Pamela A. Moyer, Ph.D.
Earthquake Seismologist

Pamela@PamelaMoyer.net (email)
www.PamelaMoyer.net (webpage)

RESEARCH INTERESTS AND EXPERTISE

I am an observational seismologist eager to use innovative analysis techniques for insight into the physical properties of fault zones that control slip behavior and the time and location of damaging earthquakes. Using land and sea based seismic data, I explore mechanical controls on earthquake nucleation and propagation, interaction between slow and fast earthquakes, and similarities between large and small earthquakes. My contributions have helped constrain stress conditions in a range of tectonic settings including oceanic transform faults, submarine volcanoes, subduction zones, and in deep gold mines.

EDUCATION

05/2020 Ph.D. Earth and Environmental Science, University of New Hampshire, USA
Dissertation: Understanding earthquake rupture processes: Insights from mid-ocean ridge transform faults and submarine volcanoes. Advisor: Dr. Margaret Boettcher

12/2010 M.S. Geophysics, New Mexico Institute of Mining and Technology, USA
Thesis: Earthquake apparent stress variations due to subducted bathymetric features near the Osa Peninsula, Costa Rica, and along the Northern Japan Trench. Advisor: Dr. Susan Bilek

05/2008 B.S. Geological Sciences, Michigan State University, USA
Undergraduate Senior Thesis: Seismic analysis and fault interpretation of the Stanovoi volcanic field region, Eastern Russia. Advisor: Dr. Kazuya Fujita

05/2006 A.S. Mathematics, Anne Arundel Community College, Maryland, USA

EMPLOYMENT

2020-present	**Postdoctoral Adjunct Researcher**, *School of Marine Science and Ocean Engineering, University of New Hampshire, NH USA*
2011-2020	**Research Assistant**, *Earth Sciences Department, University of New Hampshire, NH USA*
2008-2010	**Research Assistant**, *Department of Earth and Environmental Science, New Mexico Institute of Mining and Technology, NM USA*
2007	**Undergraduate Research and Teaching Assistant,** *Earth Sciences Department, Michigan State University, MI USA*
2002-2003	**Mathematics Tutor** *Anne Arundel Community College, MD USA*
1996-2007	**Electronic Engineering Technician** *Advanced Vehicle Technologies, MD USA*

PEER-REVIEWED PUBLICATIONS

2020 Moyer, P. A., Boettcher, M. S., Bohnenstiehl, D. R., and Abercrombie, R. E. (2020). Crustal strength variations inferred from earthquake stress drop at Axial Seamount surrounding the 2015 eruption. *Geophysical Research Letters*, *47*, e2020GL088447. https://doi.org/10.1029/2020GL088447

2018 Moyer, P. A., Boettcher, M. S., McGuire, J. J., and Collins, J. A. (2018). Spatial and temporal variations in earthquake stress drop on Gofar transform fault, East Pacific Rise: Implications for fault strength. *Journal of Geophysical Research: Solid Earth*, 123. https://doi.org/10.1029/2018JB015942

2017 Moyer, P. A., Boettcher, M. S., Ellsworth, W. L., Ogasawara, H., Cichowicz, A., Birch, D., and van Aswegen, G. (2017). Call for models - A test case for the source inversion validation: The 2014 ML 5.5 Orkney, South Africa earthquake. *Seismological Research Letters*, *88*(5), 1333-1338. https://doi.org/10.1785/0220160218

2011 Moyer, P. A., Bilek, S. L., and Phillips, W. S. (2011). Apparent stress variations near the Osa Peninsula, Costa Rica, influenced by subducted bathymetric features. *Geophysical Research Letters*, *38*, L02304. https://doi.org/10.1029/2010GL045955

PROGRAMMING AND SCRIPTING LANGUAGES

I am proficient with MATLAB for modeling, analysis, and display of seismic data. I have working experience with UNIX based shell scripting, Seismic Analysis Code, and Generic Mapping Tools for data processing and visualization. I have introductory experience with FORTRAN and C for data processing and analysis.

REFERENCES

Available on request.

