Jackson Wiles

Atmospheric Scientist / Meteorologist

Hello, my name is Jackson Wiles. I first began my studies at North Carolina Agricultural and Technical State University (NCAT) in the fall of 2017 and successfully graduated in 2020 with my Bachelor of Science in Atmospheric Science and Meteorology, and in 2022 with my Master of Science degree. Currently I am a third-year doctoral student in the Applied Science and Technology program at NCA&T. I work as a Research Associate, Teaching Assistant and as a credentialed Graduate Teaching Assistant (Instructor) for various undergraduate and graduate level courses. My areas of interest are Mountain Meteorology and Tropical Cyclones with a focus on the associated Thermodynamics and Dynamics.

wilesjackson545@gmail.com

Education

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Doctor of Philosophy in Atmospheric, Environmental, & Energy Science
Graduation: May 2025
Current GPA: 3.96/4.0

Relevant Coursework: Numerical Weather Prediction, Polar Meteorology, Mesoscale Convective Systems, Laboratory Internship, Doc Seminar Atmos Science, Introduction to Data Science, Doctoral Dissertation

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Master of Science in Atmospheric Sciences
Graduation: May 2022
GPA: 3.94/4.0

Relevant Coursework: Physical Meteorology, Dynamic Mountain Meteorology, Classical Mechanics, Graduate Seminar (3), Statistical Mechanics, Dynamic Meteorology, Tropical Meteorology, Advanced Synoptic WX Analysis, Master's Thesis (2)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Bachelor of Science in Atmospheric Science and Meteorology
Graduation: May 2020
GPA: 3.79/4.0
Institutional Honors: Summa Cum Laude Graduate, Chancellor's List: 4 Consecutive Semesters (Spring 2018-Fall 2019), Dean's List: Fall 2017
Certificate of Outstanding Academic Achievement: April 2018
Certificate of Outstanding Academic Achievement: March 2019

Relevant Coursework: Fund Meteorology/Climatology, Meteorological Analysis Lab, Weather and Climate Studies, Computer App in Meteorology, Atmospheric Thermodynamics, Atmospheric Dynamics I, Atmospheric Physics I, Atmospheric Dynamics II, Seminar in Atmos Sci Meteorology (2), Undergraduate Research, Weather Analysis & Forecasting I, Weather Analysis Forecast II, Atmospheric Remote Sensing

Yadkin Early College High School / Surry Community College, YADKINVILLE, NC
High School Diploma & Associate in Arts
Graduation: May 2017
GPA: 3.647/4.0
Surry Community College Honor Graduate
President's List (Spring 2017)
National Honor Society (2013-2017)
National Honor Society Officer
JR Marshal (Spring 2016)
Dean's List (Spring 2016)
Principal's Award (Fall 2012)
Accepted at Yadkin Early College (Summer 2012)

Under Grad Research Experiences

National Science Foundation-GEOPATHS: Pathways to Atmospheric Sciences, NCA&T.
GREENSBORO, NC
Research Assistant: Validation of Weather Forecasts, Fairbanks Alaska
August 2017-May 2018

Research Assistant: Modeling Studies of Foehn Winds in the Antarctic Peninsula
August 2018-December 2018

Data Analysis Work--- calculating RMSE and Bias for weather event using Unix/Linux and NCL (NCAR Command Language)

Research Assistant: Evaluation of the Snow-Ice Enhanced Weather Research and Forecasting Model in the Antarctic Peninsula.
January 2019-May 2019

Internship

Department of Homeland Security, NCA&T / UNC Chapel Hill,
GREENSBORO / CHAPEL HILL, NC
Research Assistant: Combined Atmospheric-Storm Surge Modeling of Hurricane Florence (2018) via the Weather Research and Forecasting Model.
June 2020 - August 2020

Volunteering

Student Volunteer AMS 21st Conference on Mountain Meteorology,
BOISE, IDAHO, 22-26 July 2024

Graduate Teaching

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Instructor: General Physics II Lab: Spring 2023-Present (3 Sections)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: General Physics I Lab: Fall 2020 (1 Section taught)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: General Physics II Lab: Fall 2020-Present (8 Sections taught)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: The Weather Research and Forecasting Model Tutorial: Spring 2022, Spring 2023, Spring 2024 (3 Tutorials)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: Atmospheric Thermodynamics: Spring 2021, Spring 2022, Spring 2024 (3 Sections)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: Atmospheric Dynamics I: Fall 2023, (1 Section)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: Atmospheric Dynamics II: Spring 2023, (1 Section)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: Dynamic Meteorology (Grad): Fall 2023, (1 Section)

