

Education

Ph.D. Atmospheric Science August 2026
University at Albany, State University of New York
Thesis: *The Impact of Downdraft Ventilation on Tropical Cyclone Intensity and Structure using Aerial Reconnaissance Observations*

B.S. Earth System Science, Summa Cum Laude, Honors College Diploma April 2020
University of Alabama in Huntsville (UAH)
Thesis: *Estimating Surface Wind Speed in Tropical Cyclones through Integration of NOAA Hurricane Hunter Aircraft Observations*

Research Experience

Research Assistant August 2020–August 2026
Department of Atmospheric and Environmental Sciences, University at Albany

- Analyzed aircraft radar and dropsonde observations using Python to measure the transport of low-entropy air into tropical cyclones and study its effect on intensity.
- Designed an improved method for estimating vertical wind speed from dropsondes.
- Developed a web-based Python tool for visualizing dropsonde observations.

Naval Research Enterprise Internship Program Summer 2023
Naval Research Laboratory

- Studied the effect of low-entropy air intrusion on the unexpected, rapid weakening of Hurricane Delta (2020) using the COAMPS-TC model.
- Instructed other interns in Python coding skills.

Undergraduate Researcher August 2019 – May 2020
NASA Short-term Prediction Research and Transition Center (SPoRT)

- Studied methods to estimate surface wind speed in tropical cyclones from flight-level aircraft reconnaissance observations.
- Used satellite observations to identify locations for aircraft icing.

Student Intern (NOAA Hollings Program) Summer 2019
NOAA AOML Hurricane Research Division

- Developed real-time visualization and research tools for NOAA aircraft observations.

Field Project Experience

NASA Convective Processes Experiment – Cabo Verde (CPEX-CV) September 2022

- Contributed to flight planning, forecasting, and mission documentation.
- Assisted the ground-based sounding team.

NOAA VORTEX Southeast March 2017 – May 2019

- Led sounding teams on deployments across north Alabama.
- Performed troubleshooting on radiosonde instruments.

Graduate School Volunteer Service and Leadership

Student Representative on Graduate Program Committee

- Communicated program administration to students and student-requests to faculty.

Co-Chair for Graduate Recruitment Event

- Coordinated with a team to organize events and meetings for prospective students.

Treasurer for Department Graduate Student Association

- Managed association finances and worked with other leaders to plan events.

Fellowships, Honors, and Awards

Future Investigators in NASA Earth and Space Science and Technology	2023–2026
NOAA Hollings Scholar	2018-2020
UAH Department of Atmospheric and Earth Science Achievement Award	Spring 2020
University of Alabama System Honors Research Conference	November 2018
2 nd Place Poster Presentation	
Frank G. Brewer, Sr. Civil Air Patrol Memorial Aerospace Award	April 2017

Journal Publications

Johnson, N. E., B. H. Tang, K. L. Corbosiero, and H. Vömel, 2026: A comparison of methods for estimating vertical wind from dropsondes. *J. Atmos. Oceanic Tech.*, accepted.

Johnson, N. E., B. H. Tang, K. L. Corbosiero, and J. R. Moskaitis, 2025: Observed downdrafts and ventilation during the rapid intensity changes of Hurricane Delta (2020). *J. Geophys. Res. Atmos.*, 130 (10), e2024JD042 915.

Duran, P., C. J. Schultz, E. C. Bruning, S. N. Stevenson, D. J. PeQueen, **N. E. Johnson**, et al., 2021: The evolution of lightning flash density, flash size, and flash energy during Hurricane Dorian's (2019) intensification and weakening. *Geophysical Research Letters*, 48, e2020GL092067.

Oral Presentations

Johnson, N. E., B. Tang, K. Corbosiero, and H. Vömel: A comparison of methods for estimating vertical wind from dropsondes. *28th AVAPS Users Group Meeting*. Boulder, CO, April 2026.

Johnson, N. E. A web-based tool for visualizing dropsonde soundings. *28th AVAPS Users Group Meeting*. Boulder, CO, April 2026.

Johnson, N. E., B. Tang, and K. Corbosiero: Linking downdraft ventilation to tropical cyclone structure using composite observations. *37th Conference on Hurricanes and Tropical Meteorology*. San Diego, CA, April 2026.

Johnson, N. E., B. Tang, and K. Corbosiero: A comparison of methods for estimating vertical wind from dropsondes. *11th Northeast Tropical Workshop*. Albany, NY, August 2025.

Johnson, N. E., B. Tang, K. Corbosiero, and J. Moskaitis: Observed downdrafts and ventilation during the rapid weakening of Hurricane Delta (2020). *20th Cyclone Workshop*. St. Sauveur, QB, Canada, October 2024.

- Johnson, N. E.,** B. Tang, K. Corbosiero, J. Moskaitis, and Y. Jin: An analysis of the unexpected weakening of Hurricane Delta (2020) using COAMPS-TC and aircraft observations. *36th AMS Conference on Hurricanes and Tropical Meteorology*, Long Beach, CA, May 2024.
- Johnson, N. E.,** B. Tang, and K. Corbosiero: Measuring ventilation in tropical cyclones using aerial reconnaissance observations. *35th Conference on Hurricanes and Tropical Meteorology*, New Orleans, LA, May 2022.
- Johnson, N. E.** and J. Zawislak: Development of real-time visualizations and research tools through integration of NOAA Hurricane Hunter aircraft data. *100th American Meteorological Society Annual Meeting*, Boston, MA, January 2020.

Poster Presentations

- Johnson, N. E.,** J. Dunion, E. Duran, P. Duran, and E. Berndt: Adaption of the SHARPPy sounding analysis toolkit for tropical cyclone applications. *34th Conference on Hurricanes and Tropical Meteorology*, Virtual, May 2021.
- Johnson, N. E.,** E. Duran, P. Duran, and J. Dunion: Visualizing atmospheric soundings in tropical cyclones. *NASA MSFC Science, Technology, and Engineering Jamboree*, Huntsville, AL, February 2020.
- Holbach, H., **N. Johnson**, J. Zawislak, and S. de Solo: Observing tropical cyclones from the sky. *100th American Geophysical Union Annual Meeting*, San Francisco, CA, December 2019.
- Johnson, N. E.** and L. D. Carey: Abrupt changes in wind conditions at the Memphis International Airport. *99th American Meteorological Society Annual Meeting*, Phoenix, AZ, January 2019.