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EDUCATION

2005 PhD Physics, University of California, Santa Barbara
2000 BS Physics with Highest Distinction, University of Virginia

APPOINTMENTS

2015–present Associate Professor
Department of Geophysics, Stanford University
2011–present Affiliated Faculty Member
Institute for Computational and Mathematical Engineering, Stanford
2009–2015 Assistant Professor
Department of Geophysics, Stanford University
2008–2009 Lecturer on Applied Mathematics
School of Engineering and Applied Sciences, Harvard University
2007–2009 Research Associate in Geophysics
Department of Earth and Planetary Sciences, Harvard University
2005–2007 Reginald A. Daly Postdoctoral Fellow
Department of Earth and Planetary Sciences, Harvard University

HONORS AND AWARDS

2018 Editors' Citation for Excellence in Refereeing for *Journal of Geophysical Research—Solid Earth*
2017 Editors' Citation for Excellence in Refereeing for *Geophysical Research Letters*
2017 Honorable Mention for Best Paper in *Geophysics*
2014 School of Earth Sciences Excellence in Teaching Award, Stanford
(one award annually to a faculty member in Stanford's School of Earth Sciences for excellence in teaching)
2013 National Science Foundation CAREER Award
("The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations.")
2012 Alfred P. Sloan Foundation Fellow
("The Sloan Research Fellowships seek to stimulate fundamental research by early-career scientists and scholars of outstanding promise. These two-year fellowships are awarded yearly to 126 researchers in recognition of

- distinguished performance and a unique potential to make substantial contributions to their field.”)
- 2011 Best Poster Award, Society of Industrial and Applied Mathematics (SIAM) Geosciences Conference
 - 2009–2012 Frederick E. Terman Fellow, Stanford (awarded to promising young faculty in science and engineering)
 - 2008 Certificate for Distinction in Teaching, Harvard (given to instructors achieving overall course evaluations of 4.5 or above on 5-point scale)
 - 2008 Nominee for Joseph R. Levenson Memorial Teaching Prize, Harvard (approximately 30 instructors nominated annually by former students)
 - 2007 Editors' Citation for Excellence in Refereeing for *Geophysical Research Letters*
 - 2001–2005 National Defense Science and Engineering Graduate Fellowship
 - 2004 Outstanding Student Paper, American Geophysical Union
 - 2004 UCSB Affiliates Graduate Dissertation Fellowship, UCSB
 - 2004 Student Presentation Award, Seismological Society of America
 - 2002 Outstanding Student Paper, American Geophysical Union
 - 2001 John Cardy Award for strongest academic performance in core first-year graduate classes, UCSB Physics
 - 2000 Parsons Fellowship for outstanding promise in computational science, UCSB Physics
 - 2000 James W. Elkins Award for graduate with most outstanding academic record in physics, UVA Physics
 - 1996–2000 Jefferson Scholar: full academic scholarship for leadership, citizenship, and scholarship, University of Virginia
 - 1999 Phi Beta Kappa

RESEARCH EXPERIENCE

My research focuses on natural hazards and associated phenomena, primarily through theory and computational modeling:

- Earthquake source processes
 - Characterization of strong ground motion and seismic hazard
 - Evolution of fault strength during frictional sliding
 - Coupling of fault slip dynamics with viscoelastic, poroelastic, and elastic-plastic off-fault material response
- Subduction zone hazards
 - Megathrust earthquake rupture dynamics
 - Tsunami generation
- Physical volcanology and volcano seismology
 - Waves in fluid-filled cracks and conduits
 - Seismic and acoustic wave generation by eruptions
- Numerical methods for earthquakes, volcanoes, and tsunamis
 - High-order accurate finite difference methods
 - Provably stable enforcement of nonlinear interface conditions across frictional faults and fluid-filled cracks
 - Fluid-solid coupling for volcanoes and tsunamis

