
 University of Texas at Austin Institute for Geophysics

- FOCUS AREAS** Seafloor geodesy, tectonic margins, slow slip events, mesoscale ocean circulation
- EDUCATION** University of Washington, School of Oceanography, **Ph.D.** 2023
 Advisor: William S.D. Wilcock
 Dissertation: Circulation-Informed Seafloor Geodetic Techniques for Understanding Plate Boundary Processes
 University of Washington, School of Oceanography, **M.S.** 2019
 University of Washington, Physics, Earth & Space Sciences, **B.S.** 2012
 Double Major, Magna cum laude, Advisor: Caroline A.E. Stromberg
- EMPLOYMENT** Postdoctoral Research Scholar, University of Texas at Austin 2023
 UT Institute for Geophysics Distinguished Postdoctoral Fellow
 Advisors: Laura Wallace, Demian Saffer, Patrick Heimbach
- PUBLICATIONS** Cook, M.J., **Fredrickson, E.K.**, Roland, E.C., Sasagawa, G.S., Schmidt, D.A., Wilcock, W.S.D., Zumberge, M.A. (2023). Calibrated absolute seafloor pressure measurements for geodesy in Cascadia, *Journal of Geophysical Research: Solid Earth* (accepted).
Fredrickson, E.K., Gomberg J., Wilcock, W.S.D., Hermann, A.J., Hautala S.L., Johnson, H.P. (2023). Slow slip detectability in seafloor pressure records offshore Alaska. *Journal of Geophysical Research: Solid Earth*, 128 (2). <https://doi.org/10.1029/2022JB024767>
 Wilcock, W.S.D., Manalang, D.A., **Fredrickson, E.K.**, Harrington, M.J., Cram, G., Tilley, J., Burnett, J., Martin, D., Kobayashi, T., Paros, J.M. (2021). A Thirty-Month Seafloor Test of the A-0-A Method for Calibrating Pressure Gauges, *Frontiers in Earth Science*, 8. <https://doi.org/10.3389/feart.2020.600671>
Fredrickson, E.K., Wilcock, W.S.D., Schmidt, D.A., MacCready, P., Roland, E.C., Kurapov, A.L., Zumberge, M.A., & Sasagawa, G.S. (2019). Optimizing sensor configurations for the detection of slow slip earthquakes in seafloor pressure records, using the Cascadia Subduction Zone as a case study, *Journal of Geophysical Research: Solid Earth*, 124. <https://doi.org/10.1029/2019JB018053>
 Wilcock, W.S.D., Manalang, D.A., Harrington, M.J., **Fredrickson, E.K.**, Cram, G., Tilley, J., et al. (2018). New Approaches to In Situ Calibration for Seafloor Geodetic Measurements, *2018 OCEANS - MTS/IEEE Kobe Techno-Oceans (OTO)*, Kobe, 2018, pp. 1-8. <https://doi.org/10.1109/OCEANSKOBE.2018.8559178>
 Lee, H., Vilches, O.E., Wang, Z., **Fredrickson, E.K.**, Morse, P., Roy, R., Dzyubenko, B., and Cobden, D.H. (2012). Kr and He-4 Adsorption on Individual Suspended Single-Walled Carbon Nanotubes. *Journal of Low Temperature Physics*, v. 169, p. 338-349. <https://doi.org/10.1007/s10909-012-0642-3>
- INVITED TALKS** Pressure Processing Techniques for Detecting Slow Slip Events. *Pressure Seafloor Geodesy Workshop*, University of Rhode Island Bay Campus. (2023)
 Seafloor Geodesy for Tectonic Studies. *Coastal College of Georgia Department of Natural Sciences Seminar*, virtual. (2023)
 Exploring proxies for correcting oceanographic seafloor pressure signals and improving slow slip detectability. *Seafloor Pressure Workshop*, virtual. (2022)
 Seafloor pressure geodesy: challenges and opportunities. *Future Directions in Seafloor Geodesy 2021 Workshop*, virtual. (2021)

INVITED TALKS (cont.)	<p>Seafloor pressure geodesy in Cascadia and Alaska: network geometry matters for reducing non-tidal oceanographic noise. <i>University of Texas Institute for Geophysics Seminar</i>, virtual. (2020)</p> <p>Optimizing seafloor pressure sensor networks for the detection of slow slip earthquakes in Cascadia and beyond. <i>SAGE/GAGE Workshop</i>, Portland, OR. (2019)</p> <p>The detectability of offshore slow slip earthquakes with seafloor pressure sensors: A sensitivity analysis for the Cascadia Subduction Zone. <i>AGU Fall Meeting</i>, Washington D.C. (2018)</p>	
