

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

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### EDUCATION

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

### APPOINTMENTS

- 2018-present **Associate Professor**, Department of Geological Sciences, University of Delaware
- 2015-2018 **Assistant Professor**, Department of Geological Sciences, University of Delaware
- 2014-present **Research Associate**, National Museum of Natural History, Smithsonian Institution
- 2014-2016 **Visiting Investigator**, Dept. of Terrestrial Magnetism, Carnegie Institution for Science
- 2015 **Sabbatical Visitor**, Dept. of Earth Sciences, University of Oxford
- 2010-2015 **Assistant Professor**, Dept. 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.

### HONORS AND AWARDS

- 2013-2018 CAREER Award, National Science Foundation
- 2015 Stanford Presidential Research Grants for Junior Faculty
- 2013-2015 Frederick E. Terman 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

### REFEREED PUBLICATIONS

(\*invited; <sup>†</sup>Warren lab member; <sup>‡</sup>student collaborator)

Prigent, C., **J.M. Warren**, A.H. Kohli, and C. Teyssier, 2020. Fracture-mediated deep seawater flow and mantle hydration on oceanic transform faults, *Earth and Planetary Science Letters*, 532, doi:10.1016/j.epsl.2019.115988.

Kohli, A.H.<sup>‡</sup> and **J.M. Warren**, 2019. Evidence for a deep hydrologic cycle on oceanic transform faults, *Journal of Geophysical Research*, doi:10.1029/2019JB017751.

- Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and L.N. Hansen, 2019. Evolution of the Josephine Peridotite shear zones, Part 2: Influences on olivine CPO evolution, *Journal of Geophysical Research*, doi:10.1029/2019JB017968.
- Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and E.H. Hauri, 2019. Evolution of the Josephine Peridotite shear zones, Part 1: Compositional variation and shear initiation, *Geochemistry, Geophysics, Geosystems*, 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. *Essay for the 40th Anniversary Issue*.
- 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, 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 on 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.
- Hansen, L.N., C.P. Conrad, Y. Boneh, P.A. Skemer, **J.M. Warren**, and D.L. Kohlstedt, 2016c. Viscous anisotropy of textured olivine aggregates, Part 2: Micromechanical model, *Journal of Geophysical Research*, 121, 7137-7160, doi:10.1002/2016JB013240.
- Hansen, L.N., C. Qi, and **J.M. Warren**, 2016b. 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.
- 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., **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, doi:10.1093/petrology/egp096.
- 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, doi:10.1016/j.epsl.2008.03.063.
- 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, *Journal of 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

**recommended 2019** NSF Petrology and Geochemistry: *Evaluating the causes of protracted explosive eruptions at Kilauea Volcano, Hawaii*, PI: K.J. Lynn, co-PI: J.M. Warren; \$255,595.

**2018** US Science Support Program: *Supplementary Workshop Participation for the New Caledonia Peridotite Amphibolous 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.

**2018-2021** NSF Geology and Geophysics: *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 (UNH), E. Roland (UW), and J.J. McGuire, M.D. Behn, J.A. Collins, W. Fan, C. German (WHOI); \$1,286,106 total.

**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.

**2014-2017** NSF Marine Geology and 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.

**2014-2017** 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 and Geochemistry, Tectonics, and Geophysics (3 programs), 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 Grant: *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 and Geochemistry, EAR-0948609: *Noble gas behavior during upper mantle deformation*, PI: M.D. Kurz (Woods Hole Oceanographic Institution); \$370,541 total, with subcontract for \$61,402 to J.M. Warren.

