Jacqueline M. Nugent

University of Wyoming Atmospheric Science
EN 6034
Dept. 3038
1000 E University Ave
Laramie, WY 82071

jnugent2@uwyo.edu
(630) 261-5026
jacnugent.github.io
jacnugent

Education

University of Washington, Seattle, WA

8/2023	**Ph.D. in atmospheric sciences**, data science option Dissertation: Overshooting Convection, Cirrus, and the Cold Point Tropopause in Global Storm-Resolving Models and Satellite Observations Advisor: Dr. Chris Bretherton
6/2021	**M.S. in atmospheric sciences**

University of Oklahoma, Norman, OK

5/2018	**B.S. in meteorology**, *summa cum laude*
5/2018	**B.A. in mathematics**, with special distinction

Research Experience

1/2024 – Present
U. of Wyoming Dept. of Atmospheric Science, Laramie, WY
Postdoctoral Research Associate
Advisor: Dr. Daniel McCoy

- Develop a perturbed parameter ensemble (PPE) in the DOE E3SMv3 earth system model to constrain aerosol-cloud adjustments using satellite and ground-based measurements.

9/2023 – 12/2023
U. of Washington Dept. of Atmospheric Sciences, Seattle, WA
Interim Postdoctoral Scholar
Advisor: Dr. Peter Blossey

- Evaluated the simulated tropopause and stratospheric circulation in climate change simulations using the GFDL X-SHiELD global storm-resolving model.

9/2018 – 8/2023
U. of Washington Dept. of Atmospheric Sciences, Seattle, WA
Research Assistant
Advisor: Dr. Chris Bretherton

- Found a lower than expected land-ocean contrast in tropical overshooting convection in both satellite observations and global storm-resolving models.
- Found that changes in the cold point tropopause relate more to overshooting than radiative lofting from thin cirrus clouds.

6/2021 – 9/2021 **Vulcan, Inc.** (now at Allen Institute for AI), Seattle, WA
Machine Learning Intern
Advisors: Dr. Andre Perkins and Dr. Anna Kwa
- Developed and evaluated a recurrent neural network to emulate microphysical tendencies in the FV3-GFS model.

8/2017 – 5/2018 **U. of Oklahoma School of Meteorology**, Norman, OK
Student Research Assistant
Advisor: Dr. Michael Biggerstaff
- Studied the relationship between areas of strong electric fields in clouds and lightning propagation using dual-polarimetric radar data.

6/2016 – 8/2016 **NOAA Earth System Research Laboratory**, Boulder, CO
Hollings Scholar
Advisor: Dr. Michael Fiorino
- Ran a single column model under different convective parameterizations and compared the precipitation output to previous global model runs.
- Identified a bias of excessive drizzle in one of the schemes.

Publications

Submitted

- **Nugent, J. M.**, Bretherton, C. S., & Blossey, P. N. (2024). What sets the tropical cold point in GSRMs? Overshooting convection vs. cirrus lofting. *ESS Open Archive*. doi:10.22541/essoar.172405869.95851202/v1 *(Under review at Earth and Space Science)*

Peer-Reviewed

- Perkins, W. A., Brenowitz, N. D., Bretherton, C. S., & **Nugent, J. M.** (2024). Emulation of Cloud Microphysics in a Climate Model. *Journal of Advances in Modeling Earth Systems*, 16(4), e2023MS003851. doi:10.1029/2023MS003851
- **Nugent, J. M.**, & Bretherton, C. S. (2023). Tropical Convection Overshoots the Cold Point Tropopause Nearly as Often Over Warm Oceans as Over Land. *Geophysical Research Letters*, 50(21), e2023GL105083. doi:10.1029/2023GL105083
- **Nugent, J. M.**, Turbeville, S. M., Bretherton, C. S., Blossey, P. N., & Ackerman, T. P. (2022). Tropical cirrus in global storm-resolving models: 1. Role of deep convection. *Earth and Space Science*, 9, e2021EA001965. doi:10.1029/2021EA001965
- Turbeville, S. M., **Nugent, J. M.**, Ackerman, T. P., Bretherton, C. S., & Blossey, P. N. (2022). Tropical cirrus in global storm-resolving models: 2. Cirrus life cycle and top-of-atmosphere radiative fluxes. *Earth and Space Science*, 9, e2021EA001978. doi:10.1029/2021EA001978

Awards and Honors

2020 NSF Graduate Research Fellowship Program Honorable Mention

2018	James Holton Endowed Graduate Support Fund, U. of Washington
2018	Phi Beta Kappa Society, Alpha of Oklahoma Chapter
2017	American Meteorological Society Senior Named Scholarship: Liv and Walt Lyons Scholarship
2017	Kelvin and Lisa Droegemeier Endowed Scholarship for Excellence in Meteorology, U. of Oklahoma
2016	Ernest F. Hollings Undergraduate Scholarship Program, National Oceanic and Atmospheric Administration
2015	Best Poster Award, U. of Oklahoma First Year Research Experience
2014	American Meteorological Society Freshman Undergraduate Scholarship
2014	U. of Oklahoma School of Meteorology Scholarship

