

Mary Grace Albright

Preferred name: Mary Grace (she/her/hers)

Curriculum Vitae

Email: marygrace.albright@uconn.edu

GitHub: <https://github.com/mg-albright>

Website: www.marygracealbright.com/

ORCID: <https://orcid.org/0009-0007-5756-7189>

EDUCATION

PhD Candidate, Geological Sciences (anticipated conferral May 2026)

University of Connecticut

Committee Members: Ran Feng (advisor), Clay Tabor, Chris Fielding,
Jiang Zhu, Colin Zarzycki

Dissertation: *Hydroclimatic and Thermal Changes Across Cenozoic Warm Intervals: Implications for Future Climate*

Storrs, CT

Aug. 2021-present

B.S., Applied Mathematics

Furman University

Minor, Environmental Studies

Advisor: John Harris

Greenville, SC

Aug. 2017-May 2021

PEER-REVIEWED PUBLICATIONS

5. **Albright, M.G.**, Molina, M. J., Feng, R., Feng, Z., A Deep Learning Approach to the Detection of Mesoscale Convective Systems in High Resolution Global Climate Simulations. In prep (for *Geosci. Model Dev.*).
4. **Albright, M.G.**, Mayer, T., Feng, R., Fastovich, D., Bhattacharya, T., Ford, H., Constraining the CO₂-Induced Pacific Walker Circulation Strength Changes in the Late Pliocene through Water Isotopologues. In prep (for *Nat. Comm.*).
3. **Albright, M.G.**, Feng, R., Bhattacharya, T., Zarzycki, C., Molina, M., Tabor, C., Zhu, J., Otto-Bliesner, B., Rosenbloom, N., Sun, C., Wetter Southwestern North America Due to Summer Storm Activity in a Warm Climate. *Sci Adv.* Submitted.
2. Feng, Z., Prein, A., Kukulies, J., Fiolleau, T., Jones, W., Maybee, B., Moon, Z., Núñez Ocasio, K. M., Dong, W., Molina, M., **Albright, M G.**, Feng, R., Song, J., Song, F., Leung, R. L., Varble, A., Klein, C., Roca, R., Mesoscale Convective Systems Tracking Method Intercomparison: Application to DYAMOND Global km-scale Simulations. *JGR Atmospheres*. In review.
DOI: [10.22541/essoar.172405876.67413040/v1](https://doi.org/10.22541/essoar.172405876.67413040/v1)
1. **Mary Grace Albright**, Caroline Vickery, Roy Bower & John E. Quinn (2023) Patterns of land use change, land governance, and the supply of ecosystem services in a multifunctional landscape: A case study from Upstate SC, USA, *Journal of Land Use Science*, 18:1, 284-295, DOI: 10.1080/1747423X.2023.2234903

ORAL PRESENTATIONS (* indicates invited)

10. **Albright, MG**, Feng R, Molina, M J, Zhu, J, Tabor, C, Otto-Bliesner, B L, Brady E C, Sun, C, Macarewich, S, A Global Climatology of Mesoscale Convective Systems in an Unprecedented Set of Ultra-High Resolution Simulations of Key Climatic Intervals, AGU Annual Meeting 2024, Washington, DC, 9-13 Dec 2024.
9. **Albright, M.G.**, Molina, M. J., Feng, R., Zhu, J., Otto-Bliesner, B., Brady, E., Tabor, C.: A Global Climatology of Mesoscale Convective Systems in Ultra High-Resolution Simulations of Key Cenozoic Intervals, Climate Evolution from Early Eocene to mid-Pliocene Workshop, Storrs, CT, 19-21 Aug 2024.
8. **Albright, M. G.**, Weitzel, N., Inglis, G. N., Steinig, S., Renoult, M., Reichgelt, T., Fletcher, T., Tindall, J., and Feng, R.: Quantifying the State Dependency of Climate Sensitivity Across Cenozoic Warm Intervals, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-13307, <https://doi.org/10.5194/egusphere-egu24-13307>, 2024.