#### PRESENTATIONS

##### Invited seminars:

2019 EBSD Workshop, National Museum of Natural History, DC:  
*Using EBSD to explore fault zone defoormation*

- 2019 Geology Department Colloquium, University of Maryland:  
*Using fault-zone geology to understand oceanic transform fault seismicity*
- 2019 Geodynamics Seminar, Lamont Doherty Earth Observatory:  
*Using fault-zone geology to understand oceanic transform fault earthquakes*
- 2018 Earth and Atmospheric Sciences Seminar Series, Cornell University:  
*Using fault-zone geology to understand oceanic transform fault seismicity*
- 2018 Solid Earth Brown Bag, Princeton University, NJ:  
*Using the rock record to understand oceanic transform fault seismicity*
- 2017 Geophysical Laboratory, Carnegie Institution of Washington, DC:  
*Oceanic upper mantle composition and the evidence for an ultra-refractory reservoir*
- 2017, Department of Earth and Space Science, West Chester University, PA:  
*Interpreting transform fault earthquakes from seafloor rock samples*
- 2017, COG<sup>3</sup> Seminar, Massachusetts Institute of Technology, MA:  
*Linking fault-zone geology, fluid flow and seismicity at oceanic transform faults.*
- 2016, Department of Earth and Planetary Sciences, Washington University in St. Louis, MO:  
*The role of fluid flow in ductile processes at oceanic transform faults.*
- 2015, Institute of Geophysics and Tectonics, University of Leeds, UK:  
*Exploring ridge processes using global abyssal peridotites.*
- 2015, Department of Earth Sciences, University of Oxford, UK:  
*The role of the mantle in oceanic transform fault deformation.*
- 2015 Department of Earth Sciences, Cambridge University, UK:  
*The interplay between brittle and ductile processes at oceanic transform faults.*
- 2015, Department of Geological Sciences, University of Delaware, DE:  
*Exploring mantle processes using peridotites.*
- 2015, Department of Geophysics, Stanford University, CA:  
*Formation and Evolution of Ductile Mantle Shear Zones.*
- 2014, Department of Geological Sciences, University of Texas at Austin, TX:  
*Evolution of Ductile Mantle Shear Zones.*
- 2014, Department of Mineral Sciences, National Museum of Natural History, DC:  
*The Mantle Beneath Global Seafloor Volcanism.*
- 2012, Department of Earth Sciences, University of Southern California, CA:  
*Microstructural controls on plate tectonics: Analysis of deformed mantle peridotites*
- 2012, Department of Earth & Planetary Sciences, Harvard University, MA:  
*Water in the Oceanic Upper Mantle.*
- 2012, Volcano Science Center Seminar, US Geological Survey, Menlo Park, CA:  
*Water in the Oceanic Upper Mantle.*
- 2012, Geoclub Seminar, California Institute of Technology, CA:  
*Water in the Oceanic Upper Mantle.*
- 2011, Whole Earth Seminar, University of California Santa Cruz, CA:  
*How depleted is the upper mantle?*
- 2011, Earth and Planetary Science, University of California Berkeley, CA:  
*How Depleted is the Upper Mantle?*
- 2011, Department of Geological Sciences, San Jose State University, CA:  
*How Heterogeneous is the Upper Mantle?*
- 2011, Department of Geology, University of California Davis, CA:  
*Microstructural controls on plate tectonics: Observations of deformed peridotites.*
- 2010, Department of Geology and Geophysics, University of Minnesota, MN:  
*Measurement of water in Abyssal peridotite nominally anhydrous minerals.*  
*Microstructural controls on plate tectonics: Observations of deformed peridotites.*
- 2010, Department of Earth Science, Rice University, TX:  
*How Heterogeneous is the Upper Mantle?*

2010, Department of Geological Sciences, San Francisco State University, CA:  
*Constraining large-scale mantle processes from small-scale observations: EBSD applied to peridotites.*

**Invited talks at meetings:**

- Invited Talk, 2018 American Geophysical Union Fall Meeting, Washington, DC:  
*Observations of a complex interplay between melt, water, grain size, and viscous anisotropy during shear localization in the lithospheric mantle.*
- Keynote, 2018 Goldschmidt Conference, Boston, MA:  
*Source versus process: Peridotite constraints on magma genesis.*
- Invited Talk, 2017 Goldschmidt Conference, Paris, France:  
*Constraints on mantle Pb, Se, and Te behavior from in situ analyses of peridotite sulfides.*
- Lecture, 2017 Summer Program, Cooperative Institute for Dynamic Earth Research, Berkeley, CA:  
*Relating seismic anisotropy to natural mantle samples*
- Keynote, 2017 Deformation Mechanisms, Rheology and Tectonics Conference, Inverness, UK:  
*The role of fluids in the brittle-ductile transition at oceanic transform faults.*
- Keynote, 2016 Goldschmidt Conference, Yokohama, Japan:  
*Reconciling the compositions of ridge basalts and peridotites.*
- Invited Talk, 2016 CIDER Community Workshop, Point Reyes, CA:  
*Using olivine rheology to constrain plate boundaries.*
- Keynote, 2015 COMPRES Annual Meeting, Colorado Springs, CO:  
*Exploring mantle properties using abyssal peridotites.*
- Invited Talk, 2014 Gordon Research Conference on Rock Deformation, Andover, NH:  
*Initiation and Evolution of Ductile Mantle Shear Zones.*
- Keynote, 2013 Goldschmidt Conference, Florence, Italy:  
*Global Abyssal Peridotite Constraints on the Upper Mantle.*
- Invited Talk, 2011 Goldschmidt Conference, Prague, Czech Republic:  
*Mantle heterogeneity constraints from abyssal peridotite sulfide Pb and Os isotopic compositions.*
- Invited Talk, 2011 EarthScope Institute on the Lithosphere-Asthenosphere Boundary, Portland, OR:  
*Global abyssal peridotite constraints on oceanic LAB formation.*

