DR. ROBERT A. DUNN

Geophysics and Tectonics Division Head
Fellow, Geological Society of America
Department of Earth Sciences

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PROFESSIONAL PREPARATION

Ph.D. University of Oregon, Eugene, OR 1999. Geophysics. Thesis: Three-dimensional seismic structure and physical properties of the crust and shallow mantle beneath the East Pacific Rise at 9°30'N.

B.S. University of Minnesota, Minneapolis, MN 1992. Aerospace Engineering and Mechanics. Thesis: Spacecraft re-entry vehicle design and orbital mechanics and flight paths for a Mars exploration mission.

INSTRUCTIONAL PORTFOLIO

ERTH101 Dynamic Earth. The natural physical environment; the landscape; rocks and minerals, rivers and oceans; volcanism, earthquakes, and other processes inside the Earth; effects of human use of the Earth and its resources.

ERTH323 Physics of the Earth and Planets. Essentials of geophysics: formation of Solar System and Earth, gravity, seismology, heat flow, geomagnetism, isostasy, plate tectonics.

ERTH610 Graduate Seminar.

ERTH630 Numerical Modeling of Physical Systems. Finite difference and other modeling techniques applied to geological and geophysical problems. Physical modeling of heat flow, molecular diffusion, solidification and melting, deformation, fluid flow, wave propagation, and other phenomena.

ERTH631 Geophysics–Solid, Fluid, and Wave Mechanics. Continuum mechanics in geophysics, as applied to the deformation of Earth materials (elastic, viscous, viscoelastic, and plastic deformations) and seismic wave propagation (body waves, surface waves, anisotropy, and attenuation).

PROFESSIONAL EXPERIENCE

Professor, University of Hawaii, Department of Earth Sciences, 2015-present.

Associate Professor, University of Hawaii, Department of Geology and Geophysics, 2006-2015.

Assistant Researcher, University of Hawaii, Department of Geology and Geophysics, 2002-2006.

Postdoctoral Fellow, Brown University, Department of Geological Sciences, 1999-2001.

RESEARCH TOPICS

Evolution of the Earth. Plate tectonics and volcanic systems. Mantle flow and melting beneath hot spot, mid-ocean ridge, and subduction systems. Controls on volcanic systems and tectonic activity. Geophysical studies of the crust and mantle; seismic tomography; seismic anisotropy; surface wave propagation; bioacoustics.

PUBLICATIONS

Yang, J., Zhu, H., Zhao, Z., Huang, J., Lumley, D., Stern, R.J., Dunn, R.A., Arnulf, A.F. and Ma, J., 2024. Asymmetric magma plumbing system beneath Axial Seamount based on full waveform inversion of seismic data. *Nature Communications*, *15*(1), p.4767. (soest no. 11813)

Jian, H, JP Canales, R Dunn, MR Nedimović. Hydrothermal flow and serpentinization in oceanic core complexes controlled by mafic intrusions. *Nature Geoscience*, May 6, 2024. (soest no. 11791)

Dunn, RA, AB Watts, C Xu, and DJ Shillington. A seismic tomography, gravity, and flexure study of the crust and upper mantle structure across the Hawaiian Ridge: 2. Ka'ena. *J. Geophys. Res. - Solid Earth*, 129, e2023JB028118, 2024. (soest no. 11769)

MacGregor, BG, RA Dunn, AB Watts, C Xu, and DJ Shillington. A seismic tomography, gravity, and flexure study of the crust and upper mantle structure of the Hawaiian Ridge, 1, *J. Geophys. Res. - Solid Earth*, 128, e2023JB027218, 2023. (soest no. 11761)

Dunn, RA. A dual-level magmatic system beneath the East Pacific Rise, 9°N. *Geophys. Res. Lett*., 49 (18), e2022GL097732, 2022. (soest no. 11606)

Xu, C, RA Dunn, AB Watts, DJ Shillington, I Grevemeyer, L Gómez de la Peña & BB Boston. A seismic tomography, gravity, and flexure study of the crust and upper mantle structure of the Emperor Seamounts at Jimmu guyot. *J. Geophys. Res. - Solid Earth*, e2021JB023241, 2022. (soest no. 11521)

Watts, AB, I Grevemeyer, DJ Shillington, RA Dunn, B Boston, & L Gómez de la Peña, Seismic structure, gravity anomalies and flexure along the Emperor Seamount chain. *J. Geophys. Res.*, 126(3), e2020JB021109, 2021.

