

## Jessica M. Warren - Professor, University of Delaware

---

Department of Earth Sciences  
255 Academy Street, Newark, DE 19716  
Lab: Penny Hall 212/213

*E-mail:* warrenj@udel.edu  
*Website:* www.jessicamwarren.com  
*ORCID:* 0000-0002-4046-4200

### EDUCATION

- 2007 **Ph.D.** in Geochemistry and Geophysics, MIT/WHOI Joint Program  
*The Oceanic Upper Mantle: Rheological and Geochemical Constraints*
- 2003 **M.A.** in Natural Sciences, University of Cambridge
- 2000 **M.Sci.** in Natural Sciences, University of Cambridge
- 1999 **B.A. First Class** in Natural Sciences, University of Cambridge

### APPOINTMENTS

- 2022-present **Professor**, Department of Earth Sciences, University of Delaware
- 2016-present **Faculty Affiliate**, Delaware Environmental Institute, University of Delaware
- 2014-present **Research Associate**, National Museum of Natural History, Smithsonian Institution
- 2023-2024 **Visiting Professor**, Department of Earth Sciences, University of Cambridge
- 2023-2024 **Visiting Professor**, Institut de Physique du Globe de Paris
- 2023-2024 **Visiting Professor**, École Normale Supérieure (Paris)
- 2018-2022 **Associate Professor**, Department of Earth Sciences, University of Delaware
- 2015-2018 **Assistant Professor**, Department of Geological Sciences, University of Delaware
- 2014-2016 **Visiting Investigator**, Dept. of Terrestrial Magnetism, Carnegie Institution for Science
- 2015 **Sabbatical Visitor**, Department of Earth Sciences, University of Oxford
- 2010-2015 **Assistant Professor**, Department of Geological Sciences, Stanford University
- 2008-2014 **Guest Investigator**, Dept. of Geology & Geophysics, Woods Hole Oceanographic Inst.
- 2008-2010 **Postdoctoral Fellow**, Dept. of Terrestrial Magnetism, Carnegie Institution for Science
- 2007 **Postdoctoral Investigator**, Geology & Geophysics, Woods Hole Oceanographic Inst.
- 2005-2006 **COE-21 Collaborative Researcher**, Okayama University at Misasa
- 2001-2007 **Research Assistant**, Dept. of Geology & Geophysics, Woods Hole Oceanographic Inst.
- 2001 **Conservation Intern**, Mammoth Cave National Park, Student Conservation Association
- 1997 **Summer Intern**, National Museum of Natural History, Smithsonian Institution

### HONORS AND AWARDS

- 2025 Fellow, Mineralogical Society of America
- 2013-2018 CAREER Award, National Science Foundation
- 2015 Stanford Presidential Research Grants for Junior Faculty
- 2013-2015 Frederick E. Terman Faculty Fellowship, Stanford University
- 2011 Stanford Presidential Research Grants for Junior Faculty
- 2008-2010 Carnegie Postdoctoral Fellow, Carnegie Institution of Washington
- 2002-2003 Stanley W. Watson Fellowship, MIT/WHOI Joint Program
- 2001-2002 Charles Davis Hollister Fellowship, MIT/WHOI Joint Program
- 1998-1999 Skerne Scholarship, University of Cambridge

## PUBLICATIONS

(\*invited paper; †Warren lab member; ‡student collaborator)

- Yang, Y., W. Fan, J.J. McGuire, M.D. Behn, **J.M. Warren**, J.A. Collins, Y. Liu, and M.S. Boettcher. Coevolution of slip and fault-zone damage at oceanic transform faults, *Nature Geoscience*, submitted 3/2026.
- Fan, W., J.J. McGuire, Y. Liu, M.D. Behn, **J.M. Warren**, J.A. Collins, and M.S. Boettcher. Dynamics of rupture barriers on oceanic transform faults: Insights from the westernmost Gofar transform fault, *Journal of Geophysical Research*, revisions submitted 2/2026.
- Gong, J., W. Fan, J.J. McGuire, M.D. Behn, **J.M. Warren**, E. Roland, M.S. Boettcher, J.A. Collins, Y. Liu, and C.R. German, 2026. Predictable Seismic Cycles Result from Structurally Defined Rupture Barriers on Oceanic Transform Faults, *Science*, accepted.
- Nalesnik, A.R.<sup>†</sup>, K.J. Lynn, T. Rose, **J.M. Warren**, D.C.S. Ruth, K.-Y. Lin, and D.A. Swanson. Storage timescales and the crystal growth history recorded in the layered reservoir of the Unit 3 Kulanaokuaiki Tephra Member of the Uēkahuna Ash from Kilauea volcano, *Contributions to Mineralogy and Petrology*, submitted 12/2025.
- Warren, J.M.**, M.D. Behn, and Shipboard Scientific Party, 2025. RR2509 Cruise Report for Chain Transform Fault Experiment, Leg 3: Rock Dredging and AUV Sentry Mapping, *Technical Report*, doi:10.7284/911237.
- Lin, K.-Y.<sup>†</sup>, **J.M. Warren**, M. Schilling, G. Plissart, A. Corgne, N. Akizawa, R. Anma, M. Alvear<sup>‡</sup>, E. González<sup>‡</sup>, and C. Marín<sup>‡</sup>, 2025. The Taitao ophiolite: Snapshot of nascent oceanic mantle emplaced via ridge-trench collision, *Journal of Petrology*, 66, egaf092, doi:10.1093/petrology/egaf092.
- Chesley, C., R. Evans, **J.M. Warren**, A.C. Gase, J. Perez, C. Armerding, H. Brewer, P. Koenig, E. Attias, B.L. Fluegel, J.-D. Kim, N. Hummel, K. Enright, E. Topp-Johnson, M.S. Boettcher, 2025. Evidence for crustal brines and deep fluid infiltration in an oceanic transform fault, *Science Advances*, 11, eadu3661, doi:10.1126/sciadv.adu3661.
- Birner, S.K., E. Cottrell, F.A. Davis, and **J.M. Warren**, 2024. Deep, hot, ancient melting recorded by ultralow oxygen fugacity in peridotites, *Nature*, 631, 801-807, doi:10.1038/s41586-024-07603-w.
- Bader, J.A.<sup>‡</sup>, W. Zhu, L. Montési, C. Qi, B. Cordonnier, D.L. Kohlstedt, and **J.M. Warren**, 2024. Effects of stress-driven melt segregation on melt orientation, melt connectivity and anisotropic permeability, *Journal of Geophysical Research*, 129, e2023JB028065, doi:10.1029/2023JB028065.
- Kumamoto, K.M., L.N. Hansen, T. Breithaupt, D. Wallis, B.-S. Li, D.E.J. Armstrong, D.L. Goldsby, Y. Li, **J.M. Warren**, and A.J. Wilkinson, 2024. The effect of intracrystalline water on the mechanical properties of olivine at room temperature, *Geophysical Research Letters*, 51, e2023GL106325, doi:10.1029/2023GL106325.
- Lin, K.-Y.<sup>†</sup>, **J.M. Warren**, and F.A. Davis, 2023. Trace elements in abyssal peridotite olivine record melting, thermal evolution, and melt refertilization in the oceanic upper mantle, *Contributions to Mineralogy and Petrology*, 178, 66, doi:10.1007/s00410-023-02044-6.
- \*Warren, J.M.** and L.N. Hansen, 2023. Ductile deformation of the lithospheric mantle. *Annual Reviews of Earth and Planetary Sciences*, 51, 581-609, doi:10.1146/annurev-earth-031621-063756. *Invited re-*