**LAND AND SEA FIELD WORK**

- 2019 R/V Atlantis: Chief scientist for *The 2019-2021 Gofar Transform Fault Earthquake Prediction Experiment 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: *Magnetic and Structural Studies of a Lower Crustal Exposure of Ocean Lithosphere: Kane Megamullion, Mid-Atlantic Ridge 23° 30'N.*
- 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 and the SW Indian Ridge from 56° E to 58° E.*
- 1999 Ardnamurchan, Scotland: Sampling of a contact metamorphic aureole.
- 1998 Apache National Forest, Arizona: Geologic field mapping.

**TEACHING**

- University of Delaware:**

GEOL302 (UG): *Igneous and Metamorphic Petrology*, Spring 2017, Spring 2019.

GEOL405 (UG): *Introduction to Research*, Fall 2018.

GEOL601 (G): *Geological Sciences at Delaware*, Fall 2017, Fall 2018.

GEOL666/866 (G): *Ultramafics in the Field*, Fall 2018.

GEOL802 (G): *Marine Geology and Geophysics*, Fall 2019.

### Stanford University:

GES 104 (UG): *Introduction to Petrology*, 2011, 2012, 2013, 2015.

GES 190 (UG/G): *Advanced Field Methods: Ultramafics in the Field*, 2012, 2014.

GES 209 (UG/G): *Microstructures*, w/ Miller, 2011.

GES 263 (UG/G): *Introduction to Isotope Geochemistry*, Guest lecturer, 2011, 2014.

GES 290 (G): *Department Seminar in Geological and Environmental Sciences*, 2012, 2013, 2015.

GES 315 (G): *Literature of Structural Geology*, w/ Pollard, 2012, 2013, 2014, 2015.

GES 340 (G): *Seminar on the Earth's Interior*, w/ Mao, 2011, 2013.

GES 382 (G): *Mantle Geochemistry*, 2012.

### ADVISING

#### Graduate Students:

Melinda Bahruth, PhD candidate, 2018-present, University of Delaware

Kuan-Yu Lin, PhD candidate, 2018-present, University of Delaware

Suzanne Birner, Ph.D. 2018, Stanford

Kathryn Kumamoto, Ph.D. 2018, Stanford

Megan D'Errico, Ph.D. 2016, Stanford

Nikolaus Deems, M.S. 2016, Stanford

Johanna Nevitt, Ph.D. 2015, Stanford, co-advised with D. Pollard

#### Postdocs:

Kendra Lynn, 2017-present, University of Delaware

Cécile Prigent, 2017-present, University of Delaware

Lars Hansen, 2012-2013, now Lecturer & Fellow at University of Oxford

**Stanford Ph.D. Thesis Committees:** Sarah Barrett (2015), Pablo García Del Real (2016), Arjun Kohli (2015; chair), Yingxia Shi (2016), Mary Reagan (2018).

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

**M.S. Committees:** Kate Kaminski (U. Idaho, 2016); Abe Torchinsky (Stanford, 2012); David Sheu (Stanford, 2012).

**Faculty Resource Advisor:** Meredith Townsend, DARE Program 2014-2016 (Ph.D., Stanford, 2017).

**Undergraduate Major Advisor:** E. Smith (B.S., Stanford, 2013).

**Undergraduate Research Advisor:** O. Lopez, co-advisor for Smithsonian Institution REU, 2012; E.A.E. Autry, Stanford Summer Fellow, 2015; S.N. Patterson, UD Summer Fellow, 2018; R. Affinito, UD Summer Fellow and Senior Thesis, 2018-2020; N. Zimmermann, UD Summer Fellow and Senior Thesis, 2018-2020.

### 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

### PROFESSIONAL SERVICE

#### Committees:

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2017-present	<b>Steering &amp; Oversight Committee</b> , GeoPRISMS
2017-present	<b>Editorial Board</b> , Lithos
2015-2019	<b>Grant Committee</b> , MSA Grant for Student Research in Mineralogy & Petrology
2013-2015	<b>Education &amp; Outreach Committee</b> , DEFORM Consortium
2011-2016	<b>Steering Committee</b> , Physical Properties of Earth Materials (AGU Focus Group)
2009	<b>Council Member</b> , Geological Society of Washington.

