

MATTHEW S. VAN DEN BROEKE

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EDUCATION

University of Oklahoma, Norman, OK
Ph.D., Meteorology, May 2011
Dissertation Title: Mesocyclone and Microphysical Evolution in Simulated
Supercell Storms with Varying Wind and Moisture Profiles (Jerry Straka, Advisor)

University of Oklahoma, Norman, OK
M.S., Meteorology, May 2007
Thesis Title: Polarimetric Signatures and Microphysical Processes in Tornadoic Southern and High Plains Classic Supercells (Jerry Straka, Advisor)

Valparaiso University, Valparaiso, IN
B.S., Meteorology, Summa Cum Laude, May 2005

EXPERIENCE

**Department of Atmospheric and Earth Science, The University of Alabama
in Huntsville, Huntsville, AL** *Associate Professor, Aug. 2026–present*

Central Michigan University, Mount Pleasant, MI
Associate Graduate Faculty, Apr. 2025–Apr. 2028

Department of Earth and Atmospheric Sciences, University of Nebraska-Lincoln, Lincoln, NE
Adjunct Faculty, Aug. 2026 – Aug. 2027
Professor, Aug. 2025–Aug. 2026
Associate Professor, Aug. 2017–Aug. 2025
Assistant Professor, Aug. 2011–Aug. 2017

School of Meteorology, University of Oklahoma, Norman, OK
Graduate Teaching and Research Assistantships, 2006–2011
American Meteorological Society Graduate Fellow, 2005–2006

National Severe Storms Laboratory, Norman, OK
Intern, summer 2004 (Oklahoma University Research Experiences for Undergraduates)

Department of Geography and Meteorology, Valparaiso University,
Valparaiso, IN *Lab Assistant, 2002–2005*

SKILLS AND RESEARCH INTERESTS

- Expert in interpretation and application of polarimetric radar data
- Expert in supercell thunderstorm structure/evolution and precipitation processes
- Expert in radar aeroecology applications
- Knowledgeable in tropical meteorology, synoptic meteorology, and land-atmosphere interactions
- Knowledgeable in geoscience education research and applications

HONORS AND AWARDS

- Certificate of Recognition for Contributions to Students, UNL, 2012 & 2025
- College Distinguished Teaching Award, College of Arts & Sciences, UNL, 2021
- J. B. Coffman Award for research excellence, Earth & Atmos. Sci., UNL, 2017 & 2022
- Lawson Award for teaching excellence, Earth and Atmos. Sci., UNL, 2019
- Dean's Award for Excellence in Graduate Education, UNL, 2017
- Weather Challenge national forecasting tournament participant, 2013 & 2014
- AMS/SAIC/General Sciences Operation Graduate Fellowship, 2005
- Eugene M. Rasmusson Award in Meteorology, Valparaiso University, 2005
- AMS/Werner A. Baum Endowed Undergraduate Scholarship in Meteorology, 2004
- Udall Scholar, 2004
- Lumina Award from Valparaiso University for excellent scholarship, 2004
- Chi Epsilon Pi Meteorology Honor Society, inducted 2003
- Young Naturalist Award national finalist for ecological research paper, 2001

REFEREED PUBLICATIONS

Van Den Broeke, M., C. Van Den Broeke, and B. Schweigert, 2026: Spatiotemporal characteristics of a manually derived left-moving supercell dataset in the contiguous United States. *J. Appl. Meteor. Climatol.*, accepted.

Zeeb, A., J. T. Allen, and **M. Van Den Broeke**, 2026: Understanding left-moving supercells: Environmental factors and forecasting challenges. *Mon. Wea. Rev.*, **41**, 1143–1162, <https://doi.org/10.1175/WAF-D-25-0153.1>.

Healey, D. J., and **M. S. Van Den Broeke**, 2025: Connections between Z_{DR} columns and mesovortices in quasi-linear convective systems: Impacts of low-level hodograph curvature and shear. *Mon. Wea. Rev.*, **153**, 2845–2866, <https://doi.org/10.1175/MWR-D-25-0103.1>.