*view paper.*

- Boettcher, M.S., E.C. Roland, **J.M. Warren**, R.L. Evans, and J.A. Collins, 2023. Observing a seismic cycle at sea, *Eos*, 104, doi:10.1029/2023EO230076.
- Kohli, A.H., M. Wolfson-Schwehr, C. Prigent<sup>†</sup>, and **J.M. Warren**, 2021. Oceanic transform fault seismicity and slip mode influenced by seawater infiltration, *Nature Geoscience*, 14, 606-611.
- Birner, S.K., E. Cottrell, **J.M. Warren**, K.A. Kelley, and F.A. Davis, 2021. Melt addition to mid-ocean ridge peridotites increases spinel Cr# with no significant effect on recorded oxygen fugacity, *Earth and Planetary Science Letters*, 566, 116951, doi:10.1016/j.epsl.2021.116951.
- Patterson, S.N.<sup>†</sup>, K.J. Lynn<sup>†</sup>, C. Prigent<sup>†</sup>, and **J.M. Warren**, 2021. High temperature hydrothermal alteration and amphibole formation in Gakkel Ridge abyssal peridotites, *Lithos*, 392-393, 106107, doi:10.1016/j.lithos.2021.106107.
- Lynn, K.J.<sup>†</sup> and **J.M. Warren**, 2021. The potential for aqueous fluid-rock and silicate melt-rock interactions to re-equilibrate hydrogen in peridotite nominally anhydrous minerals, *American Mineralogist*, 106, 701-714, doi:10.2138/am-2021-7435.
- Hansen, L.N., M. Faccenda, and **J.M. Warren**, 2021. A review of mechanisms generating seismic anisotropy in the upper mantle, *Physics of the Earth and Planetary Interiors*, 313, 106662, doi:10.1016/j.pepi.2021.106662.  
*Special Issue: Physical Properties and Observations of the Lithosphere-Asthenosphere System*
- Wallis, D., L.N. Hansen, K.M. Kumamoto, C.A. Thom, O. Plümper, M. Ohl, W.B. Durham, D.L. Goldsby, D.E.J. Armstrong, C.D. Meyers, R. Goddard, **J.M. Warren**, T. Breithaupt, M.R. Drury, and A.J. Wilkinson, 2020. Dislocation interactions during low-temperature plasticity of olivine strengthen the lithospheric mantle, *Earth and Planet. Sci. Lett.*, 543, 116349, doi:10.1016/j.epsl.2020.116349.
- Prigent, C.<sup>†</sup>, **J.M. Warren**, A.H. Kohli<sup>‡</sup>, and C. Teyssier, 2020. Fracture-mediated deep seawater flow and mantle hydration on oceanic transform faults, *Earth and Planetary Science Letters*, 532, 115988, doi:10.1016/j.epsl.2019.115988.
- Kohli, A.H.<sup>‡</sup> and **J.M. Warren**, 2020. Evidence for a deep hydrologic cycle on oceanic transform faults, *Journal of Geophysical Research*, 125, e2019JB017751, doi:10.1029/2019JB017751.
- Warren, J.M.**, M.D. Behn, W. Fan, T. Morrow, C. Prigent<sup>†</sup>, D.M. Schwartz, J. Andrys<sup>‡</sup>, M. Bahruth<sup>†</sup>, J. Gong, K.-Y. Lin<sup>†</sup>, A.T. Gardner, D. Kot, M. Rapa, B. Kelly, and P. A'Hearn, 2019. AT42-20 Cruise Report for the 2019-2021 Gofar Transform Fault Earthquake Prediction Experiment, Leg 1: OBS Deployment and Rock Dredging, *Technical Report*, doi:10.1575/1912/25464.
- Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and L.N. Hansen, 2019b. Evolution of the Josephine Peridotite shear zones: 2. Influences on olivine CPO evolution, *Journal of Geophysical Research*, 124, 12763-12781, doi:10.1029/2019JB017968.
- Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and E.H. Hauri, 2019a. Evolution of the Josephine Peridotite shear zones: 1. Compositional variation and shear initiation, *Geochemistry, Geophysics, Geosystems*, 20, 5765-5785, doi:10.1029/2019GC008399.
- Nevitt, J.M., **J.M. Warren**, K.M. Kumamoto<sup>†</sup>, and D.D. Pollard, 2019. Using geologic structures to

- constrain constitutive laws not accessible in the laboratory, *Journal of Structural Geology*, 125, 55-63, doi:10.1016/j.jsg.2018.06.006.
- Boneh, Y., E. Schottenfels, K. Kwong, I. van Zelst, X. Tong, M. Eimer, M.S. Miller, L. Moresi, **J.M. Warren**, D.A. Wiens, M. Billen, J. Naliboff, and Z. Zhan, 2019. Intermediate-depth earthquakes controlled by incoming plate hydration along bending-related faults, *Geophysical Research Letters*, 46, 3688-3697, doi:10.1029/2018GL081585.
- D'Errico, M.E.<sup>†</sup>, M.A. Coble, and **J.M. Warren**, 2019. In situ measurements of lead and other trace elements in abyssal peridotite sulfides, *American Mineralogist*, 104, 190-206, doi:10.2138/am-2019-6516. *Special Collection: Planetary Processes as Revealed by Sulfides and Chalcophile Elements*
- Birner, S.K.<sup>†</sup>, E. Cottrell, **J.M. Warren**, K.A. Kelley, and F.A. Davis, 2018. Peridotites and basalts reveal broad congruence between two independent records of mantle  $f_{O_2}$  despite local redox heterogeneity, *Earth and Planetary Science Letters*, 494, 172-189, doi:10.1016/j.epsl.2018.04.035.
- Birner, S.K.<sup>†</sup>, **J.M. Warren**, E. Cottrell, F.A. Davis, K.A. Kelley, and T.J. Falloon, 2017. Forearc peridotites from Tonga record heterogeneous oxidation of the mantle following subduction initiation, *Journal of Petrology*, 58, 1755-1780, doi:10.1093/petrology/egx072.
- Kumamoto, K.M.<sup>†</sup>, C.A. Thom<sup>‡</sup>, D. Wallis, L.N. Hansen, D.E.J. Armstrong, **J.M. Warren**, D. Goldsby, and A.J. Wilkinson, 2017b. Size effects resolve discrepancies in 40 years of work on low-temperature plasticity in olivine, *Science Advances*, 3, e1701338, doi:10.1126/sciadv.1701338.
- Nevitt, J.M.<sup>†</sup>, **J.M. Warren**, and D.D. Pollard, 2017b. Testing constitutive equations for brittle-ductile deformation associated with faulting in granitic rock, *Journal of Geophysical Research*, 122, 6269-6293, doi:10.1002/2017JB014000.
- Nevitt, J.M.<sup>†</sup>, **J.M. Warren**, S. Kidder, and D.D. Pollard, 2017a. Comparison of thermal modeling, microstructural analysis, and Ti-in-quartz thermobarometry to constrain the thermal history of a cooling pluton during deformation in the Mount Abbot Quadrangle, CA, *Geochemistry, Geophysics, Geosystems*, 18, 1270-1297, doi:10.1002/2016GC006655.
- Day, J.M.D., R.J. Walker, and **J.M. Warren**, 2017.  $^{186}\text{Os}$ - $^{187}\text{Os}$  and highly siderophile element abundance systematics of the mantle revealed by abyssal peridotites and Os-rich alloys, *Geochimica et Cosmochimica Acta*, 200, 232-254, doi:10.1016/j.gca.2016.12.013.
- Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and E.H. Hauri, 2017a. New SIMS reference materials for measuring water in upper mantle minerals, *American Mineralogist*, 102, 537-547, doi:10.2138/am-2017-5863.
- Davis, F.A., E. Cottrell, S.K. Birner<sup>†</sup>, **J.M. Warren**, and O.G. Lopez, 2017. Revisiting the electron microprobe method of spinel-olivine-orthopyroxene oxybarometry applied to spinel peridotites, *American Mineralogist*, 102, 421-435, doi:10.2138/am-2017-5823.
- Birner, S.K.<sup>†</sup>, **J.M. Warren**, E. Cottrell, and F.A. Davis, 2016. Hydrothermal alteration of seafloor peridotites does not influence oxygen fugacity recorded by spinel oxybarometry, *Geology*, 44, 535-538, doi:10.1130/G38113.1.
- Hansen, L.N., C. Qi, and **J.M. Warren**, 2016c. Olivine torsion experiments constrain the nature of the oceanic lithosphere-asthenosphere boundary, *Proceedings of the National Academy of Sciences*, 113, 10503-10506, doi:10.1073/pnas.1608269113.