**Workshop convener:**

2019	<b>Organizing Committee</b> , Workshop on Mantle Water
2019	<b>Steering Committee</b> , New Caledonia Peridotite Amphibious Drilling Workshop
2019	<b>Organizing Committee</b> , GeoPRISMS Theoretical and Experimental Institute
2017	<b>Organizing Committee</b> , Summer Program, Coop. Inst. for Dynamic Earth Research

**Conference session convener/chair:**

2019	Fluid Transport Modeling	<i>Models for microscopic and short-time-scale mechanisms</i>
2019	Mantle Water Workshop	<i>Discussion session on SIMS and FTIR measurements</i>
2018	AGU Fall Meeting	<i>An integrated approach for obs., exp., &amp; models of deformation</i>
2018	Japan Geoscience Union	<i>The lithosphere and the asthenosphere</i>
2017	AGU Fall Meeting	<i>PPEM: Transient and steady state rock deformation</i>
2016	AGU Fall Meeting	<i>Transform plate boundary behavior</i>
2016	AGU Fall Meeting	<i>PPEM: Rock deformation over various time &amp; spatial scales</i>
2015	AGU Fall Meeting	<i>Rheology and dynamics of the lithosphere and asthenosphere</i>
2015	AGU Fall Meeting	<i>Peridotite records of mantle dynamics</i>
2015	AGU Fall Meeting	<i>Volatile distribution and cycling in the mantle</i>
2015	AGU Fall Meeting	<i>PPEM: Deformation mechanisms from crystals to plates</i>
2014	AGU Fall Meeting	<i>PPEM: Evolving rock structure</i>
2014	Goldschmidt Conference	<i>Oxidation state of the planets</i>
2013	AGU Fall Meeting	<i>Linking ductile deformation with geochemistry</i>
2012	Gordon Research Conf.	<i>Failure at high confining pressure II (Discussion Leader)</i>
2011	AGU Fall Meeting	<i>Volatiles in the Earth's mantle</i>
2011	AGU Fall Meeting	<i>Integrated studies of oceanic spreading centers</i>
2009	AGU Fall Meeting	<i>Advances from 30 years of ion microprobe</i>
2007	AGU Fall Meeting	<i>Origin and evolution of continents: Mantle perspectives</i>

**Workshop participation:**

2019	Fluid Transport Modeling Workshop, Modeling Collaboratory for Subduction
2019	Workshop on Mantle Water
2019	New Caledonia Peridotite Amphibious Drilling Workshop
2017	Summer Program, Cooperative Institute for Dynamic Earth Research
2016	Community Workshop, Cooperative Institute for Dynamic Earth Research
2014	Workshop on Exploration of the Eastern Pacific Ocean, Ocean Exploration Trust
2013	Workshop on Ductile Rheology of the Southern California Lithosphere, SCEC
2012	Workshop on Scientific Drilling in the Samail Ophiolite, Sultanate of Oman
2012	Workshop on Advancing Experimental Rock Deformation Research
2012	Building U.S. Strategies for 2013-2023 Scientific Ocean Drilling, IODP
2010	Reaching the Mantle Frontier Workshop, Deep Carbon Observatory
2009	MARGINS Volatiles in the Subduction Factory Theoretical & Experimental Institute
2009	Cooperative Institute for Deep Earth Research Community Workshop
2009	Marine Geoscience Leadership Symposium
2006	Summer Program, Cooperative Institute for Deep Earth Research

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

**Proposal reviewer:** National Science Foundation; Department of Energy; European Research Council; FONDECYT Chile; InterRidge.

#### OUTREACH

- 2018 Judge, Outstanding Student Presentation Award, AGU Fall Meeting
- 2018 Presentation on preparing CVs and Resumes, UD Graduate Student Brown Bag
- 2018 *Ocean Rocks!* exhibit, 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
- 2017 Judge, Outstanding Student Presentation Award, AGU Fall Meeting
- 2016 Judge, Outstanding Student Presentation Award, AGU Fall Meeting
- 2014 Judge, Outstanding Student Presentation Award, AGU Fall Meeting
- 2014 Class blog for Stanford GES190 Field Class *Ultramafics in the Field*
- 2014 Panelist, Advisor/advisee relationships for new graduate students (Stanford)
- 2014 Guest lecturer, Current Research in Earth Sciences (Stanford EarthSci 1)
- 2012 Class blog for Stanford GES190 Field Class *Research in the Field*
- 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
- 2010 Guest lecturer, Current Research in Earth Sciences (Stanford EarthSci 1)

#### UNIVERSITY SERVICE

##### Service at University of Delaware:

- 2017-present Graduate Program Committee
- 2018-2019 Chair, Search committee for a tenure-track faculty member in Geophysics
- 2016-2019 Upgrades to petrology teaching infrastructure
- 2018 Evaluation committee for Department of Geological Sciences Chair
- 2018 Search committee for CEOE Communications Specialist
- 2018 Postdoctoral search committee for Wallace Group
- 2017 Chair, Geological Sciences Strategic Planning Committee

##### 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 Executive Board

#### CONFERENCE REPORTS & WHITE PAPERS

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. Ildefonse, 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 2015 (\*invited; <sup>†</sup>Warren lab member; <sup>‡</sup>student collaborating with lab)

Birner, S.K., E. Cottrell, F.A. Davis, **J.M. Warren**, K.A. Kelley, and M. Said, 2019. Thermodynamic and Geochemical Heterogeneity within Mid-Ocean Ridge Peridotites, *AGU Fall Meeting*, V23B-03.

