

Brian C. Filipiak

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Education

University of Connecticut

Storrs, CT

Doctor of Philosophy (PhD) in Environmental Engineering

Jan 2023 – Present

- Dissertation: *Snowstorms to Snowflakes: Advancing Understanding of Snowfall Process Across Scales through Observations and Modeling*
- Research funded by NASA Future Investigators in NASA Earth and Space Science and Technology (FINESST)

State University of New York at Albany

Albany, NY

Master of Science in Atmospheric Science

Aug 2020 – Dec 2022

- Thesis: *Probabilistic Winter Mixed Precipitation Forecasts Utilizing a Random Forest in New York*
- Research funded by NOAA Collaborative Science, Technology, and Applied Research (CSTAR)

University of Rochester

Rochester, NY

Bachelor of Science, Magna Cum Laude, Environmental Science

Aug 2016 - May 2020

- Climate Science track; Certificate in Community Engaged Scholarship

Research and Field Experience

University of Connecticut

Storrs, CT

Graduate Research Assistant, Dr. Marina Astitha and Dr. Diego Cerrai

Jan 2023 – Present

- Investigate the efficacy of microphysics parameterizations in NASA's Regional Earth Modeling System, NU-WRF, during winter storms across different regions across the United States. Develop an observation-based framework to improve physically-based, systematic evaluations and refinements of microphysical parameterizations
- Compare radar-derived, gauge-corrected quantitative precipitation estimates from Stage IV and MRMS to weighing precipitation gauges during the cool season to improve understanding of how the products compare and when they can be applied, particularly during winter weather
- Analyze the impact of initial and boundary conditions on Weather Research and Forecasting (WRF) model simulations for Northeast United States snowstorms to understand what variables impact precipitation processes and totals during winter storms

University of Connecticut Outage Prediction Model

Storrs, CT

Lead Forecaster for Eversource Energy, Dr. Diego Cerrai

May 2023 – Present

- Issued operational power outage forecasts for over 200 events for Eversource Energy

NASA Global Precipitation Measurement Ground Validation Campaign

Storrs, CT

Site Manager, Dr. Diego Cerrai and David B. Wolff (NASA)

Jan 2023 – Present

- Collaborate with NASA GPM Ground Validation and associated researchers to carry out winter precipitation field campaign including forecasting for two Intense Observing Periods utilizing an Unmanned Aerial System
- Prepare, evaluate, and manage data collected to be shared on NASA GHRC

State University of New York at Albany

Albany, NY

Graduate Assistant, Dr. Kristen Corbosiero, Dr. Andrea Lopez Lang, Dr. Nick Basill and Ross Lazear

Aug 2020 – Dec 2022

- Focused on improving prediction of uncertain winter precipitation types by utilizing machine learning to assimilate multiple data sources used by forecasters
- Partnered with NWS stakeholders to review cases of uncertain winter precipitation events; strategized on random forest algorithm implementation and operational product design to display research results
- Cultivated and maintained a website that contains the probabilistic nowcasts and forecasts from the random forest algorithm as well as other information about the project
 - Link to operation webpage: <http://www.atmos.albany.edu/student/filipiak/op/>

WINTRE-MIX: Winter Precipitation Type Research Multi-scale Experiment**Northern NY & Quebec, Canada***Ground Observation Team Member, Dr. Justin Minder**Feb 2022 – Mar 2022*

- Completed 7 Intense Observing Periods (IOPs) including launching 24 radiosondes, collecting ground observations of precipitation every 10 minutes, and assisting mobile radar trucks from DOW/COW with pre/post operation procedures and operations logs

Texas A&M University – NSF REU**College Station, TX***Research Assistant, Dr. Christopher Nowotarski**Jun 2019 – Aug 2019*

- Researched spatial and diurnal variability of tornadogenesis environments in tropical cyclones

NOAA Northwest Fisheries Science Center- NSF REU**Seattle, WA***Research Assistant, Dr. Paul Chittaro**Jun 2018 – Aug 2018*