- 
- Hansen, L.N., C.P. Conrad, Y. Boneh, P.A. Skemer, **J.M. Warren**, and D.L. Kohlstedt, 2016b. Viscous anisotropy of textured olivine aggregates, Part 2: Micromechanical model, *Journal of Geophysical Research*, 121, 7137-7160, doi:10.1002/2016JB013240.
- Hansen, L.N., **J.M. Warren**, M.E. Zimmerman, and D.L. Kohlstedt, 2016a. Viscous anisotropy of textured olivine aggregates, Part 1: Measurement of the magnitude and evolution of anisotropy, *Earth and Planetary Science Letters*, 445, 92-103, doi:10.1016/j.epsl.2016.04.008.
- \***Warren, J.M.**, 2016. Global variations in abyssal peridotite compositions, *Lithos*, 248-251, 193-219, doi:10.1016/j.lithos.2015.12.023. *Invited review paper*.
- D'Errico, M.E.<sup>†</sup>, **J.M. Warren**, and M. Godard, 2016. Evidence for chemically heterogeneous Arctic mantle beneath the Gakkel Ridge, *Geochimica et Cosmochimica Acta*, 174, 291-312, doi:10.1016/j.gca.2015.11.017.
- Harvey, J., **J.M. Warren**, and S.B. Shirey, 2016. Mantle sulfides and their role in Re-Os-Pb isotope geochronology, *Reviews in Mineralogy and Geochemistry*, 81, 579-649, doi:10.2138/rmg.2016.81.10.
- Hansen, L.N.<sup>†</sup> and **J.M. Warren**, 2015. Quantifying the effect of pyroxene on deformation of peridotite in a natural shear zone, *Journal of Geophysical Research*, 120, 2717-2738, doi:10.1002/2014JB011584.
- Sleep, N.H. and **J.M. Warren**, 2014. Effect of latent heat of freezing on crustal generation at ultraslow spreading rates, *Geochemistry, Geophysics, Geosystems*, 15, 3161-3174, doi:10.1002/2014GC005423.
- Garber, J.M.<sup>‡</sup>, S.M. Roeske, **J.M. Warren**, S.R. Mulcahy, W.C. McClelland, L.J. Austin, P.R. Renne, and G.I. Vujovich, 2014. Crustal shortening, exhumation, and strain localization in a collisional orogen: The Bajo Pequeño Shear Zone, Sierra de Pie de Palo, Argentina, *Tectonics*, 33, 1277-1303, doi:10.1002/2013TC003477.
- Warren, J.M.** and E.H. Hauri, 2014. Pyroxenes as tracers of mantle water variations, *Journal of Geophysical Research*, 119, 1851-1881, doi:10.1002/2013JB010328.
- Nevitt, J.M.<sup>†</sup>, D.D. Pollard, and **J.M. Warren**, 2014. Evaluation of transtension and transpression within contractional fault steps: Comparing kinematic and mechanical models to field data, *Journal of Structural Geology*, 60, 55-69, doi:10.1016/j.jsg.2013.12.011.
- Blusztajn, J., N. Shimizu, **J.M. Warren**, and H.J.B. Dick, 2014. In-situ Pb isotopic analysis of sulfides in abyssal peridotites from ultraslow spreading ridges: New insights into heterogeneity and evolution of the oceanic upper mantle, *Geology*, 42, 159-162, doi:10.1130/G34966.1.
- Skemer, P.A., **J.M. Warren**, L.N. Hansen<sup>†</sup>, G. Hirth, and P.B. Kelemen, 2013. The influence of water and LPO on the initiation and evolution of mantle shear zones, *Earth and Planetary Science Letters*, 375, 222-233, doi:10.1016/j.epsl.2013.05.034.
- Craddock, P.R., **J.M. Warren**, and N. Dauphas, 2013. The chondritic Fe isotopic composition of the Earth, *Earth and Planetary Science Letters*, 365, 63-76, doi:10.1016/j.epsl.2013.01.011. Featured in *Nature News & Views*: Halliday, A.N., 2013. Small differences in sameness, *Nature*, 497, 43-45.
- Warren, J.M.** and S.B. Shirey, 2012. Pb and Os isotopic constraints on the oceanic mantle from single abyssal peridotite sulfides, *Earth and Planetary Science Letters*, 359-360, 279-293,

- doi:10.1016/j.epsl.2012.09.055.
- Recanati A.<sup>‡</sup>, M.D. Kurz, **J.M. Warren**, and J. Curtice, 2012. Helium distribution in a mantle shear zone from the Josephine Peridotite, *Earth and Planetary Science Letters*, 359-360, 161-172, doi:10.1016/j.epsl.2012.09.046.
- Skemer, P.A., **J.M. Warren**, and G. Hirth, 2012. The influence of deformation history on the interpretation of seismic anisotropy, *Geochemistry, Geophysics, Geosystems*, 13, Q03006, doi:10.1029/2011GC003988.
- Warren, J.M.** and N. Shimizu, 2010. Cryptic variations in abyssal peridotite composition: Evidence for recent melt-rock reaction at the ridge, *Journal of Petrology*, 51(1-2), 395-423.
- Dick, H.J.B., C.J. Lissenberg, and **J.M. Warren**, 2010. Mantle melting, melt transport, and delivery beneath a slow-spreading ridge: The paleo-MAR from 23°15'N to 23°45'N, *Journal of Petrology*, 51(1-2), 425-467, doi:10.1093/petrology/egp088.
- Skemer, P.A., **J.M. Warren**, P.B. Kelemen, and G. Hirth, 2010. Microstructural and rheological evolution of a mantle shear zone, *Journal of Petrology*, 51(1-2), 55-80, doi:10.1093/petrology/egp057.
- Warren, J.M.**, N. Shimizu, C. Sakaguchi, H.J.B. Dick, and E. Nakamura, 2009. An assessment of mantle heterogeneity based on abyssal peridotite isotopic compositions, *Journal of Geophysical Research*, 114, B12203, doi:10.1029/2008JB006186.
- Kurz, M.D., **J.M. Warren**, and J. Curtice, 2009. Mantle deformation and noble gases: helium and neon in oceanic mylonites, *Chemical Geology* 266, 10-18, doi:10.1016/j.chemgeo.2008.12.018.
- Warren, J.M.**, G. Hirth, and P.B. Kelemen, 2008. Evolution of olivine lattice preferred orientation during simple shear in the mantle, *Earth and Planetary Science Letters*, 272, 501-512.
- Courtier, A.M., M.G. Jackson, J.F. Lawrence, Z. Wang, C.-T.A. Lee, R. Halama, **J.M. Warren**, R. Workman, W. Xu, M.M. Hirschmann, A.M. Larson, S.R. Hart, C. Lithgow-Bertelloni, L. Stixrude, W.-P. Chen, 2007. Correlation of seismic and petrologic thermometers suggests deep thermal anomalies beneath hotspots, *Earth and Planetary Science Letters* 264, 308-316, doi:10.1016/j.epsl.2007.10.003.
- Dantas, C., G. Ceuleneer, M. Gregoire, M. Python, R. Freydier, **J.M. Warren**, and H.J.B. Dick, 2007. Pyroxenites from the Southwest Indian Ridge, 9-16°E: Cumulates from incremental melt fractions produced at the top of a cold melting regime, *J. Petrology*, 48(4), 647-660, doi:10.1093/petrology/egl076.
- Warren, J.M.** and G. Hirth, 2006. Grain size sensitive deformation mechanisms in naturally deformed peridotites, *Earth and Planetary Science Letters* 248, 423-435, doi:10.1016/j.epsl.2006.06.006.

## GRANTS

- 2026** Australian Synchrotron Beamtime Application, AS262/XFM/25969: *XFM/XBDM investigation of abyssal pyroxenites to understand the fate of pyroxenites in the mantle.*, PI: D. Murphy; co-PIs: B. Kamber, C. Schrank, M. Jones, J.M. Warren; In-kind ANSTO Grant Value: AUD65,568.
- 2025-2026** ANZIC International Scientific Drilling Consortium, CORE Funding 2025: *Do abyssal pyroxenites preserved a record of >6 kbar pyroxene fractionation during MORB petrogenesis?*, PI: D. Murphy; co-PIs: B. Kamber, C. Schrank, M. Jones, J.M. Warren; AUD19,882.
- 2024-2029** NSF Electrochemical Systems, CBET-2400992: *RAISE: CET: Enhanced Recovery of Rare-Earth Elements Through Formation of High-Temperature Sulfate Liquids: Towards More Circular Utilization Pathways*, PI: A.F. Wallace; co-PIs: N.C. Sturchio, J.M. Warren, C. Basak, J. Gleghorn; \$999,257.
- 2024-2028** NSF Marine Geology and Geophysics, OCE-2318851: *Collaborative Research: Chain Transform Fault: Understanding the dynamic behavior of a slow-slipping oceanic transform system*; PI: J.M. Warren; \$552,903; co-PIs: M.D. Behn (Boston College), M.S. Boettcher (University of New Hampshire), Jianhua Gong (Indiana University), D. Lizarralde (Woods Hole Oceanographic Institution), and V.D. Wanless (Boise State University). Multi-institution project with two research cruises with a total cost of \$6.7M.
- 2022-2025** NSF Petrology & Geochemistry, EAR-1939964: *INTERN supplement for "Evaluating the causes of protracted explosive eruptions at Kilauea Volcano, Hawaii"*; PI: J.M. Warren; \$55,000.
- 2021-2025** NSF Petrology & Geochemistry and Geophysics, EAR-2113408: *Calibrating olivine crystallographic preferred orientation as a mantle water detector*; PI: J.M. Warren; \$317,667.
- 2021-2025** FONDECYT Chile: *Length-scales of chemical, isotopic, and structural heterogeneity in the mantle section of the 6 Ma Taitao ophiolite*; PI: M. Schilling (UACH). Warren is a project collaborator.
- 2020-2024** NSF Marine Geology & Geophysics, OCE-1832868: *INTERN supplement for "Capturing 4D Variations in Stress, Slip, and Fault-Zone Material Properties"*; PI: J.M. Warren; \$51,431.
- 2020-2025** NSF Petrology & Geochemistry, EAR-1939964: *Evaluating the causes of protracted explosive eruptions at Kilauea Volcano, Hawaii*; PIs: K.J. Lynn and J.M. Warren; \$255,595.
- 2020-2023** NSF GeoPRISMS: *Cooperative Institute for Dynamic Earth Research: Fluid and Magma Transport at Plate Boundaries*; PIs: B. Buffett, B. Romanowicz, M. Manga (UC Berkeley). Warren contributed to proposal preparation and was a member of the workshop organizing committee.
- 2019-2024** NSF: *Research Coordination Network: In-Situ Rock Deformation (ISRd)*; PI: W. Zhu (U Maryland). Warren contributed to proposal preparation and is a member of the steering committee.
- 2018-2024** NSF Marine Geology & Geophysics, OCE-1832868: *Collaborative Research: Capturing 4D Variations in Stress, Slip, and Fault-Zone Material Properties: The 2019-2021 Gofar Transform Fault Earthquake Prediction Experiment*; PI: J.M. Warren; \$233,808; collaboration with M. Boettcher (University of New Hampshire), E. Roland (Western Washington University), and J.J. McGuire, M.D. Behn, J.A. Collins, W. Fan, C. German (Woods Hole Oceanographic Institution). Multi-institution project with three research cruises and 51 ocean bottom seismometers with a total cost of \$10M.
- 2018-2019** US Science Support Program: *Supplementary Workshop Participation for the New Caledonia*

