Zachary Cohen Eilon

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UC Santa Barbara
Santa Barbara, CA 93106

RESEARCH APPOINTMENTS

Associate Professor 2022 – present
Dept. of Earth Science; University of California, Santa Barbara, USA

Assistant Professor 2016 – 2022
Dept. of Earth Science; University of California, Santa Barbara, USA

Postdoctoral Research Associate 2016 – 2017
Dept. of Earth, Environmental and Planetary Sciences; Brown University, USA

EDUCATION

PhD, Seismology, Columbia University in the City of New York, USA, 2016
New Constraints on Extensional Environments through Analysis of Teleseisms.
Advisor: Geoffrey A. Abers

MPhil, Columbia University in the City of New York, USA, 2014

MSci, Natural Sciences (Physical), University of Cambridge, UK, 2009 - 2010

MA (Cantab), Natural Sciences (Physical), University of Cambridge, UK, 2006 - 2009

RECENT/RELEVANT PUBLICATIONS

- Petruska*, J. and Z. Eilon, (2022) "Distributed Extension across the Ethiopian Rift and Plateau Illuminated by Joint Inversion of Surface Waves and Scattered Body Waves", *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2021GC010179.
- Brunsvik*, B., Z. Eilon, and C. Lynner, (2021) "Anisotropic S-wave tomography across the rift-drift transition of the eastern North American margin: constraints on mantle structure and flow", *Geochemistry, Geophysics, Geosystems*, *22*, e2021GC010084.
- Eilon, Z., J. B. Gaherty, L. Zhang, J. B. Russell, S. McPeak, J. Phillips, D. W. Forsyth, and G. Ekström, (2021) "The Pacific OBS Research into Convecting Asthenosphere (ORCA) experiment", *Seismological Research Letters - Data Mine*, doi:10.1785/0220210173.
- Mosher, S.*, Z. Eilon, H. Janiszewski, and P. Audet, (2021) "Probabilistic Inversion of Seafloor Compliance for Oceanic Crustal Shear Velocity Structure Using Mixture Density Neural Networks", *Geophysical Journal International*, *227 (3)*, 1879-1892, doi:10.1093/gji/ggab315.
- Xiao*, H., Z. Eilon, C. Ji, and T. Tanimoto, (2020) "COVID-19 societal response captured by seismic noise in China and Italy", *Seismology Research Letters*, *91(5)*, 2757-2768; doi:10.1785/0220200147.
- Eilon, Z. and D. W. Forsyth, (2020) "Depth dependent azimuthal anisotropy beneath the Juan de Fuca plate system", *Journal of Geophysical Research*, doi:10.1029/2020JB019477.
- Russell, J., Z. Eilon, and S. Mosher, (2019) "A new tool for the precise remote location of ocean bottom seismometers", *Seismological Research Letters*, doi:10.1785/0220180336.

- Eilon, Z., K. M. Fischer, and C. A. Dalton, (2018) "An adaptive Bayesian inversion for upper mantle structure using surface waves and scattered body waves", *Geophysical Journal International*, *214*, 232-253, doi:10.1093/gji/ggy137.
- Eilon, Z. and G. A. Abers, (2017) "High seismic attenuation at a mid-ocean ridge reveals the distribution of deep melt", *Science Advances*, *3*, e1602829, doi:10.1126/sciadv.1602829.
- Dannberg, J., Z. Eilon, U. Faul, R. Gaßmöller, P. Moulik, R. Myhill[†], (2017) "Investigating the geodynamic and seismological importance of grain size in the Earth", *Geochemistry Geophysics Geosystems*, doi:10.1002/2017GC006944.
  [†]Collaborative research from 2014 CIDER workshop; equal authorship credit.