ADVISING

Postdoctoral Fellows

- 2017–2020 Martin Almquist, Numerical methods for forward and adjoint wave propagation simulations (currently Assistant Professor, Department of Information Technology, Division of Scientific Computing, Uppsala University)
- 2017 Ossian O'Reilly, Numerical simulation of borehole tube waves and seismic waves for cross-well imaging; staggered grid finite difference methods (most recently postdoctoral fellow at Southern California Earthquake Center, University of Southern California)
- 2012–2015 Kenneth Duru, Numerical methods for 3D seismic wave propagation and earthquake rupture dynamics (currently Researcher, Australian National University)
- 2012–2014 Leif Karlstrom, NSF Earth Sciences postdoctoral fellow, Waves in volcanic conduits (currently Associate Professor, Geological Sciences, University of Oregon)
- 2010–2012 Brittany Erickson, NSF Earth Sciences postdoctoral fellow, Algorithms for earthquake cycles in sedimentary basins (currently Assistant Professor, Department of Computer and Information Science, University of Oregon)
- 2010–2011 Zijun Fang, Dynamics of geometrically complex faults (currently Numerical geomechanics specialist, Chevron)
- 2009–2012 Jeremy E. Kozdon, NSF Transformative Computational Science using CyberInfrastructure (CI TraCS) postdoctoral fellow, Numerical methods for seismic wave propagation and earthquake ruptures (currently Associate Professor, Applied Mathematics, Naval Postgraduate School)

Graduate Students

- 2019–present Fred Lam (PhD student in Institute for Computation and Mathematical Engineering) infrasound radiation by volcanic eruptions
- 2019–present Kate Coppess (PhD student in Physics) seismic wave generation by volcanic eruptions
- 2018–present Nurbek Tazhimbetov (PhD student in Institute for Computation and Mathematical Engineering) flexural-gravity waves in ice shelves
- 2017–present Lauren Abrahams (PhD student in Geophysics) ice stream stick-slip, earthquake sequence modeling
- 2017–present Yuyun Yang (PhD student in Institute for Computation and Mathematical Engineering) tsunami wavefield reconstruction using data assimilation
- 2017–2020 Ali Kashefi (Engineer Mechanical Engineering) earthquake and hydraulic fracture simulations
- 2014–2020 Leighton Watson (PhD Geophysics) marine seismic sources (airguns), infrasound from volcanic eruptions (currently NSF MARGINS postdoctoral fellow, University of Oregon)
- 2015–2019 Chao Liang (PhD Geophysics) waves in fluid-filled cracks, application to hydraulic fractures in oil and gas industry and to volcanoes (currently postdoctoral fellow, Laboratoire Géoazur)
- 2015–2016 Bo Prochnow (MS Geophysics) numerical methods for axisymmetric wave propagation in volcanic conduits

- 2013–2014 Paul Summers (MS Geophysics) volcanic conduit flow models and connection to volcanic tremor (currently PhD student, Stanford University)
- 2012–2018 Kali Allison (PhD Geophysics) viscoelastic and thermomechanical processes in earthquake cycles (currently NSF Earth Sciences postdoc at University of Maryland)
- 2012–2018 Gabriel Lotto (MS Institute for Computation and Mathematical Engineering (Computational Geosciences) and PhD Geophysics) generation of tsunamis in a compressible ocean by offshore earthquakes (currently ShakeAlert User Engagement Facilitator, Pacific Northwest Seismic Network)
- 2011–2017 Sam Bydlon (PhD Geophysics) seismic scattering, source complexity, and earthquakes in heterogeneous media (currently Quantitative Product Manager, SigFig)
- 2011–2016 Ossian O’Reilly (PhD Geophysics) numerical simulation of wave propagation along fluid-filled cracks (most recently postdoctoral fellow at Southern California Earthquake Center, University of Southern California)
- 2011–2016 Brad Lipovsky (PhD Geophysics) source processes of volcanic and glacial tremor (currently Assistant Professor, Department of Earth and Space Sciences, University of Washington)

Graduate Students (departmental “second projects”)