Watts, AB, B Tozer, H Harper, B Boston, DJ Shillington, RA Dunn. Evaluation of shipboard and satellite-derived bathymetry and gravity data over seamounts in the northwest Pacific Ocean, *J. Geophys. Res. - Solid Earth*, 125 (10), 2020. (soest no. 11117)

Lata, C, and RA Dunn. Uppermost crustal structure across the eastern Lau Spreading Center from P-to-S converted waves, *Mar. Geophys. Res*., 41 (20), 2020. (soest no. 11107)

Horning, G, RA Sohn, JP Canales, RA Dunn. Local Seismicity of the Rainbow Massif on the Mid-Atlantic Ridge, *J. Geophys. Res*., doi: 10.1002/2017JB015288, 2018. (soest no. 10309)

Dunn, RA, R Arai, DE Eason, JP Canales, RA Sohn. Three-dimensional seismic structure of the Mid-Atlantic Ridge: an investigation of tectonic, magmatic, and hydrothermal processes in the Rainbow area, J. Geophys. Res., doi: 10.1002/2017JB015051, 2017. (soest no. 10284)

Canales, JP, RA Dunn, R Arai, RA Sohn. Seismic imaging of magma sills beneath an ultramafic-hosted hydrothermal system, *Geology*, 2017. (soest no. 9904)

Eason, DE, RA Dunn, JP Canales, R Sohn. Segment-scale variations in seafloor volcanic and tectonic processes from multibeam sonar imaging, Mid-Atlantic Ridge Rainbow region (35˚45'-36˚35'N), *Geochem., Geophys., Geosys*., 17, doi:10.1002/2016GC006433, 2016. (soest no. 9693)

Dunn, RA. Ocean acoustic reverberation tomography, *J. Acoust. Soc. Am*., 138 (6), 3458-3469, 2015. (soest no. 9547)

Paulatto, M, JP Canales, RA Dunn, RA Sohn. Heterogeneous and asymmetric crustal accretion: new constraints from multi-beam bathymetry and potential field data from the Rainbow area of the Mid-Atlantic Ridge (35°50'N - 36°35'N), *Geochem. Geophys. Geosyst*., 16, doi:10.1002/2015GC005743, 2015. (soest no. 9964)

Eason, DE and RA Dunn. Petrogenesis and structure of oceanic crust in the Lau Back-Arc Basin, *Earth Planet. Sci. Lett*., 429, 128-138, 2015. (soest no. 9480)

Ito, G, RA Dunn, A Li. The origin of shear wave splitting beneath Iceland, *Geophys. J. Int*., 201, 1297-1312, 2015. (soest no. 9268)

Wei, SS, DA Wiens, Y Zha, T Plank, SC Webb, DK Blackman, RA Dunn, JA Conder. Seismic evidence of effects of water on mantle melt transport in the Lau back-arc mantle, *Nature*, doi:10.1038/nature14113, 2015. (soest no. 10204)

Dunn, RA. Crust and lithospheric structure – seismic structure of mid-ocean ridges. In (eds. B. Romanowicz and A. Dziewonski) *Treatise on Geophysics, vol. 1 – Seismology and Structure of the Earth 2nd Edition*, Elsevier Science, UK, 2015. (soest no. 9088)