ORCID: 0000-0002-4373-646X

[*] denotes under/graduate student supervised at UC Santa Barbara

SERVICE

- EarthScope Consortium Governance Workshop committee member (early career representative) 2022
- US InterRidge Selection Committee 2022
- UNOLS Ocean Bottom Seismometer Instrument Center Operations Sub-Committee, 2019-2020
- IRIS PASSCAL standing committee, 2018-2020
- AGU Beto Gutenberg Lecture selection committee, 2019-2020
- Organising committee: *Rift2Ridge Workshop 2021: Extensional Processes Across Tectonic Settings and Time Scales*, June 2021; Co-author of white-papers: "U.S. InterRidge Membership", "Call to expand ocean bottom seismograph (OBS) facilities and instrument pool for ambitious Rift2Ridge science", "Rift to Drift and the Continent-Ocean Transition". Member of workshop summary report writing committee.
- Co-convener: *Early Career Investigator Virtual Workshop on a Community Vision for the Future Geophysical Facility*, April 2020; Co-author of white-papers: "Early Career community vision for Instrument Services" white paper.
- AGU Fall Conference session convener (2016-2021); OSPA liaison/judge (2016-2021)
- UCSB Earth Science *Senior Thesis* committee Chair, 2021-present
- UCSB Earth Science *Justice, Equity, Diversity, Inclusion* committee Chair, 2020-present
- UCSB Earth Science *Undocumented Students Scholarship* Chair, 2021-present
- Referee: *Geochemistry, Geophysics, Geosystems; Journal of Geophysical Research; Physics of the Earth and Planetary Interiors; Tectonics; Geophysical Journal International; NSF Geophysics Program; NSF Earthscope Program; NSF GeoPRISMS Program; NSF Marine Geology and Geophysics program; Seismological Research Letters; AGU books.*

FUNDING (active)

- National Science Foundation - EAR - FRES-Frontier Research Earth Science - #2218695, "Collaborative Research: Towards a new framework for interpreting mantle deformation: integrating theory, experiments, and observations spanning seismic to convective timescales.", (Co-PIs C. A. Dalton (lead PI), M. Turk, C. Havlin, B. K. Holtzman, H. C. P. Lau, L. N. Hansen, 9/22 - 8/27).
- National Science Foundation - OCE - CAREER - #2143865, "CAREER: New Imaging of Mid-Ocean Ridge Systems at the Galapagos Triple Junction.", (PI, 9/22 - 8/27).
- National Science Foundation - OCE #2025577, "GeoPRISMS synthesis workshop: Extensional Processes Across Tectonic Settings and Time Scales", (co-wrote proposal with multidisciplinary PI team - Lead PI Dennis Harry at Colorado State U., 9/20 - 2/22).
- National Science Foundation - EAR #1753722, "Collaborative Research: Lithosphere-scale anisotropic imaging across the Eastern North American Margin's ocean-continent transition", (Co-PI Colton Lynner [U. Arizona], 1/18 - 12/23).
- National Science Foundation - EAR #1723170, "Collaborative Research: The context for rifting in East Africa - melt distribution and lithospheric removal imaged from axis to flank", (Co-PI Katie Keranen [Cornell U.], 5/18 - 4/23).
- National Science Foundation - OCE #1658214, "Collaborative Research: Imaging small-scale convection and structure of the mantle in the south Pacific: a US contribution to an international PacificArray", (Co-PIs Jim Gaherty [NAU], Göran Ekström [LDEO], Don Forsyth [Brown U.], 8/17 - 7/23).

TEACHING AT UCSB

Earth 2: Principles of Physical Geology
Introductory undergraduate course for the physical Earth sciences. Enrollment ∼170.

Earth 133: Plate Tectonics and Mantle Dynamics
Upper-level undergraduate course for geophysics majors, covering topics in tectonic theory and geodynamics. Enrollment ∼15.

Earth 175: Introduction to MATLAB for Earth Scientists
Crash course in MATLAB programming assuming no coding background, tailored to Earth Science applications. Enrollment ∼25.

Earth 254: Geophysics seminar
Graduate seminar on diverse topics in geophysics and geodynamics of plate tectonics and the connection between plates and Earth's deep interior. Enrollment ∼8.

Earth 255: Advanced Seismology Seminar
Graduate seminar on single-station seismological methods. Enrollment ∼6.

Earth 256: Geophysical Inverse Theory
Graduate seminar on inverse theoretical concepts and techniques. Enrollment ∼8.