- 2019 Milad Bader, dual-consistent finite difference methods for acoustic-elastic full-waveform inversion
- 2018 Ben Mullet, flexural-gravity waves in ice shelves
- 2017 Weiqiang Zhu, earthquake sequence simulations with fault-zone fluid pressure evolution
- 2016 Joe Jennings, SBP-SAT finite difference methods for adjoint-based optimization
- 2016 Elias Heimisson, poroelastic effects in earthquake nucleation
- 2015 Shanna Chu, shear localization in dynamic rupture models
- 2015 Guillaume Barnier, tsunami wavefield reconstruction
- 2014 Lucile Bruhat, supershear transition on nonplanar faults
- 2012 Kevin Seats, frequency-dependent radiation patterns observed in K-NET and KiK-net data
- 2012 Ksenia Dmitrieva, physical models of harmonic tremor at Redoubt Volcano, Alaska
- 2011 Ali Almomin, constraining earthquake dynamic source parameters from strong motion records

Undergraduate Students (summer interns and academic year research)

- 2010–present Summer interns working with my group: Hoon Cho, A.J. Delauder, Sebastian Soto, Francisco Nunez (principal advisor: postdoc Jeremy E. Kozdon), Lay Kuan Loh (principal advisor: postdoc Leif Karlstrom), Alex Kinsella, Paul Summers, Gina Belair, Dilia Olivo (principal advisor: PhD student Brad Lipovsky), Ferdinand Harerimana (principal advisor: PhD student Sam Bydlon), Janine Birnbaum (principal advisor: PhD student

- Brad Lipovsky), Peter Ha Do (principal advisor: PhD student Kali Allison), Bo Prochnow (co-advised with PhD student Ossian O'Reilly), Kirk Ampong, Gabriel Nava, Gabe Epp (principal advisor: PhD student Leighton Watson)
- 2013–2014 Alex Kinsella, source descriptions of complex ruptures on nonplanar faults
- 2012–2013 Daniel Trugman, kinematic earthquake descriptions based on dynamic rupture simulations (Honors Thesis, recipient of Kennedy Prize for best honors thesis at Stanford in Natural Sciences)
- 2010–2011 Hoon Cho, far-field radiation from complex earthquake ruptures
- 2008–2009 Lin Cong, numerical methods for dynamic elastoplasticity (at Harvard)
- 2007–2009 David Belanger, numerical methods for modeling earthquake ruptures on nonplanar faults (at Harvard)

PROFESSIONAL ACTIVITIES

- 2019–2020 Co-organizer for Megathrust Modeling Workshop, Modeling Collaboratory for Subduction; lead author for community white paper “Megathrust Modeling Workshop Report” reviewing state of field, outstanding science questions, and recommended community actions for advancing subduction zone science through modeling
- 2019 Co-chair for Numerical Modeling of Earthquake Motions: Waves and Ruptures international workshop, Slovakia
- 2018–2019 Steering committee member for Modeling Collaboratory for Subduction
- 2018-2019 Organizing committee member for Modeling Earthquake Source Processes workshop; co-chair of Scientific Committee and second author for community white paper “Modeling earthquake source processes: from tectonics to dynamic rupture” reviewing state of field, outstanding science questions, and recommended community actions for advancing earthquake science through modeling
- 2015 Co-organizer for Engineering Mechanics Institute annual meeting Minisymposium on Computational Methods for Faults, Fault Leakage, and Seismic Hazards
- 2013 Co-organizer for Seismological Society of America annual meeting special session on Earthquake Source Physics
- 2012 Chair of National Academy of Sciences, 15th Chinese-American Kavli Frontiers of Science Symposium, Earthquake Mechanics and Forecasting
- 2011–2019 Co-leader of Southern California Earthquake Center Computational Science disciplinary group and member of Planning Committee
- 2011 Co-organizer for Seismological Society of America annual meeting special session on Seismicity in Volcanic Environments
- 2011 Co-organizer for Society of Industrial and Applied Mathematics (SIAM) Geosciences Minisymposium on Computational Challenges in Earthquake Simulation
- 2010 Delegate for U.S.-Japan Natural Resources Panel on Earthquake Research
- 2010 Co-convener for International Workshop on Multiscale and Multiphysics Processes in Geomechanics

