

Research Interests

Climate dynamics, atmospheric circulation and dynamics, atmosphere-ocean 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)**

Travelled 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

Awards

2019 Outstanding Student Oral Presentation Award, 22nd Atmospheric and
 Oceanic Fluid Dynamics Conference

2014 Dan H. Pletta Award, Outstanding Department Senior Research Project

Teaching and Outreach

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

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