- Healey, D. J., and **M. S. Van Den Broeke**, 2025: Z_{DR} columns in simulated QLCSs: Column-updraft relationships and differences between two microphysics schemes. *Mon. Wea. Rev.*, **153**, 2669–2688, <https://doi.org/10.1175/MWR-D-25-0031.1>.
- Martz, R. A., A. L. Houston, **M. S. Van Den Broeke**, and S. A. Shield, 2025: The impact of urbanized areas on the spatial characteristics of deep convection initiation in the central United States. *J. Appl. Meteor. Climatol.*, **64**, 1045–1061, <https://doi.org/10.1175/JAMC-D-23-0153.1>.
- Wood, M. J., and **M. S. Van Den Broeke**, 2024: Dual-polarization radar characteristics of tropical cyclone tornadic and nontornadic supercells. *Mon. Wea. Rev.*, **153**, 327–345. <https://doi.org/10.1175/MWR-D-24-0080.1>
- Bunkers, M. J., **M. S. Van Den Broeke**, and J. T. Allen, 2024: An update for predicting left-moving supercell motion. *Wea. Forecasting*, **39**, 1777–1794, <https://doi.org/10.1175/WAF-D-24-0028.1>.
- Van Den Broeke, M. S.**, and E. R. Green, 2024: Temporal associations between polarimetric updraft proxies and signatures of inflow and hail in supercells. *Rem. Sens.*, **16**(22), 4314. <https://doi.org/10.3390/rs16224314>
- Barker, C. A., and **M. S. Van Den Broeke**, 2024: Southerly high-wind events in southern New England: Climatology and synoptic setting. *J. Operational Meteor.*, **13**, 27–43, <https://doi.org/10.15191/nwajom.2025.1303>.
- Healey, D. J., and **M. S. Van Den Broeke**, 2023: Comparing polarimetric signatures of proximate tornadic and non-tornadic supercells in similar environments. *Wea. Forecasting*, **38**, 2011–2027. <https://doi.org/10.1175/WAF-D-23-0013.1>
- Van Den Broeke, M. S.**, M. B. Wilson, C. A. Van Den Broeke, D. J. Healey, M. J. Wood, and R. E. Nelson, 2023: Polarimetric radar observations of a long-lived supercell and associated tornadoes on 10–11 December 2021. *Mon. Wea. Rev.*, **151**, 2501–2520. <https://doi.org/10.1175/MWR-D-22-0330.1>
- Bundy, L. R., V. A. Gensini, and **M. S. Van Den Broeke**, 2023: Tropical cyclone impacts on crop condition ratings and yield in the Coastal Southern United States. *Agric. For. Meteorol.*, **340**, 109599. <https://doi.org/10.1016/j.agrformet.2023.109599>
- Van Den Broeke, M. S.**, 2023: Radar indications of altered foraging behavior during the February 2021 severe North American cold wave. *Avian Biol. Res.*, **16**, 14–20. <https://doi.org/10.1177/17581559221145450>
- Wilson, M. B., and **M. S. Van Den Broeke**, 2022: Using the Supercell Observation Research Kit (SPORK) to examine a large sample of pretornadic and

