

Meredith Parish

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Education

PhD in Earth, Environmental, and Planetary Science, Brown University, 2024

Thesis: *Forcings of Indo-Pacific Warm Pool Climate During the Past One Million Years*

Advisor: James Russell

MS in Earth, Environmental, and Planetary Science, Brown University, 2021

Thesis: *A terrestrial Indo-Pacific Warm Pool temperature reconstruction enables a mechanistic understanding of climate changes in the tropics*

Advisor: James Russell

MS in Geology, University of Wyoming, 2019

Thesis: *A millennial-scale increase in winter precipitation in southern Rocky Mountains during the Common Era*

Advisor: Bryan Shuman

BA in Environmental Science, Colorado College, 2016

Thesis: *A micrometeorological study of an abrupt treeline on Pike's Peak in Colorado*

Advisor: Miroslav Kummel

Danish Institute for Study Abroad, Fall 2014

Core course: *Ice Cores and Ice Ages: Greenlandic Climate Change Case Study*

Professional Appointments

Visiting Scientist, Cornell University, February 2025 - present

Postdoctoral Research Fellow, George Mason University, October 2024 - present

Publications

Parish, M.C., Russell, J., Bijaksana, S., Vogel, H., Wilk, A., Traietti, G.. Climate shifts drove ecosystem transitions in the Maritime Continent since 1.1 Ma. Submitted to *Nature Geoscience*.

Cheung, A.H., Du, X., **Parish, M.C.**, Vachula, R.S., Fox-Kemper, B. and Herbert, T.D., 2025. The influence of carbon dioxide and precession on western North American hydroclimate and Pacific sea surface temperature during the Holocene. *Paleoceanography and Paleoclimatology*, 40(7), p.e2024PA005079.

Parish, M.C., Russell, J., Konecky, B., Du, X., He, C., Bijaksana, S. and Vogel, H., 2024. Changes in Indo-Pacific Warm Pool hydroclimate and vegetation during the last deglaciation. *Quaternary Science Reviews*, 336, p.108755.

Clark-Wolf, K.D., Higuera, P.E., McLauchlan, K.K., Shuman, B.N. and **Parish, M.C.**, 2023. Fire-regime variability and ecosystem resilience over four millennia in a Rocky Mountain subalpine watershed. *Journal of Ecology*.

Zhao, B., Russell, J.M., Tsai, V.C., Blaus, A., **Parish, M.C.**, Liang, J., Wilk, A., Du, X. and Bush, M.B., 2023. Evaluating global temperature calibrations for lacustrine branched GDGTs:

Seasonal variability, paleoclimate implications, and future directions. *Quaternary Science Reviews*, 310, p.108124.

Parish, M.C., Du, X., Bijaksana, S. and Russell, J.M., 2023. A brGDGT-based reconstruction of terrestrial temperature from the Maritime Continent spanning the Last Glacial Maximum. *Paleoceanography and Paleoclimatology*, p.e2022PA004501.

Parish, M.C., Wolf, K.D., Higuera, P.E. and Shuman, B.N., 2022. Holocene water levels of Silver Lake, Montana, and the hydroclimate history of the Inland Northwest. *Quaternary Research*, pp.1-13.

Chileen, B.V., McLauchlan, K.K., Higuera, P.E., **Parish, M.C.** and Shuman, B.N., 2020. Vegetation response to wildfire and climate forcing in a Rocky Mountain lodgepole pine forest over the past 2500 years. *The Holocene*, 30(11), pp.1493-1503.

Parish, M.C., Calder, W.J., and Shuman, B.N., 2020. Millennial-scale increase in winter precipitation in the southern Rocky Mountains during the Common Era. *Quaternary Research*, 94, pp.1-13.

Galik, C.S.; Murray, B.C.; **Parish, M.C.**, 2017. Near-term pathways for achieving forest and agricultural greenhouse gas mitigation in the US. *Climate*, 5(3), p.69.