HONORS AND AWARDS

2019	Early Career Scientist Travel Grant to present at the 27th International Union of Geodesy and Geophysics General Assembly in Montreal, Canada, *International Union of Geodesy and Geophysics*
2018	Student Travel Grant to present at the Seismological Society of America Annual Meeting in Miami, Florida, *Seismological Society of America*
2017	Early Career Researcher Travel Grant to present at the American Geophysical Union Chapman Conference in Tasmania, *National Science Foundation*
	Early Career Researcher Travel Grant to attend the Scientific Exploration of Induced SeisMicity and Stress Workshop at Lamont-Doherty Earth Observatory, *International Continental Scientific Drilling Program and the Southern California Earthquake Center*
	Travel Grant to present at the Ocean Bottom Seismometer Instrument Pool Symposium in Portland, Maine, *Incorporated Research Institutions for Seismology*
2016	Travel Grant to present at the Seismology Student Workshop at Lamont-Doherty Earth Observatory, *National Science Foundation*
2015	Outstanding Student Paper Award, *American Geophysical Union Fall Meeting*
	Travel Grant to present at the Ocean Bottom Seismometer Instrument Pool Symposium in Vancouver, Washington, *Incorporated Research Institutions for Seismology*
2013	Outstanding Student Poster Award, *Geological Society of America Northeastern Section Meeting*
2012	Young Scientist Travel Grant to present at the European Center for Geodynamics and Seismology Workshop in Luxemburg, *European Center for Geodynamics and Seismology*
2012-2019	Graduate School, Earth Sciences, and Natural Resources and Earth System Science Student Travel Grants, *University of New Hampshire*
2011-2012	College of Engineering and Physical Sciences Graduate Fellowship, *University of New Hampshire*
2009	Honorable mention in the NSF MARGINS student paper competition during the *American Geophysical Union Fall Meeting*
2007	Selected to carry the College of Natural Science banner at the Fall Michigan State University Commencement on the basis of an "exceptional undergraduate career."
2006	Selected as Student Marshal for the Spring Anne Arundel Community College Commencement based on an "outstanding academic record"
2005-2007	Wilband Memorial Scholarship, Outstanding Senior Award, Field Camp Scholarship, Keck Memorial Scholarship, and Pringle Endowed Fellowship, *Michigan State University*

INVITED TALKS

2018 Woods Hole Oceanographic Institution, Department of Geology and Geophysics, Woods Hole, MA, USA

2017 University of New Hampshire, Department of Earth Sciences, Durham NH, USA

2011 University of New Hampshire, Department of Earth Sciences, Durham, NH, USA

FIELD AND SEA EXPERIENCE

2014 Research cruise on the *R/V Endeavor* (35 days). Principal Investigators: Harm van Avendonk (University of Texas) and Brandon Dugan (Rice University). Deployed and recovered ocean bottom seismometers as part of the Eastern North American Margin Community Seismic Experiment.

2007 Undergraduate field course on the examination, identification, and mapping of geologic formations in the Wasatch-Uinta range and surrounding areas, US Southwest (42 days).

OUTREACH

2016 Assistant instructor for a 3-day Earthquake Science Workshop for Middle and High School Science Teachers held at the University of New Hampshire

2016-2017 Poster Presenter at the University of New Hampshire Homecoming Open House, showcasing department research and activities for alumni, family, and friends

2013-2017 Poster Presenter at the University of New Hampshire Graduate Research Conference, open to the public

CONFERENCE PRESENTATIONS (**bold** indicates award received)

Moyer, P. A., and M. S. Boettcher (2021), Spatial and temporal *b*-value variations at Gofar Transform Fault, East Pacific Rise, presented at the IRIS Marine Seismology Symposium

Moyer, P. A., M. S. Boettcher, D. R. Bohnenstiehl, and R. E. Abercrombie (2020), Crustal strength variations inferred from earthquake stress drop at Axial Seamount surrounding the 2015 eruption, presented at the AGU Fall Meeting