- Peridotite Amphibious Drilling Workshop*; PI: J.M. Warren, co-PIs: P.B. Kelemen, A. Farough, E.C. Ferré, F. Klein, R. Price, M.O. Schrenk, J.W. Shervais; \$12,000 for participant travel expenses.
- 2015-2018** International Continental Scientific Drilling Program: *Oman Drilling Project*, PI: P.B. Kelemen (Columbia Univ.); co-PIs: J.M. Warren and 36 others; funding for drilling-related operations only.
- 2015** Stanford Nano Shared Facilities Seed Grant: *NanoSIMS technique development of volatile analyses in nominally anhydrous minerals*; PI: J.M. Warren; \$15,120.
- 2014-2018** NSF Marine Geology & Geophysics, OCE-1620276: *Collaborative Research: Upper mantle oxygen fugacity from source to surface*; PI: J.M. Warren; \$189,068; collaboration with E. Cottrell and F.A. Davis (Smithsonian Institution) and K.A. Kelley (University of Rhode Island); \$336,848 total.
- 2014-2018** NSF Tectonics, EAR-1619880: *Collaborative Research: Deformation-induced hydration of peridotite mylonites in nature and experiments*; PI: J.M. Warren; \$243,709; collaboration with C. Teyssier and M. Zimmerman (University of Minnesota); \$385,414 total.
- 2013-2020** NSF Petrology & Geochemistry, Tectonics, and Geophysics; EAR-1255620: *CAREER: Investigating the relationship between mantle shear localization, melt flow and water content*; PI: J.M. Warren; \$550,069.
- 2011-2012** NSF Major Research Instrumentation, EAR-1125782: *MRI: Acquisition of an electron microprobe for research in Earth sciences, materials science, and applied physics*; PI: J. Stebbins, co-PIs: M. Grove, I. Fisher, J.M. Warren, R. Sinclair; \$761,133.
- 2011-2012** France-Stanford Center Seed Fund: *France-Stanford Collaboration in mantle geochemistry and petrology*; PI: J.M. Warren, co-PIs: B. Ildefonse, M. Godard (Université de Montpellier); \$12,100.
- 2010-2012** NSF Petrology & Geochemistry, EAR-0948609: *Noble gas behavior during upper mantle deformation*; PI: M.D. Kurz (WHOI); \$370,541 total, with subcontract for \$61,402 to J.M. Warren.

## PRESENTATIONS

**Invited seminars (last 5 years):**

2026, Geoscience Speaker Series, Utah State University:

*Twenty thousand leagues under the sea: The rock record of transform fault earthquakes*

2025, Seafloor Explorer, Online Seminar Series:

*The role of serpentine for creep at oceanic transform faults*

2025, Banse Seminar Series, School of Oceanography, University of Washington:

*Twenty thousand leagues under the sea: The rock record of transform fault earthquakes*

2025, Department of Earth, Environmental and Planetary Sciences Colloquia, Brown University:

*The limited role of serpentine in accommodating slip on oceanic transform faults*

2024, Invited Presentation, Serpentine Days Webinar

*Limited role for serpentine in accommodating slip on oceanic transform faults*

2024, Atkinson Distinguished Lecture Series, Dept. of Geology & Geophysics, University of Utah

*The limited role of serpentine for slip accommodation on oceanic transform faults*

2024, Bromery Seminar Series, Dept. of Earth & Planetary Sciences, Johns Hopkins University

*The importance of fluid-rock interactions for earthquakes at the bottom of the ocean*

2024, Structural Geology Group, Utrecht University

*The importance of fluid-rock interactions for earthquakes at the bottom of the ocean*

2024, Institute for Geophysics & Tectonics, University of Leeds

*Fluid-rock interactions and their influence on earthquakes at the bottom of the ocean*

- 2024, Rocks, Melts & Fluids Research Group, University of Leeds  
*Exploring the seafloor: The rock record of hydrothermal fluid circulation*
- 2024, The Sedgwick Club, University of Cambridge  
*Twenty thousand leagues under the sea: The rock record of hydrothermal fluid circulation*
- 2023, Microgeodynamics Seminar, University of Cambridge  
*The rock record of fluid-flow, earthquakes, and creep in oceanic transform faults*
- 2023, Earth and Planets Laboratory, Carnegie Institution for Science:  
*Fluid-rock interactions and their influence on earthquakes at the bottom of the ocean*
- 2022, InterRidge Webinar:  
*The rock record of creep and earthquakes along oceanic transform faults*
- 2022, Delaware Mineralogical Society:  
*Earthquakes at the bottom of the ocean: The mineral record of seismicity and creep in transform faults*
- 2021, Department of Earth Sciences Seminar, University of Cambridge:  
*The influence of seawater infiltration on oceanic transform fault slip behavior*
- 2021, Seismo Lab Seminar, California Institute of Technology:  
*The influence of seawater infiltration on oceanic transform fault seismicity and slip mode*

**Invited conference presentations:**

- 2024, Invited Presentation, National Academy of Science, Decadal Survey of Ocean Sciences:  
*Research Priorities in Marine Geology and Geophysics*
- 2023, Summer Program, Cooperative Institute for Dynamic Earth Research, Berkeley, CA:  
*The role of fluids in high temperature fault zones: Constraints from geology and geophysics*
- 2022, Invited Talk, Workshop on Rheology of Earth's Interior Across Scales, Paris, France:  
*Fluid-driven phase transformations in shear zones and their influence on lithospheric strength*
- 2020, Keynote, Tectonics Community Science Workshop, Virtual Event:  
*Constraints from the rock record on shear localization at oceanic transform faults*
- 2018, Invited Talk, American Geophysical Union Fall Meeting, Washington, DC:  
*Interplay between melt, water, grain size, and viscous anisotropy during shear localization*
- 2018, Keynote, Goldschmidt Conference, Boston, MA:  
*Source versus process: Peridotite constraints on magma genesis*
- 2017, Invited Talk, Goldschmidt Conference, Paris, France:  
*Constraints on mantle Pb, Se, and Te behavior from in situ analyses of peridotite sulfides*
- 2017, Summer Program, Cooperative Institute for Dynamic Earth Research, Berkeley, CA:  
*Relating seismic anisotropy to natural mantle samples*
- 2017, Keynote, Deformation Mechanisms, Rheology and Tectonics Conference, Inverness, UK:  
*The role of fluids in the brittle-ductile transition at oceanic transform faults*
- 2016, Keynote, Goldschmidt Conference, Yokohama, Japan:  
*Reconciling the compositions of ridge basalts and peridotites*
- 2016, Invited Talk, CIDER Community Workshop, Point Reyes, CA:  
*Using olivine rheology to constrain plate boundaries*
- 2015, Keynote, COMPRES Annual Meeting, Colorado Springs, CO:  
*Exploring mantle properties using abyssal peridotites*
- 2014, Invited Talk, Gordon Research Conference on Rock Deformation, Andover, NH:  
*Initiation and Evolution of Ductile Mantle Shear Zones*
- 2013, Keynote, Goldschmidt Conference, Florence, Italy:  
*Global Abyssal Peridotite Constraints on the Upper Mantle*
- 2011, Invited Talk, Goldschmidt Conference, Prague, Czech Republic:  
*Mantle heterogeneity constraints from abyssal peridotite sulfide Pb and Os isotopic compositions*
- 2011, Invited Talk, EarthScope Institute on the Lithosphere-Asthenosphere Boundary, Portland, OR:  
*Global abyssal peridotite constraints on oceanic LAB formation*
- 2009, Invited Talk, American Geophysical Union Fall Meeting, San Francisco, CA:

- Causes and Consequences of Mantle Heterogeneity From Observations of Abyssal Peridotites*  
 2008, Invited Talk, Third COE-21 International Symposium, Misasa, Japan:  
*Magma Genesis at Ultra-Slow Spreading Ridges*  
 2007, Invited Talk, American Geophysical Union Fall Meeting, San Francisco, CA:  
*Mechanisms of Ductile Shear Localization From Observations of Naturally Deformed Peridotites*