WHITEPAPERS	<p>Fredrickson, E.K., Newman, A., Soule, D.C. (2021). Towards a seafloor geodetic instrument pool for the expanded study of spreading ridge, continental rift, and backarc rift systems. <i>2021 Rift2Ridge Workshop</i>.</p> <p>Byrnes, J.S., Janiszewski, H.A., Eilon, Z.C., Rollins, C., Lynner, C., Wei, S.S., Fredrickson, E.K., Naif, S., Shuck, B.D., Bartlow, N.M., Bodmer, M. (2020). An early career investigator vision for shoreline-crossing geophysics at the NSF future geophysical facility. <i>2020 Early Career Investigator Virtual Workshop on Community Vision for the Future NSF Geophysical Facility</i></p>	
AWARDS	<p>McDuff Family Endowment in Honor of Mary Landsteiner For community building, as voted by the graduate student body 2021</p> <p>Dean A. McManus Excellence in Teaching Award For quality in education, as nominated by undergraduates 2021</p> <p>Paros Scholarship in Geophysical Instrumentation For research in geophysical instrumentation and field measurements 2021</p> <p>Paros Scholarship in Geophysical Instrumentation, Honorable Mention 2020</p> <p>AGU Outstanding Student Paper Award 2018</p> <p>DoD NDSEG, Alternate Selectee 2016</p> <p>NSF GRFP, Honorable Mention 2016</p> <p>Mary Gates Research Scholarship To support and enhance undergraduates research projects 2012</p>	
REVIEWS	<p>Earth and Space Science 2022</p> <p>Journal of Geophysical Research: Solid Earth 2022</p> <p>Progress in Earth and Planetary Science 2021</p> <p>Geophysical Research Letters 2020</p> <p>Frontiers in Geodesy 2020</p>	
COMMITTEES	<p>Seafloor Pressure Meetings Organizational Committee 2023– Plan and convene workshops to foster collaboration between seafloor geodesists and physical oceanographers</p> <p>School of Oceanography (SoO) Faculty Search Committee 2021–2022 Search for Assistant Professor in Active Margins research area</p> <p>SoO Early Career Scientist Seminar Organizing Committee 2021–2022 Revamped department seminar series to highlight early career researchers</p> <p>SoO Director's Advisory Committee 2020–2021 Represented student body in regular meetings with department chair</p> <p>College of the Environment Anti-Discrimination Working Group 2020–2022 Multidisciplinary group working towards shared DEI goals</p> <p>School of Oceanography Communications Committee 2020–2021 Tasked to increase communication and transparency within the department</p>	

TEACHING	Oceanography of the Pacific Northwest (101; TA)	2020
	Global Oceans Human Culture (480; TA)	2018–2020
	Marine Geology and Geophysics (340; TA)	2017
	Seattle Public Library K-12 tutor	2016-2018
SERVICE AND ENGAGEMENT	Conference Session Co-Convener/Chair	
	AGU Fall Meeting, <i>Recent Developments in Seafloor Geodesy</i>	2023
	Seismological Society of America Meeting, <i>Adv. in Geo. Sensing</i>	2022
	Ocean Sciences Meeting, <i>Seafloor Geodesy</i>	2022
	OCEANS'18 MTS/IEEE, <i>Ocean Natural Hazards Monitoring</i>	2018
	Graduate Application Mentorship Program, mentor	2021
	Support program for interested applicants to increase transparency	
	Open letters to administration, co-organizer & co-author	2020-2021
	Calls to action to address DEI issues at the department and college level	
	Students Explore Aquatic Sciences Open House, volunteer	2020
	Annual Oceanography and Fisheries public outreach event	