Presentations

9/2024 **Composition Air Quality Climate inTeractions Initiative (CACTI) Workshop**, San Diego, CA
- Evaluating Aerosol-Cloud Interactions in E3SMv3 Using a Perturbed Parameter Ensemble (Talk)

8/2024 **DOE Earth and Environmental Systems Modeling (EESM) Principal Investigators Meeting**, Washington, DC
- Evaluating Aerosol-Cloud Interactions in E3SMv3 Using a Perturbed Parameter Ensemble (Talk)

12/2023 **American Geophysical Union Fall Meeting**, San Francisco, CA
- Can Global Storm-Resolving Models Reproduce Observed Cold Point-Overshooting Convection? (Talk)

7/2023 **Joint CFMIP-GASS Meeting**, Paris, France
- Tropical tropopause-penetrating convection and cold point cirrus: satellite observations vs. global storm-resolving models (Poster)

12/2022 **American Geophysical Union Fall Meeting**, Chicago, IL
- Evaluating Overshooting Convection in the DYAMOND Global Storm-Resolving Models Using Outgoing Longwave Radiation (Talk)
- The Cold Point Tropopause in DYAMOND GSRMs: Overshooting Convection vs. Cirrus Lofting (Poster)

7/2022 **3rd Pan-GASS Meeting: Understanding and Modeling Atmospheric Processes**, Monterey, CA
- Overshooting Convection and Tropical Cirrus in the DYAMOND Global Storm-Resolving Models (Poster)

7/2022 **Cloud Feedback Model Intercomparison Project (CFMIP) Meeting**, Seattle, WA
- Overshooting Convection and Tropical Cirrus in the DYAMOND Global Storm-Resolving Models (Talk)

12/2021 **American Geophysical Union Fall Meeting**, Virtual
- Tropical Cirrus in Global Storm-Resolving Models: The Role of Deep Convection (Poster)

12/2020 **American Geophysical Union Fall Meeting**, Virtual
- The Influence of Microphysics and Convection over Land on TTL Cirrus in the DYAMOND Simulations (Poster)

5/2020 **6th ENES High Performance Computing Workshop**, Virtual
- Evaluating Convection and Tropical Tropopause Layer Cirrus in the DYAMOND Simulations (Talk)

Teaching Experience

Fall 2022, Spring 2021 **ATM S 490: Current Weather Analysis**, U. of Washington
Instructor of Record
- Taught two sections (for majors and non-majors) of a weekly seminar course on weather for undergraduate students.
- Led discussions and lectures about weather forecasting basics and topics based on students' interests.

Winter 2020 **ATM S 101: Weather**, U. of Washington
Teaching Assistant
- Taught three weekly quiz sections to groups of undergraduate non-major students to review lecture material and engage in active learning activities.
- Prepared and graded homework, quiz, and exam questions.

Mentoring Experience

9/2018 – 8/2023 **Graduate-Undergraduate Mentoring Program**, U. of Washington (UW) Atmospheric Sciences
- Met quarterly with an undergraduate mentee to share advice on success in the program and applying to research internships and graduate schools.

6/2020 – 8/2020 **Cooperative Institute for Climate, Ocean, and Ecosystem Studies (CICOES) Research Internship**, Virtual
- Assisted with day-to-day supervision of an undergraduate's summer research project, including guidance of data analysis and scientific writing.
- Intern: Haley Staudmyer; mentored by Dr. Tom Ackerman

External Service

2024 – Present **Program Co-Chair**, American Meteorological Society Committee on Cloud Physics
- Coordinate and schedule the conference program for the Second Symposium on Cloud Physics at the AMS Annual Meeting.

2023 – Present	**Referee** for the following journals: • *Geophysical Research Letters* • *npj Climate & Atmospheric Science* • *Journal of Advances in Modeling Earth Systems* • *JGR: Atmospheres* • *Earth and Space Science* • *Advances in Space Research*

Outreach and Community Involvement

2024 – Present	Member, Women in Math, Science and Engineering (WiMSE), U. of Wyoming
2022 – 2023	Member, Diversity and Inclusion Group, UW Atmospheric Sciences
2020 – 2023	Coordinator, Coding Club / "Hacky Hour," UW Atmospheric Sciences
2018 – 2023	Coordinator, Atmos Women's Group, UW Atmospheric Sciences
2020 – 2023	Volunteer, Outreach Program, UW Atmospheric Sciences
2021	Assistant Event Supervisor, Science Olympiad National Tournament