#### LAND AND SEA FIELD WORK

- 2025 Chief Scientist, R/V Revelle: *Chain Leg 3: Rock Dredging and AUV Sentry Mapping.*  
 2025 Shore-based scientist, R/V Langseth: *Chain Leg 2: OBS Recovery.*  
 2024 Shore-based scientist, R/V Langseth: *Chain Leg 1: MCS & OBS Deployment.*  
 2022 Shore-based scientist, R/V Thompson: *Gofar Leg 3: OBS Recovery and AUV Sentry Dives.*  
 2019 Chief Scientist, R/V Atlantis: *Gofar Leg 1: OBS Deployment and Rock Dredging.*  
 2018 Josephine Peridotite and Trinity Ophiolite: Structural and geochemical sampling.  
 2015 Josephine Peridotite, Oregon: Sampling of shear zones A and B.  
 2014 Trinity Ophiolite, California: TLS survey of Kangaroo Lake section.  
 2013 Josephine Peridotite, Oregon: Sampling of Fresno Bench shear zones.  
 2012 Trinity Ophiolite and Josephine Peridotite: Peridotite structural and geochemical sampling.  
 2011 Oman Ophiolite: Sampling of deformed peridotites for noble gas project.  
 2010 Josephine Peridotite, Oregon: Sampling of deformed peridotites for mantle noble gas project.  
 2004 R/V Knorr, with ROV Jason-2 and AUV ABE: *Kane Megamullion, Mid-Atlantic Ridge.*  
 2003 Josephine Peridotite, Oregon, and Trinity Ophiolite, California: Peridotite sampling.  
 2003 R/V Melville: *Investigation of the Oblique and Orthogonal Supersegments of the SWIR.*  
 2001 R/V Yokosuka, with DSV Shinkai-6500: *Investigation of Atlantis Bank.*  
 1999 Ardnamurchan, Scotland: Sampling of a contact metamorphic aureole.  
 1998 Apache National Forest, Arizona: Geologic field mapping.

#### TEACHING

##### University of Delaware:

- GEOL302 *Igneous and Metamorphic Petrology* (UG): 2017, 2019, 2020, 2021, 2022, 2023, 2025, 2026  
 GEOL405 *Introduction to Research* (UG): 2018  
 GEOL438/GEOL638/MAST438 *Marine Plate Tectonics* (UG/G): 2020 (w/ McGeary), 2021, 2022, 2024  
 GEOL601 *Geological Sciences at Delaware* (G): 2017, 2018; guest lectures 2020-2026  
 GEOL802 *Marine Geology and Geophysics* (G): 2019  
 GEOL866 *Ultramafics in the Field* (G): 2018  
 GEOL866 *Geophysical Field Methods* (G): 2019, 2025  
 GEOL866 *Ocean Island Volcanism* (G): 2021  
 UNIV401/402 *Senior Thesis* (UG): AY2019-2020, AY2021-2022, AY2025-2026

##### Stanford University:

- GES 104 *Introduction to Petrology* (UG): 2011, 2012, 2013, 2015  
 GES 190 *Advanced Field Methods: Ultramafics in the Field* (UG/G): 2012, 2014  
 GES 209 *Microstructures* (UG/G), w/ Miller: 2011.  
 GES 263 *Introduction to Isotope Geochemistry* (UG/G), guest lectures: 2011, 2014  
 GES 290 *Department Seminar in Geological and Environmental Sciences* (G): 2012, 2013, 2015  
 GES 315 *Literature of Structural Geology* (G), w/ Pollard: 2012, 2013, 2014, 2015  
 GES 340 *Seminar on the Earth's Interior* (G), w/ Mao: 2011, 2013  
 GES 382 *Mantle Geochemistry* (G): 2012

#### ADVISING

##### Postdocs:

Nadine Grambling, 2022-2024, now Adjunct Faculty at Pikes Peak State College  
Kendra Lynn, 2017-2020, now Research Geologist at U.S. Geological Survey  
Cécile Prigent, 2017-2020, now Assistant Professor at Institut de Physique du Globe de Paris  
Lars Hansen, 2012-2013, now Professor at University of Minnesota

**Graduate Students:**

Grace McEllistrem, M.S. student, 2025-present, University of Delaware  
Torii Nienow, M.S. student, 2024-present, University of Delaware  
Abigail Nalesnik, Ph.D. 2025, University of Delaware: *A Geochemical and Physical Investigation of the Kulanaukuaiki Tephra of Kilauea Volcano, Hawai'i*  
Kuan-Yu Lin, Ph.D. 2024, University of Delaware: *Trace Elements in Mantle Olivine: Implications for Mantle Dynamics and Evolution of the Oceanic Lithosphere*  
Melinda Bahruth, M.S. 2023, University of Delaware: *Basaltic Breccia Constraints on the Shallow Rheology of the Gofar Transform Fault*  
Suzanne Birner, Ph.D. 2018, Stanford University: *Variations in the Oxygen Fugacity of the Upper Mantle*  
Kathryn Kumamoto, Ph.D. 2018, Stanford University: *Exploring the Rheological Properties of the Upper Mantle: From the Field to the Laboratory*  
Megan D'Errico, Ph.D. 2016, Stanford University: *Heterogeneity and Depletion of the Mantle Assessed From Abyssal Peridotite Geochemistry*  
Nikolaus Deems, M.S. 2016, Stanford University: *Deformation history and depth to the brittle-ductile transition for peridotite mylonites from St. Paul Transform Fault, Mid-Atlantic Ridge*  
Johanna Nevitt, Ph.D. 2015, Stanford University, co-advised with D. Pollard: *Fault-related deformation within the brittle-ductile transition*

**Undergraduate Research Advisor:**

Oliver Solar, 2025-present, University of Delaware, Winter Fellow, Senior Thesis  
Ilene Kruger, 2023-2024, Colorado College, Buster Scholarship, co-advised with N. Grambling  
Janelle Hayward, 2021-2022, University of Delaware, Winter Fellow  
Natalie Zimmermann, 2019-2020, University of Delaware, Summer Fellow, Senior Thesis  
Raphael Affinito, 2018-2020, University of Delaware, Summer & Winter Fellow, Senior Thesis  
Sierra Patterson, 2018, University of Delaware, Summer Fellow  
EKela Autry, 2015, Stanford University, Summer Fellow  
Oscar Lopez, 2015, Smithsonian Institution, REU Fellow, co-advised with E. Cottrell

**Ph.D. Thesis Committees:** Arjun Kohli (Stanford, 2015; committee chair), Sarah Barrett (Stanford, 2015), Pablo García Del Real (Stanford, 2016), Yingxia Shi (Stanford, 2016), Mary Reagan (Stanford, 2018), Ningli Zhao (Brown University, 2021), Emmanuel Codillo (MIT/WHOI Joint Program, 2022), Emmanuel Chinkaka (U. of Delaware, current), Joshua Munro (UT Austin, current), Cory Hite (U. Delaware, current); Victoria Richardson (Boston College, current); Evan Saltman (Boston College, current).

**Ph.D. Qualifying Exam Committees (Stanford):** Sarah Barrett (2012), Pablo García Del Real (2011), Ryan McCarty (2013), Mary Reagan (2014), Yingxia Shi (2012), Meredith Townsend (2013), Joshua Munro (2025).

**Ph.D. External Examiner:** Sophie Cox (Cardiff University, 2021).

**M.S. Committees:** Abe Torchinsky (Stanford, 2012), David Sheu (Stanford, 2012), Kate Kaminski (U. Idaho, 2016), Rajani Shrestha (U. Delaware, 2023), Lazaro Oliva (U. Delaware, 2023), Sean Gilbert (U. Delaware, current).

## PROFESSIONAL SERVICE

**Committees:**

- 2025-present **Chair, Committee on Solid Earth Geophysics**, National Academy of Sciences  
 2025-present **Board on Earth Sciences and Resources**, National Academy of Sciences  
 2025-present **Committee on Science & the Arts**, The Franklin Institute  
 2021-present **Planning Committee**, Petrology and High-T Geochemistry Community (PetroNet)  
 2019-present **Steering Committee**, In-Situ Rock Deformation Research Coordination Network  
 2023-2025 **Roebing Medal Selection Committee**, Mineralogical Society of America  
 2022-2023 **Finance Committee**, Geological Society of Washington  
 2020-2024 **Committee on Solid Earth Geophysics**, National Academy of Sciences  
 2021-2022 **Selection Committee**, Established renewed involvement of US in InterRidge  
 2017-2022 **Editorial Board**, Lithos  
 2017-2020 **Steering & Oversight Committee**, GeoPRISMS  
 2013-2015 **Education & Outreach Committee**, DEFORM Consortium  
 2011-2016 **Steering Committee**, Physical Properties of Earth Materials (AGU Focus Group)

**Workshop convener:**

- 2023 **Organizing Committee**, Summer Program, Coop. Inst. for Dynamic Earth Research  
 2019 **Organizing Committee**, GeoPRISMS AGU Workshop: Data, Science, & Education Legacy  
 2019 **Organizing Committee**, GeoPRISMS AGU Workshop: Synthesis and Integration  
 2019 **Organizing Committee**, Workshop on Mantle Water  
 2019 **Steering Committee**, New Caledonia Peridotite Amphibious Drilling Workshop  
 2019 **Organizing Committee**, GeoPRISMS Theoretical and Experimental Institute  
 2017 **Organizing Committee**, Summer Program, Coop. Inst. for Dynamic Earth Research

