

Eric M. Dunham

Stanford University
Department of Geophysics
397 Panama Mall
Stanford, CA 94305-2215

edunham@stanford.edu
<http://pangea.stanford.edu/~edunham>
(650) 725-6989

EDUCATION

- 2005 Ph.D. Physics, Department of Physics, University of California, Santa Barbara
2000 B.S. Physics with Highest Distinction, Department of Physics, 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

- 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 <i>Geophysical Research Letters</i>
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 mechanics and physics of natural hazards and associated phenomena:

- 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
 - Repeating earthquakes model of volcanic tremor
 - 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
 - Implementation in scalable parallelized codes

ADVISING

Postdoctoral Fellows

- 2017–present Martin Almquist, Numerical methods for forward and adjoint wave propagation simulations
- 2017 Ossian O'Reilly, Numerical simulation of borehole tube waves and seismic waves for cross-well imaging; staggered grid finite difference methods (currently 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 Postdoctoral Fellow, Ludwig Maximilian University of Munich)
- 2012–2014 Leif Karlstrom, NSF Earth Sciences postdoctoral fellow, Waves in volcanic conduits (currently Assistant 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 Senior Geomechanicist, ConocoPhillips)
- 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 Assistant Professor, Applied Mathematics, Naval Postgraduate School)

Graduate Students

- 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–present A. K. (PhD student in Mechanical Engineering) earthquake and hydraulic fracture simulations
- 2015–present Chao Liang (PhD student in Geophysics) waves in fluid-filled cracks, application to hydraulic fractures in oil and gas industry and to volcanoes
- 2014–present Leighton Watson (PhD student in Geophysics) marine seismic sources (airguns), infrasound from volcanic eruptions
- 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 Senior Events Coordinator for Modeling Collaboratory for Subduction RCN, University of Texas, Austin)
- 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 (currently 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 postdoctoral fellow at Harvard University)

Graduate Students (departmental “second projects”)

- 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

- 2018–present Steering committee member for Modeling Collaboratory for Subduction
- 2019 Co-chair for Numerical Modeling of Earthquake Motions: Waves and Ruptures international workshop, Slovakia
- 2018 Organizing committee member for Modeling Earthquake Source Processes workshop, Caltech
- 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
- 2003–present Collaborator in Southern California Earthquake Center rupture dynamics code verification project

PROFESSIONAL SERVICE

- 2018 American Geophysical Union Section Award Committee
- 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
- 2005–present Reviewer for National Science Foundation and 20+ journals

PROFESSIONAL SOCIETIES

- 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 Co-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–present 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)
 GEOPHYS 287: Earthquake Seismology (spring 2011, spring 2013, spring 2015, autumn 2018)
 GEOPHYS 229: Earthquake Rupture Dynamics (autumn 2014)
 GEOPHYS 120/220: Ice, Water, Fire (winter 2011, winter 2012, winter 2013, spring 2014, winter 2015, winter 2016, winter 2017, winter 2018, spring 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)

2019 Modeling tribology: friction and fracture across scales, Lausanne, Switzerland (keynote presentation)

- 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>)