Boettcher, M. S., P. A. Moyer, C. Prigent, J. Warren, and A. Kohli (2019), Integrating evidence from peridotite mylonites and earthquake stress drops to understand slip on oceanic transform faults, presented at the 2019 TIGeR Conference, Perth, Australia

Moyer, P. A., M. S. Boettcher, D. R. Bohnenstiehl, and R. E. Abercrombie (2019), Eruption dynamics reflected in earthquake stress drop before and during the 2015 eruption of Axial Seamount, presented at the 27th IUGG General Assembly, Montreal, Canada

Moyer, P. A., M. S. Boettcher, D. R. Bohnenstiehl, and R. E. Abercrombie (2019), Eruption dynamics and variations in earthquake stress drop with the 2015 eruption of Axial Seamount, presented at the SSA Annual Meeting, Seattle, WA

Moyer, P. A., M. S. Boettcher, D. R. Bohnenstiehl, and D. P. Sprinkle (2018), Eruption dynamics and variations in earthquake stress drop with the 2015 eruption of Axial Seamount, presented at the GRC on Rock Deformation, Andover, NH

Moyer, P. A., M. S. Boettcher, and D. R. Bohnenstiehl (2018), Earthquake Stress Changes Before, During, and After the 2015 Eruption at Axial Seamount, presented at the SSA Annual Meeting, Miami, FL

Moyer, P. A., M. S. Boettcher, J. J. McGuire, and J. A. Collins (2017), Spatial and temporal variations in earthquake stress drop on Gofar transform fault, East Pacific Rise: Implications for fault strength, Abstract S31C-0826 presented at the AGU Fall Meeting, New Orleans, LA

Moyer, P. A., M. S. Boettcher, J. J. McGuire, J. A. Collins, and D. R. Bohnenstiehl (2017), Earthquake stress drop at Gofar Oceanic Transform Fault and Axial Seamount, presented at the OBSIP Symposium, Portland, ME

Ogasawara, H., Y. Yabe, T. Ito, G. van Aswegen, A. Cichowicz, R. Durrheim, T. C. Onstott, T. Kieft, A. Ishida, H. Y. Ogasawara, T. Yasutomi, A. Funato, K. Imanishi, M. Okubo, M. S. Boettcher, P. A. Moyer, W. L. Ellsworth, M. Ziegler, S. Wiemer, C. Janssen, S. Shapiro, H. Gupta, P. Dight, N. Wechsler, A. K. Ward, B. Liebenberg, Y. Mukuhira, S. N. Somala, J. P. Hunt, S. Bucibo, N. Berset, R. Harris, and E. D. Cason (2017), Drilling to probe quasi-static and dynamic seismic ruptures in deep South African gold mines, presented at the Schatzalp Workshop on Induced Seismicity, Davos, Switzerland

Moyer, P. A., M. S. Boettcher, and D. R. Bohnenstiehl (2017), Earthquake stress drop before, during, and after the 2015 eruption at Axial Seamount, presented at the AGU Chapman Conference on Submarine Volcanism, Hobart, Tasmania

Boettcher, M. S., P. A. Moyer, and D. R. Bohnenstiehl, (2017), Stressing rate changes associated with the 2015 Axial Seamount eruption, presented at the AGU Chapman Conference on Submarine Volcanism, Hobart, Tasmania

Bohnenstiehl, D. R., W. S. D. Wilcock, M. Tolstoy, F. Waldhauser, C. Garcia, S. R Levy, Y. J. Tan, R. P. Dziak, J. Caplan-Auerbach, A. F. Arnulf, M. E. Mann, D. P. Sprinkle II, M. S. Boettcher, and P. A. Moyer (2017), Seismic and Acoustic Constraints on the Dynamics of the Submarine Eruption Cycle at Axial Seamount, presented at the AGU Chapman Conference on Submarine Volcanism, Hobart, Tasmania

Moyer, P. A., M. S. Boettcher, J. J. McGuire (2016), Variations in earthquake source complexity and stress drop in rupture patches and rupture barriers on Gofar transform fault, East Pacific Rise, presented at the AGU Fall Meeting, San Francisco, CA