**Conference session convener/chair (selected):**

- 2026 COSEG Winter Meeting *Chair: Emerging Quantitative Methods in Geophysics*  
 2025 Goldschmidt Conference *Understanding redox processes in terrestrial planets*  
 2026 COSEG Winter Meeting *Chair: Advancing Marine Geophysical Sensing*  
 2024 COSEG Fall Meeting *Panel I moderator: Geophysical Consequences of Space Weather*  
 2024 COSEG Spring Meeting *Panel II moderator: Glacial Isostatic Adjustment*  
 2022 COSEG Fall Meeting *Panel II moderator: Electromagnetic Methods*  
 2022 Goldschmidt Conference *Formation and evolution of oceanic and continental lithospheric mantle*  
 2021 COSEG Fall Meeting *Panel II moderator: How Are Plates Made and How Do They Evolve?*  
 2021 Rift-2-Ridge Workshop *Leader of Q&A for day 1 talks*  
 2020 Goldschmidt Conference *Mantle Formation and Evolution from Lithosphere to Deep Mantle*  
 2020 ISRD CHES Workshop *In-situ Rock Deformation: Summary and planning forward*  
 2019 Fluid Transport Modeling *Models for microscopic and short-time-scale mechanisms*  
 2019 Mantle Water Workshop *Discussion session on SIMS and FTIR measurements*  
 2018 AGU Fall Meeting *An integrated approach for obs., exp., & models of deformation*  
 2018 Japan Geoscience Union *The lithosphere and the asthenosphere*  
 2017 AGU Fall Meeting *PPEM: Transient and steady state rock deformation*  
 2016 AGU Fall Meeting *Transform plate boundary behavior*  
 2015 AGU Fall Meeting *PPEM: Deformation mechanisms from crystals to plates*  
 2014 Goldschmidt Conference *Oxidation state of the planets*  
 2013 AGU Fall Meeting *Linking ductile deformation with geochemistry*  
 2012 Gordon Research Conf. *Failure at high confining pressure II (Discussion Leader)*

**Professional Affiliations:**

- 2002-present **Member**, American Geophysical Union  
 2014-present **Member**, Geochemical Society  
 2008-present **Member**, Geological Society of Washington  
 2002-present **Member**, Mineralogical Society of America

**Funding Panels:**

2022 **Panelist**, National Science Foundation  
 2015-2019 **Grant Committee**, MSA Mineralogy/Petrology Research  
 2016 **Panelist**, National Science Foundation  
 2014 **Panelist**, National Science Foundation

**Proposal reviewer:** National Science Foundation; Department of Energy; European Research Council; Deutsche Forschungsgemeinschaft; Fondo Nacional de Desarrollo Científico y Tecnológico Chile.

**Manuscript reviewer:** Contributions to Mineralogy and Petrology; Earth and Planetary Science Letters; Geochimica et Cosmochimica Acta; Geology; Geophysical Research Letters; International Geology Review; Journal of Geophysical Research; Journal of Petrology; Lithos; Nature; Nature Communications; Nature Geoscience; Reviews in Mineralogy and Geochemistry; Tectonophysics.

## UNIVERSITY SERVICE

**Service at University of Delaware:**

2024-present Chair, Earth Sciences Graduate Admissions Committee  
 2025-present Chair, Promotion & Tenure Committee, Department of Earth Sciences  
 2025-present Co-Chair, UD NSF CAREER Academy  
 2025-present Search committee for tenure-track faculty in geochemistry  
 2024-2025 Department of Earth Sciences Promotion & Tenure Committee  
 2025 Department of Earth Sciences Space Committee  
 2024 Search committee for an internal department chair  
 2022-2023 EarthScope Consortium, alternate institution member representative  
 2021-2022 CEOE pod for Unlearning Racism in Geoscience (URGE)  
 2021-2022 Search committee for external department chair  
 2021 Search committee for department business administrator  
 2020-2023 Graduate College Council, alternate representative for CEOE  
 2020 Committee for creating a Department of Earth Sciences code of conduct  
 2019-2023 Department of Earth Sciences Graduate Admissions Committee  
 2017-2019 Earth Sciences Graduate Program Committee  
 2018-2019 Chair, Tenure-Track Geophysics Faculty Search Committee  
 2018-2019 Evaluation committee for Department of Geological Sciences Chair  
 2018 Search committee for CEOE Communications Specialist  
 2018 Postdoctoral search committee for Wallace Group  
 2017 Geological Sciences Strategic Planning Committee [Chair]  
 2016-2023 Upgrades to petrology teaching infrastructure

**Service at Stanford University:**

2014-2015 SEEES Field Coordinator Search Committee  
 2013-2015 Electron Microprobe Steering Committee  
 2011-2015 Department Seminar Coordinator  
 2010-2015 Undergraduate Field Program Committee [Chair 2014-2015]  
 2011-2012 Geochronology Steering Committee  
 2010-2012 ICP-MS & Clean Lab Executive Board

## OUTREACH

2025 Presenter, *Ship-to-Shore sessions* with K-12 classes during R/V Revelle expedition  
 2025 Presenter, *How to Apply to Graduate School*, UD Earth Science Majors  
 2024 Judge, Outstanding Student Presentation Award, AGU Fall Meeting  
 2024 *Ocean Rocks!* exhibit, University of Delaware Coast Day  
 2023 Interactive module on rocks, UD Laboratory School Pre-K/K Class

- 2022 Presenter, *Teaching with GeoMapApp*, virtual GeoMapApp workshop  
 2022 Presentation, *Being a Geologist*, UD Laboratory School Pre-K/K Class  
 2018 Judge, Outstanding Student Presentation Award, AGU Fall Meeting  
 2018 Presentation, *Preparing CVs and Resumes*, UD Graduate Student Brown Bag  
 2018 *Ocean Rocks!* exhibit, University of Delaware Coast Day  
 2018 *Ocean Rocks!* outreach event, Smithsonian National Museum of Natural History  
 2018 Terrestrial Laser Scanning Field Module for GEOL306  
 2018 Guest professor, Geoscience Theater 3000  
 2016 Judge, Outstanding Student Presentation Award, AGU Fall Meeting  
 2014 Judge, Outstanding Student Presentation Award, AGU Fall Meeting  
 2014 Panelist, Advisor/advisee relationships for new graduate students, Stanford  
 2012 Panelist, Recruitment Retreat, Stanford Diversity Outreach for Doctoral Education  
 2011 Panelist, *What does it mean to be a scientist?*, Geoscape Workshop for K-12 teachers

## WHITE PAPERS AND WORKSHOP REPORTS

- Parnell-Turner, R., **J.M. Warren**, S.J. Sim, Z. Eilon, and L. Montesi, 2021. White paper: U.S. Inter-Ridge Membership, *Rift2Ridge Workshop*.
- Wada, I., L. Karlstrom, D. Arcay, L. Caricchi, P. Fulton, T. Gerya, K. Iacovino, T. Keller, R. Lauer, G. Lotto, L. Montesi, T. Sun, H. Vrijmoed, and **J.M. Warren**, 2019. Modeling Collaboratory for Subduction RCN: Fluid Migration Workshop Report.
- Warren, J.M.**, J.J. McGuire, C.R. German, and J.A. Collins, 2014. White Paper: Hydrothermal circulation search on the Garrett transform fault, East Pacific Rise, *Workshop on Exploration of the Eastern Pacific Ocean*, Ocean Exploration Trust.
- McGuire, J.J., J.A. Collins, and C.R. German, **J.M. Warren**, 2014. White Paper: Searching for hydrothermal circulation on the Gofar transform fault, East Pacific Rise, *Workshop on Exploration of the Eastern Pacific Ocean*, Ocean Exploration Trust.
- Kelley, K.A., **J.M. Warren**, E. Cottrell, and D. Cardace, 2014. White Paper: Forearc to Arc Transition in the Northern Tonga Trench, *Workshop on Exploration of the Eastern Pacific Ocean*, Ocean Exploration Trust.
- Suyehiro, K., C. Bertka, D.K. Blackman, B. Ildfonse, P.B. Kelemen, A.J. Mangum, G. Myers, J. Phipps-Morgan, M. Schrenk, Y. Tatsumi, and **J.M. Warren**, 2011. Executive Summary: "Mantle Frontier" Workshop, *Scientific Drilling*, 11, 51-55, doi:10.2204/iodp.sd.11.07.2011.

