

Helen S. Weierbach

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EDUCATION

Bachelor of Science, Mathematics: summa cum laude with departmental honors May 2020
Tulane University, School of Science and Engineering New Orleans, LA

Minor: Environmental Earth Science

- Honors Thesis: *“Using Surrogate Models to Quantify Uncertainty in Predicting How Background Conditions Influence the Climate Response to Large Volcanic Eruptions”*
- Advisors: James (Mac) Hyman, Cynthia Ebinger and Brent Goehring

School for International Training: Climate Change in the Arctic Iceland and Greenland
Study Abroad – Focus: Climate Change Issues in the Arctic Fall 2018

- Completed five-week research project, courses in climate modeling and carbon management and field research design

RESEARCH AND PROFESSIONAL EXPERIENCE

Berkeley Lab Earth and Environmental Sciences Berkeley, CA
Research Assistant August 2020- Present

- Developing machine learning models to quantify changes in water quality after disturbance events in watersheds
- Using physical model of a mountainous watershed to understand changes in nitrogen cycling under changing climate

Marine Sciences (University of Southern Mississippi) Hattiesburg, MS
Research Assistant Summer 2020

- Research studying internal wave variability in the Mississippi shelf under Maarten Buijsman (Assistant Professor)
- Performed rotary wavelet analysis on a mooring dataset to identify shifts in inertial wave frequencies over time

Lamont Doherty Earth Observatory (Columbia University) New York, NY
Research at NASA Goddard Institute for Space Studies Summer 2019

Lamont REU Summer Intern

- Interned under mentors Kostas Tsigaridis and Allegra LeGrande (Physical Research Scientist)
- Set up and assisted in running large scale volcanic climate model simulations for the international Volcanic Model Intercomparison Project in general circulation model GISS E2.1-R
- Organized, analyzed and visualized global model output from Volcanic Model Intercomparison Project experiments for groups of 27 ensembles sampling from nine sets of background conditions
- Used linux scripting, R and Panoply to organize, visualize and statistically analyze climate response

Farrer Lab (Tulane University) New Orleans, LA
Field and Lab Volunteer Summer 2017

- Assisted in constructing, documenting and categorizing field plots in coastal wetland areas of Louisiana
- Prepared plant specimens for DNA extraction and analysis in a sterile laboratory environment

AWARDS AND GRANTS

Lawson Prize: Tulane University award for excellence in undergraduate mathematics research

Senior Honors Scholar in Environmental Earth Science: Tulane University award for highest achieving student in department

William Wallace Peery Society Member: Tulane Valedictory society

Phi Beta Kappa Honor Society, Tulane University Chapter

Dean’s Honor Scholarship Recipient: Full Tuition scholarship awarded annually

American Geophysical Union 2019 Fall Meeting Student Travel Grant Recipient

Newcomb College Institute 2019 Student Research Travel Grant Recipient

New Employee of the Year award 2018: Tulane Campus Recreation

SKILLS

Computer/Technical: Proficient in R, MATLAB, Python, Linux scripting, NetCDF file management, LaTeX and Microsoft Office; Basic Knowledge of ArcGIS, SQL, C++

Language: Proficient in Spanish

Certifications: Wilderness First Responder

PRESENTATIONS AND PUBLICATIONS

Weierbach, H. *Using Surrogate Models to Quantify Uncertainty in Predicting How Background Conditions Influence the Climate Response to Large Volcanic Eruptions* Oral Presentation at Scientific Computing Around Louisiana. Baton Rouge, LA., February 2020

Weierbach, H., LeGrande, A.N. and Tsigaridis, K. *The Effect of Background ENSO and NAO Conditions on the Climatological Response to a Pinatubo Sized Volcanic Eruption*. Poster Presentation and Student Travel Grant Flash Presentation at the America Geophysical Union Fall meeting, San Francisco, CA., December 2019

CONFERENCE ATTENDANCE

Scientific Computing Around Louisiana. Baton Rouge, LA	February, 2020
American Geophysical Union Fall Meeting. San Francisco, CA	December, 2019
Arctic Circle Conference. Reykavík, Iceland	October, 2018
CoastGIS Conference. Ísafjörður, Iceland	September, 2018

ACTIVITIES/ COMMUNITY ENGAGEMENT

Tulane Outdoor Adventures, *Manager, Trip Leader* (New Orleans, LA) August 2016 – May 2020

- Lead day and overnight hiking, paddling, and backpacking trips in the Gulf South for 10-15 participants
- Taught outdoor leadership course in risk management, outdoor preparedness, environmental knowledge of the Gulf South and Leave No Trace Principles to incoming trip leaders
- Managed a staff of 10-15 leaders; assigned, organized and prepared a weekly trip schedule

Tulane Women's Ultimate Frisbee, *President, Treasurer* (New Orleans, LA) August 2016 – May 2020

- Managed and complete budgets, rosters, travel reservations and events for a 50-member club sports team

Shrine Mont Camps *Camping Director* (Orkney Springs, VA) Summer 2018

- Scouted, planned, organized and supervised regular overnight camping trips for children aged 10-16