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Benjamin Trabing, Ph.D.

My goal is to improve forecasts of tropical cyclone hazards through improved modeling and representation of atmospheric and oceanic processes.

Education

2018 – 2020 **Ph.D.**, *Atmospheric Science*, Colorado State University, Fort Collins, CO

2016 – 2018 **M.S.**, *Atmospheric Science*, Colorado State University, Fort Collins, CO

2012 – 2016 **B.S.**, *Meteorology Cum Laude*, University of Oklahoma, Norman, OK
Minor in Mathematics

Professional Development

2022 – **Scientist III-IV**, *University Corporation for Atmospheric Research / National Hurricane Center*, Remote Position

2022 – 2022 **Research Scientist I**, *Cooperative Institute for Research in the Atmosphere*, Duty Location: CIRA, Fort Collins, CO

2020 – 2022 **Research Associate II**, *Cooperative Institute for Research in the Atmosphere*, Duty Location: National Hurricane Center, Miami, FL

2016 – 2020 **Graduate Research Assistant**, *Colorado State University*

2015 – 2016 **Intern/Visiting Scientist**, *Cooperative Institute for Research in the Atmosphere*

2013 – 2016 **Undergraduate Research Assistant**, *National Severe Storms Laboratory / CIMMS-Cooperative Institute for Severe and High-Impact Weather Research and Operations*

Referred Publications

Trabing, B. C., A. Penny, A. Taylor, C. Fritz 2026: A Bivariate Method for Quantifying the Relationship Between Tropical Cyclone Intensity and Radius of Maximum Wind Errors, *Weather and Forecasting*, 41,1675-1688, https://doi.org/10.1175/WAF-D-26-0012.1

Mesa, N., **B. C. Trabing**, M. Bell, A. Brammer, P. Duran, P. Klotzbach, K. Musgrave, and S. Stevenson 2026: An Object-Based Analysis of Lightning Characteristics in Pre-Tropical Cyclogenesis Environments, *Monthly Weather Review*, 154,1909-1930, https://doi.org/10.1175/MWR-D-25-0270.1

Eicher, R., D. Halperin, **B. C. Trabing**, D. Lane, T. Sellnow, D. Sellnow, and M. Croker 2025: Developing Experimental Probabilistic Intensity Forecast Products for Landfalling Tropical Cyclones, *Meteorological Applications*, 32, no. 4: e70089. https://doi.org/10.1002/met.70089.

Trabing, B. C., K. Hilburn, S. Stevenson, K. Musgrave, and M. DeMaria, 2024: Quality Control of Geostationary Lightning Mapper Observations for Tropical Cyclone Applications, *J. Atmos. Oceanic Technol.*, 41, 889-901, https://doi.org/10.1175/JTECH-D-23-0138.1

Trabing, B. C., A. B. Penny, J. Martinez, and C. Fritz, 2024: Are Forecasts of the Tropical Cyclone Radius of Maximum Wind Skillful?, *Geophys. Res. Lett.*, 51, e2024GL109663. https://doi.org/10.1029/2024GL109663

Trabing, B. C., K. Musgrave, M. DeMaria, B. Zachry, M. Brennan, and E. Rappaport, 2023: The Development and Evaluation of a Tropical Cyclone Probabilistic Landfall Forecast Product. *Wea. Forecasting*, 38, 1363–1374, https://doi.org/10.1175/WAF-D-22-0199.1

Trabing, B. C., K. Musgrave, M. DeMaria, and E. Blake, 2022: A Simple Bias and Uncertainty Scheme for Tropical Cyclone Intensity Change Forecasts. *Wea. Forecasting*, 37,1957-1972, https://doi.org/10.1175/WAF-D-22-0074.1

Trabing, B. C. and M. M. Bell, 2021: Observations of Diurnal Variability under the Cirrus Canopy of Typhoon Kong-rey (2018). *Mon. Wea. Rev.* 149, 2945–2964, https://doi.org/10.1175/MWR-D-20-0327.1

