CAMERON CUMMINS

CLIMATE RESEARCHER

CAMERON.CUMMINS@UTEXAS.EDU

(210) 279-1533

AUSTIN, TX

GRADUATE STUDENT AT THE UNIVERSITY OF TEXAS AT AUSTIN INVESTIGATING THE IMPACTS OF ANTHROPOGENIC AEROSOLS ON CLIMATE CHANGE UNDER THE SUPERVISION OF DR. GEETA PERSAD.

SKILLS

- Climate risk assessment
- Processing numerical model output
- Big data analysis using HPCs
- Working within a CLI/Linux terminal

Programming Languages and Familiar Data Formats:

- Python, Java, C++, JavaScript, HTML, Bash
- netCDF, JSON, CSV, YAML
- Flask API, Redis API, Mapbox API

EDUCATION

The University of Texas at Austin

- M.S. Geoscience, Jackson School of Geoscience, Expected May 2025
- B.S. Computational Engineering, Cockrell School of Engineering, May 2023 with 3.7 GPA

PROJECTS

Impact of Methane Mitigation Policies on Heatwave Hazard and Exposure *January 2023 – Present*

- Collaborative project with the Environmental Defense Fund to assess the benefits of mitigating methane emissions under the SSP3 scenario
- Primary data analyst for producing heatwave metrics to assess geospatial trends (hazard) and trends in proximity to human populations (exposure)

Quantifying the Effect of Anthropogenic Aerosol Forcing on Heatwave Hazard and Exposure *June 2021 – Present*

- Independently driven research project with mentorship and guidance from Dr. Geeta Persad (UT Austin) and Dr. Jane Baldwin (UC Irvine)
- First author on pending research paper
- Optimized Dr. Baldwin's heatwave algorithm for parallel computing
- Presented scientific poster at the annual American Meteorological Society meeting in January of 2022

Heatwave Analysis Python Package *July 2023 – August 2023*

- Developed Python package for quantifying heatwave thresholds and metrics based on definitions from the Expert Team on Climate Change Detection and Indices (ETCCDI)
- Based on research and collaboration with Dr. Jane Baldwin

Computational Assistance for Persad Aero-Climate Lab *January 2021 – Present*

- Manager of the software environment used on the local HPC cluster
- Assists with developing solutions for various other computational projects and hardware upgrades
- Code debugging and technical support for all members of the group

CESM2 Simulation Post-processing on TACC HPC *July 2022 – September 2022*

- https://github.com/AgentOxygen/Persad_CESM2_Postprocessing
- Processed, organized, and archived 60 TB of CESM2 anthropogenic aerosol simulation output on the Texas Advanced Computing Center's lonestar6 supercomputer for the Persad Aero-Climate Group

Data Contribution to Woody Ecosystem Resilience Research Paper *March 2022*

- Wrote program to pull hydroclimate data on regional ecosystems in California for a research project being conducted by Dr. Daniella M. Rempe (UT Austin) and Erica McCormick (UT Austin)
- Co-author of paper submitted to PNAS

Full-stack Web Application with CRUD Functionality (Class Project) *April 2021 – May 2021*

- Source Code (https://github.com/conordonihoo/ccinc)
- Co-developed full-stack web app using Flask, Redis, and Kubernetes
- Fictional banking portal with account managing features such as account creation/deletion, withdraw/deposit, and history tracking

California Hydroclimate Code Rework *October 2020 – February 2021*

- Rewrote bulk of code used for climate analysis in Dr. Geeta Persad's research project for purposes of redistribution and reproducibility
- Annotated code, created documentation, and organized the project in to a more portable and readable form

Gerrymandering and Redistricting Simulation (Class Project) *November 2020 – December 2020*

- Co-developed a C++ program to simulate gerrymandering of electoral districts using a generated population grid
- https://github.com/AgentOxygen/COE_Gerrymandering

REFERENCES

Dr. Geeta Persad

Assistant Professor of Geological Sciences

The University of Texas at Austin

Email: geeta.persad@jsg.utexas.edu

Dr. Jane Baldwin

Assistant Professor of Earth System Science

University of California, Irvine

Email: jane.baldwin@uci.edu