

# Meredith Bean

(803)645-4225 • merebwork@gmail.com • Not applicable for Selective Service • General Amateur Radio License

## RESEARCH INTERESTS

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High-Impact Weather, Southeastern Tornadoic Activity, Supercells, Quasi-Linear Convective Systems, Lightning Physics, Emergency Management pertaining to natural disasters, and Radio Physics

## EDUCATION

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**Master's of Science** *Atmospheric Sciences* December 2025

University of Alabama- Huntsville, Huntsville, Alabama

- Thesis research pertaining to PERiLS 2023 IOP3 performed under Research Advisor Dr. Kevin Knupp
- UPSTORM member and American Meteorological Society (AMS)/National Weather Association (NWA) student chapter member
- Presented research orally at national conferences
- Coursework included classes in Lightning, Operational Weather Forecasting taught by NWS Huntsville, Boundary Layer Meteorology, and Ground Based Remote Sensing

**Bachelor's of Science** *Physics* May 2022

Wofford College, Spartanburg, South Carolina

- **Minor in Mathematics, Energy Concentration, Amateur Radio General License**
- Alpha Phi Omega Vice President of Fellowship and Pledgemaster, Fellowship of Christian Athletes Campus Captain, Division 1 Rifle Athlete, Wofford Student Athlete Advisory Committee (SAAC) member, Wofford Rifle team and SAAC social media manager

## RESEARCH EXPERIENCE

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**Wofford College** | *Research Student* Spring 2022

- Research conducted on South Carolina Tornadoes regarding correlation between temperature, wind speed, and tornado severity
- Created several linear regression and histogram models using statistical tools available on Excel
- Used Iowa Mesonet Service for data collection
- Capstone "*Impact of Wind Speed and Temperature on Tornado Severity in SC*" was presented both verbally and in poster form to the Science Department

**Savannah River National Laboratory** | *SULI Intern* May 2022 - August 2022

- Worked with Dr. Steve Weinbeck and Dr. Brian Viner on Surface Roughness Calculations / Boundary Layer Meteorology
- Worked with AERMOD AERSURFACE, Excel, and remote sensing models.
- Presented poster "Surface Roughness Method Comparison in L and P Areas" at a SULI Poster Session
- Technical report published internally

**University of Alabama in Huntsville** | *Masters Thesis Research* August 2023-May 2025

- Thesis research titled "*A Study on the Nocturnal Evolution of PERiLS 2023 IOP3's Supercells to QLCS Development*"
- Research objective: "*To document and understand the changes in environmental parameters (and associated Mesoscale Convective System structure) as the system evolves from its supercell inception in South/Central Mississippi to its QLCS phase ending in North Alabama and the persistence of mesocyclones and mesovortices within the QLCS.*"
- Utilized data from NOAA Physical Science Laboratory, PERiLS Radiosonde Data, WSR-88D NEXRAD radar data, and Python packages for interpretation/plotting.
- Presented findings orally at the 2023 PERiLS workshop in Memphis, the 2025 AMS Annual Meeting, and the 2025 NWA Annual meeting. Additionally presented a poster at the 31st Severe Local Storms conference.

## HONORS & ACCOLADES

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**ARM Group Service Award** | *Department of Energy* 2025 **Dean's List** | *Wofford College* Fall 2018, Spring 2020, and Fall 2021

## FIELD/LAB EXPERIENCE

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### **Project Manager** | *Aiken County Emergency Management*

May 2018 - September 2021

- Led the installation, implementation, and data interpretation of WeatherHawk mesonet stations
- Kept a detailed inventory of all hardware/sensors and dates of maintenance or replacement
- Managed a team of IT professionals, members of Academia, Local Government, and Federal Government employees to project completion
- Frequently engaged in troubleshooting such as repairing and reprogramming several stations
- Worked with the county procurement office to purchase hardware/sensors from vendor of choice
- Worked with several State/National organizations including but not limited to, National Weather Service (Columbia), Richland County Emergency Management, SCEMD

### **Field Operations Graduate Student under PI: Dr. Kevin Knupp** | *UAH*

February 2023 - December 2025

- Involved with VORTEX-SE projects **PERILS**- Propagation, Evolution, and Rotation in Linear Storms and **DELTA**-Detecting and Evaluating Low-Level Tornado Attributes
- Worked in conjunction with the respective Team Lead to deploy and take down MAPnet platforms
- Assisted in planning routes to deployment sites for preliminary site surveys
- Performed outreach activities while deployed to engage curious public bystanders
- Prepared and Launched synchronized iMET Radiosonde and Windsonde soundings with other MAPnet platforms and universities
- Maintained field equipment while deployed
- Performed all tasks in Severe Weather conditions and confirmed Tornadic storm systems

### **Lightning Laboratory Student Specialist V** | *UAH- Phillip Bitzer PI*

February 2023 - August 2023

- Assisted a Research Associate with the building of Charge Control units for power and data collection of Electric Field Change Sensors
- Constructed Solar Sleds from schematics to support Solar Panels powering Electric Field Change Sensors
- Performed Preliminary Analysis on Lightning Data using previous PI research
- Developed a testing procedure for Charge Control unit
- Monitored status of lightning instrumentation and followed troubleshooting procedures

### **Technical Professional Intern** | *Oak Ridge National Laboratory*

June 2024 - August 2024

- Created operational weather forecasts for the national lab and partners
- Followed Quality Control procedures to ensure high quality climate data was delivered to research partners
- Assisted in maintenance and troubleshooting of Meteorology towers
- Created a python script that processed data into a user-friendly CSV or Excel file
- Given a leadership role in the annual site wide exercise where I ensured people properly sheltered in place and followed procedure

### **Bankhead National Forest ARM Mobile Facility Engineering Technician I** | *IntegriWard*

August 2024-Present

- Prepared and Launched Vaisala Radiosondes to support the DOE ARM Dataset
- Supported ARM Main site by providing detailed weather information, nowcasting in inclement weather, and meteorological decision support
- Continually added to and revised troubleshooting protocol for the benefit of future balloon launches and other instrumentation
- Facilitated communication between visiting Scientists and ARM operations staff for optimal upkeep of instrumentation
- Created shift briefings for the next shift to maintain clear communication
- Providing daily instrumentation support and running instrumentation such as the Molecular Observation Network study Terrestrial Atmospheric processes (MONET), Ice Nucleating Particle filters, Dual Column Cloud Condensation Nuclei counter, and the Particle Soot Absorption Photometer.

## REFERENCES

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References/Transcript are available on request