Dunn, RA. Tracking stress and hydrothermal activity along the Eastern Lau Spreading Center using seismic anisotropy, *Earth Planet. Sci. Lett*., 410, 105-116, 2015. (soest no. 9220)

Brodie, D and RA Dunn. Low frequency baleen whale calls detected on an ocean-bottom seismometer array in the Lau basin, South Pacific Ocean, *J. Acoust. Soc. Am*., 137(1), 53-62, 2015. (soest no. 9040)

Zha, Y, SC Webb, SS Wei, DA Wiens, DK Blackman, W Menke, RA Dunn, JA Conder. Seismological imaging of ridge-arc interaction beneath the Eastern Lau Spreading Center from OBS ambient noise tomography, *Earth Planet. Sci. Lett.* 408, 194-206, 2014. (soest no. 9935)

Canales, JP, RA Dunn, G Ito, RS Detrick, V Sallarès. Effect of variations in magma supply on the crustal structure of mid-ocean ridges: insights from the western Galápagos Spreading Center. In (eds. KS Harpp, E Mittelstaedt, N d'Ozouville, DW Graham) *The Galapagos: A Natural Laboratory for the Earth Sciences*. Amer. Geophys. Union, 2014. (soest no. 8489)

Arai, R and RA Dunn. Seismological study of Lau back arc crust: mantle water, magmatic differentiation, and a compositionally zoned basin, *Earth Planet. Sci. Lett.*, 390, 314-317, 2014. (soest no. 8998)

Ito G, RA Dunn, A Li, CJ Wolfe, A Gallego, Y Fu. Seismic anisotropy and shear-wave splitting associated with mantle plume-plate interaction, *J. Geophys. Res*., 119, doi: 10.1002/2013JB010735, 2014. (soest no. 9095)

Gallego, A, G Ito, RA Dunn. Investigating seismic anisotropy beneath the Reykjanes Ridge using models of mantle flow, crystallographic evolution, and surface wave propagation, *Geochem. Geophys. Geosyst*., doi: 10.1002/ggge.20204, 2013. (soest no. 8950)

Dunn, RA, F Martinez, JA Conder. Crustal construction and magma chamber properties along the Eastern Lau Spreading Center, *Earth Planet. Sci. Lett*., 371-372, 112-124, 2013. (soest no. 8915)

Dunn, RA and F Martinez. Contrasting crustal production and rapid mantle transitions beneath back-arc ridges, *Nature*, 469, 198-202, doi: 10.1038/nature09690, 2011. (soest no. 8620)

Conley, MM, and RA Dunn. Seismic shear wave structure of the uppermost mantle beneath the Mohns Ridge, *Geochem. Geophys. Geosyst*., 12, Q0AK01, doi:10.1029/2011GC003792, 2011. (soest no. 10115).

Dunn, RA and O Hernandez. Tracking blue whales in the eastern tropical Pacific with an ocean-bottom seismometer and hydrophone array, *J. Acoust. Soc. Am*., 126(3), 1084-1094, 2009.

Toomey, DR, D Jousselin, RA Dunn, WSD Wilcock, RS Detrick. Mantle skewness and ridge segmentation Toomey et al. reply, *Nature*, 458, E12-13, 2009.

Ito, G and RA Dunn. Mid-ocean ridges: mantle convection and formation of the lithosphere, In (eds. JH Steele, SA Thorpe, KK Turekian) *Enc. Ocean Sci*, *2nd edition*, 4030-4044, Elsevier, Boston MA, doi: 10.1016/B978-012374473-9.00654-8, 2009.

Dunn, RA and DW Forsyth. Crust and lithospheric structure – seismic structure of mid-ocean ridges. In (Eds. B Romanowicz and A Dziewonski) *Treatise on Geophysics, vol. 1 – Seismology and Structure of the Earth*, Elsevier Science, UK, 419-443, 2007.

