, L. Bollinger, P. Shrestha, B. Koirala, U. Gautam, M. Bhattarai, R. Gupta, T. Kandel, C. Timsina, S. N. Sapkota, S. Rajaure, N. Maharjan, Slip pulse and resonance of Kathmandu basin during the 2015 M_W 7.8 Gorkha earthquake, Nepal imaged with space geodesy. *Science*, 349, 1091–1095, [doi:10.1126/science.aac6383](https://doi.org/10.1126/science.aac6383), 2015.
4. **Lindsey, E. O.**, R. Natsuaki, X. Xu, M. Shimada, H. Hashimoto, D. Melgar, and D. Sandwell, Line of Sight Deformation from ALOS-2 Interferometry: M_W 7.8 Gorkha Earthquake and M_W 7.3 Aftershock. *Geophys. Res. Lett.*, 42, 6655–6661, [doi:10.1002/2015GL065385](https://doi.org/10.1002/2015GL065385), 2015.
3. **Lindsey, E. O.**, V. J. Sahakian, Y. Fialko, Y. Bock, S. Barbot, and T. K. Rockwell, Interseismic strain localization in the San Jacinto fault zone, *Pure Appl. Geophys.*, 171, 2937–2954, [doi:10.1007/s00024-013-0753-z](https://doi.org/10.1007/s00024-013-0753-z), 2014.
2. **Lindsey, E. O.**, Y. Fialko, Y. Bock, D. T. Sandwell, R. Bilham, Localized and distributed creep along the southern San Andreas Fault. *J. Geophys. Res. Solid Earth*, 119, 7909–7922, [doi:10.1002/2014JB011275](https://doi.org/10.1002/2014JB011275), 2014.
1. **Lindsey, E. O.** and Y. Fialko, Geodetic Slip Rates in the Southern San Andreas Fault System: Effects of Elastic Heterogeneity and Fault Geometry, *J. Geophys. Res. Solid Earth*, 118, 689–697, [doi:10.1029/2012JB009358](https://doi.org/10.1029/2012JB009358), 2013.

TEACHING

- 2018: Earth Observatory of Singapore. ES7021: Space geodesy for Earth science applications. Co-taught a new course for graduate students on a range of geodetic methods including InSAR and GPS.
- 2016: Earth Observatory of Singapore. ES7015: Supervised Independent Study. Lectures on InSAR theory and hands-on practice with processing software; informally taught course for graduate students.
- 2015: UC San Diego. SIO 110: Introduction to GIS and GPS for scientists. Teaching Assistant, one quarter.
- 2014: UC San Diego. SIO 160: Introduction to Tectonics. Teaching Assistant, one quarter.
- 2012: UC San Diego. SIO 1: The Planets. Teaching Assistant, one quarter.
- 2009 – 2010: University of Oregon. PHYS 251, 252, 253: Fundamentals of Physics I. Lab Instructor, three quarters.

2006 – 2008: Reed College, PHYS 101, 102: General Physics I, II.
Lab Instructor, four semesters.

FIELD WORK

- 2016 – present: Leading campaign GPS surveys of more than 100 existing and newly established monuments in Myanmar, focusing on the central and southern Sagaing fault and Rakhine (Arakan) megathrust.
- 2010 – 2015: Led periodic occupation and processing of ~100 campaign GPS monuments throughout southern California and northern Baja California, Mexico.
- 2014: Participant in iMUSH active-source seismic imaging project on Mt. St. Helens, WA.
- 2012: Kinematic GPS survey of Salar de Uyuni, Bolivia. Collection of dense, high precision elevation data for satellite altimeter calibration.

PUBLIC ENGAGEMENT AND SERVICE

Geodesy training in Myanmar. Leading a series of workshops and hands-on short courses at universities in Myanmar to teach undergraduate and graduate students and lecturers the principles of GPS surveying, programming and data processing, and the use of geodetic data in tectonic studies. Courses taught in 2016 (2 days), 2017 (3 days), 2018 (5 days), 2019 (4 + 5 days).

Computational Infrastructure for Geodynamics (CIG) Short-term dynamics working group committee member. 2014 – 2018. Organized bi-annual workshops for short-term crustal dynamics modeling, determined research priorities for code development and distribution by CIG, and built collaborations among computational geoscientists working on problems with a variety of length scales and timescales.