2009 Co-convener for Southern California Earthquake Center Dynamic Weakening Mechanisms workshop

PROFESSIONAL SERVICE

2019 American Geophysical Union Section Award Committee Chair
2018 American Geophysical Union Section Award Committee Chair
2016 National Science Foundation Review Panelist
2014 United States Geological Survey Review Panelist
2013 United States Geological Survey Review Panelist
2010 United States Geological Survey Review Panelist
2005–2008 Associate Editor, Journal of Geophysical Research

PROFESSIONAL SOCIETIES

2016–present Society for Exploration Geophysics, member
2010–present Society for Industrial and Applied Mathematics, member
2002–present American Geophysical Union, member
2002–present Seismological Society of America, member

UNIVERSITY AND DEPARTMENTAL SERVICE

2018–present Director of Stanford Center for Computational Earth and Environmental Science (CEES)
2018 Chair of faculty reappointment committee
2016–2017 Geological Sciences faculty search committee
2016 Invited speaker for Stanford Association of Oregon (lecture for alumni)
2016–2020 Associate Chair for Diversity and Inclusion, Department of Geophysics
2015–2016 Geophysics faculty search committee
2015 Invited speaker for Stanford Club of Marin (lecture for alumni)
2015 Invited speaker for Stanford Admit Weekend (Academic Expo lecture series)
2014–2015 Geophysics faculty search committee
2014 Chair of faculty appointment committee
2014 Invited speaker for Stanford Admit Weekend (Academic Expo lecture series)
2014 Invited speaker for Stanford Alumni Club of the Desert (lecture for alumni)
2013–2014 Department of Geophysics, Admissions Committee
2013–2014 School of Earth Sciences Teaching Task Force
2013 Invited speaker at New Student Orientation (Engaging with Faculty lecture series) for incoming Stanford freshmen
2013 Invited speaker for Stanford Admit Weekend (Academic Expo lecture series)
2012 Invited speaker at New Student Orientation (Engaging with Faculty lecture series) for incoming Stanford freshmen
2011–2017 School of Earth Sciences Council
2011–2012 Department of Geophysics, seminar series organizer

- 2011 Invited speaker at New Student Orientation (Engaging with Faculty lecture series) for incoming Stanford freshmen
- 2010–2018 Pre-major advisor to 20 undergraduates
- 2009–2010 Geophysics undergraduate curriculum committee

TEACHING

- CME 108: Introduction to Scientific Computing (spring 2012, winter 2013, winter 2018, winter 2021)
- GEOPHYS 287: Earthquake Seismology (spring 2011, spring 2013, spring 2015, autumn 2018)
- GEOPHYS 229: Earthquake Rupture Dynamics (autumn 2014, spring 2019)
- GEOPHYS 120/220: Ice, Water, Fire (winter 2011, winter 2012, winter 2013, spring 2014, winter 2015, winter 2016, winter 2017, winter 2018, winter 2019)
- GEOPHYS 150/250: Geodynamics (spring 2017)
- GEOPHYS 385D: Theoretical Geophysics seminar (various topics: Earthquake Rupture Dynamics, autumn, 2011; Fluid Dynamics in Volcanic Eruptions, spring, 2010; Strong Ground Motion and Seismic Hazard, winter 2010)
- GEOPHYS 385L: Earthquake Seismology, Deformation, and Stress seminar (every quarter, 2009–present)
- GEOPHYS 385R: Volcano seminar (every quarter, 2016–2018)
- AM 202: Physical Mathematics II (spring 2008 at Harvard)

INVITED TALKS (since 2009)