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Teaching Assistant: Numerical Weather Prediction (Grad): Spring 2024, (1 Section)

Graduate Research Assistant / Scholarships

North Carolina Agricultural and Technical State University, GREENSBORO, NC
Research Associate of the following National Science Foundation Grants:

HBCU-Excellence in Research: Dynamics of Orographic Effects on Major Wildfires that Occurred in the Southwest United States under Diverse Mesoscale Environments
August 2020-2023

HBCU-RISE Center for Improving Understanding and Forecasting of Orographic Effects on Extreme Weather (EWC)
August 2020-Present

North Carolina Agricultural and Technical State University, GREENSBORO, NC & University of North Carolina at CHAPEL HILL, NC
Research Associate of the following Grant:

Looking Forward Environment, Climate & Environmental Justice. Improving Prediction of Flooding Associated with Tropical Cyclones in Eastern North Carolina
Spring 2023 – June 2024

Major Presentations

Wiles, Jackson Tyler (Presenter); Kaplan, Michael L., Lin, Yuh-Lang, "Numerical Weather Prediction of the Synoptic to Mesoscale Processes Leading to Heavy Precipitation during Hurricane Hilary's (2023) Passage over Complex Terrain in the Southwestern U.S." (2024). The 21st AMS Conf. on Mountain Meteorology, Boise, ID 22-26 July 2024
https://ams.confex.com/ams/21MOUNTAIN/meetingapp.cgi/Session/69146

Wiles, Jackson Tyler (Presenter); Lin, Yuh-Lang; Liu, Liping, "Numerical Weather Prediction of Hurricane Florence (2018) and Potential Climate Impacts through Thermodynamic Modification: Synoptic and Mesoscale Dynamics" (2024). 36th AMS Conf. on Hurricanes and Tropical Meteorology, Long Beach, CA. 6-10 May 2024
https://ams.confex.com/ams/36Hurricanes/meetingapp.cgi/Paper/442150

Wiles, Jackson Tyler (Presenter); Kaplan, Michael L.; Lin, Yuh-Lang, "Dynamics of Orographic and Thermal Forcing on the Environment Conducive to the Formation of the Tubbs Fire (2017)" (2023). 20th AMS Conf. on Mesoscale Processes, Madison, WI., 17-21 July 2023
https://ams.confex.com/ams/WAFNWPMS/meetingapp.cgi/Paper/425056

Karim, S.M.S., Wiles, J. T., and Lin, Y-L., 2023: Investigate the Forcing Mechanisms Leading to the Formation of the African Easterly Waves Preceding the Genesis of Hurricanes in the Atlantic Ocean. 20th AMS Conf. on Mesoscale Processes, Madison, WI., 17-21 July 2023

Kaplan, M. L., S. M. S. Karim, J. T. Wiles, C. N. James, Y.-L. Lin, and J. Riley, 2023: Convective Density Current Circulations that Modulated Meso-γ Surface Winds Near the Yarnell Hill Fire. 14th AMS Conf. on Forest and Fire Meteorology, Minneapolis, MN., 1-4 May 2023.

Wiles, Jackson (Presenter); Lin, Yuh-Lang; Kaplan, Michael, "Multi-scale Analyses of the Mountain Wave Dynamics Conducive to Intensification and Propagation of the Tubbs Fire (2017)" (2022). 20th Conference on Mountain Meteorology, American

Meteorological Society, https://ams.confex.com/ams/20MOUNTAIN/meetingapp.cgi/Paper/402957

Wiles, Jackson (Presenter); Kaplan, Michael; James, Curtis; Ising, Jan; Karim, Shak M. S.; Lin, Yuh-Lang; Riley, Justin, "Complex Interactions Among Convective Density Currents, Terrain Heating, Channeling, and Blocking Leading to Erratic Wildfire Motions During the Yarnell Hill Fire" (2022). 20th Conference on Mountain Meteorology, American Meteorological Society, https://ams.confex.com/ams/20MOUNTAIN/meetingapp.cgi/Paper/402881