Kohli, A.H., C. Prigent<sup>†</sup>, M. Wolfson-Schwehr, M.S. Boettcher, and **J.M. Warren**, 2019. Deep hydrothermal circulation on oceanic transform faults controlled by the seismic cycle, *AGU Fall Meeting*, T43H-0417.

Lynn, K.J.<sup>†</sup>, **J.M. Warren**, E. Cottrell, S.K. Birner, K.A. Kelley, and C.H. Langmuir, 2019. Gakkel Ridge basalts and peridotites record along-strike variations in  $f_{O2}$ , *AGU Fall Meeting*, V14C-01.

Rowe, M., A. Johnson, J. Hammond, S. Wang, R. Hervig, and **J.M. Warren**, 2019. Mantle  $H_2O$  and  $\delta D$  associated with melt reactions in the upper mantle: Evidence from the Trinity Ophiolite, USA, *AGU Fall Meeting*, V51I-0161.

Zhao, N.<sup>‡</sup>, **J.M. Warren**, K.M. Kumamoto, R.F. Cooper, and G. Hirth, 2019. Constraining the olivine diffusion creep flow law using naturally deformed peridotite, *AGU Fall Meeting*, MR43A-02.

Affinito, R.A.<sup>†</sup>, C. Prigent<sup>†</sup>, and **J.M. Warren**, 2019. Feedbacks between focused melt and localized deformation in the Josephine Peridotite, *AGU Virtual Poster Showcase*.

Boettcher, M.S., P. Moyer, **J.M. Warren**, C. Prigent, and A. Kohli, 2019. Integrating Evidence from Peridotite Mylonites and Earthquake Stress Drops to Understand Slip on Oceanic Transform Faults, *TIGeR Conference: Pathways towards equilibrium in geological systems*, Curtin University, Australia.

\*Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and E.H. Hauri, 2019. Water, melt, and shear initiation in the Josephine Peridotite, SW Oregon, *Goldschmidt Conference*, Barcelona, Spain.

\*Prigent, C.<sup>†</sup>, **J.M. Warren**, and A.H. Kohli, 2019. The effect of fluids on the mechanical and seismic behavior of the 'ductile' lithospheric mantle, *EGU General Assembly*, EGU2019-10920-1.

Prigent, C.<sup>†</sup>, **J.M. Warren**, A.H. Kohli, M. Wolfson-Schwehr, and C.P. Teyssier, 2019. Evidence for deep seawater percolation and mantle hydration on oceanic transform faults, *EGU General Assembly*, EGU2019-10542-2.