- Duru, K., K. L. Allison, M. Rivet, and E. M. Dunham, Dynamic rupture and earthquake sequence simulations using the wave equation in second-order form, *Geophysical Journal International*, submitted.
- Watson, L. M., E. M. Dunham, and J. B. Johnson, Infrasonic resonance of volcanic craters, *Journal of Volcanology and Geothermal Research*, submitted.
- Yang, Y., E. M. Dunham, G. Barnier, and M. Almquist, Tsunami wavefield reconstruction and forecasting using the ensemble Kalman filter, *Geophysical Research Letters*, doi:10.1029/2018GL080644.
- Bydlon, S. A., K. Withers, and E. M. Dunham (2019), A ground motion prediction equation for Mw 3-5.8 earthquakes in Oklahoma and Kansas using a composite recorded/simulated ground motion catalog, *Bulletin of the Seismological Society of America*, in press.
- Watson, L. M., J. Werpers, and E. M. Dunham (2019), What controls the initial peak of an air gun source signature?, *Geophysics*, doi:10.1190/geo2018-0298.1.
- Lotto, G. C., T. N. Jeppson, and E. M. Dunham (2018), Fully-coupled simulations of megathrust earthquakes and tsunamis in the Japan Trench, Nankai Trough, and Cascadia Subduction Zone, *Pure and Applied Geophysics*, 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, 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.
- Prochnow, B., O. O'Reilly, E. M. Dunham, and N. A. Petersson (2017) Treatment of the polar coordinate singularity in axisymmetric wave propagation using high-order summation-by-parts operators on a staggered grid, *Computers and Fluids*, **149**, 138-149, doi:10.1016/j.compfluid.2017.03.015.
- Lotto, G. C., E. M. Dunham, T. N. Jeppson, and H. J. Tobin (2017), The effect of compliant prisms on subduction zone earthquakes and tsunamis, *Earth and Planetary Science Letters*, **458**, 213-222, doi:10.1016/j.epsl.2016.10.050.
- Watson, L. M., E. M. Dunham, and S. Ronen (2016), Numerical modeling of seismic airguns and low-pressure sources, *SEG Technical Program Expanded Abstracts 2016*, 219-224, doi:10.1190/segam2016-13846118.1.
- Karlstrom, L., and E. M. Dunham (2016), Excitation and resonance of acoustic-gravity waves in a column of stratified, bubbly magma, *Journal of Fluid Mechanics*, **797**, 431-470, doi:10.1017/jfm.2016.257.
- Bruhat, L., Z. Fang, and E. M. Dunham (2016), Rupture complexity and the supershear transition on rough faults, *Journal of Geophysical Research*, **121**(1), 210-224, doi:10.1002/2015JB012512.

- Lipovsky, B. P., and E. M. Dunham (2016), Tremor during ice stream stick-slip, *The Cryosphere*, **10**, 385-399, doi:10.5194/tc-10-385-2016.
- Duru, K., and E. M. Dunham (2016), Dynamic earthquake rupture simulations on nonplanar faults embedded in 3D geometrically complex, heterogeneous elastic solids, *Journal of Computational Physics*, **305**, 185-207, doi:10.1016/j.jcp.2015.10.021.
- Schmitt, S. V., P. Segall, and E. M. Dunham (2015), Nucleation and dynamic rupture on weakly stressed faults sustained by thermal pressurization, *Journal of Geophysical Research*, **120**(11), 7606-7640, doi:10.1002/2015JB012322.
- Bydlon, S. A., and E. M. Dunham (2015), Rupture dynamics and ground motions from earthquakes in 2-D heterogeneous media, *Geophysical Research Letters*, **42**(6), 1701-1709, doi:10.1002/2014GL062982.
- Lipovsky, B. P., and E. M. Dunham (2015), Vibrational modes of hydraulic fractures: Inference of fracture geometry from resonant frequencies and attenuation, *Journal of Geophysical Research*, **120**(2), 1080-1107, doi:10.1002/2014JB011286.
- Lotto, G. C., and E. M. Dunham (2015), High-order finite difference modeling of tsunami generation in a compressible ocean from offshore earthquakes, *Computational Geosciences*, **19**(2), 327-340, doi:10.1007/s10596-015-9472-0.
- O'Reilly, O., J. Nordström, J. E. Kozdon, and E. M. Dunham (2015), Simulation of earthquake rupture dynamics in complex geometries using coupled finite difference and finite volume methods, *Communications in Computational Physics*, **17**(2), 337-370, doi:10.4208/cicp.111013.120914a.
- Kozdon, J. E., and E. M. Dunham (2014), Constraining shallow slip and tsunami excitation in megathrust ruptures using seismic and ocean acoustic waves recorded on ocean-bottom sensor networks, *Earth and Planetary Science Letters*, **396**, 56-65, doi:10.1016/j.epsl.2014.04.001.
- Erickson, B. A., and E. M. Dunham (2014), An efficient numerical method for earthquake cycles in heterogeneous media: Alternating sub-basin and surface-rupturing events on faults crossing a sedimentary basin, *Journal of Geophysical Research*, **119**(4), 3290-3316, doi:10.1002/2013JB010614.
- Johri, M., E. M. Dunham, M. D. Zoback, and Z. Fang (2014), Predicting fault damage zones by modeling dynamic rupture propagation and comparison with field observations, *Journal of Geophysical Research*, **119**(2), 1251-1272, doi:10.1002/2013JB010335.
- Trugman, D. T., and E. M. Dunham (2014), A 2D pseudo-dynamic rupture model generator for earthquakes on geometrically complex faults, *Bulletin of the Seismological Society of America*, **104**(1), doi:10.1785/0120130138.
- Denolle, M. A., E. M. Dunham, G. A. Prieto, and G. C. Beroza (2014), Strong ground motion prediction using virtual earthquakes, *Science*, **343**(6169), 399-403, doi:10.1126/science.1245678.
- Fang, Z., and E. M. Dunham (2013), Additional shear resistance from fault roughness and stress levels on geometrically complex faults, *Journal of Geophysical Research*, **118**(7), 3642-3654, doi:10.1002/jgrb.50262.
- Dmitrieva, K., A. J. Hotovec-Ellis, S. Prejean, and E. M. Dunham (2013), Frictional-faulting model for harmonic tremor before Redoubt Volcano eruptions, *Nature Geoscience*, **6**, 652-656, doi:10.1038/ngeo1879.