Trabing, B. C. and M. M. Bell, 2021: The Sensitivity of Eyewall Replacement Cycles to Shortwave Radiation. *J. Geophys. Res: Atmospheres*, 126, e2020JD034016. https://doi.org/10.1029/2020JD034016

Sobal, A. H., J. Sprintall, E. D. Maloney, Z. K. Martin, S. Wang, S. P. deSzoeke, **B. C. Trabing**, and S. A. Rutledge, 2021: Large-scale state and evolution of the atmosphere and ocean during PISTON 2018. *J. Climate*, 34, 5017–5035, https://doi.org/10.1175/JCLI-D-20-0517.1

Trabing, B. C. and M. M. Bell, 2020: Understanding Error Distributions of Hurricane Intensity Forecasts During Rapid Intensity Changes. *Wea. Forecasting*, 35, 2219–2234. https://doi.org/10.1175/WAF-D-19-0253.1

Trabing, B. C., M. M. Bell, and B. R. Brown, 2019: Impacts of Radiation and Upper-Tropospheric Temperatures on Tropical Cyclone Structure and Intensity. *J. Atmos. Sci.*, 76, 135–153. https://doi.org/10.1175/JAS-D-18-0165.1

Awards and Scholarships

2020 Outstanding Poster, AMS Weather Analysis and Forecasting
2019 Herbert Riehl Memorial Award
2016 OU Libraries Undergraduate Research Award
2015 AMS Vic Ooyama Named Scholarship
2015 NWA Outstanding Poster Award
2014 – 2016 NOAA Ernest F. Hollings Scholar
2014 – 2016 Ronald E. McNair Scholar
2014 Oklahoma NASA GIS Fellowship

Funding Awarded

Trabing, B. C., A. Brammer, M. Bell, P. Duran, J. Whitaker and S. Stevenson, 2023: Investigating the Convective Morphology and Diurnal Cycle in Pre-genesis Disturbances using Object-Based Analysis of Geostationary Satellite Observations, *NASA ROSES 22-ESROGSS22-0045*, Budget $521,357 (Note that PI responsibilities transferred to A. Brammer)

Seminars / Invited Talks

Improving Probabilistic Storm Surge Guidance: Reconciling Physical Realizations with Limited Observations, CPAESS Discovery Seminar, November 2026, Remote.

Are Forecasts of the Tropical Cyclone Radius of Maximum Wind Skillful?, CPAESS Discovery Seminar, July 2024, Remote.

Select Conference / Workshop Presentations

2026 Trabing, B. C.: P-Surge Modeling Update for 2026: Ensemble Methodology. 2026 HFIP Annual Meeting, Remote. (Oral)

2024 Trabing, B. C. and A. Penny: Operational Storm Surge Modeling Update 2024. 2024 HFIP Annual Meeting, Remote. (Oral)

2024 Trabing, B. C., C. Fritz, and A. Penny: Evaluation of Forecasting Techniques for the Radius of Maximum Wind. 36th Conference on Hurricanes and Tropical Meteorology, Long Beach, CA. (Oral)

2024 Trabing, B. C. and C. Fritz: Analysis of Retrospective Probabilistic Storm Surge Forecasts for Hurricane Iniki (1992). 36th Conference on Hurricanes and Tropical Meteorology Long Beach, CA. (Poster)

2024 Trabing, B. C., C. Fritz, and A. Penny: Progress on Probabilistic Storm Surge Modeling for U.S. Pacific Islands. U.S. INDOPACOM Tropical Cyclone Conference, Remote. (Oral)

2023 Trabing, B. C., C. Fritz, and A. Penny: Forecasting the Radius of Maximum Wind (RMW) at NHC. Front Range Tropical Cyclone Workshop, Boulder, CO. (Oral)

2023 Trabing, B. C., C. Fritz, and A. Penny: Expanding P-Surge Model to U.S. Pacific Islands. U.S. INDOPACOM Tropical Cyclone Conference, Remote. (Oral)