- \***Warren, J.M.**, K.M. Kumamoto<sup>†</sup>, and E.H. Hauri, 2018. Observations of a complex interplay between melt, water, grain size, and viscous anisotropy during shear localization in the lithospheric mantle, *AGU Fall Meeting*, MR41A-01.
- Lynn, K.J.<sup>†</sup>, E. Cottrell, **J.M. Warren**, K.A. Kelley, and C.H. Langmuir, 2018. An Oxidized Signature for the Gakkel Ridge Dupal-like Isotopic Composition, *AGU Fall Meeting*, V11D-0058.
- Patterson, S.N.<sup>†</sup>, K.J. Lynn<sup>†</sup>, C. Prigent<sup>†</sup>, and **J.M. Warren**, 2018. Analysis of Hydrothermal Alteration in Abyssal Peridotites from the Gakkel Ridge, *AGU Fall Meeting*, T33G-0508.
- Prigent, C.<sup>†</sup>, **J.M. Warren**, and A.H. Kohli, 2018. The influence of hydrothermal fluid/mantle interaction processes on oceanic transform fault rheology, *Gordon Research Conference on Rock Deformation*, Andover, NH.
- Wallis, D., L.N. Hansen, K.M. Kumamoto<sup>†</sup>, C. Thom, O. Plümper, D.L. Goldsby, W.B. Durham, D.E.J. Armstrong, R. Goddard, T. Breithaupt, **J.M. Warren**, D.L. Kohlstedt, A.J. Wilkinson, 2018. Dislocation interactions control the strength of olivine deforming by low-temperature plasticity, *Gordon Research Conference on Rock Deformation*, Andover, NH.
- \***Warren, J.M.**, S.K. Birner<sup>†</sup>, E. Cottrell, R.F. Katz, K.A. Kelley, F.A. Davis, 2018. Source versus process: Peridotite constraints on magma genesis, *Goldschmidt Conference*, Boston, MA.
- Prigent, C.<sup>†</sup>, **J.M. Warren**, and A.H. Kohli, 2018. Mantle deformation and fluid flow on oceanic transform faults, *InterRidge Workshop on Oceanic Transform Faults*, Brest, France.
- Miller, M.S., I. van Zelst, K.B. Kwong, X. Tong, M.O. Eimer, Y. Hu, Y. Boneh, E. Schottenfels, L.N. Moresi, **J.M. Warren**, and D.A. Wiens, 2018. Linking Intermediate Depth Seismicity to Plate-bending Related Faulting, *Asia Oceania Geosciences Society Annual Meeting*, SE32-A018, Honolulu, HI.
- Harvey, J., J.M. Koornneef, **J.M. Warren**, M. Klaver, G.R. Davies, and R.D. Walshaw, 2018. The first Pb paradox and the composition of the sub-continental lithospheric mantle, *EGU General Assembly*, EGU2018-10044.
- van Zelst, I., K.B. Kwong, X. Tong, M.O. Eimer, Y. Hu, Y. Boneh, E. Schottenfels, Z. Zhan, M.S. Miller, L.N. Moresi, **J.M. Warren**, and D.A. Wiens, 2018. Linking intermediate depth seismicity to plate-bending related faulting, *EGU General Assembly*, EGU2018-4520.
- Birner, S.K.<sup>†</sup>, F.A. Davis, E. Cottrell, J.M. Warren, and K.A. Kelley, 2017. Subsolidus cooling of mid-ocean ridge peridotites and implications for the oxygen fugacity of the oceanic upper mantle, *AGU Fall Meeting*, V33D-0554.
- Hu, Y., M.R. Guild, S. Naif, M.O. Eimer, O. Evans, K. Fornash, T.A. Plank, D.J. Shillington, F. Vervelidou, **J.M. Warren**, and Douglas Wiens, 2017. A multidisciplinary approach to constrain incoming plate hydration in the Central American Margin, *AGU Fall Meeting*, T23A-0586.
- \*Kumamoto, K.M.<sup>†</sup>, C.A. Thom, D. Wallis, L.N. Hansen, D.E.J. Armstrong, D.L. Goldsby, **J.M. Warren**, and A.J. Wilkinson, 2017. Size effects in olivine control strength in low-temperature plasticity regime, *AGU Fall Meeting*, U13B-22.
- Kumamoto, K.M.<sup>†</sup> and **J.M. Warren**, 2017. Steady-state LPO is not always reached in high-strain

shear zones, *AGU Fall Meeting*, MR43E-01.

Kwong, K.B., I. van Zelst, X. Tong, M.O. Eimer, S. Naif, Y. Hu, Z. Zhan, Y. Boneh, E. Schottenfels, M.S. Miller, L.N. Moresi, **J.M. Warren**, and D.A. Wiens, 2017. Linking incoming plate faulting and intermediate depth seismicity, *AGU Fall Meeting*, T23A-0606.

Lynn, K.J.<sup>†</sup> and **J.M. Warren**, 2017. Constraining the timescales of rehydration in nominally anhydrous minerals using 3D numerical diffusion models, *AGU Fall Meeting*, V33H-03.

Prigent, C.<sup>†</sup>, **J.M. Warren**, A.H. Kohli, and C.P. Teyssier, 2017. The semi-brittle to ductile transition in peridotite on oceanic faults: Mechanisms and P-T conditions, *AGU Fall Meeting*, MR31C-08.

**Warren, J.M.**, M.E. D'Errico<sup>†</sup>, M. Godard, M.A. Coble, and M.F. Horan, 2017. Influence of melting and hydrothermal alteration on lead in abyssal peridotites, *AGU Fall Meeting*, V43D-0563.

Harvey, J., **J.M. Warren**, M. Humayun, and R.D. Walshaw, 2017. The effects of supergene weathering on the mobility of chalcophile and siderophile elements: a case study of peridotite-hosted base metal sulphides from Kilbourne Hole, New Mexico, USA, *Goldschmidt Conference*, Paris, France.

Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and E.H. Hauri, 2017. Water and melt decoupled from deformation in the Josephine Peridotite, SW Oregon, *Goldschmidt Conference*, Paris, France.

\***Warren, J.M.**, M.E. D'Errico<sup>†</sup>, and M.A. Coble, 2017. Constraints on mantle Pb, Se, and Te behavior from in situ analyses of peridotite sulfides, *Goldschmidt Conference*, Paris, France.

