Emily Cook

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SUMMARY:

Geophysics student specializing in geothermal energy feasibility and near-surface electrical methods. Experienced in managing large-scale geospatial databases and executing fieldwork in challenging environments. Proficient in ArcGIS Pro, Python, and UAV-based remote sensing.

EDUCATION:

Binghamton University | Graduation: May 2026 | B.S. in Geophysics | GPA: 3.91 | Dean's List (all semesters)

RESEARCH EXPERIENCE:

Geothermal Energy Intern **May 2025 – August 2025**

Alaska Center of Energy and Power (ACEP) *Fairbanks, AK*

- Evaluated the technical, geological, and economic feasibility of Geothermal-to-X (e-fuel) production, identifying high-potential geothermal resource zones for sustainable maritime refueling.
- Developed a comprehensive market outlook and technical report for Alaska's energy grid stakeholders.
- Selected to present original research at GEODE (Reno, NV) and Arctic Frontiers conferences (Tromso, Norway), communicating actionable results to geothermal professionals and academics.

Geothermal Energy Researcher **May 2024 – May 2025**

Summer Scholars Program *Vestal, NY*

- Developed subsurface models by standardizing and interpolating lithological and temperature data from 1000+ oil and gas well logs in New York State.
- Conducted geospatial mapping and well log analysis to assess geothermal potential for regional direct-use applications.

Geology Research Assistant **January 2024 – September 2024**

SUNY RF funded Basin Research Team *Vestal, NY*

- Collaborated on basin characterization using geophysical data to map depth to bedrock and operate a UAS for submarine groundwater discharge (SGD) detection.
- Executed fieldwork in variable environments, ensuring data integrity and sensor troubleshooting.

Geospatial Sensing Student Researcher **August 2022 – May 2023**

First-Year Immersion Program (FRI) *Vestal, NY*

- Investigated SGD's critical role in sustainable water resource management for island communities.
- 200+ lab hours spent mapping SGD using drone-mounted thermal imaging and analyzing seasonality.
- Conducted remote sensing fieldwork and cartography exercises using multiple geophysical sensors (Trimble GPS, UAV, GPR, Pix4D)
- Co-authored a 26-page research paper and presented findings through a conference poster.

PUBLICATIONS:

1. **Cook, E**.; de Witt, M. Assessing the Feasibility of Geothermal-to-X for Sustainable Maritime Refueling in Alaska. *Clean Technol.* **2025**, *7*, 115. https://doi.org/10.3390/cleantechnol7040115

SKILLS:

Computational	Geophysical Methods	Software	Research
Python, SQL (Beginner)	ERT, GPR, Seismic, Magnetometry	ArcGIS Pro, QGIS, Pix4D	Technical Writing, Presentations
Leaflet, GMT	UAV/ UAS (TIR)	Excel, Adobe Suite	Project Design
Data Interpolation (Kriging)	Well Log Analysis, Trimble GPS	ResIPy, GPRPy	Grant Writing

RELEVANT COURSEWORK:

Electromagnetic Theory I-II, Environmental Geophysics, Electrical Geophysics, Analytical Mechanics, Calculus I-II-III, Ordinary Differential Equations, Statistics, Earthquakes and Volcanoes, Earth Materials, Earth Surface Processes, Environmental Geochemistry, Geospatial Sensing I-II, Geospatial Research Methods, Digital Photography, International Environmental Policy, Web Design

OTHER:

Geophysics Summer School **August 2025**
Texas A&M University *College Station, TX*

- Experience in seismic field methods near College Station, TX.
- Studied waveforms and seismicity of Kilauea Volcano collapse in 2018. Used MatLab and QGIS.

Team Captain **June 2024 – May 2026**
Binghamton University Ultimate Frisbee *Vestal, NY*

- Managed a 30+ person roster, coordinated travel logistics, and led team strategy for a competitive intercollegiate program.

Geology Lead **September 2023 – May 2024**
Binghamton University Rover Team *Vestal, NY*

- Contributed to the student-led development of an autonomous rover for a nation-wide competition.
- Compiled data on geophysics sensors usage for life detection mission.

Ecology Field Course Participant **2023**
U.S. National Parks *Varies*

- Three weeks traveling in Capitol Reef, Bryce Canyon, Yellowstone, and Grand Teton learning how principles of geology, ecology, and conservation interact.
- Two week field course spent camping in the Everglades to study bird populations.