7. ***Albright, M.G.**, Feng, R., Bhattacharya, T., Otto-Bliesner, B., Zarzycki, C., Zhu, J., Li, H.: Insights from Weather Resolving Coupled Simulations on the Mid-Pliocene North American Monsoon, MIT-WHOI Climate & Paleo Seminar Series, 28 March 2024.
6. **Albright, M. G.**, Feng, R., Bhattacharya, T., Li, H., Otto-Bliesner, B., Zarzycki, C., Zhu, J.: Mid-Pliocene North American Monsoon in Weather Resolving Coupled Simulations, AGU Fall Meeting 2022, Chicago, Illinois, 12-16 Dec. 2022.
5. **Albright, M.G.**, Feng, R., Bhattacharya, T., Li, H., Otto-Bliesner, B., Zarzycki, C., Zhu, J.: Mid-Pliocene North American monsoon in weather resolving coupled simulations, CESM Paleoclimate Working Group Workshop, Online, June 2022.
4. **Albright, M. G.**, Feng, R., Zhu, J., Otto-Bliesner, B., Li, H., and Bhattacharya, T.: Mid-Pliocene North American Monsoon in Weather Resolving Coupled Simulations, EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-5586, <https://doi.org/10.5194/egusphere-egu22-5586>, 2022.
3. **Albright, M.G.**, Feng, R., Zhu, J., Otto-Bliesner, B., Li, H., Bhattacharya, T.: Mid-Pliocene North American monsoon in weather resolving coupled simulations, University of Connecticut Geoscience Day Research Symposium, Storrs, Connecticut, April 2022.
2. **Albright, M.G.**, Feng, R., Zhu, J., Otto-Bliesner, B., Li, H., Bhattacharya, T.: Mid-Pliocene North American monsoon in weather resolving coupled simulations, CESM Paleoclimate Working Group Winter Workshop, Online, February 2022.
1. **Albright, M.G.**, Quinn, J., Bower, R.: Diminishing Local Farmland: An assessment of the rise of development in Greenville County, South Carolina, Furman Engaged, Online, 2021

POSTERS

5. **Albright, MG**, Weitzel, N., Inglis, G. N., Steinig, S., Renoult, M., Reichgelt, T., Fletcher, T., Tindall, J., Feng, R.: Insights from Deep Time: Quantifying the State Dependency of Climate Sensitivity Across Cenozoic Warm Intervals, Graduate Climate Conference, Pack forest, WA, 31 Oct. – 2 Nov. 2024.
4. **Albright, M.G.**, Weitzel, N., Inglis, G. N., Steinig, S., Renoult, M., Reichgelt, T., Fletcher, T., Tindall, J., Feng, R.: Quantifying the State Dependency of Climate Sensitivity Across Cenozoic Warm Intervals, AGU Fall Meeting 2023, San Francisco, CA, 11-15 Dec. 2023.
3. **Albright, M. G.**, Feng, R., Bhattacharya, T., Li, H., Otto-Bliesner, B., Zarzycki, C., and Zhu, J.: Contributions of Resolved Mesoscale Systems to the North American Monsoon in High Resolution Simulations of the Mid-Pliocene, Graduate Climate Conference, Woods Hole, MA, 2-4 Nov. 2023.
2. **Albright, M. G.**, Feng, R., Zhu, J., Otto-Bliesner, B., Li, H., and Bhattacharya, T.: Mid-Pliocene North American Monsoon in Weather Resolving Coupled Simulations, The warm Pliocene: Bridging the geological data and modelling communities, Leeds, United Kingdom, 23–26 Aug 2022, GC10-Pliocene-6, <https://doi.org/10.5194/egusphere-gc10-pliocene-6>, 2022.
1. **Albright, M.G.**, Quinn, J., Bower, R.: Diminishing Local Farmland: An assessment of the rise of development in Greenville County, South Carolina, Furman Engaged, 2021.

RESEARCH EXPERIENCE

Graduate Assistant

Aug. 2021-present

University of Connecticut, Department of Earth Sciences

Dissertation research explores the use of high resolution simulations and machine learning to understand hydroclimate changes throughout the past ~65 million years. Interested in determining how weather systems change under warmer intervals in the Earth's history. Current participant in mesoscale convective system tracking intercomparison efforts (MCSMIP) led by Zhe Feng.

Visiting Graduate Student

Summer 2023

University of Tübingen, SPACY group led by Prof. Dr. Kira Rehfeld

Worked collaboratively to estimate global mean surface temperature during Cenozoic warm intervals to better constrain equilibrium climate sensitivity using a Bayesian framework.

Undergraduate Research Assistant

May 2020-Dec.2020

Furman University, Department of Mathematics, Department of Biology

Used statistical analysis and GIS data to assess urban development's effect on farmland loss in Greenville and Spartanburg counties in South Carolina.

SERVICE & OUTREACH

Head UConn Earth Science Mentor

Fall 2023-present

Established and organized a new mentorship program between UConn Earth Science graduate and undergraduate students. Currently mentoring one undergraduate student within the Earth Science Department. Matched all other mentor/mentee pairs for the past two years and currently organize/run all trainings and larger mentoring program meetings.

Girls Who Code Club Facilitator

Fall 2023-present

Head volunteer at East Hartford High School, a Title I school in Connecticut. Teaching female students with little to no coding experience how to use Python for creating simple games, data visualization, and music composition.