Gaherty, JB, and RA Dunn. Evaluating hotspot-ridge interaction in the Atlantic from regional-scale seismic observations, *Geochem. Geophys. Geosyst*., 8, Q05006, doi: 10.1029/2006GC001533, 2007.

Toomey, DR, D Jousselin, RA Dunn, RS Detrick, WSD Wilcock. Skew of mantle upwelling beneath the East Pacific Rise governs segmentation, *Nature*, 446, 409-414; doi: 10.1038/nature05679; 22 March 2007.

Delorey, AA, RA Dunn, and JB Gaherty. Surface wave tomography of the upper mantle beneath the Reykjanes Ridge with implications for ridge–hot spot interaction, *J. Geophys. Res.*, 112, B08313, doi: 10.1029/2006JB004785, 2007.

Genz, AS, CH Fletcher, RA Dunn, LN Frazer, JJ Rooney. The predictive accuracy of shoreline change rate methods and alongshore beach variation on Maui, Hawaii, *J. Coastal Res.*, 23(1), 87-105, 2007.

Dunn, RA, V Lekić, RS Detrick, and DR Toomey. Three-dimensional seismic structure of the Mid-Atlantic Ridge (35˚N): Evidence for focused melt supply and lower crustal dike injection, *J. Geophys. Res*., 110, B09101, doi: 10.1029/2004JB003473, 2005.

Dunn, RA, and DW Forsyth. Imaging the transition between the region of mantle melting and the crustal magma chamber beneath the southern East Pacific Rise with short-period Love waves, *J. Geophys. Res.*, 108(B7), 2352, doi: 10.1029/2002JB002217, 2003. (soest no. 6217)

Cherkaoui, ASM, WSD Wilcock, RA Dunn, and DR Toomey. A numerical model of hydrothermal cooling and crustal accretion at a fast-spreading mid-ocean ridge, *Geochem. Geophys. Geosyst.*, 4(9), 8616, doi: 10.1029/2001GC000215, 2003.

Jousselin, D, RA Dunn, DR Toomey. Modeling the seismic signature of structural data from the Oman Ophiolite: Can a mantle diapir be detected beneath the East Pacific Rise? *Geochem. Geophys. Geosyst.*, 4(7), 8610, doi: 10.1029/2002GC000418, 2003. (soest no. 6218)

Dunn, RA, and DR Toomey. Crack-induced seismic anisotropy in the oceanic crust across the East Pacific Rise (9°30'N), *Earth Planet. Sci. Lett*., 189, 9-17, 2001.

Dunn, RA, DS Scheirer, and DW Forsyth. A detailed comparison of repeated bathymetric surveys along a 300-km-long section of the southern East Pacific Rise, *J. Geophys. Res.*, 106, 463-471, 2001.

Dunn, RA, DR Toomey, RS Detrick, and WSD Wilcock. Continuous mantle melt supply beneath an overlapping spreading center on the East Pacific Rise, *Science,* 291, 1955-1958, 2001.

Dunn, RA, DR Toomey, and SC Solomon. Three-dimensional seismic structure and physical properties of the crust and shallow mantle beneath the East Pacific Rise at 9°30'N, *J. Geophys. Res.*, 105, 23537-23555, 2000.

Dunn, RA. Three-dimensional seismic structure and physical properties of the crust and shallow mantle beneath the East Pacific Rise at 9°30'N, *Doctoral Thesis*, University of Oregon, Eugene, 1999.

Cuny, J, RA Dunn, ST Hackstadt, CW Harrop, HH Hersey, AD Malony, and DR Toomey. Building domain-specific environments for computational science: a case study in seismic tomography, *Inter. J. Supercomp. App. High Perf. Comp.*, 11, 179-196, 1997.

Dunn, RA and DR Toomey. Seismological evidence for three-dimensional melt migration beneath the East Pacific Rise, *Nature*, 388, 259-262, 1997.

