STEPHEN CROPPER

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Motivated student-scientist looking for graduate research education in Climate Science and Geophysics.

SUMMARY

- I've contributed to research projects across several fields by collaborating with peers and mentors.
- I have background and skills from several disciplines such as Power Engineering, Material Science, and Computational Earth Science.
- I have experience in teaching and service.
- I've given talks and poster presentations in academic conferences and internal settings.

RESEARCH EXPERIENCE

Los Alamos National Laboatory **Los Alamos, NM**
Post-Baccalaureate Researcher *August 2020 to Present*

- I work under Dr. Kurt Solander in the Computational Earth Sciences division at Los Alamos National Laboratory, analyzing precipitation recycling metrics, models, and mechanisms.
- Our motivation is to constrain model-driven estimates of recycled moisture distributed across the Tropics by comparing them to proxy techniques such as water isotope fractionation.
- A manuscript is underway, with the goal of submitting our work to Geophysical Research Letters.

Commonwealth Edison, Inc. **Chicago, IL**
Engineering Intern *June 2020 to August 2020*

- Worked in the Emerging Technology division (R&D) of the "Smart Grid" department under Dr. Pandey.
- Developed an application to evaluate the performance of battery energy storage systems (BESS) throughout the ComEd service territory.
- Key achievements included scalability as BESS grow, interoperability between BESS vendors, and automation of quarterly report generation.
- Submitted an abstract on work to Distributech International 2021 conference.

Commonwealth Edison, Inc. **Chicago, IL**
Engineering Intern *June 2019 to August 2019*

- Summarized literature on passive, in-service assessment of battery performance.
- Wrote a Python program to estimate battery health and performance statistics using raw time-series data collected from utility-scale battery energy storage systems (BESS) in the Chicago power grid.
- Presented results to senior leadership at internal conference.

Grinnell College **Grinnell, IA**
Research Assistant *June 2018 to August 2018*

- Conducted research in the lab of Dr. Charles Cunningham performing single crystal growth in the Ce-Co-Sb ternary region and measuring their magnetic and transport properties.
- Presented results to peer researchers at the MCMS Undergraduate Research Symposium.

RESEARCH PRESENTATIONS

- S. Cropper, "Constraining Estimates of Moisture Recycling through Deuterium Excess" presented at the What's Up with LANL Students? lecture series, Los Alamos, NM, November, 2020.
- S. Cropper and L. Affolabi, "Energy Storage Performance Evaluation and EV/PV Impact Study" presented at the ComEd Intern Expo, Chicago, IL, August, 2019.
- S. Cropper and C.E. Cunningham, "Lessons from Single Crystal Flux Growth" presented at the MCMS Undergraduate Research Symposium, St. Louis, MO, November 9-10, 2018, abstract 14.

EDUCATION

- BA, Physics (Honors) and Spanish, Grinnell College, May 2020
  - Physics GPA: 3.9; Cumulative GPA: 3.7
  - Math: Calculus, Linear Algebra, Differential Equations, Statistics, Number Theory, Analysis
  - Chemistry: General Chemistry I & II w/ Lab
  - Physics: Mechanics (Classical & Quantum), Electromagnetism, Planetary/Stellar Astrophysics, Computational Physics (Python)

TEACHING EXPERIENCE

- Fall 2019 & Spring 2020 - Undergraduate Teaching Assistant for General Physics (PHY 131-132)
- Spring 2019 - Undergraduate Teaching Assistant for "How to Learn Physics" (PHY 115)

TECHNICAL SKILLS

- **Programming Languages:** Python (esp. Jupyter Notebook), Java, MATLAB
- **Operating Systems:** Windows, Linux
- **Cloud Computing:** Digital Ocean, AWS, Kubernetes