- 2021 Massachusetts Institute of Technology, Earth, Atmospheric, and Planetary Sciences department seminar
- 2021 American Rock Mechanics Association, Induced Seismicity webinar
- 2020 University of Southern California, Earth Sciences department seminar
- 2020 Southern California Earthquake Center Workshop on Dynamic Rupture Group Ingredients Workshop on Fault Friction
- 2019 American Geophysical Union Fall Meeting
- 2019 University of Illinois Urbana Champaign, Civil and Environmental Engineering department seminar
- 2019 Stanford, Physics department seminar
- 2019 Modeling Collaboratory for Subduction workshop on Megathrust Modeling
- 2019 Southern California Earthquake Center Workshop on How Physics-Based Earthquake Simulators Might Help Improve Earthquake Forecasts
- 2019 Southern California Earthquake Center Workshop on 2019 Community Rheology Model Workshop: Testing and Refining the Preliminary CRM
- 2019 Earthquake Research Institute, University of Tokyo
- 2019 Modeling tribology: friction and fracture across scales, Lausanne, Switzerland (keynote presentation)
- 2018 Modeling Earthquake Source Processes workshop, Caltech
- 2018 ACES (APEC Cooperation for Earthquake Science) International Workshop, Awaji Island, Japan

- 2018 Southern California Earthquake Center Workshop on Loading of Southern California Faults: Bulk Lithospheric Deformation and/or Localized Ductile Shear Zone Strain
- 2018 University of California, Merced, Physics department seminar
- 2017 Columbia/ Lamont-Doherty Earth Observatory department seminar
- 2017 SEG/SPE Microseismic Technology and Hydraulic Fracture Mechanisms workshop, Houston, Texas (keynote presentation)
- 2017 Japan Geophysical Union / American Geophysical Union (JpGU/AGU) Joint Meeting, Chiba, Japan.
- 2017 Scientific Exploration of Induced Seismicity and Stress (SEISMS) workshop, Lamont-Doherty Earth Observatory (keynote presentation)
- 2016 Southern California Earthquake Center Workshop on the Processes that Control the Strength of Faults and Dynamics of Earthquakes
- 2016 National Academies Workshop on Improving Understanding of Volcanic Eruptions
- 2016 Computational Infrastructure for Geodynamics Workshop
- 2016 Lockheed Martin Advanced Technology Center
- 2015 Symposium on the Application of Mechanics to Geophysics
- 2014 American Geophysical Union Fall Meeting (two invited talks)
- 2014 Southern California Earthquake Center Annual Meeting (plenary lecture)
- 2014 Shell Technology Centre, Amsterdam, Rock and Fluid Physics: Academic and Industrial Perspectives Conference
- 2014 Computational Infrastructure for Geodynamics Crustal Deformation Modeling Workshop
- 2014 Incorporated Research Institutions for Seismology, Grand Challenges in Faulting and Deformation Processes (plenary lecture)
- 2014 Seismological Society of America Annual Meeting
- 2014 Penn State
- 2014 Caltech
- 2013 Lockheed Martin Advanced Technology Center
- 2013 University of British Columbia, Earth and Ocean Sciences
- 2013 King Abdullah University of Science and Technology
- 2012 American Geophysical Union Fall Meeting
- 2012 International Workshop of Special Project for Reducing Vulnerability for Urban Mega Earthquake Disasters, Matsushima, Japan
- 2012 University of California, Berkeley, Earth and Planetary Sciences
- 2012 U.S. Geological Survey, Earthquake Science Seminar
- 2012 International Conference on a New Perspective on Great Earthquakes Along Subduction Zones, Kochi, Japan
- 2011 American Geophysical Union Fall Meeting
- 2011 University of California, Santa Cruz
- 2010 U.S.-Japan Natural Resources Panel on Earthquake Research, Nagaoka, Japan
- 2010 U.S. Geological Survey, Earthquake Science Seminar
- 2010 University of California, Berkeley, Berkeley Seismological Laboratory
- 2010 University of Oregon

2010 Lawrence Livermore National Laboratory
2010 University of California, Berkeley, Applied Mathematics
2010 Lockheed Martin Advanced Technology Center
2009 U.S. Geological Survey, Earthquake Science Seminar

PUBLICATIONS

(available at <http://pangea.stanford.edu/~edunham/publications/publications.html>)