Conference Presentations

American Geophysical Union, oral presentation, December 2023
The response of Indo-Pacific Warm Pool climate to global forcings over the past 1 Myr

American Geophysical Union, poster presentation, December 2022
Synchronous changes in vegetation and hydroclimate across broad spatial scales in the Indo-Pacific Warm Pool during the past 460,000 years

The American Quaternary Association Biennial meeting, oral presentation, June 2022
Dramatic Shifts in Vegetation and Hydroclimate in the Indo-Pacific Warm Pool During the Last Two Glacial Cycles

American Geophysical Union, oral presentation, December 2021
Leaf wax δD indicates sensitivity to shelf inundation in the Indo Pacific Warm Pool as sea levels rise during the last deglaciation

American Geophysical Union, oral presentation, December 2020
A Terrestrial Indo-Pacific Warm Pool Temperature Reconstruction Enables a Mechanistic Understanding of Climate Changes in the Tropics

University of Wyoming Quaternary Conversations, oral presentation, March 2019
A millennial-scale increase in winter precipitation in the southern Rocky Mountains during the Common Era

American Geophysical Union, oral presentation, December 2018
Applying the Modern Analog Technique to high elevation fossil-pollen records from the Colorado Rocky Mountains over the past 2000 years

Colorado Springs Undergraduate Research Forum, poster presentation, February 2016
A micrometeorological study of an abrupt treeline on Pike's Peak in Colorado

Colorado College Summer Research Symposium, poster presentation, August 2015

A micrometeorological study of an abrupt treeline on Pike's Peak in Colorado

Honors, Awards, and Grants

AGU 2023 Outstanding Student Presentation Award (OSPA)

Top Ten Most Cited in *Paleoceanography and Paleoclimatology* 2023

USNC INQUA Fellowship Grant 2023

INQUA Travel Grant 2023

Institute at Brown for Environment and Society (IBES) Graduate Research, Training, and Travel Award 2023

AMQUA Student Travel Grant 2022

Geological Society of America (GSA) Continental Scientific Drilling Division Student Research Grant 2021

Institute at Brown for Environment and Society (IBES) Graduate Research, Training, and Travel Award 2021

Graduate Student Council Conference Funding Grant 2020

J. H. Hanley Memorial Scholarship 2018

Geology & Geophysics Meritorious Graduate Research Grant 2018

Colorado Scientific Society Memorial Research Funds Grant 2018

Faculty-Student Collaborative Research Grant 2015

Teaching Certificates

Sheridan Teaching Seminar - Course Design (Certificate II), Spring 2023

Sheridan Teaching Seminar - Reflective Teaching (Certificate I), Fall 2019

Teaching Experience

TA, The Evolution of a Habitable Earth, Spring 2023

Teaching Consultant, Sheridan Teaching Seminar - Reflective Teaching, Fall 2022

TA, Sedimentology and Stratigraphy, Fall 2021

Mentoring

Currently supervising a year-long research project performed by high school student, Aditi Narayan, as part of the Thomas Jefferson High School for Science and Technology Research Practicum Program.

Supervised research performed by George Mason University undergraduate student, Diara Yancy, during the summer of 2025.

Supervised research performed by undergraduate student, Gabriel Traietti, during the summer of 2023. Gabriel presented his work at AGU 2024, and just started a PhD program at Columbia University.

Supervised research performed by Brown University undergraduate student, Alexander Wilk, during the summers of 2021 and 2022, and served as an advisor and reader for his Honors Thesis. Alexander presented this work at AGU 2022, and he is currently a PhD student at the University of Massachusetts.

Trainings

Intern, GeoMeetsClimate 2023

Internship with Natalie Burls at George Mason University completing a proxy-model comparison of Last Interglacial and Last Glacial Maximum climate dynamics in the Indo-Pacific Warm Pool.

Professional Service

Session convener, AGU 2022

Organized a panel at AGU titled, ‘Organic compounds as environmental proxies: calibrations and applications.’