Geoscience Education & Mentor Support (GEMS) Mentor

Fall 2023-May 2024

Mentored one undergraduate student from Arizona State University.

GRANTS, FELLOWSHIPS, SCHOLARSHIPS, & ALLOCATIONS

Data Analysis Allocation, NSF National Center for Atmospheric Research

Sept. 2024

Casper GPU: 500 GPU hours; Casper: 80,000 Core-hours

Conference Participation Award, University of Connecticut

Aug. 2024

PhD Fellowship, University of Connecticut

Summer 2023/2024

Early Career Scientist Travel Grant, Galileo Conference, European Geoscience Union

Aug. 2022

Travel Funding, CESM Tutorial, National Center for Atmospheric Research

Aug. 2022

Pre-Doctoral Fellowship, University of Connecticut

Summer 2022

Bell Tower Scholarship, Furman University

Aug. 2017-May 2021

L.H. Bowen Memorial Scholarship, Furman University Department of Mathematics

Aug. 2019-May 2021

Summer Mathematics Undergraduate Research Fellow, Furman University

May 2020-July 2020

Professional Athletes Foundation Family Scholarship, NFL Players Association

Aug. 2017-May 2018

Charlie Harville Memorial Scholarship, Community Foundation of Greater Greensboro

Aug. 2017-May 2018

Earle Scholarship, Walter Hines Page High School

Aug. 2017-May 2018

TEACHING EXPERIENCE

Lab Instructor, Earth's Dynamic Environment (GSCI/ERTH 1050/1052)

Fall 2021/Spring 2023

Department of Geosciences, University of Connecticut, Storrs

Instructed 20-25 undergraduate students per section in introductory level geology labs.

Teaching Assistant, Creating and Sustaining National Parks (ERTH 2310E)

Spring 2023/Spring 2024

Department of Geosciences, University of Connecticut, Storrs

Assisted with grading for 150 undergraduates and provided study assistance during office hours. Topics included plate tectonics, climate and biotic change, natural hazards, Earth materials and resources, environmental conservation, and the interactions between human society and the natural world. Guest lectured once.

AWARDS

Nalwalk Award for Excellence in Research, UConn Earth Sciences Department

April 2024

Outstanding Oral Presentation Award, UConn Geoscience Day Research Symposium

April 2022 & 2023

Excellence in Environmental Studies, Furman University

May 2021

PROFESSIONAL DEVELOPMENT

PaleoCAMP 2-week summer school for graduate students: Paleoclimate Training in Climate Archives, Models, and Proxies	June 2024
Paleoclimate Data Assimilation Workshop Virtual workshop led by Michael Erb on data assimilation in Python for paleoclimate data	Aug. 2023
Community Earth System Model Tutorial Tutorial by the National Center for Atmospheric Research on the usage of the Community Earth System Model with the Cheyenne supercomputer.	Aug. 2022
Thompson Field Forum Field forum by the Geological Society of America led by Elizabeth Cassel, Chris Henry, Craig Jones, and John Wakabayashi. Took place in Nevada and California and discussed the topic: Old or Young? The Topographic Evolution of the Sierra Nevada.	June 2022

PROFESSIONAL EXPERIENCE

Information Technology Staff <i>Furman University</i> Provided technical support for Furman students, staff, alumni, and faculty	Aug. 2019-May 2021
Mathematics Tutor <i>Furman University</i> Tutored Furman students in calculus and statistics	Jan. 2019-Aug. 2020

LEADERSHIP AND COMMITTEES

Graduate Student Advisory Committee, College of Liberal Arts and Sciences	Aug. 2024-present
President, UConn Geoscience Graduate Group	May 2024-present
Co-Chair of Advertising and Communications, Graduate Climate Conference	Jan. 2024- Nov. 2024
A/V Committee Member, Graduate Climate Conference	Jan. 2024-Nov. 2024
Vice President, UConn Geoscience Graduate Group	May 2023-May 2024
Events Coordinator, UConn Geoscience Graduate Group	Aug. 2022-May 2023
Faculty Search Committee Member, UConn Earth Science Department	Aug. 2022-May 2023

HARD SKILLS

Python, PyTorch, R/RStudio, Julia, MATLAB, Java, Linux/Unix, High Performance Computing, Machine Learning, Git/GitHub, VS Code, ArcGIS products, Microsoft Office Suite, Community Earth System Model, Data Visualization

OTHER ACTIVITIES

Student Athlete <i>Furman University</i> Practiced 20 hours/week and traveled for games (~55 games per season in spring) for the NCAA Division I Women's Softball Team in addition to other team activities throughout the academic year while carrying a full course load.	Aug. 2017-May 2019
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