- Studied latitudinal variability in somatic body growth of Blue Lanternfish and Pacific Hake

Publications (* indicates student mentee)

- Filipiak, B.C.**, B. Raykoff*, M. Sinchi*, D. Cerrai, and M. Astitha, 2026: A 5-year Evaluation of Radar Quantitative Precipitation Estimates during the Cool Season. *J. Hydrol.*, under revision. Preprint available at SSRN, <http://dx.doi.org/10.2139/ssrn.5744843>
- Filipiak, B. C.**, U. Khaira, M. S. Walters, and M. Astitha, 2026: The efficacy of ten snow-to-liquid ratio algorithms to predict snowfall for impactful winter storms in the Northeast United States. *J. Geophys. Res. Atmos.*, under revision. Preprint available at *ESS Open Archive*, <https://doi.org/10.22541/essoar.15002439/v1>
- Tokay, A., C. Mahone, C. N. Helms, J. Tan, D. B. Wolff, D. Cerrai, J. L. Pippitt, **B. C. Filipiak**, M. J. Boulanger, and A. V. Chibisov, 2026: Rain-to-snow transition: Evaluation of precipitation phase algorithms in southern New England. *J. Hydrometeor.*, e250107, <https://doi.org/10.1175/JHM-D-25-0107.1>, in press.
- Minder, J., B. Stutsrim, C. Speciale, T. Wasula, **B. C. Filipiak**, B. Shrestha, J. Wang, N. Bassill, H. Reeves, D. Tripp, D. Thompson, and N. Stuart, 2026: Evaluating tools for diagnosis and nowcasting precipitation type and freezing rain: Results from the 3–4 February 2022 winter storm in the Hudson Valley. *Wea. Forecasting*, 41(2), 295–316. <https://doi.org/10.1175/WAF-D-25-0110.1>
- Filipiak, B. C.**, D. B. Wolff, A. Spaulding, A. Tokay, C. N., Helms, A. M., Loftus, A. V., Chibisov, C. Schirtzinger, M. J. Boulanger, C. S. Pabla, L. Bliven, E. Kim, F. Junyent, V. Chandrasekar, H. Thant, B.M. Notaros, G. Britto Hupsel de Azevedo, and D. Cerrai, 2025: Winter precipitation measurements in New England: results from the Global Precipitation Measurement Ground Validation campaign in Connecticut, *Earth Syst. Sci. Data*, 17, 5783–5810, <https://doi.org/10.5194/essd-17-5783-2025>.
- Filipiak, B. C.**, M. Astitha, and D. Cerrai, 2025: Assessing dynamic and thermodynamic variability in initial and boundary conditions for snowstorm prediction in the Northeast United States. *J. Geophys. Res. Atmos.*, 130, e2025JD044240. <https://doi.org/10.1029/2025JD044240>.
- Filipiak, B. C.**, N. P. Bassill, K. L. Corbosiero, A. L. Lang, and R. A. Lazear, 2023: Probabilistic Forecasting Methods of Winter Mixed-Precipitation Events in New York State Utilizing a Random Forest. *Artif. Intell. Earth Syst.*, 2, e220080, <https://doi.org/10.1175/AIES-D-22-0080.1>.

Grants**Funded**

- Filipiak, B. C.**, M. Astitha, and D. Cerrai: *Refinement of Snow Microphysics and Density Forecasting Using GPM Ground Validation Observations and NU-WRF*, Future Investigators in NASA Earth and Space Science and Technology, NASA (2024-2027, **FI, \$150,000**, Grant #80NSSC24K1602)

Teaching Experience (+ indicates graduate level course)**Instructor, University of Connecticut****Storrs, CT**⁺ENVE 5810: Hydrometeorology*Aug 2026 -Present***Guest Lecturer, University of Connecticut****Storrs, CT**⁺ENVE 5810: Hydrometeorology*2024, 2025*