- Watson, L. M., E. M. Dunham, D. Mohaddes, J. Labahn, T. Jaravel, and M. Ihme, Infrasound radiation from impulsive volcanic eruptions: Nonlinear aeroacoustic 2D simulations, submitted 28 February 2021, doi:10.1002/essoar.10506385.1.
- Allison, K. L., and E. M. Dunham, Influence of shear heating and thermomechanical coupling on earthquake sequences and the brittle-ductile transition, submitted 19 November 2020, doi:10.1002/essoar.10504936.1.
- Yang, Y., and E. M. Dunham, Effect of porosity and permeability evolution on injection-induced aseismic slip, submitted 28 October 2020, revised 1 March 2021. doi:10.1002/essoar.10506354.1.
- Almquist, M., and E. M. Dunham (2021), Elastic wave propagation in anisotropic solids using energy-stable finite differences with weak boundary and interface conditions, *Journal of Computational Physics*, **424**, 109842, doi:10.1016/j.jcp.2020.109842.
- Dunham, E. M., A. Thomas, T. W. Becker, C. Cattania, J. Hawthorne, J. Hubbard, G. C. Lotto, J.-A. Olive, and J. Platt (2020), Megathrust Modeling Workshop Report, Modeling Collaboratory for Subduction RCN, doi:10.31223/X5730M.
- Abrahams, L. S., K. L. Allison, and E. M. Dunham (2020), Earthquake sequence dynamics at the interface between an elastic layer and underlying half-space in antiplane shear, *Journal of Geophysical Research*, **125**(12), e2020JB020007, doi:10.1029/2020JB020007.
- Zhu, W., K. L. Allison, E. M. Dunham, and Y. Yang (2020), Fault valving and pore pressure evolution in simulations of earthquake sequences and aseismic slip, *Nature Communications*, **11**, 4833, doi:10.1038/s41467-020-18598-z.
- Maurer, J., E. M. Dunham, and P. Segall (2020), Role of fluid injection on earthquake size in dynamic rupture simulations on rough faults, *Geophysical Research Letters*, **47**(13), e2020GL088377, doi:10.1029/2020GL088377.
- Almquist, M., and E. M. Dunham (2020), Non-stiff narrow-stencil finite difference approximations of the Laplacian on curvilinear multiblock grids, *Journal of Computational Physics*, **408**(1), 109294, doi:10.1016/j.jcp.2020.109294.
- Brodsky, E. E., J. J. Mori, L. Anderson, F. M. Chester, M. Conin, E. M. Dunham, N. Eguchi, P. Fulton, R. Hino, T. Hirose, M. Ikari, T. Ishikawa, T. Jeppson, Y. Kano, J. Kirkpatrick, S. Kodaira, W. Lin, Y. Nakamura, H. Rabinowitz, C. Regalla, F. Remitti, C. Rowe, D. Saffer, S. Saito, J. Sample, Y. Sanada, H. Savage, T. Sun, S. Toczko, K. Ujiie, M. Wolfson-Schwehr, and T. Yang (2020), The state of stress on the fault before, during and after a major earthquake, *Annual Review of Earth and Planetary Sciences*, **48**, 2.1-2.26, doi:10.1146/annurev-earth-053018-060507.
- Bruhat, L., Y. Klinger, A. Vallage, and E. M. Dunham (2020), Influence of fault roughness on surface displacement: from numerical simulations to coseismic slip

