

## Research Interests

Large-scale atmospheric circulation, climate dynamics, tropical-extratropical interactions, stratosphere-troposphere connections

## 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, M. E., D. W. Waugh, Z. Wu, T. R. Reichler, 2021: A refined view of the Subtropical Jet and Hadley Cell coupling. *Submitted to the Journal of Atmospheric Sciences*.

Menzel, M. E., D. W. Waugh, and K. M. Grise, 2019: Disconnect between Hadley Cell and Subtropical Jet variability and response to increased CO<sub>2</sub>. *Geophysical Research Letters*, **46** (12), 7045-7053.  
<https://doi.org/10.1029/2019GL083345>

Menzel, Molly E. and Timothy 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*, **11** (7), 2163-2176.  
<https://doi.org/10.1029/2018MS001544>

## Presentations

- 2021 University of Exeter (invited virtual talk), McGill University (invited virtual talk)
- 2020 AGU Fall Meeting (virtual poster)
- 2019 AMS 22<sup>nd</sup> Conference on Atmospheric and Oceanic Fluid Dynamics (talk)  
Joint DynVarMIP/CMIP6 and SPARC DynVar & SNAP Workshop (talk)
- 2018 AGU Fall Meeting (poster)
- 2017 AMS 21<sup>st</sup> Conference on Atmospheric and Oceanic Fluid Dynamics (poster)

## Awards and Professional Affiliations

- 2020 – present AMS Atmospheric and Oceanic Fluid Dynamics Committee, Student Member
  - 2019 – present ISSI Tropical Width Impacts on the Stratosphere Team, Young Scientist
  - 2019 Outstanding Student Oral Presentation Award, AMS 22<sup>nd</sup> Conference on Atmospheric and Oceanic Fluid Dynamics
  - 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*

## Teaching and Outreach

- 2021 Dean's Prize Fellowship | Johns Hopkins University  
AS.270.130: 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

## References

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