Jason N. Ott

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Education

Ph.D. Earth and Space Sciences | December 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
- GPA: 3.79

A.S. Earth and Space Science | June 2016 | Seattle Central College
- Graduated with Honors: GPA: 4.0

Publications

1. E.M. Poulaki, C.B. Condit, M.L. Odlum, **J.N. Ott**, M.E. Ferrell (2026) Apatite records mechanical and chemical processes over the lifetime of a subduction interface, Andros Island, Greece. Earth and Planetary Science Letters, 675, 119779.

2. **J.N. Ott**, C. Condit, M. Pec, B. Journaux (2025) Dislocation creep of glaucophane in mafic blueschists during subduction: Weighted Burgers vector analysis from the Catalina Schist (California, USA). Geology

3. **J.N. Ott**, C. Condit, V Schulte-Pelkum, R. Bernard, M. Pec (2024) Seismic anisotropy of mafic blueschists: EBSD-based constraints from the exhumed rock record. Journal of Geophysical Research: Solid Earth, 129, e2023JB027679

4. **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

5. 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)

6. 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

7. **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)

8. 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)

Publications Under Review

1. **Ott, J.N.**, Condit, C., Pec, M. (*under review, GRL)* Experimental constraints on the strength of subducting oceanic crust: a dislocation creep flow law for blueschist (glaucophane)

Submitted Grants

1. National Science Foundation, Postdoctoral Fellowship (*2025, unfunded*) Is the whole weaker than the sum of its parts? An experimental approach to constraining the rheology of polyphase epidote blueschists

2. Geological Society of America, Graduate Student Research Grant (2022) Seismic Anisotropy of Lawsonite Blueschists, $2500

Oral Presentations/Invited Talks

- AGU 2025 Fall Meeting (12/18/25): Blueschist Rheology from the Laboratory to the Rock Record: Insights into Ductile Flow at the Subduction Interface.
- GSA Connects 2025 (10/22/25): Constraining the Nature and Significance of an Exhumed Blueschist-Eclogite Transition, Sifnos Island, Greece.
- Marine Geology and Geophysics seminar **invited talk**, University of Washington School of Oceanography (01/06/25): Subduction Zone Blues: Laboratory and Field Constraints on the Rheology and Deformation Mechanisms of Mafic Blueschist at the Subduction Interface
- AGU 2024 Fall Meeting **invited talk** (12/10/24): Seismic Anisotropy of Mafic Blueschists during Subduction: the role of mineralogy and deformation in generating anisotropy at microscales
- GSA Connects 2024 (09/25/24): Microstructural Evidence of Dislocation Creep and Diffusion-Accommodated Deformation of Glaucophane in a Naturally Deformed Lawsonite Blueschist
- GSA 2023 Cordilleran Section Meeting (05/19/23): Preliminary Experimental Constraints on the Rheology of Mafic Blueschists
- AGU 2022 Fall Meeting (12/12/22): Experimental constraints on the strength and deformation mechanisms of glaucophane at subduction zone conditions

Research Experience

Rice University, Rheology and Deformation Group | January 2026 – Present

Postdoctoral Associate: Principal Investigator: Melodie French.

- Characterizing the evolution of cohesion in laboratory-deformed samples at conditions relevant to the brittle-ductile transition.

University of Washington, Structural Petrology of the Lithosphere Group | September 2020 – December 2025

Graduate Student Research Assistant: PhD advisor: Professor Cailey Condit.

- Characterized the seismic anisotropy using EBSD data and intrinsic physical properties of constituent phases. Evaluated anisotropy dependence on modal abundance and deformation-produced preferred orientation of constituent phases.

- Conducted shear deformation experiments in high-pressure/high-temperature triaxial press to investigate rheology and deformation mechanisms under ductile deformation conditions. Used mechanical results to develop flow laws to quantity stress/strain-rate relationship.
- Collected EBSD maps on recovered deformed samples for microstructural analysis to quantify active deformation mechanisms and validate the experimentally determined flow laws.
- 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.
- Petrological analysis paired with microstructural analysis on deformed samples to characterize petrogenesis of samples and feedbacks between metamorphism/metasomatism and deformation.

