

Jason N. Ott

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Education

Ph.D. Earth and Space Sciences | Expected June 2025 | University of Washington

M.S. Geological Science: Mineral Physics | June 2020 | University of California Santa Cruz

B.S. Earth and Space Sciences: Physics | June 2018 | University of Washington

- Minor in physics
- Graduated with Honors: Cum Laude

A.S. Earth and Space Science | June 2016 | Seattle Central College

- Graduated with Honors

Research Experience

University of Washington, Structural Petrology of the Lithosphere Group | September 2020 – Present

Graduate Student Research Assistant: PhD advisor: Professor Cailey Condit, Structural Petrology of the Lithosphere group.

- Characterized the seismic anisotropy of a suite of 14 naturally deformed mafic blueschists using EBSD data and intrinsic physical properties of phases in the samples. Evaluated anisotropy dependence on modal abundance and deformation-produced preferred orientation of constituent phases.
- Conducted suite of shear deformation experiments on glaucophane in high-pressure/high-temperature triaxial press to investigate rheology and deformation mechanisms of mafic blueschists under ductile deformation conditions. Using mechanical results to develop a flow law for glaucophane.
- Collected EBSD maps on recovered deformed samples for microstructural analysis to quantify active deformation mechanisms and validate the experimentally determined flow law.
- Developed suite of EBSD data-analysis scripts for use in MTEX (MATLAB toolbox). Scripts use phase/orientation data to conduct texture and deformation analysis of sample microstructures.

University of California Santa Cruz, Mineral Physics Group | August 2018 – July 2020

Graduate Student Research Assistant: MS advisor: Professor Quentin Williams.

- Conducted high-pressure/high-temperature Raman spectroscopy study of amphibole mineral tremolite to investigate its metastable persistence and implications for water cycling in subduction zones.
- Performed high-pressure single-crystal X-ray diffraction study at Advanced Light Source synchrotron to constrain metastability of tremolite to 40 GPa. Refined unit cell and atomic structure of tremolite and determined its equations of state and compressibilities and contrasted the high-pressure behavior of this calcic amphibole with previous investigations of other monoclinic amphiboles at high pressures.

University of Washington, Mineral Physics Group | March 2017-July 2018

Undergraduate Researcher: Mentors: Professor J. Michael Brown and Dr. Baptiste Journaux.

- Experimentally measured melting curves for high-pressure/high-temperature ices of pure water and aqueous solutions (including magnesium and sodium sulfate) using Diamond Anvil Cells as part of the Icy Worlds project managed by the NASA JPL.

- Fit pressure-temperature-composition melting surfaces to experimental data in MATLAB to explore variation in the triple-point, the eutectic, and mixing of aqueous solutions with respect to ideal solution models.
- Performed high-pressure, low-temperature X-ray diffraction study on powder and single-crystal high-pressure ices in aqueous solutions at the European Synchrotron Research Facility in Grenoble, France with the investigation group of Dr. Journaux.

Publications

J.N. Ott, C. Condit, V Schulte-Pelkum, R. Bernard, M. Pec (2023) Seismic anisotropy of mafic blueschists: constraints from the exhumed rock record. (*in review*)

J.N. Ott, B. Kalkan, M. Kunz, G. Berlanga, A.F. Yuvali, Q. Williams (2023) Structural behavior of *C2/m* tremolite to 40 GPa: A high-pressure single-crystal X-ray diffraction study. *American Mineralogist*, 108(5), 903-914

B. Journaux, A. Pakhomova, I.E. Collings, S. Petitgirard, T. Boffa Ballaran, J.M. Brown, S.D. Vance, S. Chariton, V.B. Prakapenka, D. Huang, **J.N. Ott**, K. Glazyrin, G. Garbarino, D. Comboni, M. Hanfland (2023) On the identification of hyperhydrated sodium chloride hydrates, stable at icy moon conditions. *Proceedings of the National Academy of Sciences*, 120(9)

A. Pakhomova, I.E. Collings, B. Journaux, S. Petitgirard, T. Boffa Ballaran, D. Huang, **J.N. Ott**, A. Kurnosov, M. Hanfland, G. Garbarino, D. Comboni (2022) Host-guest hydrogen bonding in high-pressure acetone clathrate hydrates: *in situ* single-crystal X-ray diffraction study. *Journal of Physical Chemistry Letters*, 13(7), 1833-1838

J.N. Ott, Q. Williams (2020) Raman spectroscopic constraints on compression and metastability of the amphibole tremolite at high pressures and temperatures. *Physics and Chemistry of Minerals*, 47(27)

B. Journaux, J.M. Brown, A. Pakhomova, I. Collings, S. Petitgirard, P. Espinoza, **J. Ott**, F. Cova, G. Garbarino, M. Hanfland. (2020) Gibbs energy of ices III, V and VI: wholistic thermodynamics and elasticity of the water phase diagram to 2300 MPa. *Journal of Geophysical Research – Planets*, 125(1)

Awards/Honors/Grants/Scholarships

University of Washington

- Earth & Space Sciences Departmental Honors Program
- Dean's List: 2016-2017: Autumn, Winter, Spring
2017-2018: Autumn, Winter, Spring
- George Edward Goodspeed Geology Scholarship, 2023
- Anthony Qamar Endowed Memorial Fund for Research Support, 2023

Geological Society of America

- Graduate Student Research Grant, 2022

COMPRES 2019 Annual Meeting

- Student Poster Presentation Award: Compression and Metastability of the Amphibole Mineral Tremolite to High Pressures and Temperatures through Raman Spectroscopy

Seattle Central College

- Onsight Scholarship 2015-2016
- NASA Space Grant Scholarship for STEM Students 2015-2016
- Dean's List: 2014-2015: Autumn, Winter, Spring
2015-2016: Autumn, Winter, Spring
- President's List: 2014-2015, 2015-2016

Professional Training

Masterclass Microtectonics 2023, Johannes Gutenberg Universität, Mainz

- Inference of deformation mechanisms from microstructures visible in thin section and application to analysis of fault zone processes

MTEX Workshop 2021, Technische Universität, Chemnitz

- Crystallographic texture analysis with MTEX