\***Warren, J.M.** and C.P. Teyssier, 2017. The role of fluids in the brittle-ductile transition at oceanic transform faults, *Deformation Mechanisms, Rheology and Tectonics Conference*, Inverness, UK.

\*Hansen, L.N., C. Qi, **J.M. Warren**, D.L. Kohlstedt, B.K. Holtzman, D. Wallis, 2017. The nature of the lithosphere-asthenosphere boundary from laboratory investigations of olivine anisotropy, *EGU General Assembly*, EGU2017-15509.

Armstrong, D.E.J., K.M. Kumamoto<sup>†</sup>, D. Wallis, S. Roberts, A.J. Wilkinson, **J.M. Warren**, and L.N. Hansen, 2017. Indentation fracture experiments on single crystal olivine from 300K to 1100K, *TMS Annual Meeting & Exhibition*, San Diego, CA.

Hansen, L.N., K.M. Kumamoto<sup>†</sup>, C.A. Thom, D. Wallis, D.E.J. Armstrong, D. Goldsby, A.J. Wilkinson, and **J.M. Warren**, 2017. Size effects in olivine: Reconciling 40 years of study into plasticity near the brittle-ductile transition, *TSG-VMSG-BGA Joint Assembly*, Liverpool, UK.

Birner, S.K.<sup>†</sup>, E. Cottrell, **J.M. Warren**, K.A. Kelley, and F.A. Davis, 2016. Records of upper mantle oxygen fugacity gleaned from high-density sampling of basalts and peridotites at ultraslow ridges, *AGU Fall Meeting*, T32A-05.

**Winner of the GeoPRISMS AGU Prize for Outstanding Student Oral Presentation.**

Katz, R.F., T. Keller, **J.M. Warren**, and G. Manley, 2016. Mix or un-mix? Trace element segregation from a heterogeneous mantle, simulated, *AGU Fall Meeting*, DI14A-02.

Kohli, A.H.<sup>‡</sup> and **J.M. Warren**, 2016. Geologic constraints on the depth of seawater infiltration along the Shaka Transform Fault, Southwest Indian Ridge, *AGU Fall Meeting*, T33C-3044.

Kumamoto, K.M.<sup>†</sup>, D. Wallis, L.N. Hansen, D.E.J. Armstrong, A.J. Wilkinson, and **J.M. Warren**, 2016. Olivine Strength in the Low-Temperature Plasticity Regime Measured Via Spherical Nanoindentation, *AGU Fall Meeting*, MR32A-05.

**Winner of an AGU Outstanding Student Paper Award.**

Teyssier, C.P., M.E. Zimmerman, A.H. Kohli<sup>‡</sup>, and **J.M. Warren**, 2016. Fluid-Rock Interaction in Oceanic Transform Faults: Experimental Approach, *AGU Fall Meeting*, T33C-3041.

**Warren, J.M.**, C.P. Teyssier, M.E. Zimmerman, A.H. Kohli<sup>‡</sup>, N.J. Deems<sup>†</sup>, F.M. McCubbin, and P. Blisniuk, 2016. Fluid-Rock Interaction in Oceanic Transform Faults: Field Observations, *AGU Fall Meeting*, T33C-3040.

Birner, S.K.<sup>†</sup>, **J.M. Warren**, E. Cottrell, and F.A. Davis, 2016. Heterogeneous Oxidation in Supra-Subduction Settings: Evidence from Forearc Peridotites, *Subduction Zone Observatory Workshop*, Boise, ID.

Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and E.H. Hauri, 2016. New SIMS reference materials for measuring water in upper mantle minerals, *GSA Abstracts with Programs*, 48(7), 152-2.

D'Errico, M.E.<sup>†</sup>, M.A. Coble, and **J.M. Warren**, 2016. Measuring Pb in Mantle Sulfides Using In-Situ Techniques, *35th International Geological Congress*, Cape Town, South Africa.

Kumamoto, K.M.<sup>†</sup>, D. Wallis, L.N. Hansen, D.E.J. Armstrong, A.J. Wilkinson, and **J.M. Warren**, 2016. Spherical nanoindentation of olivine and implications for upper mantle rheology, *Gordon Research Conference on Rock Deformation*, Andover, NH.

D'Errico, M.E.<sup>†</sup>, **J.M. Warren**, and M.A Coble, 2016. In situ trace element measurements of mantle sulfides by SHRIMP-RG, *4th International HSE Geochemistry Workshop*, Durham, UK.