PUBLISHED DATA PRODUCTS

Dunn, RA, AB Watts, C Xu, D Shillington. Seismic Tomographic Model of the Hawaiian Ridge Line 02, Kaena. *Figshare*. Dataset. https://doi.org/10.6084/m9.figshare.25097543, 2024.

Dunn, RA, B MacGregor, AB Watts, C Xu, DJ Shillington. Seismic Tomographic Model of the Hawaiian Ridge Line 01. *Figshare*. Dataset. https://doi.org/10.6084/m9.figshare.25097531, 2024

Dunn, RA. East Pacific Rise 9N: Compiled station, shot, and travel time data for EPR88, EPR93, and EPR97. ScholarSpace, https://scholarspace.manoa.hawaii.edu/items/660e8d4d-68be-42a1-b072-ebbb996eb31a/full, 2022.

Grevemeyer, I, L Gómez de la Peña; D Shillington, RA Dunn, AB Watts. Seismic refraction and wide-angle data across Emperor Seamounts (Northwest Pacific) from profile P01 of RV Marcus G. Langseth cruise MGL1902. *PANGAEA*, https://doi.org/10.1594/PANGAEA.941101, 2022.

Shillington, D, A Watts, RA Dunn, P Wessel, G Ito, I Grevemeyer, U ten Brink, and N Miller. Processed Seismic Navigation Data (P1 format) from the Emperor Seamounts chain acquired during Langseth cruise MGL1902, *IEDA*, doi:10.1594/IEDA/324780, 2019.

Shillington, D, A Watts, RA Dunn, P Wessel, G Ito, I Grevemeyer, U ten Brink, and N Miller. Multi-Channel Seismic Shot Data from the Emperor Seamounts chain acquired during Langseth cruise MGL1902, *IEDA*, doi:10.1594/IEDA/324782, 2019.

Shillington, D, A Watts, RA Dunn, P Wessel, and G Ito. Raw Seismic Navigation Data (P1 format) from the Hawaii-Emperor seamount chain acquired during Langseth cruise MGL1806, *IEDA*, doi:10.1594/IEDA/324703, 2018.

Shillington, D.; Watts, A.; Dunn, R.; Wessel, P. and G. Ito, Multi-Channel Seismic Shot Data from the Hawaii-Emperor seamount chain acquired during Langseth cruise MGL1806, *IEDA*, doi:10.1594/IEDA/324706, 2018.

Sohn, R, JP Canales and RA Dunn. Hypocenter Catalog Data from the Mid-Atlantic Ridge - Rainbow Vent Field acquired in 2013. *Integrated Earth Data Applications (IEDA)*, doi: http://dx.doi.org/10.1594/IEDA/324328, 2018.

Dunn, R, et al. Seafloor reflectivity of the Mid-Atlantic Ridge Rainbow region (35°45' - 36°35'N). *Integrated Earth Data Applications (IEDA)*, doi:10.1594/IEDA/323563, 2016.

Canales, J and R Dunn. Raw Seismic Navigation Data (P1 format) from the Rainbow Hydrothermal Field, Mid-Atlantic Ridge, acquired during the R/V Marcus G. Langseth expedition MGL1305 (2013). *Integrated Earth Data Applications (IEDA)*, doi: http://dx.doi.org/10.1594/IEDA/320247, 2016.

Canales, J and R Dunn. Seismic Navigation Data (P2 format) from the Rainbow Hydrothermal Field, Mid-Atlantic Ridge, acquired during the R/V Marcus G. Langseth expedition MGL1305 (2013). *Integrated Earth Data Applications (IEDA)*, doi: http://dx.doi.org/10.1594/IEDA/320251, 2015.

Canales, J and R Dunn. Multi-Channel Seismic Shot Data from the Rainbow Hydrothermal Field, Mid-Atlantic Ridge, acquired during the R/V Marcus G. Langseth expedition MGL1305 (2013). *Integrated Earth Data Applications (IEDA)*, doi: http://dx.doi.org/10.1594/IEDA/320244, 2014.

