

Molly Menzel

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Research Interests

Climate dynamics, atmospheric circulation and dynamics, tropical-extratropical interactions

Education

- 2017 – present Johns Hopkins University | Baltimore, MD
Ph.D. Earth and Planetary Sciences 4.0 GPA
- 2015 – 2017 McGill University | Montreal, QC
M.Sc. Atmospheric and Oceanic Sciences 3.8 GPA
- 2010 – 2014 Virginia Tech | Blacksburg, VA
B.S. Engineering Science and Mechanics 3.55 GPA

Experience

- 2017 – present Johns Hopkins University, Department of Earth and Planetary Science
Current project: understanding the dynamic behavior of the subtropical jet and its impact on other aspects of the atmospheric circulation, analyzing IPCC CMIP5 datasets and designing idealized model simulations
- 2015 – 2017 McGill University, Department of Atmospheric and Oceanic Sciences
Thesis project: examined the impact of direct effects of CO₂ radiative forcing on the efficiency of deep ocean heat uptake, perturbed Modular Ocean Model simulations and analyzed IPCC CMIP5 simulations
- 2014 – 2015 World Race, Adventures in Missions (AIM)
Traveled to a new country each month (11 months total) to aid existing organizations in efforts to develop local communities
- 2013 – 2014 Virginia Tech, Department of Engineering Science and Mechanics
Capstone Project: computationally modeled fluid flow of a batoids locomotion as well as built bio-mimetic robot to optimize efficiency and stealth of underwater vehicles

Journal Publications

Menzel, Molly E., Darryn Waugh, and Kevin Grise (2019): Disconnect between Hadley Cell and Subtropical Jet variability and response to increased CO₂. *Geophysical Research Letters*.

Menzel, Molly E. and T. M. Merlis (2019): Connecting direct effects of CO₂ radiative forcing to ocean heat uptake and circulation. *Journal of Advances in Modeling Earth Systems*.

Sharp, Nicholas, Virginia Hagen-Gates, Evan Hemingway, **Molly Syme***, Juelyan Via, Jeffrey Feaster, Javid Bayandor, Sunghwan Jung, Francine Battaglia, and Andrew Kurdila (2014): "Computational analysis of undulatory batoid motion for underwater robotic propulsion." In *Proceedings of the ASME 2014 4th Joint*

US-European Fluids Engineering Division Summer Meeting. American Society of Mechanical Engineers.
2014

*Published under maiden name

Conference Presentations

- 2019 AMS 22nd Conference on Atmospheric and Oceanic Fluid Dynamics
Joint DynVarMIP/CMIP6 and SPARC DynVar & SNAP Workshop
- 2018 AGU Fall Meeting
- 2017 AMS 21st Conference on Atmospheric and Oceanic Fluid Dynamics

Teaching and Outreach

- 2020 Dean's Teaching Fellowship | Johns Hopkins University
AS.270.348: Communicating Climate Science
- 2019 Guest Lecturer and Teaching Assistant | Johns Hopkins University
AS.270.378/641: Present and Future Climates
- 2019 Completion of Teaching Institute | Johns Hopkins Teaching Academy
- 2017 Outreach | Faith Presbyterian Church
- 2016 – 2017 Teaching Assistant | McGill University
ATOC 181: Introduction to Atmospheric Science
ATOC 215: Oceans, Weather and Climate
- 2014 Physics Outreach | Virginia Tech Physics Department
Elementary, middle, and high school classrooms
- 2013 Teaching Assistant | Johns Hopkins Center for Talented Youth
Principles of Engineering Design

Awards and Professional Affiliations

- 2020 – 2022 AMS Atmospheric and Oceanic Fluid Dynamics Committee, Student Member
- 2019 Outstanding Student Oral Presentation Award, 22nd Atmospheric and
Oceanic Fluid Dynamics Conference
- 2014 Dan H. Pletta Award, Outstanding Department Senior Research Project
Member of American Meteorological Society, American Geophysical Union
Reviewer for *Journal of Climate*

References

- Dr. Darryn Waugh | Johns Hopkins University
- Dr. Timothy Merlis | McGill University