Scripps Community Outreach Program for Education (SCOPE). 2011– 2015. As a graduate student, volunteered for various outreach and education programs throughout the San Diego community. Events included geology tours, surveying demonstrations, and teaching classes for 5th-6th graders about earthquakes.

RESEARCH AWARDS AND FUNDING

Myanmar-India-Bangladesh-Bhutan (MIBB) tectonic geodesy.

PI: E. Hill. Co-Is: E. Lindsey, L. Feng.

Lead author of two 3-year projects (2016-2018, 2019-2021) to install and operate continuous and survey GPS stations throughout Myanmar, conduct field campaigns and training at collaborators' institutions, and combine the results with existing EOS-operated geodetic networks in the region to study active tectonic processes of the Sagaing fault, Rakhine (Arakan) megathrust, and Eastern Himalayan Syntaxis.

A geodetic study of sinking cities and subsiding deltas in East and Southeast Asia.

PI: E. Hill. Co-Is: E. Lindsey, B. Horton.

Co-author of a 3-year (2016-2018) project to conduct multi-disciplinary studies of subsiding

cities and deltas in Indonesia and throughout Southeast Asia. Primary observation technique is InSAR, combined with GPS and in-situ observations of sediment compaction and long-term subsidence from radiometric dating of sediment cores where available.

Monitoring tropical peatland degradation and subsidence with InSAR.

PI: E. Hill. Co-Is: E. Lindsey, A. Cobb.

Co-author of a 1-year (2016) pilot proposal to detect subsidence and degradation of peatland areas in Indonesia, Malaysia and Brunei using InSAR.

Shepard Foundation field research award (2012 – 2013).

Wrote yearly proposals to support field GPS surveys for my dissertation. Field sites included the central San Jacinto fault (2012, 2013) and southern San Andreas fault (2013). Process involved permitting, preparing equipment, and collecting and processing data to be used in my dissertation, while training first-year geodesy students in the principles of surveying.

INVITED SEMINARS

“Unlocking the physics of earthquake hazards with geodesy: megathrusts, mountains and Myanmar.” **University of California Berkeley**, April 2020 (virtual).

“Life in the stress shadow: Stress-constrained inversion for interseismic coupling on shallow megathrusts.” **Géoazur, Observatoire de la Côte d’Azur, Nice, France**, Sept. 2018.

“Combination of geodetic data and structural models to understand earthquake hazard along the Himalayan megathrust.” Keynote speaker, **Myanmar National Conference on Earth Sciences**, Nov. 2017.

“Structural control on the seismic and interseismic behaviour of the Himalayan megathrust.” **Institute de Physique du Globe de Paris, France**, June 2017.

“Creep on the Imperial Fault and new faults in the Salton Trough.” **SCEC SoSAFE Workshop**, Sept. 2016.

“Geometric controls on fault behavior revealed by high resolution space geodesy: fault creep, earthquake rupture and interseismic deformation.” **UNAVCO Science Meeting**, March 2016.

“Geodetic constraints on earthquake hazard and frictional properties in the Imperial Valley.” **2015 AGU Fall Meeting**, Dec. 2015.

“Geodetic constraints on frictional properties and earthquake hazard in the Imperial Valley, southern California.” **USGS Menlo Park**, Sept. 2015.

“Geodetic observations of fault slip rates and fault zone deformation in southern California.” **Géoazur, Observatoire de la Côte d’Azur, Nice, France**, Nov. 2014.

“High-resolution geodetic observations of fault zone deformation on the San Andreas and San Jacinto faults in southern California.” **2013 AGU Fall Meeting**, Dec. 2013.

“Fault Creep: GPS and InSAR opportunities.” **SCEC Community Geodetic Model workshop**, Menlo Park, CA, May 2013.

"Geodesy in HD: Slip rates, fault geometry, and fault zone properties in Southern California."
Caltech Seismolab Seminar, May 2013.

"Geodetic Models of the Southern San Andreas Fault: Sensitivity to Elastic Heterogeneity and Fault Geometry." **San Diego State University Geology Dept. Seminar**, Nov. 2011.