- Kozdon, J. E., and E. M. Dunham (2013), Rupture to the trench: Dynamic rupture simulations of the 11 March 2011 Tohoku earthquake, *Bulletin of the Seismological Society of America*, **103**(2B), 1275–1289; doi:10.1785/0120120136.
- Denolle, M. A., E. M. Dunham, G. A. Prieto, and G. C. Beroza (2013), Ground motion prediction of realistic earthquake sources using the ambient seismic field, *Journal of Geophysical Research*, **118**, 1–17, doi:10.1029/2012JB009603.
- Kozdon, J. E., E. M. Dunham, and J. Nordstrom (2013), Simulation of dynamic earthquake ruptures in complex geometries using high-order finite difference methods, *Journal of Scientific Computing*, **55**(1), 92–124, doi:10.1007/s10915-012-9624-5.
- Denolle, M. A., E. M. Dunham, and G. C. Beroza (2012) Solving the surface-wave eigenproblem with Chebyshev spectral collocation, *Bulletin of the Seismological Society of America*, **102**(3), 1214–1223, doi:10.1785/0120110183.
- Vallee, M., and E. M. Dunham (2012), Observation of far-field Mach waves generated by the 2001 Kokoxili supershear earthquake, *Geophysical Research Letters*, **39**, L05311, doi:10.1029/2011GL050725.
- Dunham, E. M. and D. E. Ogden (2012) Guided waves along fluid-filled cracks in elastic solids and instability at high flow rates, *Journal of Applied Mechanics*, **79**(3), 031020, doi:10.1115/1.4005961.
- Kozdon, J. E., E. M. Dunham, and J. Nordstrom (2012), Interaction of waves with frictional interfaces using summation-by-parts difference operators: Weak enforcement of nonlinear boundary conditions, *Journal of Scientific Computing*, **50**(2), 341–367, doi:10.1007/s10915-011-9485-3.
- Dunham, E. M., D. Belanger, L. Cong, and J. E. Kozdon (2011), Earthquake ruptures with strongly rate-weakening friction and off-fault plasticity, 1: Planar faults, *Bulletin of the Seismological Society of America*, **101**(5), 2296–2307, doi:10.1785/0120100075.
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