Ethan Heidtman

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Education

PhD	Geosciences & Climate Science Dual-Title, The Pennsylvania State University	Aug 2024 - Fall 2029
BS	Atmospheric and Oceanic Science, University of Maryland College Park	Aug 2020 - Aug 2024
BS	Geology, University of Maryland, College Park	Aug 2020 - Aug 2024

Relevant Work Experience

NSF Graduate Research Fellow: PhD Student - Hadjimichael Lab 2024 - Present
The Pennsylvania State University Department of Geosciences

- Using multi-objective reinforcement learning to optimize Conowingo Reservoir operations practices in order to mitigate downstream saltwater intrusion
- Designing large-scale computational experiments on PSU ROAR Collab high-performance computing cluster

Undergraduate Researcher - Prestegaard Lab 2022 - 2024
University of Maryland, College Park

- Assessed the role of the Pacific Decadal Oscillation in western United States snowpack patterns using a linear inverse modeling approach
- Investigated drivers of high-elevation snowmelt and streamflow patterns in the western United States to explain declining snowpack trends

Research Intern Summer 2023
Earth System Science Interdisciplinary Center, College Park, MD

- Assessed the performance of Noah, an offline Land Surface Hydrological model produced by NOAA, in simulating observed snowpacks in the western United States

Selected Presentations

Heidtman, E., and Hadjimichael, A. (May 2025). Using multi-objective reinforcement learning to inform reservoir operations for saltwater intrusion mitigation. *Penn State Climate Solutions Symposium*, State College, PA. Zenodo. https://doi.org/10.5281/zenodo.15481991 (poster)

Heidtman, E., and Hadjimichael, A. (April 2025). Using multi-objective reinforcement learning to inform reservoir operations for saltwater intrusion mitigation. *Penn State Geosciences Graduate Colloquium*, State College, PA (poster)

Heidtman, E., and Hadjimichael, A. (2025). Using multi-objective reinforcement learning to inform reservoir operations for saltwater intrusion mitigation. *Penn State Water Conference*, State College, PA. Zenodo. https://doi.org/10.5281/zenodo.15481583 (poster)

Heidtman, E., Prestegaard, K., Lekic, V. (May 2024). The Pacific Decadal Oscillation and Other High-Elevation Drivers of Snowpack in the American West. *American Geophysical Union (AGU) Fall Meeting*, Washington, D.C. Zenodo https://doi.org/10.5281/zenodo.14653143 (poster)

Heidtman, E., Prestegaard, K., Lekic, V. (May 2024). The Pacific Decadal Oscillation and Other High-Elevation Drivers of Snowpack in the American West. *UMD Department of Atmospheric and Oceanic Science Senior Research Symposium*, College Park, MD (poster)

Scholarships and Awards

NSF Graduate Research Fellowship 2025 - Awarded Fellow   June 2025
National Science Foundation

Lenker Scholarship   Apr 2025
The Pennsylvania State University, Department of Geosciences

Krynine Scholarship   Dec 2024
The Pennsylvania State University, Department of Geosciences

Outstanding Senior Thesis Award   May 2024
University of Maryland, Department of Geology

Henry E. Fleming Scholarship   May 2024
University of Maryland, Department of Atmospheric and Oceanic Science

Green Scholarship in Environmental Science and Restoration   May 2024
University of Maryland, College of Computer, Mathematical, and Natural Sciences

Honors Citation   Fall 2023
University of Maryland University Honors Program

Winston Family Honors Writing Award   May 2021
University of Maryland University Honors Program

Teaching and Mentorship

Mentor - NSF GRFP Writing Workshop   Fall 2025
The Pennsylvania State University, College of Earth and Mineral Sciences

Teaching Assistant - EARTH 111 "Water: Science and Society"   Spring 2025
The Pennsylvania State University

Activities and Organizations

Association for Women Geoscientists Executive Board (PSU Chapter)   2025 - Present
- Director of Events, planning of AWG-sponsored activities, including breakfast meetings with invited female speakers

PSU Department of Geosciences Entropy Committee   2024 - 2025
- Planned and organized end-of-year department event. Acted as treasurer and coordinated audio-visual equipment

University of Maryland Chapter of the American Meteorological Society   2020 - 2024
- Aided in installation of weather stations on campus as part of University-sponsored micronet project

Skills

R/RStudio, Python, Linux	**Programming**
Microsoft Suite, Git, Adobe Illustrator, GIS, LaTeX	**Software**
English (Native Proficiency), Spanish (Elementary Proficiency)	**Languages**
Geological Mapping, Hydrological Data Collection	**Field Methods**