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 (DAC-based) Raman spectroscopy studies to investigate metastability range and anisotropy in structural accommodation of pressure.
- Performed high-pressure (DAC-based) single-crystal X-ray diffraction studies using synchrotron radiation to refine mineral structures to high pressure and determine equations of state and compressibilities.

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 phases using Diamond Anvil Cells.
- Fit pressure-temperature-composition melting surfaces to experimental data in MATLAB to explore variation in the triple-point, the eutectic, and mixing models versus ideal solution models.
- Performed high-pressure, low-temperature X-ray diffraction single-crystal on aqueous solutions at the high pressure beamline at European Synchrotron Research Facility in Grenoble, France.

Instructor Experience

TA: Geomechanics | UW, Winter Quarter 2024, Winter Quarter 2025

- Laboratory section instructor for course. Lecture on materials covered in lab exercises including introduction of scientific computing/script writing in MATLAB to solve geomechanics problems using concepts covered in geomechanics lectures. Grader for lab and homework assignments. Assist with transformation of labs from MATLAB to Python format in preparation for geomechanics offering in Winter 2025.

TA: Space and Space Travel | UW, Autumn Quarter 2022, Winter Quarter 2023

- Laboratory/writing section instructor for course. Lecture on materials covered in lab exercises and components of final writing project. Grader for lab and writing assignments.

TA: Earth Materials | UW, Spring Quarter 2021, Spring Quarter 2024

- Laboratory instructor for mineralogy/petrography portion of course. Lecture on materials covered in lab exercises, designed and implemented teaching tools/lab assignment for symmetry portion of lab course. Designed lab mid-term and final exams, grading of lab materials and exams.

TA: Introduction to Geology: A Human Perspective | UW, Autumn Quarter 2020

- Laboratory/discussion section instructor for course. Lead tutorials on material covered in lab assignments, planned and lead weekly discussions/group exercises related to impact of geology on our society. Grader for lab assignments and moderator/grader of debate project

TA: Earth as a Chemical System | UCSC, Winter Quarter 2019, 2020

- Laboratory instructor for physical mineralogy portion of course. Lecture on techniques to identify physical properties of minerals for identification of hand samples for set of 100 rock-forming silicate and non-silicate minerals, aid students in development of skills, and proctoring of practical lab final

Awards/Honors/Scholarships

- David A. Johnston Award for Research Excellence, University of Washington, 2025
- Harry E. Wheeler Scholarship, University of Washington, 2025
- Anthony Qamar Endowed Memorial Fund for Research Support, University of Washington, 2025
- Geology Scholarship Fund, University of Washington, 2024
- Anthony Qamar Endowed Memorial Fund for Research Support, University of Washington, 2024
- George Edward Goodspeed Geology Scholarship, University of Washington, 2023
- Anthony Qamar Endowed Memorial Fund for Research Support, University of Washington, 2023
- Student Poster Presentation Award: Compression and Metastability of the Amphibole Mineral Tremolite to High Pressures and Temperatures through Raman Spectroscopy, COMPRES 2019 Annual Meeting
- Earth & Space Sciences Departmental Honors Program, University of Washington, 2017-2018
- Dean's List, University of Washington, 2016-2017: Autumn, Winter, Spring; 2017-2018: Autumn, Winter, Spring
- Onsight Scholarship, 2015-2016
- NASA Space Grant Scholarship for STEM Students, 2015-2016
- Dean's List, Seattle Central College, 2014-2015: Autumn, Winter, Spring; 2015-2016: Autumn, Winter, Spring
- President's List, Seattle Central College, 2014-2015, 2015-2016

Mentorship/Outreach/Service

- Early-career representative 2026-2028 on the Physical Properties of Earth Materials (PPEM) Steering Committee of the American Geophysical Union
- Identity, Belonging, and Inquiry in Science (**IBIS**) program at UW, 2024, 2025: Graduate mentorship of undergraduate students from underrepresented groups in Earth science research
- Research Experiences in Solid-Earth Science for Students (**RESESS**) program, Summer-Autumn 2022: Graduate mentorship of undergraduate student from underrepresented group on a project from data-analysis through poster-presentation of research at AGU 2022.
- UW Department of Earth and Space Sciences (ESS) Research Gala Committee, 2022, 2023, 2024
- UW ESS graduate representative on curriculum committee 2024
- Volunteer for UW **Rockin' Out** Earth science outreach presentations at K-12 schools, 2021

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