ENVE 3230: Air Pollution Control

2024, 2026

Teaching Assistant, University of Connecticut
ENVE 3230: Air Pollution Control
ENVE 3202: Environmental Engineering Laboratory II

Storrs, CT
Spring 2023-2026
Spring 2023-2026

Teaching Assistant, State University of New York at Albany
AATM 210: Atmospheric Structure, Thermodynamics, and Circulation
AATM 100: The Atmosphere
⁺*AATM 500: Atmospheric Dynamics I*
AATM 413: Weather, Climate Change and Societal Impacts

Albany, NY
Fall 2020, 2022
Spring 2022
Fall 2021
Spring 2021

Workshop Teaching Assistant, University of Rochester
MATH 142: Calculus 2
CHEM 132: Chemical Concepts, Systems, and Practices 2
EESC 101: Introduction to Geological Sciences

Rochester, NY
Fall 2019, Spring 2020
Spring 2018
Fall 2017

Students Advised

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- Seth Rosen, UConn, B.S Statistics 2027 – Summer research 2026; Independent study Fall 2026
 - Matthew Sinchi, UConn, B.S Environmental Engineering 2027 – Summer research 2025; Independent study Spring 2026
 - Brendan Raykoff, East Catholic High School Manchester, CT. Currently an undergraduate at University of California, Berkley, Class 2029– Summer research 2024; Research project 2024-2025 School Year

Awards and Certifications

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- **Finalist:** AGU Precipitation Technical Committee Student Presentation Award at AGU Annual Meeting, 2025
 - **Honorable Mention:** Student Oral Presentation for 22nd Conference on Artificial Intelligence for Environmental Science at 103rd AMS Annual Meeting, 2022
 - **Professional Development Series,** FEMA Independent Study Certificate, 2020
 - **Certificate in Community Engage Scholarship,** University of Rochester Center for Community Engagement, 2020

Invited Presentations

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- **Filipiak, B. C.,** U. Khaira, M. S. Walters, and M. Astitha, 2026: “Evaluating the efficacy of ten snow-to-liquid ratio algorithms to predict snowfall in the Northeast United States” 2025-2026 NOAA Weather Prediction Center Winter Weather Experiment Seminar Series, 10 March.
 - **Filipiak, B. C.,** and Coauthors, 2024: “Winter Precipitation Measurements in New England: Results from the Global Precipitation Measurement Ground Validation Campaign in Connecticut.” NASA Global Precipitation Measurement Particle Size Working Group, 15 February, Storrs, CT.
 - **Filipiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2023: “Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events - Updates and Performance.” WINTRE-MIX Precipitation Type Workshop, 22 May, Albany, NY.
 - **Filipiak, B. C.,** 2023: “Success and Challenges Associated with Weather Based Machine Learning Algorithms.” University of Connecticut Civil and Environmental Engineering Seminar Series, 24 March, Storrs, CT.
 - **Filipiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2022: “Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events.” Albany Weather Forecasting Office Fall Meeting, 8 November, Albany, NY.
 - **Filipiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2022: “Data Fusion: A Machine Learning Tool for Mixed Precipitation.” New York State Mesonet Forum, 15 April, Albany, NY.
 - **Filipiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2021: “Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events.” 2021-2022 NOAA Weather Prediction Center Winter Weather Experiment Seminar Series, 7 December.
 - **Filipiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2021: “Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events.” Albany Weather Forecasting Office Fall Meeting, 19 November, Albany, NY.
 - **Filipiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2021: “Data Fusion: A Machine Learning Tool for Mixed Precipitation.” New York State Mesonet Forum, 7 May, Albany, NY.