- nontornadic supercells. *Electronic J. Severe Storms Meteor.*, **17** (2), 1–38.
<https://doi.org/10.55599/ejssm.v17i2.85>
- Bunkers, M., M. Wilson, **M. Van Den Broeke**, and D. Healey, 2022: Scan-by-scan storm-motion deviations for concurrent tornadic and nontornadic supercells. *Wea. Forecasting*, **37**, 749–770. doi.org/10.1175/WAF-D-21-0153.1
- Van Den Broeke, M. S.**, 2022: Seasonally and diurnally varying cold front effects along the Minnesotan North Shore of Lake Superior. *Atmosphere*, **13**, 441.
doi.org/10.3390/atmos13030441
- Van Den Broeke, M. S.**, 2022: Bioscatter transport by tropical cyclones: Insights from ten years in the Atlantic basin. *Rem. Sens. Ecol. Cons.*, **8**, 18–31.
doi.org/10.1002/rse2.225
- Van Den Broeke, M. S.**, 2022: Bioscatter characteristics related to inversion variability in Atlantic basin tropical cyclones. *Earth Interact.*, **26**, 28–38.
doi.org/10.1175/EI-D-21-0010.1
- Van Den Broeke, M.**, 2021: Polarimetric radar characteristics of tornadogenesis failure in supercell thunderstorms. *Atmosphere*, **12**, 581.
doi.org/10.3390/atmos12050581
- Wilson, Matthew B., and **M. S. Van Den Broeke**, 2021: An automated Python algorithm to quantify Z_{DR} arc and K_DP–Z_{DR} separation signatures in supercells. *J. Atmos. Oceanic Technol.*, **38**, 371–386. doi.org/10.1175/JTECH-D-20-0056.1
- Van Den Broeke, M. S.**, and T. J. Gunkel, 2021: The influence of isolated thunderstorms and the low-level wind field on nocturnally-migrating birds in central North America. *Rem. Sens. Ecol. Cons.*, **7**(2), 187–197.
doi.org/10.1002/rse2.179
- Van Den Broeke, M. S.**, 2020: Disdrometer, polarimetric radar, and condensation nuclei observations of supercell and multicell storms on 11 June 2018 in eastern Nebraska. *Atmosphere*, **2020**(11), 770–786. doi.org/10.3390/atmos11070770
- Hansen, H. H., M. Pegg, **M. Van Den Broeke**, D. Watkinson, and E. C. Enders, 2020: An unseen synchrony or recurrent resource pulse opportunity? Linking fisheries with aeroecology. *Rem. Sens. Ecol. Conserv.*, **6**(3), 366–380.
doi.org/10.1002/rse2.147
- Van Den Broeke, M. S.**, 2020: A preliminary polarimetric radar comparison of pre-tornadic and nontornadic supercell storms. *Mon. Wea. Rev.*, **148**, 1567–1584.
doi.org/10.1175/MWR-D-19-0296.1

- Alsarraaf, H., **M. Van Den Broeke**, and H. Aljassar, 2019: Effects of the sea breeze circulation on soil temperature over Kuwait using in situ observations and the ECMWF model. *Open Atmos. Sci. J.*, **13**, 29–42.
doi.org/10.2174/1874282301913010029
- Elbing, B. R., C. E. Petrin, and **M. S. Van Den Broeke**, 2019: Measurement and characterization of infrasound from a tornado producing storm. *J. Acous. Soc. Amer.*, **146**(3), 1528–1540. doi.org/10.1121/1.5124486
- Van Den Broeke, M. S.**, 2019: Radar quantification, temporal analysis, and influence of atmospheric conditions on a roost of American Robins (*Turdus migratorius*) in Oklahoma. *Remote Sens. Ecol. Conserv.*, **5**(2), 193–204.
doi.org/10.1002/rse2.99
- Hu, Q., J. A. Torres-Alavez, and **M. S. Van Den Broeke**, 2018: Land-cover change and the “Dust Bowl” drought in the U.S. Great Plains. *J. Clim.*, **31**, 4657–4667.
doi.org/10.1175/JCLI-D-17-0515.1
- Van Den Broeke, M. S.**, A. Kalin, J. A. Torres, R. Oglesby, and Q. Hu, 2017: A warm-season comparison of WRF coupled to the CLM4.0, Noah-MP, and bucket hydrology land surface schemes over the central USA. *Theor. Appl. Climatol.*, **134**(3), 801–816. doi.org/10.1007/s00704-017-2301-8
- Van Den Broeke, M. S.**, 2017: Polarimetric radar metrics related to tornado life cycles and intensity in supercell storms. *Mon. Wea. Rev.*, **145**, 3671–3686.
doi.org/10.1175/MWR-D-16-0453.1
- Van Den Broeke, M. S.**, 2017: Potential for tornado warning improvement through utilization of the TDS in the warning decision process. *J. Operational Meteor.*, **5**, 121–133. doi.org/10.15191/nwajom.2017.0510
- Jauernic, S. T., and **M. S. Van Den Broeke**, 2017: Tornado warning response and perceptions among undergraduates in Nebraska. *Wea. Clim. Soc.*, **9**, 125–139.
doi.org/10.1175/WCAS-D-16-0031.1
- Van Den Broeke, M. S.**, 2016: Polarimetric variability of classic supercell storms as a function of environment. *J. Appl. Meteor. Climatol.*, **55**, 1907–1925.
doi.org/10.1175/JAMC-D-15-0346.1
- Van Den Broeke, M. S.**, and H. Alsarraaf, 2016: Polarimetric radar observations of dust storms at C- and S-band. *J. Operational Meteor.*, **4**, 123–131.
dx.doi.org/10.15191/nwajom.2016.0409
- Arthurs, L. A., and **M. S. Van Den Broeke**, 2016: Novice explanations of hurricane formation offer insights into scientific literacy and the development of expert-like

