

# Molly Menzel

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## Research Interests

Large-scale atmospheric circulation, climate 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 dynamical 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 CO<sub>2</sub> 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 CO<sub>2</sub>. *Geophysical Research Letters*.

**Menzel, Molly E.** and T. M. Merlis (2019): Connecting direct effects of CO<sub>2</sub> 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 4<sup>th</sup> Joint*

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

\*Published under maiden name

## Conference Presentations

- 2020 AGU Fall Meeting
- 2019 AMS 22<sup>nd</sup> Conference on Atmospheric and Oceanic Fluid Dynamics  
Joint DynVarMIP/CMIP6 and SPARC DynVar & SNAP Workshop
- 2018 AGU Fall Meeting
- 2017 AMS 21<sup>st</sup> Conference on Atmospheric and Oceanic Fluid Dynamics

## Teaching and Outreach

- 2021 Dean's Prize Fellowship | Johns Hopkins University  
AS.270.348: Freshman Seminar, Communicating Climate Science
- 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

- 2019 – present ISSI Tropical Width Impacts on the Stratosphere Team, Young Scientist
- 2020 – present 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, National  
Association of Geoscience Teachers  
Reviewer for *Journal of Climate*

## References

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