2023 Trabing, B. C., K. Musgrave, S. Stevenson, and K. Hilburn: Environmental Influences on Lightning in Tropical Cyclones. 103rd AMS Annual Meeting, Denver, CO. (Oral)

2022 Trabing, B. C., K. D. Musgrave, A.Kowaleski, K. A. Hilburn, and S. N. Stevenson: Large-Scale Influences on Tropical Cyclone Lightning,. Front Range Tropical Cyclone Workshop, Fort Collins, CO. (Oral)

2022 Trabing, B. C., K. Musgrave, M. DeMaria, B. C. Zachry, M. J. Brennan, and E. Rappaport: Evaluation of the Landfall Distribution Product. 35th Conference on Hurricanes and Tropical Meteorology, New Orleans, LA. (Oral)

2022 Trabing, B. C., and A. Penny: Update and Verification of the HFIP Corrected Consensus Approach (HCCA). 35th Conference on Hurricanes and Tropical Meteorology, New Orleans, LA. (Poster)

2022 Trabing, B. C., K. Musgrave, M. DeMaria, B. C. Zachry, M. J. Brennan, and E. Rappaport: Estimating Landfall Forecast Uncertainty Using the Wind Speed Probability Model. 27th Conference on Probability and Statistics, Remote (Oral)

2022 Trabing, B. C., K. Musgrave, and M. DeMaria: Examination of Missed Rapid Intensification Forecasts from SHIPS-RII. 12th Conference on Transition of Research to Operations, Remote (Poster)

2021 Trabing, B. C., K. Musgrave, and M. DeMaria: Bias Correction for SHIPS and LGEM Intensity Change Distributions. 34th Conference on Hurricanes and Tropical Meteorology, Remote (Poster)

2021 Trabing, B. C. and M. M. Bell: The Sensitivity of Eyewall Replacement Cycles to Shortwave Radiation. 34th Conference on Hurricanes and Tropical Meteorology, Remote (Oral)

2021 Trabing, B. C., K. Musgrave, and M. DeMaria: Bias Correcting SHIPS and LGEM Intensity Change Distributions. Fourth Special Symposium on Tropical Meteorology and Tropical Cyclones, Remote (Poster)

2020 Trabing, B. C. and M. M. Bell: Observations of a Diurnal Pulse within the Cirrus Canopy of Typhoon Kong-rey (2018). Tropical Meteorology and Tropical Cyclones Symposium, Boston, Massachusetts (Poster)

2020 Trabing, B. C. and M. M. Bell: Understanding Rapid Intensity Changes in Official Hurricane Intensity Forecast Error Distributions. 30th Conference on Weather Analysis and Forecasting / 26th Conference on Numerical Weather Prediction, Boston, Massachusetts (Poster)

2019 Trabing, B. C. and M. M. Bell: How the Sun Impacts Eyewall Replacement Cycles in Simulated Hurricanes. Colorado State University Graduate Showcase, Fort Collins, Colorado (Poster)

2019 Trabing, B. C. and M. M. Bell: Observations of a Diurnal Pulse within the Cirrus Canopy of Typhoon Kong-rey (2018). 9th Young Scientist Symposium on Atmospheric Research, Fort Collins, Colorado (Oral)

2019 Trabing, B. C. and M. M. Bell: Observations of the Diurnal Variability of near TC Convection during PISTON. Atmospheric Convection and Air-Sea Interactions over the Tropical Oceans Workshop, Boulder, Colorado (Poster)

2019 Trabing, B. C. and M. M. Bell: Shortwave Heating Effects on the TC Outer Core. Front Range Tropical Cyclone Workshop, NCAR, Boulder, Colorado (Oral)

2018 Trabing, B. C. and M. M. Bell: Understanding Rapid Intensity Changes in Official Hurricane Intensity Forecast Error Distributions. Front Range Tropical Cyclone Workshop, Fort Collins, Colorado (Oral)