conceptions. *J. Astron. Earth Sci. Educ.*, **3**, 1–26.
[dx.doi.org/10.19030/jaese.v3i1.9686](https://doi.org/10.19030/jaese.v3i1.9686)

Van Den Broeke, M. S., D. M. Tobin, and M. R. Kumjian, 2016: Polarimetric radar observations of precipitation type and rate from the 2-3 March 2014 winter storm in Oklahoma and Arkansas. *Wea. Forecasting*, **31**, 1179–1196.
[dx.doi.org/10.1175/WAF-D-16-0011.1](https://doi.org/10.1175/WAF-D-16-0011.1)

Duell, R. S., and **M. S. Van Den Broeke**, 2016: Climatology, synoptic conditions, and misanalyses of Mississippi River Valley drylines. *Mon. Wea. Rev.*, **144**, 927–943. [dx.doi.org/10.1175/MWR-D-15-0108.1](https://doi.org/10.1175/MWR-D-15-0108.1)

Jauernic, S. T., and **M. S. Van Den Broeke**, 2016: Perceptions of tornadoes, tornado risk, and tornado safety actions and their effects on warning response among Nebraska undergraduates. *Natural Hazards*, **80**, 329–350.
[dx.doi.org/10.1007/s11069-015-1970-9](https://doi.org/10.1007/s11069-015-1970-9)

Van Den Broeke, M. S., 2015: Polarimetric tornadic debris signature variability and debris fallout signatures. *J. Appl. Meteor. Climatol.*, **54**, 2389–2405.
[dx.doi.org/10.1175/JAMC-D-15-0077.1](https://doi.org/10.1175/JAMC-D-15-0077.1)

Van Den Broeke, M. S., and L. Arthurs, 2015: Conceptions of tornado wind speed and land surface interactions among undergraduate students in Nebraska. *J. Geosci. Educ.*, **63**, 323–331. [dx.doi.org/10.5408/14-029.1](https://doi.org/10.5408/14-029.1)

Alsarraf, H., and **M. S. Van Den Broeke**, 2015: Using the WRF regional climate model to simulate future summertime wind speed changes over the Arabian Peninsula. *J. Climatol. Wea. Forecasting*, **3(3)**: 144. [dx.doi.org/10.4172/2332-2594.1000144](https://doi.org/10.4172/2332-2594.1000144)

Alsarraf, H., and **M. Van Den Broeke**, 2015: Using high-resolution WRF model simulations to investigate the relationship between mesoscale circulations and aerosol transport over Kuwait. *J. Climatol. Wea. Forecasting*, **3(1)**:126.
[dx.doi.org/10.4172/2332-2594.1000126](https://doi.org/10.4172/2332-2594.1000126)

Van Den Broeke, M. S., and C. A. Van Den Broeke, 2015: Polarimetric radar observations from a waterspout-producing thunderstorm. *Wea. Forecasting*, **30**, 329–348. [dx.doi.org/10.1175/WAF-D-14-00114.1](https://doi.org/10.1175/WAF-D-14-00114.1)

Van Den Broeke, M. S., and S. T. Jauernic, 2014: Spatial and temporal characteristics of polarimetric tornadic debris signatures. *J. Appl. Meteor. Climatol.*, **53**, 2217–2231. [dx.doi.org/10.1175/JAMC-D-14-0094.1](https://doi.org/10.1175/JAMC-D-14-0094.1)

Van Den Broeke, M. S., 2014: Effects of mid- and upper-level drying on microphysics of simulated supercell storms. *Electronic J. Severe Storms Meteor.*, **9(3)**, 1–29.
<https://doi.org/10.55599/ejssm.v9i3.55>