Canales, J and R Dunn. Processed Seismic Navigation Data (version 1) from the Rainbow Hydrothermal Field, Mid-Atlantic Ridge, acquired during the R/V Marcus G. Langseth expedition MGL1305 (2013). *Integrated Earth Data Applications (IEDA)*, doi: http://dx.doi.org/10.1594/IEDA/320254, 2014.

RESEARCH FUNDING

NSF-OCE (PI: $529,804; 2018-2023) Collaborative Research: Seismic imaging of volcano construction, underplating and flexure along the Hawaii-Emperor Seamount Chain.

NSF-OCE (PI: $411,270; 2016-2020) ABR: A Deeper Investigation of Oceanic Spreading Center Magmatic Processes.

NSF-OCE (PI: $359,113; 2013-2017) Seismic investigation of the Rainbow hydrothermal field and its tectono/magmatic setting, Mid-Atlantic Ridge 36˚14'N.

NSF-RIDGE (PI: $461,321; 10/01/08-09/31/14) Crustal accretion and mantle processes along the subduction-influenced Eastern Lau Spreading Center.

NSF-EAR (co-I: $327,483; 05/01/09-04/30/12) Geodynamic solutions for seismic observations of Iceland hotspot-ridge interaction.

NSF (co-I: $70,000; 08/01/09-07/31/10) Computational upgrade for the SOEST geophysics and tectonics group.

IRIS (PI: $5500; 6/01/09-10/15/09) Undergraduate Internship Program: Seismic investigation of Eastern Lau Spreading Center magmatic systems.

NSF-OCE (PI: $174,341; 01/01/07-12/31/08) Mantle structure beneath ultraslow-spreading mid-ocean ridges.

IRIS (PI: $5863; 6/01/06-9/31/06) Undergraduate Internship Program: Seismic wave propagation.

NSF-OCE (PI: $9844; 9/01/06-8/31/07) Seismic analysis of upper-mantle dynamics: seafloor spreading and hotspot ridge interaction in the Atlantic (supplement).

NSF-OCE (PI: $150,836; 09/01/03-08/31/05) Seismic analysis of upper-mantle dynamics: seafloor spreading and hotspot ridge interaction in the Atlantic.

IRIS (PI: $5900; 6/01/03-8/23/03) Undergraduate Internship Program: Tomographic imaging of a fast-spreading ridge.

NSF-OCE (Co-I: $109,880; 01/01/02-12/31/02) Upgrade of SOEST MGG Computing Facility

IRIS (PI: $8860; 6/16/02-8/31/02) Undergraduate Internship Program: Tomographic imaging of a mid-ocean ridge.

NSF-OCE (PI: $174,838; 03/01/02-02/31/04) Three-dimensional velocity structure and crustal thickness beneath a slow-spreading ridge.

NSF-OCE (PI: $92,121; 09/01/01-08/31/03) Constraining mantle flow, melt supply, and lower crustal structure between the Clipperton and Siqueiros Fracture Zones from a seismic undershoot experiment.

UH Research Council (PI: $2,000; 2002) Travel Award for Research and Training.

FIELD EXPEDITIONS

Co-Chief Scientist, Research Vessel *M. Langseth.* Seismic and geophysical studies across the Emperor Seamounts, 2019

Co-Chief Scientist, Research Vessel *M. Langseth.* Seismic and geophysical studies across the Hawaiian Ridge, 2018

Co-Chief Scientist, Research Vessel *Kilo Moana*. Wai'alu Ridge Experiment (student research experiences cruise – gravity and magnetic field mapping, acoustic bathymetry mapping, acoustic seafloor imagery, seafloor rock sampling), 2018

Co-Chief Scientist, Research Vessel *Kilo Moana*. Pa‘uwela Ridge Experiment (student research experiences cruise – gravity and magnetic field mapping, acoustic bathymetry mapping, acoustic seafloor imagery, seafloor rock sampling), 2017