	Oceanography Graduate and Postdoc Symposium, founder	2019–2022
	Annual opportunity for trainees to present work in low-stakes environment	
	Academic and Recreational Graduate Oceanographers, founder	2019–2022
Organization for increasing engagement in the graduate program		
The Touch Tank (graduate student quarterly publication), editor	2018–2022	
Newsletter aimed at community building through shared experiential humor		
ADDITIONAL RESEARCH EXPERIENCE	Research Technician, Univ. of WA, Dept. of Oceanography	2015–2016
	Advisor: William S.D. Wilcock	
	Acoustic detection and tracking of whales on ocean-bottom seismometer data	
	Field Assistant, Univ. of FL & Smithsonian	2013–2014
	Advisors: Aaron R. Wood & Jorge Velez-Juarbe	
	Site stratigraphic description and fossil collection and identification	
Undergraduate Research Assistant, Univ. of WA, Dept. of Biology	2011–2013	
Advisor: Caroline A.E. Stromberg		
Paleoclimatic reconstruction from isotopes and fossil plant cells and soils		
Undergraduate Research Assistant, Univ. of WA, Dept. of Physics	2009–2011	
Advisor: David H. Cobden		
Phase transitions of monatomic gases in quasi one-dimensional systems		
FIELD EXPERIENCE	Deployment of novel tilt instrument on Axial Seamount, R/V Revelle	2018
	In-situ data collection from seafloor instruments, R/V Sikuliaq	2017
	Deployment of seafloor pressure gauges, R/V Sikuliaq	2016
	Cascadia Initiative OBS recovery, R/V Thompson	2015
	Paleontology: site stratigraphy and fossil collection in Panama	2013
	Paleontology: site stratigraphy and fossil collection in Montana	2012
CONFERENCES	SSA Annual Meeting, Bellevue, WA (poster)	2022
	Results from a novel self-calibrating tiltmeter at Axial Seamount	
	Ocean Sciences Meeting, virtual (oral)	2022
	Methods for predicting and correcting oceanographic seafloor pressure signals and the impact on slow slip detectability	
AGU Fall Meeting, New Orleans, LA (oral)	2021	
Seafloor pressure geodesy on the Alaska margin – methods for predicting and correcting oceanographic signals and their effects on slow slip detectability		

CONFERENCES (cont.)	<p>Marine Seismology Symposium, virtual (poster) 2021 <i>Using observations from the AACSE and predictions from a regional oceanographic model to predict and correct non-tectonic signals on ocean bottom pressure recorders</i></p> <p>AGU Fall Meeting, virtual (lightning talk) 2020 <i>Tilt and pressure records of short-term deflation events at Axial Seamount</i></p> <p>AGU Fall Meeting, San Francisco, CA (poster) 2019 <i>Observing and interpreting seafloor tilt at Axial Seamount</i></p> <p>Pacific Northwest Earthquake Science Workshop, Seattle, WA (poster) 2019 <i>Optimizing seafloor pressure sensor networks in Cascadia for the detection of shallow slow slip earthquakes</i></p> <p>SSA Annual Meeting, Seattle, WA (poster) 2019 <i>A sensitivity analysis of seafloor pressure sensors for the detection of offshore slow slip earthquakes in the Cascadia Subduction Zone</i></p> <p>OCEANS/Techno-Ocean Symposium, Kobe, Japan (oral) 2018 <i>New approaches to in situ calibration for seafloor geodetic instruments</i></p> <p>AGU Fall Meeting, New Orleans, LA (poster) 2017 <i>Evaluating the use of seafloor pressure data for the study of slow slip earthquakes; insights from the 2011-2015 Cascadia Initiative deployment</i></p> <p>GSA Annual Meeting, Charlotte, NC (oral) 2012 <i>Vegetation response to the Late Oligocene Warming Event in southwestern Montana based on a combined phytolith-carbon isotope record</i></p>
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