Select Conference Presentations

Oral Presentations

- **Filippiak, B. C.,** S. Lang, A. M. Loftus, D. Cerrai, and M. Astitha, 2026: Assessing Ice-Phase Microphysical Parameterizations for Winter Storms in the United States using In-Situ Observations. AMS Madison Summit/17th Conference on Cloud Physics, 6 August, Madison, WI.
- **Filippiak, B. C.,** D. Cerrai, and M. Astitha, 2026: Evaluation of NASA's NU-WRF Modeling Capabilities during Winter Storms in the Mid-Latitudes. 106th AMS Annual Meeting/3rd Symposium on Cloud Physics, 26 January, Houston, TX.
- **Filippiak, B. C.,** B. Raykoff, M. Sinchi, D. Cerrai, and M. Astitha, 2026: A 5-year Evaluation of Radar Quantitative Precipitation Estimates during the Cool Season. 106th AMS Annual Meeting/40th Conference on Hydrology, 29 January, Houston, TX.
- **Filippiak, B. C.,** U. Khaira, M. S. Walters, and M. Astitha, 2026: The efficacy of ten snow-to-liquid ratio algorithms to predict snowfall for impactful winter storms in the Northeast United States. 106th AMS Annual Meeting/40th Conference on Hydrology, 29 January, Houston, TX.
- **Filippiak, B. C.,** M. Astitha, and D. Cerrai, 2025: "Assessing the Impact of Initial and Boundary Conditions on WRF Microphysics in Northeast US Winter Cyclones with the Support of Extensive NASA Field Campaign Instrumentation" 105th AMS Annual Meeting/ 33rd Conference on Weather Analysis and Forecasting (WAF)/29th Conference on Numerical Weather Prediction (NWP) and Fourth Symposium on Mesoscale Processes, 13 January, New Orleans, LA.
- **Filippiak, B. C.,** M. Astitha, and D. Cerrai, 2024: "Assessing the Impact of Initial and Boundary Conditions on WRF Microphysics in Northeast US Winter Cyclones with the Support of Extensive NASA Field Campaign Instrumentation" AGU Annual Meeting, 13 December, Washington, D.C.
- **Filippiak, B. C.,** M. Astitha, and D. Cerrai, 2024: "Improving Winter Power Outage Forecasts with a Snow Index." 104th AMS Annual Meeting/15th Conference on Weather, Water, Climate and the New Energy Economy, 29 January, Baltimore, MD.
- **Filippiak, B. C.,** D. B. Wolff, A. Spaulding, A. Tokay, C. N., Helms, A. M., Loftus, A. V., Chibisov, C. Schirtzinger, M. J. Boulanger, C. S. Pabla, L. Bliven, E. Kim, F. Junyent, V. Chandrasekar, H. Thant, B.M. Notaros, G. Britto Hupsel de Azevedo, and D. Cerrai, 2024: "Winter Precipitation Measurements in New England: Results from the Global Precipitation Measurement Ground Validation Campaign in Connecticut." 104th AMS Annual Meeting/24th Symposium on Meteorological Observation and Instrumentation, 29 January, Baltimore, MD.
- **Filippiak, B. C.,** and D. Cerrai, 2023: "Predicting Weather Related Power Outages in the Northeast United States." 24th Annual Northeast Regional Operational Workshop, 14–15 November, Albany, NY.
- **Filippiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2023: "Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events - Updates and Performance." 103rd AMS Annual Meeting/22nd Conference on Artificial Intelligence for Environmental Science, 12 January, Denver, CO.
- **Filippiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2022: "Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events." 23rd Annual Northeast Regional Operational Workshop, 2–3 November, Albany, NY.
- **Filippiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2022: "Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events." Second Annual New York State Mesonet Symposium, 13 September, Albany, NY.
- **Filippiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2022: "Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events." 102nd AMS Annual Meeting/31st Conference on Weather Analysis and Forecasting (WAF)/27th Conference on Numerical Weather Prediction (NWP), 26 January, Houston, TX.
- **Filippiak, B. C.,** K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2021: "Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events." 22nd Annual Northeast Regional Operational Workshop, 9–10 November, Albany, NY.

