Molly Menzel

https://mollymenzel.com | molly.menzel@jhu.edu

Research Interests

Large-scale atmospheric circulation, climate dynamics, stratosphere-troposphere connections

Experience

2022 – present **NASA Postdoctoral Program |** Goddard Institute for Space Studies
New York, NY Advisor: Clara Orbe

Education

2022 **Ph.D. Johns Hopkins University |** Earth and Planetary Sciences
Baltimore, MD Advisor: Darryn Waugh
Dissertation project: investigated 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

2017 **M.Sc. McGill University |** Atmospheric and Oceanic Sciences
Montreal, QC Advisor: Timothy Merlis
Thesis project: examined the impact of direct effects of CO_2 radiative forcing on the efficiency of deep ocean heat uptake, perturbed Modular Ocean Model simulations and analyzed IPCC CMIP5 simulations

2014 **B.Sc. Virginia Tech |** Engineering Science and Mechanics
Blacksburg, VA 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

Refereed Journal Publications

Menzel, Molly E., Darryn Waugh, and Clara Orbe, 2022: Connections between upper tropospheric and lower stratospheric circulation responses to increased CO_2. *Weather and Climate Dynamics.* in preparation.

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

Menzel, M. E., D. W. Waugh, and K. M. Grise, 2019: Disconnect between Hadley Cell and Subtropical Jet variability and response to increased CO_2. *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 CO2 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

Invited Talks

2021 University of Exeter (virtual)
McGill University (virtual)

Conference Talks

2022 AMS 23rd Conference on Atmospheric and Oceanic Fluid Dynamics
2019 AMS 22nd Conference on Atmospheric and Oceanic Fluid Dynamics
Joint DynVarMIP/CMIP6 and SPARC DynVar & SNAP Workshop

Conference Posters

2020 AGU Fall Meeting
2018 AGU Fall Meeting
2017 AMS 21st Conference on Atmospheric and Oceanic Fluid Dynamics

Awards and Professional Affiliations

2022 – present AMS Atmospheric and Oceanic Fluid Dynamics Committee
2019 – present ISSI Tropical Width Impacts on the Stratosphere Team, Young Scientist
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, National Association of Geoscience Teachers
Reviewer for *Journal of Climate, Geophysical Research Letters*

Teaching and Outreach

2021 Dean's Prize Fellowship | Johns Hopkins University
AS.270.130: Freshman Seminar, Communicating Climate Science

2019 Completion of Johns Hopkins Teaching Academy

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

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

References

Clara Orbe, PhD | NASA Goddard Institute for Space Studies
Darryn Waugh, PhD | Johns Hopkins University
Timothy Merlis, PhD | Princeton University