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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

- 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 mechanics and physics of natural hazards and associated phenomena:

- Earthquake dynamics
 - 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 and finite volume 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, Seismic wave generation by volcanic eruptions
- 2017–present Ossian O’Reilly, Numerical simulation of borehole tube waves and seismic waves for cross-well imaging
- 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, Mathematics, Portland State University)
- 2010–2011 Zijun Fang, Dynamics of geometrically complex faults (currently 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

- 2015–2016 Bo Prochnow, MS Geophysics, numerical methods for axisymmetric wave propagation in volcanic conduits
- 2015–present Chao Liang, waves in fluid-filled cracks, application to hydraulic fractures in oil and gas industry and to volcanoes, PhD Geophysics expected 2019
- 2014–present Leighton Watson, marine seismic sources (airguns), infrasound from volcanic eruptions, PhD Geophysics expected 2019
- 2014–present Gabriel Lotto, Generation of tsunamis in a compressible ocean by offshore earthquakes, PhD Geophysics expected 2018
- 2013–2014 Paul Summers, Volcanic conduit flow models and connection to volcanic tremor, MS Geophysics 2014
- 2012–present Kali Allison, Viscoelastic and thermalmechanical processes in earthquake cycles, PhD Geophysics expected 2017
- 2012–2014 Gabriel Lotto, Seismic and ocean acoustic waves and tsunamis from megathrust ruptures, MS Computational Geosciences
- 2011–2017 Samuel Bydlon, Seismic scattering, source complexity, and earthquakes in heterogeneous media, PhD Geophysics
- 2011–2016 Brad Lipovsky, Source processes of volcanic and glacial tremor, PhD Geophysics
- 2011–2016 Ossian O’Reilly, Numerical simulation of wave propagation along fluid-filled cracks, PhD Geophysics
- 2010–2011 Ossian O’Reilly, Visiting Masters Student from Uppsala University, Sweden, Finite volume methods for seismic waves in complex geometries

Graduate Students (departmental “second projects”)

- 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, Approximate 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

- 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–present 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

- 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

- 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 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

- 2012–present Advisory Board, Computational Geosciences MS Program, Institute for Computational and Mathematical Engineering
- 2011–present 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–present Pre-major advisor to 20 undergraduates
- 2009–2010 Geophysics undergraduate curriculum committee

TEACHING

- CME 108: Introduction to Scientific Computing (spring 2012, winter 2013)
- GEOPHYS 287: Earthquake Seismology (spring 2011, spring 2013, spring 2015)
- 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)
- 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–present)
- AM 202: Physical Mathematics II (spring 2008 at Harvard)

INVITED TALKS (since 2009)

- 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>)

- Vyas, J. C., P. M. Mai, M. Galis, E. M. Dunham, and W. Imperatori, Mach wave properties in the presence of source and medium heterogeneity, *Geophysical Journal International*, in review.
- Allison, K. L., and E. M. Dunham, Earthquake cycle simulations with rate-and-state friction and power-law viscoelasticity, *Tectonophysics*, in press.
- 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.
- Dunham, E. M., D. Belanger, L. Cong, and J. E. Kozdon (2011), Earthquake ruptures with strongly rate-weakening friction and off-fault plasticity, 2: Nonplanar faults, *Bulletin of the Seismological Society of America*, **101**(5), 2308–2322, doi:10.1785/0120100076.
- Harris, R. A., M. Barall, D. J. Andrews, B. Duan, S. Ma, E. M. Dunham, A.-A. Gabriel, Y. Kaneko, Y. Kase, B. Aagaard, D. D. Oglesby, J.-P. Ampuero, T. C. Hanks, and N. Abrahamson (2011) Verifying a computational method for predicting extreme ground motion, *Seismological Research Letters*, **82**(5), 638–644, doi:10.1785/gssrl.82.5.638.
- Dunham, E. M., D. Belanger, L. Cong, and J. E. Kozdon (2011), Earthquake ruptures on rough faults, in *Multiscale and Multiphysics Processes in Geomechanics (results of workshop at Stanford Univ., June, 2010)*, Springer Series in Geomechanics and Geoengineering, edited by Ronaldo I. Borja, ISBN 978-3-642-19629-4, pp. 145–148.
- Bizzarri, A., E. M. Dunham, and P. Spudich (2010), Coherence of Mach fronts during heterogeneous supershear earthquake rupture propagation: simulations and comparison with observations, *Journal of Geophysical Research*, **115**, B08301, doi:10.1029/2009JB006819.
- Hetland, E. A., M. Simons, and E. M. Dunham (2010), Postseismic and interseismic fault creep I: Model description, *Geophysical Journal International*, **181**(1), 81–98, doi:10.1111/j.1365-246X.2010.04522.x
- Rice, J. R., E. M. Dunham, and H. Noda (2010), Thermo- and hydro-mechanical processes along faults during rapid slip, in *Meso-Scale Shear Physics in Earthquake and Landslide Mechanics*, edited by Y. Hatzor, J. Sulem, and I. Vardoulakis, CRC Press, pp. 3–16.
- Rojas, O., E. M. Dunham, S. M. Day, L. A. Dalguer, and J. E. Castillo (2009), Finite difference modeling of rupture propagation with strong velocity-weakening friction,