Chief Scientist, Research Vessel *Falkor*. Maui Nui Geophysical Experiment (student research experiences cruise – gravity and magnetic field mapping, acoustic bathymetry mapping, acoustic seafloor imagery), 2014

Co-chief Scientist, Research Vessel *M. Langseth*. MARINER Mid-Atlantic Ridge active-source seismic and geophysical studies (seismic tomographic imaging, multi-channel seismic imaging, gravity and magnetic field mapping, acoustic bathymetry mapping, acoustic seafloor imagery, water column imaging), 2013

Scientist, Research Vessel *Kilo Moana*. Eastern Lau Spreading Center broadband seismic experiment (ocean-bottom broadband seismic data collection, geophysical mapping), 2010

Chief Scientist, Research Vessel *M. Langseth*. L-SCAN Eastern Lau Spreading Center active source seismic and geophysical studies (seismic tomographic imaging, gravity and magnetic field mapping, acoustic bathymetry mapping, acoustic seafloor imagery*)*, 2009

Scientist, Research Vessel *Kilo Moana*. Kauai, Hawaii geophysical mapping and sampling, 2005

Scientist, Research Vessel *Kilo Moana*. Kauai, Hawaii geophysical mapping, 2004

Scientist, Research Vessel *Kilo Moana*. Maui, Hawaii geophysical mapping and sampling, 2003

Scientist, Sultanate of Oman. Seismic refraction and gravity studies, 1998

Scientist, Research Vessel *M. Ewing*. East Pacific Rise seismic tomography study, 1997

Scientist, Iceland, Icemelt broadband seismic experiment, 1995

SERVICE ACTIVITIES

Participation on international and national proposal review panels, co-author of workshop and NSF planning documents, chair of research symposia at conferences, associated editor of an international journal, member or chair of several standing and ad-hoc committees at UH; service on several student committees. The following is a partial list of activities:

UH Representative, Incorporated Research Institutions for Seismology (IRIS), 2004 – 2022

Associate Editor, Geochemistry, Geophysics, Geosystems (*International peer-reviewed journal),* 2010 – 2013

Oversight Committee Member, National Science Foundation - Ocean Bottom Seismic Instrumentation Pool (OBSIP), 2006 – 2012

Steering Committee Member, National Science Foundation RIDGE2000 program, 2007 – 2009

Peer Reviewer, *Geophysical Journal International*, *Nature*, *Science*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Geochemistry, Geophysics, Geosystems*, *Earth and Planetary Science Letters*, and other science journals.

During the past 10 years (as an associate editor, as an NSF panelist, and in general) reviewed over 100 scientific manuscripts and proposals.

University of Hawaii Service (past 10 years)

Head of the Geophysics and Tectonics Division, Department of Earth Sciences, 2021-p

Head of Graduate Admissions, Department of Earth Sciences, 2021-p

Head of Geophysics Faculty Search Committee, Department of Earth Sciences, 2022-2023

Member, Search Committee, Department of Earth Sciences, 2019-2020

Member, Graduate Studies Committee, Department of Earth Sciences, 2019-p

Member, Graduate Admissions Committee, Department of Earth Sciences, 2019-p

Chair, Graduate Studies Committee, Department of Earth Sciences, 2017-2019

Chair, Department Operations Committee, Department of Geology and Geophysics, 2016-2017