Wiles, Jackson, "Synoptics, Dynamics, and Numerical Weather Prediction of the Tubbs Fire Environment Conducive to Wildfire Formation" (March 2022) Successful MS Thesis Defense

Wiles, Jackson; Johnson, Tiana; Liu, Liping; Luettich, Rick, "Atmospheric Modeling of Hurricane Florence (2018)" (May 2021) U.S. Department of Homeland Security Centers of Excellence Summit. https://gmucina.eventshowcase.com/GMUCINA/public/events/gmucina/app/event.html#&ui4nvh!eyJuYXYiOiJhcHAuZXZlbnQudmlld1Nlc3Npb25EZXRhaWxzIizEh3JnxKM6WyIzMDFmMmZjOC1mxLA5LTRjYjYtOMS7xLRlNWFiMjkyNGIzNDYiXX0=!ui4nvh

Wiles, Jackson, "Evaluation of the Snow-Ice Enhanced Weather Research and Forecasting Model" (2019). Undergraduate Research and Creative Inquiry Symposia. 159. https://digital.library.ncat.edu/ugresearchsymposia/159

Wiles, Jackson; Zhang, Jing "Validation of Weather Forecasts in Fairbanks Alaska" (2018). Undergraduate Research and Creative Inquiry Symposia. NCAT

Graduate Mentoring

Smalls, Treja T; Wiles, Jackson T; Lin, Yuh-Lang, "Numerical Simulation and Literature Review of Hurricane Ida (2021) with a Focus on its Re-intensification after Landfall" (Spring 2024)

The role of African Easterly Waves on tropical storm or hurricane development over the eastern Atlantic Ocean. Undergraduate Research Class (PHYS 494). Daina Wilson (Fall 2023)

Hurricane Ida & The Brown Ocean Effect Literature Review and Analysis. RISE Research. Treja Smalls (Fall 2023)

Hurricane Ida and the Brown Ocean Effect Literature Review. (ASME 496). Davion Huggins (Spring 2023)

Mentee Presentations

Smalls, Treja T; Wiles, Jackson T; Lin, Yuh-Lang, "Numerical Simulation and Literature Review of Hurricane Ida (2021) with a Focus on its Re-intensification after Landfall" (2024). NCAT Undergraduate Research and Creative Inquiry Symposia.

Master Thesis

Wiles, J. T.; Lin, Y.-L.; Kaplan, M.L. (2022). Synoptics, Dynamics, and Numerical Weather Prediction of the Tubbs Fire Environment Conducive to Wildfire Formation (Order No. 29068837). Available from ProQuest One Academic. (2702160864). Retrieved from http://ncat.idm.oclc.org/login?url=https://www.proquest.com/dissertations-theses/synoptics-dynamics-numerical-weather-prediction/docview/2702160864/se-2

Publications

Wiles, J.T., Lin, YL. & Kaplan, M.L. Multi-scale numerical simulations of the synoptic environment, Diablo windstorm, and wildfire formation mechanisms for the Tubbs Fire (2017). *Meteorol Atmos Phys* 136, 5 (**2024**). https://doi.org/10.1007/s00703-023-01001-z

Kaplan, M.L.; Karim, S.M.S.; Wiles, J.T.; James, C.N.; Lin, Y.-L.; Riley, J. Convective Density Current Circulations That Modulated Meso-γ Surface Winds near the Yarnell Hill Fire. *Fire* **2023**, *6*, 130. https://doi.org/10.3390/fire6040130

Kaplan, M.L.; James, C.N.; Ising, J.; Sinclair, M.R.; Lin, Y.-L.; Taylor, A.; Riley, J.; Karim, S.M.S.; Wiles, J. The Multi-Scale Dynamics Organizing a Favorable Environment for Convective Density Currents That Redirected the Yarnell Hill Fire. Climate **2021**, 9, 170. https://doi.org/10.3390/cli9120170

Key Skills

- Oral and written communication
- Research
- Analytical skills
- Networking
- Public speaking
- Interpersonal skills
- Efficient in Microsoft PowerPoint, Word, and Excel
- Linux Computer Systems Management
- Proficient in running the Weather Research and Forecasting Model
- Proficient in Linux/Unix Operating System.
- Proficient in NCAR Command Language (NCL)
- Usage in GrADS
- Usage in R
- Usage in Python