## CONFERENCE ABSTRACTS

*Since 2022 (\*invited presentation; † Warren lab member; ‡ student collaborating with lab)*

- Solar, O.<sup>†</sup>, **J.M. Warren**, E. Cottrell, and K.-Y. Lin, 2026. Geochemical investigation of melting processes in mantle peridotites from the Talkeetna Arc, *University of Delaware Winter Showcase*, Newark, DE.
- Gong, J., W. Fan, J.J. McGuire, M.D. Behn, **J.M. Warren**, E.C. Roland, M.S. Boettcher, J.A. Collins, and Y. Liu, 2025. Stress Accumulation, Fault Slip, and Barrier-Controlled Earthquake Cycles at Gofar Transform Fault, *AGU Fall Meeting*, New Orleans, LA.
- Gong, J., W. Fan, J.J. McGuire, M.D. Behn, **J.M. Warren**, E.C. Roland, M.S. Boettcher, J.A. Collins, and Y. Liu, 2025. Faulting Processes at the Ridge-Transform Intersection of the Fast-Slipping Gofar

- Transform Fault, *AGU Fall Meeting*, New Orleans, LA.
- Saltman, E.J.<sup>‡</sup>, M.D. Behn, E.C. Roland, P. Koenig<sup>‡</sup>, J. Gong, **J.M. Warren**, J.J. McGuire, M.S. Boettcher, and W. Fan, 2025. Characterizing Surface Expression of the Gofar Transform Fault Using High-Resolution Bathymetry Data, *AGU Fall Meeting*, New Orleans, LA.
- Tan, F., W. Fan, P.M. Shearer, M.D. Behn, J.J. McGuire, **J.M. Warren**, J.A. Collins, and M.S. Boettcher, 2025. Variations in mechanical properties control segmentation of oceanic transform faults, *AGU Fall Meeting*, New Orleans, LA.
- Yang, Y., W. Fan, J.J. McGuire, M.D. Behn, **J.M. Warren**, J.A. Collins, and M.S. Boettcher, 2025. Tracking Fault Zone Evolution across Seismic Cycles at the Gofar Transform Fault, East Pacific Rise, *AGU Fall Meeting*, New Orleans, LA.
- Chinkaka, E.<sup>‡</sup>, J.M. Klinger, K.F. Davis, A. Vatuva, and **J.M. Warren**, 2025. From Waste to Resource: Geochemical and Mineralogical Analysis of the Uis Pegmatite Tailings for the Circular Economy, *Colloquium of African Geology (CAG30)*, Nairobi, Kenya.
- Warren, J.M.**, M.E. D’Errico, M.F. Horan, and M. Godard, 2025. Abyssal peridotite constraints on lead in the Earth’s mantle, *Goldschmidt Conference*, Prague, Czech Republic.
- Birner, S.K., E. Cottrell, F.A. Davis, and **J.M. Warren**, 2025. Ultra-Low Oxygen Fugacity Recorded by Refractory Mid-Ocean Ridge Peridotites Reflects Deep, Ancient Melting Events at High Potential Temperature, *Goldschmidt Conference*, Prague, Czech Republic.
- Behn, M.D., M.S. Boettcher, **J.M. Warren**, and G. Hirth, 2025. A rheologic model for the thermal structure and seismogenic behavior of oceanic transform faults, *Gordon Research Conference on the Interior of the Earth*, South Hadley, MA.
- Lin, K.-Y.<sup>†</sup> and **J.M. Warren**, 2025. Peridotite-hosted clinopyroxenites: melts in the mantle? *Gordon Research Conference on the Interior of the Earth*, South Hadley, MA.
- Meyers, C., N. Grambling<sup>‡</sup>, **J.M. Warren**, D. Wallis, and G. Hirth, 2025. Relationship between olivine O-H FTIR absorption bands and CPO evolution in deformation experiments, *Gordon Research Conference on the Interior of the Earth*, South Hadley, MA.
- Saltman, E.J.<sup>‡</sup>, M.D. Behn, E.C. Roland, P. Koenig<sup>‡</sup>, J. Gong, **J.M. Warren**, J.J. McGuire, M.S. Boettcher, and W. Fan, 2025. Characterizing surface expression of the Gofar Transform Fault using high-resolution AUV bathymetry data, *Gordon Research Conference on the Interior of the Earth*, South Hadley, MA.
- Warren, J.M.**, C. Prigent, S. Piazzolo, and T. Breithaupt, 2024. Serpentine Has a Limited Role in Accommodating Slip on Oceanic Transform Faults, *AGU Fall Meeting*, Washington, DC.
- Birner, S.K., E. Cottrell, F.A. Davis, and **J.M. Warren**, 2024. Ultra-Low Oxygen Fugacity Recorded by Refractory Mid-Ocean Ridge Peridotites Reflects Deep, Ancient Melting Events at High Potential Temperature, *AGU Fall Meeting*, Washington, DC.
- Cottrell, E., S.K. Birner, D. Canil, F.A. Davis, K. Evans, F. Gaillard, C.H. Langmuir, and **J.M. Warren**, 2024. Rock Record of Archean Mantle Oxygen Fugacity, *AGU Fall Meeting*, Washington, DC.

- 
- Kurz, M.D., **J.M. Warren**, J. Curtice, P. Bouilhol, and B. Ildefonse, 2024. Helium Isotopic Variations in Peridotites from the Oman Ophiolite, *AGU Fall Meeting*, Washington, DC.
- Lin, K.-Y.<sup>†</sup>, **J.M. Warren**, M.E. Schilling, G. Plissart, A. Corgne, N. Akizawa, R. Anma, M. Alvear<sup>‡</sup>, E. González<sup>‡</sup>, and C. Marín<sup>‡</sup>, 2024. Snapshot of Oceanic Mantle Beneath an Intermediate Spreading Ridge Emplaced Via Ridge-Trench Collision – the Taitao Ophiolite, *AGU Fall Meeting*.
- Nalesnik, A.<sup>†</sup>, K.J. Lynn, T. Rose, **J.M. Warren**, D.C.S. Ruth, D.A. Swanson, and K.-Y. Lin<sup>†</sup>, 2024. Storage Timescales and the Complex Crystal Growth History in the Layered Mush Reservoir of the Kulanaokuaiki Tephra Unit 3 from Kilauea volcano, Hawai‘i, *AGU Fall Meeting*, Washington, DC.
- Chinkaka, E.<sup>‡</sup>, A. Vatuva, M. Lindombo, K.F. Davis, **J.M. Warren**, and J.M. Klinger, 2024. Geospatial Data Fusion and Earth Observation for Mapping Lepidolite Lithium-Bearing Pegmatites in Namibia’s Karibib Pegmatite Belt Using ASTER Imagery and Field Validation, *UD GIS Day*, Newark, DE.
- Schilling, M.E., G. Plissart, N. Akizawa, K.-Y. Lin<sup>†</sup>, A. Corgne, M. Alvear<sup>‡</sup>, E.J. González<sup>‡</sup>, C. Marín<sup>‡</sup>, R.J. Walker, R. Anma, **J.M. Warren**, A. Ishikawa, C. Prigent, V.E. González, A. Rivera<sup>‡</sup>, F.A. Martínez, N.F. Donoso, and J.M. González-Jiménez, 2024. Magmatic and tectonic processes recorded by mantle rocks of the Taitao ophiolite (6 Ma), southern Chile, *Goldschmidt Conference*, Chicago, IL.
- Prigent, C. and **J.M. Warren**, 2024. Origin of brittle deformation and microseismicity in the ‘ductile’ mantle on oceanic transform faults, *EGU General Assembly*, Vienna, Austria.
- Behn, M.D., M.S. Boettcher, **J.M. Warren**, and G. Hirth, 2023. A rheologic model for the thermal structure and seismogenic behavior of oceanic transform faults, *AGU Fall Meeting*, San Francisco, CA.
- Chesley, C.J., R.L. Evans, E. Attias, N. Hummel, P. Koenig, J. Perez, K.P. Enright, **J.M. Warren**, B. Fluegel, A. Gase, J.D. Kim, and C. Armerding, 2023. Characterizing an earthquake rupture barrier at the Gofar oceanic transform fault using controlled-source electromagnetic data, *AGU Fall Meeting*, San Francisco, CA.
- Gong, J., W. Fan, M.S. Boettcher, J.J. McGuire, **J.M. Warren**, M.D. Behn, E.C. Roland, and Y. Liu, 2023. Ridge-transform fault interaction controls earthquake swarm activity at the Gofar transform fault, *AGU Fall Meeting*, San Francisco, CA.
- Grambling, N.L.<sup>†</sup>, **J.M. Warren**, G. Hirth, C.D. Meyers, and N. Zhao, 2023. Refining conditions for the development of E-Type olivine fabrics from Talkeetna Arc, Alaska, and experimentally deformed olivine aggregates, *AGU Fall Meeting*, San Francisco, CA.
- Lin, K.-Y.<sup>†</sup>, **J.M. Warren**, M.E. Schilling, G. Plissart, A. Corgne, N. Akizawa, R. Anma, M. Alvear<sup>‡</sup>, E. González<sup>‡</sup>, and C. Marín<sup>‡</sup>, 2023. Snapshot of nascent Pacific oceanic lithosphere emplaced via ridge-trench collision – the Taitao ophiolite, *AGU Fall Meeting*, San Francisco, CA.
- Roland, E.C., P. Koenig<sup>‡</sup>, M.S. Boettcher, **J.M. Warren**, and M.D. Behn, 2023. Fault zone complexity and kinematics from AUV-Sentry micro-bathymetry along rupture segments and barriers at the Gofar Transform Fault – East Pacific Rise, *AGU Fall Meeting*, San Francisco, CA.
- Tracy, D.<sup>‡</sup>, E.C. Roland, P. Koenig<sup>‡</sup>, M.S. Boettcher, and **J.M. Warren**, 2023. New analysis of fault damage and the hydrogeologic structure of the Gofar Transform Fault from AUV-Sentry seafloor photography, *AGU Fall Meeting*, San Francisco, CA.