Moyer, P. A., M. S. Boettcher, W. L. Ellsworth (2016), Comparison of source inversions and stress drops with in-situ observations of faulting, presented at the SCEC Annual Meeting, Palm Springs, CA

Moyer, P. A., M. S. Boettcher, J. J. McGuire, and J. A. Collins (2016), Spatial and temporal variations in earthquake stress drop linked to inferred variations in frictional properties in rupture patches and rupture barriers on Gofar transform fault, East Pacific Rise, presented at the GRC on Rock Deformation, Andover, NH

Moyer, P. A., M. S. Boettcher, J. J. McGuire, and J. A. Collins (2016), Constraining earthquake source parameters in rupture patches and rupture barriers on Gofar transform fault, East Pacific

Rise from ocean bottom seismic data, presented at the Seismology Student Workshop, LDEO, Palisades, NY

MOYER, P. A., M. S. Boettcher, J. J. McGuire, and J. A. Collins (2015), Constraining earthquake source parameters in rupture patches and rupture barriers on Gofar transform fault, East Pacific Rise from ocean bottom seismic data, presented at the AGU Fall Meeting, San Francisco, CA

Moyer, P. A., M. S. Boettcher, J. J. McGuire, and J. A. Collins (2015), Resolution of earthquake source spectra from ocean bottom accelerometers at Gofar transform fault, EPR, presented at the OBSIP Symposium, Vancouver, WA

Boettcher, M. S., M. Wolfson-Schwehr, and P. A. Moyer (2015), Effects of mid-ocean ridge transform fault segmentation on earthquake behavior, presented at the 2015 General Assembly of the International Union of Geodesy and Geophysics, Prague, Czech Republic

Boettcher, M. S., P. A. Moyer, J. J. McGuire, and J. A. Collins (2013), Investigating Earthquake Stress Drops on Mid-Ocean Ridge Transform Faults (Invited), presented at the AGU Fall Meeting, San Francisco, CA

McGuire, J., J. Collins, E. Roland, P. Gouédard, M. Boettcher, B. Froment, M. Wolfson, P. A. Moyer, D. Lizarralde, and R. van der Hilst (2013), 20,000 Foreshocks Under the Sea: Capturing the End of a Seismic Cycle on the Gofar Transform Fault, East Pacific Rise, presented at the Workshop on Field Logistics for GeoPRISMS Research at the AGU Fall Meeting

MOYER, P. A. and M. S. Boettcher (2013), Investigating source properties of mining-induced earthquakes and the resulting seismic hazard in TauTona gold mine, South Africa, presented at the GSA NE Section Meeting

Moyer, P. A. and M. S. Boettcher (2012), Earthquake source parameters and scaling relationships from microseismicity at TauTona gold mine, South Africa, presented at the AGU Fall Meeting, San Francisco, CA

Moyer, P. A., M. S. Boettcher, J. J. McGuire, and J. A. Collins (2012), Radiated energy of $3.0 \leq M \leq 5.0$ earthquakes in rupture patches and rupture barriers on Gofar transform fault, East Pacific Rise, presented at the European Center for Geodynamics and Seismology Workshop, Luxemburg

Moyer, P. A., S. L. Bilek, and W. S. Phillips (2010), Subducted bathymetric features linked to variations in earthquake apparent stress along the northern Japan Trench, presented at the AGU Fall Meeting, San Francisco, CA

Moyer, P. A., S. L. Bilek, and W. S. Phillips (2010), Apparent Stress Variations at the Osa Peninsula, Costa Rica and the Role of Subducting Topography, presented at the IRIS Annual Workshop, Park City, UT

MOYER, P. A., S. L. Bilek, and W. S. Phillips (2009), Apparent Stress Variations at the Osa Peninsula, Costa Rica and the Role of Subducting Topography, presented at the AGU Fall Meeting, San Francisco, CA

Moyer, P. A., K. G. Mackey, K. Fujita, S. V. Shibaev, and L. V. Gounbina (2007), Seismicity of the Stanovoi Volcanic Field Region, Eastern Russia, presented at the AGU Fall Meeting, San Francisco, CA