Henry Dawson
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Dept of Earth and Planetary Sciences, Washington University in St. Louis
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EDUCATION

Ph.D. **Washington University in St. Louis,** St. Louis, MO — ***Ongoing***
Earth, Environmental, and Planetary Sciences
Advisor: Paul Byrne

A.M. **Washington University in St. Louis,** St. Louis, MO — ***2023***
Earth, Environmental, and Planetary Sciences
Advisor: Paul Byrne

B.S. **Purdue University**, West Lafayette, IN USA — ***2021***
Bachelor of Science with Highest Distinction
Dept. of Physics and Astronomy
Advisors: Jay Melosh, Marc Caffee, Briony Horgan
Majors: Chemistry (ACS) and Honors Applied Physics

TEACHING AND RESEARCH EXPERIENCE

Washington University in St. Louis, St. Louis, MO USA
Teaching Assistant
EPS 171A – The Solar System, Fall 2022
EPS 131 – Natural Disasters, Spring 2024
Organizer of Planetary Tectonics Reading Group
Fall 2023-Spring 2024
Investigation of Serpentinization on Icy Moon Seafloors, Fall 2024-Present
Performed aqueous alteration experiments to determine the weathering products of olivine in an ammonia rich fluid
Study of Tectonics within Icy Moons, Fall 2022-Present
Utilized python code to model the strength of seafloor rock within icy moons, and the potential for present-day stresses to drive fracturing
Investigation of Halogens in Amphibole, Fall 2021-Winter 2024
Performed experiments in igneous petrology lab to determine halogen partitioning in amphibole, measured using electron probe microanalysis (EPMA)
Northern Arizona University, Flagstaff, AZ USA
Summer Research Assistant, May- July 2021
Grew thin films of outer solar system ices in Astrophysical Materials Laboratory to measure optical constants
Purdue University, West Lafayette, IN USA
Teaching Assistant
PHYS 272 – Electric and Magnetic Interactions Lab, Spring 2019
PHYS 172 – Modern Mechanics Lab, Spring 2018
Investigation of Hydrothermal Silica on Mars, Summer, 2020
Analyzed remote sensing imagery and IR spectra to determine the phase of amorphous silica within Melas Chasma, to investigate potential lacustrine hydrothermal activity

PEER-REVIEWED RESEARCH ARTICLES

Dawson, H.G., Carpenter, P.K. & Krawczynski, M.J. (2025) Amphibole-silicate melt halogen partition coefficients: cryptic amphibole fractionation and chlorine to fluorine ratios in arc magmas. *Contrib Mineral Petrol* 180, 60. https://doi.org/10.1007/s00410-025-02249-x

Tegler, S.C., Grundy, W.M., Loeffler, M.J., Tribbett, P.D., Hanley, J., Jasko, A.V., **Dawson, H.**, Morgan, A.N., Koga, K.J., Madden-Watson, A.O., Gomez, M.D., Steckloff, J.K., Lindberg, G.E., Tan, S.P., Raposa, S.M., Engle, A.E., & Thieberger, C.L. (2024). Optical Constants of Ices Important to Planetary Science From Laboratory Reflectance Spectroscopy. *The Planetary Science Journal.*

Rogers, E.R., Qualizza, B.R., Heidenreich, J.R., **Dawson, H.G.**, & Horgan, B.H. (2023). Silica-Bearing Mounds and Strata in the Southwest Melas Basin, Valles Marineris, Mars: Evidence for a Hydrothermal Origin. *Journal of Geophysical Research: Planets*, *128*(11), e2023JE007881.

CONFERENCE PRESENTATIONS

Dawson, H. G., Flynn, E. D., Catalano, J. G. (2025) Effects of Ammonia-Bearing Fluids on the Extent and Hydrogen Production Capacity of Ultramafic Rock Alteration: Implications for the Seafloor of Enceladus. Midwest Geobiology

Dawson, H. G., Byrne, P. K., Klimczak, C., Regensburger, P. V., Vance, S. D., Daswani, M. M., & Hemingway, D. J. (2024). Tidal Stresses Insufficient to Drive Seafloor Faulting in Numerous Icy Moons. Lunar and Planetary Science Conference

Dawson, H. G., Byrne, P. K., Klimczak, C., Regensburger, P. V., Vance, S. D., Daswani, M. M., & Hemingway, D. J. (2023). The Tectonic State of Europa's Seafloor Limits Potential Water-Rock Interactions There. Lunar and Planetary Science Conference

Dawson, H.G. and Krawczynski, M.K. (2022) Experimental Study of Halogen Partitioning Between Amphibole and Melt in Subduction Magmas. AGU Fall Meeting

HONORS AND AWARDS

McDonnell Center Graduate Fellow (Washington University), 2022
Ascarelli Student Award (Purdue University), 2017