2018 Trabing, B. C. and M. M. Bell: Understanding Rapid Intensity Changes in Hurricane Forecasts. Colorado State University Graduate Showcase, Fort Collins, Colorado (Poster)

2018 Trabing, B. C. and M. M. Bell: Radiative Effects on Idealized Secondary Eyewall Formation. 8th Young Scientist Symposium on Atmospheric Research. Fort Collins, Colorado (Oral)

2018 Trabing, B. C. and M. M. Bell: Upper-Tropospheric Temperature and Radiative Impacts in Idealized Hurricanes. 33rd Conference on Hurricanes and Tropical Meteorology. Ponte Vedra, Florida, 12C.4 (Oral)

2017 Trabing, B. C. and M. M. Bell: Upper-Tropospheric Temperature Impacts in Idealized Hurricanes. Colorado State University Graduate Showcase, Fort Collins, Colorado (Poster)

2017 Trabing, B. C. and M. M. Bell: Upper-Tropospheric Temperature Impacts in Idealized Hurricanes. 18th Cyclone Workshop, Sainte Adele, Quebec (Oral)

2016 Trabing, B. C., J. A. Knaff and K. Musgrave: Hurricane Observations Using Long-Range Lightning Detection Networks. Colorado State University Graduate Showcase, Fort Collins, Colorado (Poster)

2016 Trabing, B. C. and J. A. Knaff: Analysis of Hurricanes Using Long-Range Lightning Detection Networks. 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, Puerto Rico, 5D.2 (Oral)

2015 Trabing, B. C. and J. A. Knaff: Analysis of Hurricane Odile Using Long-Range Lightning Detection Networks. Front Range Tropical Cyclone Workshop, NCAR, Boulder, Colorado (Oral)

2015 Trabing, B. C. and D. MacGorman: Lightning Activity in 2014 Atlantic Tropical Cyclones. 40th NWA Annual Meeting, Oklahoma City, Oklahoma (Poster)

2014 Trabing, B. C. and D. MacGorman: Lightning Activity in 2014 Atlantic Tropical Cyclones. 29th Annual National Conference for Undergraduate Research, Spokane, Washington (Oral)

Teaching Experience

2018 – 2019 **Graduate Teaching Assistant**, Colorado State University, Fort Collins, CO
Courses: Programming, Atmospheric Radiation

2013 – 2016 **Teaching Assistant**, University of Oklahoma, Norman, OK
Courses: Gateway to College, Gateway to College: Chemistry, Gateway to College: Meteorology, Strategies for Success

2014 – 2020 **Tutor**, *College Level Classes*
Courses include: College Algebra, Geometry, Calculus, Chemistry, Earth Science

2011 – 2020 **Tutor**, *High School Level Classes*
Courses include: Algebra 1, Algebra 2, Geometry, Calculus, SAT/ACT Prep, Chemistry

Community Engagement

2026 Mentor for NOAA Hollings Scholar, Remote
2024 – Associate Editor for Weather and Forecasting
2023 – Associate Editor for Monthly Weather Review
2022 Mentor for Bill Lapenta Intern, Remote
2018 – Planning Committee – AMS Weather Analysis and Forecasting / Numerical Weather Prediction Conferences
2016 – 2018 Volunteer – Colorado Weather Festival
2017 Planning Committee – Young Scientist Symposium on Atmospheric Research
2016 Volunteer – Oklahoma Safety and Preparedness Week
2012 – 2016 Volunteer – National Weather Festival
2015 Volunteer – AMS 95th Annual Conference
2014 Volunteer – International Conference on Atmospheric Electricity

Computer skills

Systems Linux, Mac OS, Windows
Languages Python, Bash, PHP, Fortran
Editing LaTeX, Microsoft Office, HTML
Technical git, P-Surge, SLOSH, WRF, CM1, SBDART, LROSE

Leadership Experience

2026 UCAR Early Career Leadership Program