

EMMA T. BOUDREAU

Geospatial Data Scientist and Research Scientist

EXPERIENCE

RESEARCH ASSISTANT AT UNIVERSITY OF WASHINGTON

UW 9/2023 – in progress

- Mapping snow cover with remote sensing and machine learning (coding in Python)
- Member of the Mountain Hydrology Research Group
- 9 months of Valle Fellowship funding
- 1 year of Future Rivers Fellowship funding

SURFACE WATER OCEAN TOPOGRAPHY (SWOT) CAL/VAL FIELD TEAM

North Slope, AK 5/2023 – 7/2023

- Collected calibration and validation data for NASA's SWOT radar satellite on the SAG river in AK
- Gained experience with PolaRx5 (high frequency GNSS device), OBS sensors, pressure transducers

INTEGRATING GEOSCIENCES AND ENGINEERING IN THE ARCTIC

UMass 1/2022 – 12/2022

- Analyzed isotopic composition of stream samples
- Collected permafrost active layer thickness measurements
- Data management lead (coding in R)

INDEPENDENT STUDY IN COLIN GLEASON'S LAB

UMass 8/2022 – 5/2023

- Estimating remote river discharge in high mountain Himalaya ungauged basins
- Coding in R and Python using a cluster account
- Working with geoBAM, a globally scalable river classification framework to estimate discharge using river width
- Big data sets and data manipulation

XOGEN TECHNOLOGIES INC

Amherst, MA 6/2020 – 9/2020

Undergraduate Research Intern

- Performed pilot and bench scale testing with electrochemical oxidation reactors to observe ammonia removal with primary and secondary wastewater
- Gained detailed knowledge on Advanced Chemical Oxidation Processes and ammonia removal in wastewater

THE UMASS WATER AND ENERGY TESTING FACILITY

Amherst, MA 12/2019 – 5/2022

Undergraduate Research Student

- Collected and analyzed data on multiple wastewater treatment projects and plumbed experimental water treatment systems

MARSHFIELD DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION

Marshfield, MA 5/2021 – 8/2021

Intern

- Reviewed contractor prequalification forms while assessing contractor capability, capacity, resources, management process, management personnel, and performance
- Contacted suppliers and acquired quotes for various equipment and services

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Seattle, WA 98103

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EDUCATION

M.Sc. Civil and Environmental Engineering

University of Washington

9/2023 – 6/2025

Seattle, WA.

B.S. Civil and Environmental Engineering

University of Massachusetts Amherst

8/2019 – 5/2023

Amherst, MA.

LANGUAGES

Python, R-studio

LIBRARIES/TOOLS

Xarray, rasterio, rioarray, GDAL, GeoPandas, COGs, NumPy, Pandas, Scikit-learn

CERTIFICATIONS

Wilderness First Responder

Snow Measurement Field School

Swiftwater Rescue

Seal of Biliteracy – Spanish

Drinking Water Operator

Distribution Grade 1 (2020)

Engineer in Training (Passed

Fundamentals of Engineering Exam)

INTERESTS

Long distance running,
backcountry skiing

PUBLICATIONS/CONFERENCE POSTERS

- Pflug, J. M., Yang, K., Cristea, N., **Boudreau, E. T.**, Vuyovich, C. M., & Kumar, S. V. (2024). Using commercial satellite imagery to reconstruct 3 m and daily spring snow water equivalent. *Water Resources Research*, 60, e2024WR037983. <https://doi.org/10.1029/2024WR037983>
- Pestana, S., Arendt, A., **Boudreau, E. T.**, Burgess, A., Denolle, M., Haley, C., Henderson, S., Kaczmarczyk, L., Sun, Z., & Cristea, N. (2024). Insights from Applying a Novel Collaborative Project Design Model for GeoSMART Hackweeks. American Geophysical Union, Fall 2024 Meeting. Poster.