Birner, S.K.<sup>†</sup>, E. Cottrell, **J.M. Warren**, K.A. Kelley, and F.A. Davis, 2016. Oxygen fugacity of the oceanic upper mantle as recorded by basalts and peridotites from the Southwest Indian Ridge, *Goldschmidt Abstracts*, 238.

\***Warren, J.M.**, 2016. *Keynote*: Reconciling the compositions of ridge basalts and peridotites, *Goldschmidt Abstracts*, 3375.

Autry, E.A.E.<sup>†</sup>, K.M. Kumamoto<sup>†</sup>, and **J.M. Warren**, 2016. Mantle Shear Zone Structure and Microstructure in the Josephine Peridotite, SW Oregon, *Symposia of Undergraduate Research and Public Service*, Stanford, CA.

\*Birner, S.K.<sup>†</sup>, **J.M. Warren**, E. Cottrell, and F.A. Davis, 2015. Heterogeneous Oxidation in Supra-Subduction Settings: Evidence from Forearc Peridotites, *AGU Fall Meeting*, V11D-3086.

Harvey, J., **J.M. Warren**, M. Humayun, and R.D. Walshaw, 2015. Should I stay or should I go? Siderophile and chalcophile element mobility in mantle-derived sulfides: the effects of weathering, *AGU Fall Meeting*, V53B-3134.

Kaminski, K.M.<sup>‡</sup>, E. Mittelstaedt, **J.M. Warren**, M. Kurz, and K.M. Kumamoto<sup>†</sup>, 2015. Using a numerical model to quantitatively assess dynamic recrystallization as a mechanism for He enrichment in mantle shear zones, *AGU Fall Meeting*, V11B-3071.

Teyssier, C., V. Chatzaras, A. von der Handt, and **J.M. Warren**, 2015. Feedback between hydration and deformation in an oceanic paleotransform (New Caledonia) from high temperature mylonitization to serpentinization, *GSA Abstracts with Programs*, 47(7), 291.

Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, E.H. Hauri, and C. Hitzman, 2015. Volatiles in Mantle Minerals on the Stanford NanoSIMS, *5th NanoSIMS International Workshop*, Manchester, UK.

**Warren, J.M.**, L.N. Hansen, K.M. Kumamoto<sup>†</sup>, and P.A. Skemer, 2015. Using naturally deformed peridotites to constrain models of shear localization, *XIV International Workshop on Modeling of Mantle and Lithosphere Dynamics*, Oléron, France.

Birner, S.K.<sup>†</sup>, **J.M. Warren**, E. Cottrell, and F.A. Davis, 2015. Oxygen fugacity of forearc peridotites from the Tonga Trench: Implications for mantle processes during subduction initiation, *Goldschmidt Abstracts*, 307.

D'Errico, M.E.<sup>†</sup>, **J.M. Warren**, and M.A. Coble, 2015. New constraints on sulfides as the main mantle Pb reservoir, *Goldschmidt Abstracts*, 631.

Deems, N.J.<sup>†</sup>, **J.M. Warren**, and F.M. McCubbin, 2015. Origin of amphibole in peridotite mylonite from an oceanic transform fault, *Goldschmidt Abstracts*, 688.

Kumamoto, K.M.<sup>†</sup>, **J.M. Warren**, and E.H. Hauri, 2015. New standards for measuring water in the mantle via SIMS, *Goldschmidt Abstracts*, 710.

\***Warren, J.M.**, 2015. *Keynote*: Exploring mantle properties using abyssal peridotites, *2015 COM-PRES Annual Meeting*, Colorado Springs, CO.

Birner, S.K.<sup>†</sup>, **J.M. Warren**, E. Cottrell, and F.A. Davis, 2015. Chemical and Thermal Evolution of Forearc Spinel Peridotites: Melting, Melt-Rock Interaction, Serpentinization, and More, *Gordon Research Conference on Interior of the Earth*, South Hadley, MA.

Hansen, L.N., C.P. Conrad, **J.M. Warren**, and D.L. Kohlstedt, 2015. Anisotropic viscosity of olivine aggregates: A laboratory, field, and numerical approach, *JpGU Meeting*, SIT04-06.

Hansen, L.N., C.P. Conrad, **J.M. Warren**, D. Wallis, and D.L. Kohlstedt, 2015. Anisotropic viscosity of olivine aggregates: A laboratory, field, and numerical approach, *Micro-DICE Conference*, Montpellier, France.

Hansen, L.N., C. Qi, K. Kumamoto<sup>†</sup>, **J.M. Warren**, R. Katz, and D.L. Kohlstedt, 2015. Olivine textural evolution constraints the nature of the lithosphere-asthenosphere boundary, *British Geophysical Association New Advances in Geophysics 2015: The Lithosphere-Asthenosphere System*, London, England.