Panel convener, AGU 2022

Organized a panel at AGU titled, ‘Inclusivity in Geosciences: A Conversation between Scientists and Educators.’

First-Year Mentoring Program Coordinator, 2022 - 2023

Matched graduate student mentors and first-year mentees and organized events for the mentor-mentee pairs in the Department of Earth, Environmental, and Planetary Sciences at Brown University.

Panel convener, AGU 2021

Organized a panel at AGU titled, ‘Inclusivity in Geosciences: A Conversation between Scientists and Educators.’

Geoclub co-president, 2020 - 2021

Organized social events for the graduate student community in the Department of Earth, Environmental, and Planetary Sciences at Brown University.

GWISE coordinator, 2020 - 2023

Arranged weekly meetings with the Colloquium speaker to discuss their career path, and coordinated meetings with offices at Brown University with resources for graduate students.

URGE participant, Spring 2021

Participated in the national Unlearning Racism in Geoscience 8-week program to learn how to implement effective changes in our department at Brown to improve inclusivity.

Graduate Student Representative in Faculty Meetings, 2018 - 2019

Participates in faculty meetings in the Geology and Geophysics department at the University of Wyoming to provide perspectives from and share meeting activities with graduate students.

Brown Bag Lunch Organizer, Spring 2018

Helped organize Brown Bag meetings every Friday, where Geology and Geophysics students presented their research in a casual and encouraging setting.

STEM Outreach

DEEPS Career Opportunities and Research in Earth Science Program, Hope High School, 2021-2023

DEEPS Science-Teaching and Education Program, Vartan Gregorian Elementary School, 2022

DEEPS Science-Teaching and Education Program, Martin Luther King Jr. Elementary School, 2020

Other Professional Experience

Research Assistant, North Carolina State University, 2017

Assisted in and performed research on potential for greenhouse gas mitigation in the forestry and agricultural sectors in the coming decades, resulting in the publication of an article in *Climate*.

Field Organizer, NextGen Climate, 2016

Directed NextGen Climate's field campaign at the University of North Carolina - Chapel Hill.

Summer Research Intern, Colorado College, 2015

Performed micrometeorological research at treeline on Pike's Peak in Colorado Springs with Professor Miroslav Kummel.

Backpacking Trip Leader, Colorado College, 2013-2016

Led backpacking trips for Colorado College students, which included organizing of equipment, route-planning and assessing safety concerns.

Summer Intern, The Trust for Public, San Francisco, 2014

Wrote a research paper on the state of farming in California for the California Conservation Division.

Science Camp Counselor, Crissy Field Center, San Francisco, 2008 and 2011

Worked as a counselor for two summers during high school, teaching kids about the natural world around them through experiential learning.

Laboratory Instrumentation Experience

- DIONEX Accelerated Solvent Extractor
- Agilent 7890 gas chromatograph-flame ionization detector (GC-FID)
- Agilent 6890 gas chromatograph coupled to a Thermo Delta V Plus isotope ratio mass spectrometer (GC-IRMS)
- Agilent/Hewlett Packard 1100 series high-performance liquid chromatograph-mass spectrometer (HPLC-MS)

Field Experience

Rwenzori Mountains, Uganda: Collected lake-sediment cores, January 2024

Medicine Bow National Forest, Wyoming: Collected lake-sediment cores, Summer 2018

Mt. Zirkel Wilderness, Colorado: Collected land-grab samples around lakes for use in paleoclimate models, Summer 2018

Foy Lake, Montana: Collected a transect of cores from the frozen lake surface, Winter 2018

Silver Lake, Montana: Collected a transect of cores from inflatable rafts, Fall 2017

Pike National Forest, Colorado: Hiked up to treeline on Pike's Peak to collect micrometeorological data every other day, Summer 2015

Kangerlussuaq, Greenland: Collected ice samples on the Greenland Ice Sheet, Fall 2014