- 
- Alvear Kayiza, M.<sup>‡</sup>, M. Schilling, G. Plissart, A. Corgne, K.-Y. Lin<sup>†</sup>, N. Akizawa, **J.M. Warren**, E. González<sup>‡</sup>, C. Marín<sup>‡</sup>, and A. Rivera<sup>‡</sup>, 2023. Petrological processes involved in the formation of the mantle-crust transition zone of Taitao ophiolite, Aysén, Chile, *XVI Congreso Geológico Chileno*, Santiago, Chile.
- González, E.<sup>‡</sup>, G. Plissart, M. Schilling, A. Corgne, K.-Y. Lin<sup>†</sup>, N. Akizawa, C. Prigent, **J.M. Warren**, M. Alvear<sup>‡</sup>, C. Marín<sup>‡</sup>, and A. Rivera<sup>‡</sup>, 2023. Origin of the mafic and ultramafic mylonitic rocks at the base of the Taitao Ophiolite, Aysén, Chile, *XVI Congreso Geológico Chileno*, Santiago, Chile.
- Marín Oyarzún, C.<sup>‡</sup>, M. Schilling, G. Plissart, A. Corgne, K.-Y. Lin<sup>†</sup>, N. Akizawa, **J.M. Warren**, M. Alvear<sup>‡</sup>, E. González<sup>‡</sup>, and A. Rivera<sup>‡</sup>, 2023. Petrological heterogeneities at the metric to micrometric scales of mantle rocks from the Taitao ophiolite, Aysén Region, Chile, *XVI Congreso Geológico Chileno*, Santiago, Chile.
- Plissart, G., N. Akizawa, M. Schilling, A. Corgne, K.-Y. Lin<sup>†</sup>, M. Alvear<sup>‡</sup>, C. Marín<sup>‡</sup>, E. González<sup>‡</sup>, **J.M. Warren**, and R. Anma, 2023. First report of a massive chromitite from the Taitao ophiolite (Chile): an enigmatic origin leading to PGM and Y-REE phosphate crystallization, *XVI Congreso Geológico Chileno*, Santiago, Chile.
- Rivera Salgado, A.<sup>‡</sup>, G. Plissart, M. Schilling, A. Corgne, K.-Y. Lin<sup>†</sup>, N. Akizawa, and **J.M. Warren**, 2023. Origin and evolution of albitites present in the Taitao ophiolitic sequence (Taitao Peninsula, Aysén Region, Chile), *XVI Congreso Geológico Chileno*, Santiago, Chile.
- Chinkaka, E.<sup>‡</sup>, A. Vatuva, **J.M. Warren**, K.F. Davis, and J.M. Klinger, 2023. Detection of Lithium-Rich Pegmatites Using ASTER Multispectral Image Analysis: Insights from the Karibib Pegmatite Belt, Namibia, *29th Colloquium of African Geology*, Windhoek, Namibia.
- Birner, S.K., E. Cottrell, F.A. Davis, and **J.M. Warren**, 2023. Refractory peridotites at ultraslow-spreading ridges record ultra-low oxygen fugacity, *Goldschmidt Conference*, Lyon, France.
- Cottrell, E., S.K. Birner, F.A. Davis, **J.M. Warren**, D. Canil, and C.H. Langmuir, 2023. Records of Archean mantle oxygen fugacity, *Goldschmidt Conference*, Lyon, France.
- Warren, J.M.**, C. Prigent, S.K. Birner, E. Cottrell, F.A. Davis, and K.J. Lynn, 2023. Abyssal peridotite constraints on hydrothermal fluid circulation, *Goldschmidt Conference*, Lyon, France.
- Lin, K.-Y.<sup>†</sup>, **J.M. Warren**, and F.A. Davis, 2023. Abyssal peridotites from different tectonic regimes record contrasting closure temperatures and cooling rates, *Gordon Research Conference on the Interior of the Earth*, South Hadley, MA.
- Nalesnik, A.<sup>†</sup>, J. Schmith, T. Rose, D.A. Swanson, K.J. Lynn, and **J.M. Warren**, 2023. First grain-size data of Kulanaokuaiki Tephra Units 1, 3, and 5 from explosive eruptions of Kilauea Volcano, HI, USA, *IAVCEI Scientific Assembly*, Rotorua, New Zealand.
- Nalesnik, A.<sup>†</sup>, K.J. Lynn, T. Rose, K.-Y. Lin<sup>†</sup>, and **J.M. Warren**, 2023. Explosive Eruptions of Kilauea Volcano (HI): Constraints from Glass Chemistry of the Upper-Kulanaokuaiki Tephra, *IAVCEI Scientific Assembly*, Rotorua, New Zealand.
- Behn, M.D., M.S. Boettcher, J.-A. Olive, **J.M. Warren**, and G. Hirth, 2022. A rheologic model for the seismicogenic behavior of oceanic transform faults, *AGU Fall Meeting*, Chicago, IL.

- 
- Gong, J., W. Fan, M.S. Boettcher, J.J. McGuire, J.A. Collins, **J.M. Warren**, M.D. Behn, E.C. Roland, C.R. German, and Y. Liu, 2022. Seismotectonics of the Easternmost Segment of Gofar Transform Fault, *AGU Fall Meeting*, Chicago, IL.
- Koenig, P.<sup>‡</sup>, E.C. Roland, M.S. Boettcher, **J.M. Warren**, C.R. German, R.L. Evans, A. Gase, W. Fan, J. Gong, Y. Liu, and M. Bahruth<sup>†</sup>, 2022. The surface expression of the Gofar oceanic transform fault, East Pacific Rise using newly acquired, 1m-resolution multibeam bathymetry from AUV Sentry, *AGU Fall Meeting*, Chicago, IL.
- Myers, M.L., C. Condit, **J.M. Warren**, R.M. Holder, E.H.G. Cooperdock, V. Guevara, E. Rader, A. Bauer, and E. Mixon, 2022. PETRONET: A petrology and high-temperature geochemistry community built within an antiracist and inclusive framework, *AGU Fall Meeting*, Chicago, IL.
- Condit, C., M.L. Myers, **J.M. Warren**, R.M. Holder, E.H.G. Cooperdock, V. Guevara, E. Rader, A. Bauer, and E. Mixon, 2022. PETRONET: A petrology and high-temperature geochemistry community built within an antiracist and inclusive framework, *Geological Society of America Abstracts with Programs*, 54(5), <https://doi.org/10.1130/abs/2022AM-381164>.
- Moyer, P.A., M.S. Boettcher, J. Gong, W. Fan, J.J. McGuire, **J.M. Warren**, M.D. Behn, J.A. Collins, E.C. Roland, C.R. German, and Y. Liu, 2022. Variations in Earthquake Stress Drop on Gofar Transform Fault at the End of the 2008 and 2020 Seismic Cycles, *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA.
- Birner, S.K., E. Cottrell, **J.M. Warren**, and F.A. Davis, 2022. Heterogeneity in oxygen fugacity recorded by mid-ocean ridge peridotites, in Understanding Oxygen Fugacity in Geoscience International School, Trieste, Italy.
- Lin, K.-Y.<sup>†</sup>, **J.M. Warren**, and F.A. Davis, 2022. Evaluating the effects of spreading rate and melt-addition on the closure temperatures recorded by peridotite thermometers, *Goldschmidt Conference*, Honolulu, HI.
- Lynn, K.J., T. Rose, D.C.S. Ruth, D.A. Swanson, and **J.M. Warren**, 2022. Years to decades of pre-eruptive storage recorded by olivine from the basaltic subplinian deposit of Kulanaokuaiki Tephra Unit 3 (900 C.E.), Kilauea Volcano (HI), *Goldschmidt Conference*, Honolulu, HI.
- Nalesnik, A.<sup>†</sup>, K.J. Lynn, T. Rose, **J.M. Warren**, and K.-Y. Lin<sup>†</sup>, 2022. Glass chemistry of the Kulanaokuaiki Tephra Units 4 and 5 deposited from explosive eruptions of Kilauea Volcano (HI), *Goldschmidt Conference*, Honolulu, HI.
- Birner, S.K., E. Cottrell, **J.M. Warren**, K.A. Kelley, and F.A. Davis, 2022. The effects of melt addition on mid-ocean ridge peridotites, *Geological Society of America Abstracts with Programs*, 54(4), doi:10.1130/abs/2022NC-374815.
- Warren, J.M.**, M.S. Boettcher, M.B. Bahruth<sup>†</sup>, M.D. Behn, G. Hirth, A.H. Kohli, Y. Liu, P.A. Moyer, C. Prigent<sup>†</sup>, E. Roland, M. Wolfson-Schwehr, 2022. Using fault zone samples to understand the slip behavior of oceanic transform faults, *Geological Society of America Penrose Conference on "The geological fingerprints of slow earthquakes"*, Santa Catalina Island, CA.