Van Den Broeke, M. S., 2013: Polarimetric radar observations of biological scatterers in Hurricanes Irene (2011) and Sandy (2012). *J. Atmos. Oceanic Technol.*, **30**, 2754–2767. [dx.doi.org/10.1175/JTECH-D-13-00056.1](https://doi.org/10.1175/JTECH-D-13-00056.1)

Van Den Broeke, M. S., W.H. Beasley, and M.B. Richman, 2010: The role of atmospheric conditions in determining intensity of crepuscular and anticrepuscular rays. *Mon. Wea. Rev.*, **138**, 2883–2894. [dx.doi.org/10.1175/2010MWR3162.1](https://doi.org/10.1175/2010MWR3162.1)

Van Den Broeke, M. S., J. M. Straka, and E. N. Rasmussen, 2008: Polarimetric radar observations at low levels during tornado life cycles in a small sample of classic Southern Plains supercells. *J. Appl. Meteor. Climatol.*, **47**, 1232–1247. [dx.doi.org/10.1175/2007JAMC1714.1](https://doi.org/10.1175/2007JAMC1714.1)

Van Den Broeke, M. S., D. M. Schultz, R. H. Johns, J. S. Evans, and J. E. Hales, 2005: Cloud-to-ground lightning production in strongly-forced, low-instability convective lines associated with damaging wind. *Wea. Forecasting*, **20**, 517–530. [dx.doi.org/10.1175/WAF876.1](https://doi.org/10.1175/WAF876.1)

PUBLISHED DATASET

Van Den Broeke, M., C. Van Den Broeke, S. Kirby, B. Schweigert, and R. Nelson, 2024: Left-moving supercells with polarimetric data available, 2011–2022 [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.10551964>

CONFERENCE PRESENTATIONS AND PROCEEDINGS

Stapleton, K., and **M. S. Van Den Broeke**, 2027: Analyzing the relationship between updraft tilt, system structure, and the shear/cold pool balance in quasi-linear convective systems. *107th Annual Meeting of the American Meteorological Society*. Denver, CO, Amer. Meteor. Soc.

Sonntag, N. D., A. M. Haberlie, W. S. Ashley, V. A. Gensini, A. C. Michaelis, and **M. S. Van Den Broeke**, 2027: Extreme precipitation associated with quasi-linear convective systems over the central and eastern conterminous United States under intermediate and pessimistic climate change scenarios. *107th Annual Meeting of the American Meteorological Society*. Denver, CO, Amer. Meteor. Soc.

Stapleton, K., and M. S. Van Den Broeke, 2026: Analyzing the relationship between updraft tilt and shear/cold pool intensity in quasi-linear convective systems. *32nd Conf. on Severe Local Storms*. Madison, WI, Amer. Meteor. Soc.

- Haberlie, A. M., W. S. Ashley, **M. Van Den Broeke**, N. A. Sonntag, B. L. Weart, and W. Phipps, 2026: Quasi-linear convective systems in the United States: 1996–2025. *106th Annual Meeting of the American Meteorological Society*. Houston, TX, Amer. Meteor. Soc.
- Kauzlarich, T. S., L. Chen, C. L. Walker, **M. Van De Broeke**, and C. Wittich, 2026: Developing a winter storm climatology for the north-central United States. *106th Annual Meeting of the American Meteorological Society*. Houston, TX, Amer. Meteor. Soc.
- Healey, D. J., and **M. Van Den Broeke**, 2025: Z_{DR} columns and mesovortices in quasi-linear convective systems with varying degrees of low-level hodograph curvature and shear. *21st Conference on Mesoscale Processes*. Boise, ID, Amer. Meteor. Soc.
- Carothers, E. A., and **M. Van Den Broeke**, 2025: Radar indicated precursors to severe weather development in left-moving supercells. *105th Annual Meeting of the American Meteorological Society*. New Orleans, LA, Amer. Meteor. Soc.
- Lammes, A. F., **M. Van Den Broeke**, and T. White, 2025: The impact of weather on protests in the Washington, D.C., area. *105th Annual Meeting of the American Meteorological Society*. New Orleans, LA, Amer. Meteor. Soc.
- Scott, C. A., C. M. Kuster, B. Herzog, and **M. Van Den Broeke**, 2025: Evaluating quasi-linear convective system mesovortices using dual-polarization radar data. *105th Annual Meeting of the American Meteorological Society*. New Orleans, LA, Amer. Meteor. Soc.
- Scott, C. A., C. M. Kuster, B. Herzog, and **M. Van Den Broeke**, 2025: Specific differential phase signatures within quasi-linear convective system mesovortices. *105th Annual Meeting of the American Meteorological Society*. New Orleans, LA, Amer. Meteor. Soc.
- Zeeb, A. W., J. T. Allen, **M. Van Den Broeke**, and M. Bunkers, 2025: Understanding left-moving supercells: Environmental factors and forecasting challenges. *31st Conference on Severe Local Storms*. Virginia Beach, VA, Amer. Meteor. Soc.
- Barker, C. A., and **M. S. Van Den Broeke**, 2024: Southerly high wind events in southern New England: Climatology and synoptic setting. *Southern New England Weather Conference*. Canton, MA, Blue Hill Observatory.
- Nelson, R. E., and **M. S. Van Den Broeke**, 2024: Polarimetric radar signatures in significantly severe left-moving supercells. *104th Annual Meeting of the American Meteorological Society*. Baltimore, MD, Amer. Meteor. Soc.