Geophysical Journal International, **179**(3), 1831–1858, doi:10.1111/j.1365-246X.2009.04387.x.

- Noda, H., E. M. Dunham, and J. R. Rice (2009), Earthquake ruptures with thermal weakening and the operation of major faults at low overall stress levels, *Journal of Geophysical Research*, **114**, B07302, doi:10.1029/2008JB006143.
- Harris, R. A., M. Barall, R. Archuleta, E. M. Dunham, B. Aagaard, J. P. Ampuero, H. Bhat, V. Cruz-Atienza, L. Dalguer, P. Dawson, S. Day, B. Duan, G. Ely, Y. Kaneko, Y. Kase, N. Lapusta, Y. Liu, S. Ma, D. Oglesby, K. Olsen, A. Pitarka, S. Song, and E. Templeton (2009), The SCEC/USGS dynamic earthquake-rupture code verification exercise, *Seismological Research Letters*, **80**(1), 119–126, doi:10.1785/gssrl.80.1.119.
- Dunham, E. M., and J. R. Rice (2008), Earthquake slip between dissimilar poroelastic materials, *Journal of Geophysical Research*, **113**, B09304, doi:10.1029/2007JB005405.
- Dunham, E. M., and H. S. Bhat (2008), Attenuation of radiated ground motion and stresses from three-dimensional supershear ruptures, *Journal of Geophysical Research*, **113**, B08319, doi:10.1029/2007JB005182.
- Dunham, E. M. (2007), Conditions governing the occurrence of supershear ruptures under slip-weakening friction, *Journal of Geophysical Research*, **112**, B07302, doi:10.1029/2006JB004717.
- Page, M. T., E. M. Dunham, and J. M. Carlson (2005), Distinguishing barriers and asperities in near-source ground motion, *Journal of Geophysical Research*, **110**, B11302, doi:10.08029/2005JB00373.
- Dunham, E. M., and R. J. Archuleta (2005), Near-source ground motion from steady state dynamic rupture pulses, *Geophysical Research Letters*, **32**, L03302, doi:10.08029/2004GL021793.
- Dunham, E. M. (2005), Dissipative interface waves and the transient response of a three dimensional sliding interface with Coulomb friction, *Journal of Mechanics and Physics of Solids*, **53**, 327–357, doi:10.1016/j.jmps.2004.07.003.
- Dunham, E. M., and R. J. Archuleta (2004), Evidence for a supershear transient during the 2002 Denali Fault earthquake, *Bulletin of the Seismological Society of America*, **94**, S256–S268, doi:10.1785/0120040616.
- Dunham, E. M., P. Favreau, and J. M. Carlson (2003), A supershear transition mechanism for cracks. *Science*, **299**, 1557–1559, doi:10.1126/science.1080650.