- distributions, *Geophysical Journal International*, **220**(3), 1857-1877, doi:10.1093/gji/ggz545.
- Erickson, B. A., J. Jiang, M. Barall, N. Lapusta, E. M. Dunham, R. Harris, L. S. Abrahams, K. L. Allison, J.-P. Ampuero, S. Barbot, C. Cattania, A. Elbanna, Y. Fialko, B. Idini, J. E. Kozdon, V. Lambert, Y. Liu, Y. Luo, X. Ma, M. B. McKay, P. Segall, P. Shi, M. van den Ende, and M. Wei (2020), The community code verification exercise for simulating sequences of earthquakes and aseismic slip (SEAS), *Seismological Research Letters*, **91**(2A), 874–890, doi:10.1785/0220190248.
- Liang, C., and E. M. Dunham (2020), Lava lake sloshing modes during the 2018 Kilauea Volcano eruption probe magma reservoir storativity, *Earth and Planetary Science Letters*, **535**(1), 116110, doi:10.1016/j.epsl.2020.116110.
- Liang, C., J. Crozier, L. Karlstrom, and E. M. Dunham (2020), Magma oscillations in a conduit-reservoir system, applications to very long period (VLP) seismicity at basaltic volcanoes-Part II: Data inversion and interpretation at Kilauea Volcano, *Journal of Geophysical Research*, **125**(1), e2019JB017456, doi:10.1029/2019JB017456.
- Liang, C., L. Karlstrom, and E. M. Dunham (2020), Magma oscillations in a conduit-reservoir system, applications to very long period (VLP) seismicity at basaltic volcanoes-Part I: Theory, *Journal of Geophysical Research*, **125**(1), e2019JB017437, doi:10.1029/2019JB017437.
- Lapusta, N., E. M. Dunham, et al. (2019), Modeling earthquake source processes: from tectonics to dynamic rupture, Report to the National Science Foundation.
- Duru, K., K. L. Allison, M. Rivet, and E. M. Dunham (2019), Dynamic rupture and earthquake sequence simulations using the wave equation in second-order form, *Geophysical Journal International*, **219**(2), 796-815, doi:10.1093/gji/ggz319.
- Heimisson, E., E. M. Dunham, and M. Almquist (2019), Poroelastic effects destabilize mildly rate-strengthening friction to generate stable slow slip pulses, *Journal of Mechanics and Physics of Solids*, **130**, 262-297, doi:10.1016/j.jmps.2019.06.007.
- Watson, L. M., E. M. Dunham, and J. B. Johnson (2019), Infrasonic resonance of volcanic craters, *Journal of Volcanology and Geothermal Research*, **380**, 64-79, doi:10.1016/j.jvolgeores.2019.05.007.
- Yang, Y., E. M. Dunham, G. Barnier, and M. Almquist (2019), Tsunami wavefield reconstruction and forecasting using the ensemble Kalman filter, *Geophysical Research Letters*, **46**(2), 853-860, doi:10.1029/2018GL080644.
- Bydlon, S. A., K. Withers, and E. M. Dunham (2019), Combining dynamic rupture simulations with ground-motion data to characterize seismic hazard from Mw 3 to 5.8 earthquakes in Oklahoma and Kansas, *Bulletin of the Seismological Society of America*, **109**(2), 652-671, doi:10.1785/0120180042.
- Watson, L. M., J. Werpwers, and E. M. Dunham (2019), What controls the initial peak of an air gun source signature?, *Geophysics*, **84**(2), P27–P45, doi:10.1190/geo2018-0298.1.
- Lotto, G. C., T. N. Jeppson, and E. M. Dunham (2019), Fully-coupled simulations of megathrust earthquakes and tsunamis in the Japan Trench, Nankai Trough, and Cascadia Subduction Zone, *Pure and Applied Geophysics*, **176**, 4009-4041, doi:10.1007/s00024-018-1990-y.