Member, Undergraduate Committee, Department of Geology and Geophysics, 2016-2017

Senator, University of Hawaii Faculty Senate, 2013 – 2014

Chair, University of Hawaii Senate Committee on Faculty Service, 2013 – 2014

Undergraduate Advisor, Department of Geology and Geophysics, 2009 – 2015

Contributor, SOEST Graduation Celebration, 2014

Contributor, SOEST Undergraduate Orientation, 2012, 2013, 2014

Demonstrator, SOEST Open House 2005-2023

Professional Affiliations

Fellow, Geological Society of America

Member, American Geophysical Union

Member, Seismological Society of America

Member, Sigma Xi Scientific Research Society

Member, Society of Exploration Geophysicists

STUDENT AND POST-DOCTORAL SCHOLAR MENTORING

Post-Doctoral Advisees

Deborah Eason, *Petrogenesis of oceanic crust in a back-arc spreading environment: a synthesis of geophysical and petrological data and models* (2014 – 2016)

Ryuta Arai, *Seismological study of Lau back arc crust: mantle water, magmatic differentiation, and a compositionally zoned basin* (2012 – 2014)

Alejandro Gallego, *investigating seismic anisotropy beneath the Reykjanes Ridge using models of mantle flow, crystallographic evolution, and surface wave propagation* (2011-2013)

Graduate Students Advised

Morgan Cryder (MS current)

Megumi Fujimoto (PhD current)

Brandon MacGregor, *A seismic tomography, gravity, and flexure study of the crust and upper mantle structure of the Hawaiian Ridge* (MS 2022)

Chong Xu, *A Seismic Tomography, Gravity, and Flexure Study of the Crust and Upper Mantle Structure of the Emperor Seamounts at Jimmu Guyot* (PhD 2022 OUC)

Charu Lata, Upper crustal structure across the Eastern *Lau Spreading Center using P-to-S converted seismic waves* (MS 2019)

Silke Ballmer, *Short-period Rayleigh wave group velocity maps for Hawai'i Island, from ambient seismic noise* (PhD 2017)

Dana Brodie, *Detection of baleen whales on an ocean-bottom seismometer array in the Lau basin, South Pacific Ocean* (MS 2014)

Michaela Conley, *Seismic shear wave structure of the upper mantle beneath the Mohns Ridge* (MS 2011)

Andrew Delorey, *Surface wave tomography of the upper mantle beneath the Reykjanes Ridge* (MS 2006)

Olga Hernandez, *Detection and localization of blue whale calls recorded on a seafloor hydrophone array near the East Pacific Rise* (MS 2006, École Normale Supérieure de Paris)

Undergraduate Interns Advised

Junzhu Shen, *Analysis of seismic shear waves recorded in the Lau back-arc basin* (2017)

Katherine Dugan, *Significant processes in seafloor formation at slow-spreading mid-ocean ridges: Mid-Atlantic Ridge, 35˚-37˚N* (2014)

Chris McHugh, *MATE Intern: Shipboard operations for the MARINER geophysical cruise* (2013)

Eva Kakone, *Shipboard operations and sonar backscatter imagery analysis for the MARINER geophysical cruise* (2013)

Kelly Brooks, *Processing wide-angle refraction data from the L-SCAN seismic tomography experiment* (2009-2010)

Chelsea Allison, *IRIS Undergraduate Internship awardee. Mapping the axial magma chamber beneath the Eastern Lau Spreading Center* (2009)

James Hebden, *IRIS Undergraduate Internship awardee.* Rayleigh wave propagation in mid-ocean ridge waveguides (2006)

M. Carolina Anchieta, *Detection and localization of micro-seismic events along the East Pacific Rise* (2005)

Louanne Christopher, *IRIS Undergraduate Internship awardee. Crustal seismic structure along the East Pacific Rise 8°20'N to 10°10'N: crustal melt accumulation and its relation to mantle melt delivery, tectonic segmentation, seafloor geology and hydrothermal activity* (2004)

Vedran Lekić, *IRIS Undergraduate Internship Awardee. Imaging the crust and uppermost mantle beneath the Mid-Atlantic Ridge (35˚N) with P-wave tomography* (2003)

Courtney Cowie, *IRIS Undergraduate Internship awardee. Imaging the crust and uppermost mantle beneath the Mid-Atlantic Ridge (35˚N) with P-wave tomography* (2003)