Poster Presentations

- **Filippiak, B. C.,** B. Raykoff, M. Sinchi, D. Cerrai, and M. Astitha, 2025: A 5-year Evaluation of Radar Quantitative Precipitation Estimates during the Cool Season. AGU Annual Meeting, 16 December, New Orleans, LA.
- **Filippiak, B. C.,** U. Khaira, M. S. Walters, and M. Astitha, 2025: The efficacy of ten snow-to-liquid ratio algorithms to predict snowfall for impactful winter storms in the Northeast United States. AGU Annual Meeting, 15 December, New Orleans, LA.

- **Filipiak, B. C.**, K. Corbosiero, A. L. Lang, R. A. Lazear, and N. P. Bassill, 2021: “Data Fusion: A Machine Learning Tool for Forecasting Winter Mixed Precipitation Events.” First Annual New York State Mesonet Symposium, 29 September, Albany, NY.
- **Filipiak, B. C.**, C. J. Nowotarski, and J. R. Spotts, 2020: “Diurnal and Spatial Variability of Tornadogenesis and Forecasting in Tropical Cyclones.” AMS 19th Annual Student Conference, 12 January, Boston, MA.
- **Filipiak, B. C.**, C. J. Nowotarski, and J. R. Spotts, 2019: “Diurnal and Spatial Variability of Tornadogenesis and Forecasting in Tropical Cyclones.” Undergraduate Summer Research Symposium, 31 July, College Station, TX.
- **Filipiak, B. C.**, and P. Chittaro, 2018: “Latitudinal and Annual Patterns of Somatic Growth for Pacific Hake Along the U.S. Pacific Coast.” JISAO Student Summer Research, 16 August, Seattle, WA.

Professional Development Courses

American Meteorological Society Short Course: Open Radar	24 August 2025
American Association of State Climatologists: Climate Data Bootcamp	10 June 2025
European Centre for Medium Range Forecasting MOOC on AI and Weather Forecasting	Jan-May 2023
Trustworthy Artificial Intelligence for Environmental Sciences Summer School	26-29 July 2021
American Meteorological Society Short Course: AI and Weather Radar	17 May 2021

Leadership and Service

American Meteorological Society Board of Higher Education

<i>Student Member</i>	Jan 2026– Present
<i>Chair, Adult Louis J. Battan Author's Award Committee</i>	Jan 2026– Present
<i>Member, K-12 Louis J. Battan Author's Award Committee</i>	Jan 2026– Present
<i>Member, Edward N. Lorenz Teaching Excellence Award Committee</i>	Jan 2026– Present

American Meteorological Society Energy Committee

<i>Student Member</i>	Jan 2024– Present
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American Meteorological Society Board of Enterprise Economic Development

<i>Student Member</i>	Jan 2023– Jan 2026
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American Meteorological Society Board of Private Sector Meteorologists

<i>Student Member</i>	Jan 2023– Jan 2024
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Department of Atmospheric and Environmental Sciences Graduate Student Organization

<i>President</i>	Albany, NY May 2021– May 2022
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University of Rochester Rising Leader Class

<i>Mentor</i>	Rochester, NY Aug 2017– Jan 2020
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Other Professional Service

Peer Reviewing

- Weather and Forecasting
- Journal of Hydrometeorology
- Stochastic Environmental Research and Risk Assessment

Conference Session Chair

- Extreme Events, Grid Operations, and Outage Prediction, 106th AMS Annual Meeting/17th Conference on Weather, Water, Climate and the New Energy Economy
- Grid Operations and Outage Prediction, 105th AMS Annual Meeting/16th Conference on Weather, Water, Climate and the New Energy Economy

Community Outreach Events and Presentations

- “Overview of NASA GPM at UConn”, Orchard Hill School, South Windsor, CT, 25 May 2023
- “Introduction to Weather and Climate”, Beach Tree Elementary School, Fall Church, VA (Virtual), 6 January 2023
- UAlbany Weather, Climate, and Chemistry Camp, Albany, NY, June 2022

- Earth Day Lectures, Troy High School, Troy, NY 22, April 2022

Professional Affiliations

- American Geophysical Union Member: 2024-Present
- Phi Beta Kappa Member: 2020-Present
- American Meteorological Society Member: 2019-Present