- Mattsson, K., E. M. Dunham, and J. Werpers (2018), Simulation of acoustic and flexural-gravity waves in ice-covered oceans, *Journal of Computational Physics*, **373**, 230-252, doi:10.1016/j.jcp.2018.06.060.
- Vyas, J. C., P. M. Mai, M. Galis, E. M. Dunham, and W. Imperatori (2018), Mach wave properties in the presence of source and medium heterogeneity, *Geophysical Journal International*, **214**(3), 2035-2052, doi:10.1093/gji/ggy219.
- Torbentsson, K., V. Stiernström, K. Mattsson, and E. M. Dunham (2018), A finite difference method for earthquake sequences in poroelastic solids, *Computational Geosciences*, **22**(5), 1351-1370, doi:10.1007/s10596-018-9757-1.
- Harris, R. A., M. Barall, B. Aagaard, S. Ma, D. Roten, K. Olsen, B. Duan, D. Liu, B. Luo, K. Bai, J.-P. Ampuero, Y. Kaneko, A.-A. Gabriel, K. Duru, T. Ulrich, S. Wollherr, Z. Shi, E. Dunham, S. Bydlon, Z. Zhang, X. Chen, S.N. Somala, C. Pelties, J. Tago, V.M. Cruz-Atienza, J. Kozdon, E. Daub, K. Aslam, Y. Kase, K. Withers, L. Dalguer (2018) A suite of exercises for verifying dynamic earthquake rupture codes, *Seismological Research Letters*, **89**(3), 1146-1162, doi:10.1785/0220170222.
- Johnson, J., L. M. Watson, J. Palma, E. M. Dunham, and J. Anderson (2018) Forecasting the eruption of an open-vent volcano using resonant infrasound tones, *Geophysical Research Letters*, **45**(5), 2213-2220, doi:10.1002/2017GL076506.
- Allison, K. L., and E. M. Dunham (2018) Earthquake cycle simulations with rate-and-state friction and power-law viscoelasticity, *Tectonophysics*, **733**, 232-256, doi:10.1016/j.tecto.2017.10.021.
- Bydlon, S. A., A. Gupta, and E. M. Dunham (2017) Using simulated ground motions to constrain near-source ground motion prediction equations in areas experiencing induced seismicity, *Bulletin of the Seismological Society of America*, **107**(5), 2078-2093, doi:10.1785/0120170003.
- Erickson, B. A., E. M. Dunham, and A. Khosravifar (2017), A finite difference method for off-fault plasticity throughout the earthquake cycle, *Journal of Mechanics and Physics of Solids*, **109C**, 50-77, doi:10.1016/j.jmps.2017.08.002.
- Lotto, G. C., G. Nava, and E. M. Dunham (2017) Should tsunami simulations include a nonzero initial horizontal velocity?, *Earth, Planets and Space*, **69**(117), doi:10.1186/s40623-017-0701-8.
- O'Reilly, O., T. Lundquist, J. Nordström, and E. M. Dunham (2017) Energy stable and high-order-accurate finite difference methods on staggered grids, *Journal of Computational Physics*, **346**, 346, 572-589, doi:10.1016/j.jcp.2017.06.030.
- Dunham, E. M., J. Zhang, Y. Quan, J. M. Harris, and K. Mace (2017), Hydraulic fracture conductivity inferred from tube wave reflections, *SEG Technical Program Expanded Abstracts 2017*, 947-952, doi:10.1190/segam2017-17664595.1.
- Watson, L. M., S. Ronen, J. A. Goldbogen, and E. M. Dunham (2017) Comparing whales to seismic sources: Low frequency sound generation by fin whales, *SEG Technical Program Expanded Abstracts 2017*, 90-95, doi:10.1190/segam2017-17752002.1.
- O'Reilly, O., E. M. Dunham, and J. Nordström (2017) Simulation of wave propagation along fluid-filled cracks using high-order summation-by-parts operators and implicit-explicit time stepping, *SIAM Journal on Scientific Computing*, **39**(4), B675-B702, doi:10.1137/16M1097511.

- Lipovsky, B. P., and E. M. Dunham (2017) Slow-slip events on the Whillans Ice Plain, West Antarctica, described using rate-and-state friction as an ice stream sliding law, *Journal of Geophysical Research*, **122**(4), 973-1003, doi:10.1002/2016JF004183.
- Mai, P. M., M. Galis, K. K. S. Thingbaijam, J. Vyas, and E. M. Dunham (2017) Accounting for fault roughness in pseudo-dynamic ground-motion simulations, *Pure and Applied Geophysics*, **174**, 3419-3450, doi:10.1007/s00024-017-1536-8.
- Liang, C., O. O'Reilly, E. M. Dunham, and D. Moos (2017) Hydraulic fracture diagnostics from Krauklis wave resonance and tube wave reflections, *Geophysics*, **82**(3), D171-D186, doi:10.1190/GEO2016-0480.1.
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