- Nelson, R. E., and **M. Van Den Broeke**, 2023: Polarimetric radar signatures in a large sample of left-moving supercells. *103rd Annual Meeting of the American Meteorological Society*. Denver, CO, Amer. Meteor. Soc.
- Martz, R., A. L. Houston, and **M. Van Den Broeke**, 2023: The impact of urban heat islands on convection initiation. *103rd Annual Meeting of the American Meteorological Society*. Denver, CO, Amer. Meteor. Soc.
- Drager, A. J., R. D. Dixon, A. L. Houston, D. Kopacz, C. M. Rowe, and **M. Van Den Broeke**, 2023: Open educational resource (OER) activities developed at the University of Nebraska-Lincoln for introductory weather and climate labs. *103rd Annual Meeting of the American Meteorological Society*. Denver, CO, Amer. Meteor. Soc.
- Bundy, L., V. A. Gensini, and **M. Van Den Broeke**, 2023: Tropical cyclone impacts on crop conditions in the coastal southeast United States. *103rd Annual Meeting of the American Meteorological Society*. Denver, CO, Amer. Meteor. Soc.
- Healey, D. J., and **M. Van Den Broeke**, 2022: Comparing polarimetric signatures of proximate tornadic and nontornadic supercells in similar environments. *102nd Annual Meeting of the American Meteorological Society (Virtual)*. Virtual, Amer. Meteor. Soc.
- Wilson, T. C., R. J. KC, B. R. Elbing, and **M. S. Van Den Broeke**, 2020: Modeling infrasound propagation from tornado producing thunderstorms. *179th Meeting of the Acoustical Society of America (Virtual)*. Virtual, Acous. Soc. Amer.
- Wilson, T. C., R. J. KC, B. R. Elbing, and **M. S. Van Den Broeke**, 2020: Infrasound propagation in the atmospheric conditions of tornado producing storms. *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics (Virtual)*. Virtual, Amer. Phys. Soc.
- Wilson, M. B., N. R. Humrich, and **M. S. Van Den Broeke**, 2020: The supercell polarimetric observation research kit (SPORK): An automated, python-based algorithm for examining supercell dual-pol signatures. *100th Annual Meeting of the American Meteorological Society*. Boston, MA, Amer. Meteor. Soc.
- Wilson, M. B., and **M. S. Van Den Broeke**, 2020: An analysis of Z_{DR} column characteristics in a large sample of supercell storms. *100th Annual Meeting of the American Meteorological Society*. Boston, MA, Amer. Meteor. Soc.
- Elbing, B. R., C. E. Petrin, **M. S. Van Den Broeke**, and E. Green, 2019: Infrasound observations from the 2019 tornado season. *178th Meeting of the Acoustical Society of America*. San Diego, CA, Acous. Soc. Amer.

Van Den Broeke, M. S., 2019: Disdrometer measurements and comparison to polarimetric radar observations in Nebraska precipitation. *CLOUD-MAP Workshop*. Norman, OK, July 2019.

Elbing, B. R., C. E. Petrin, and **M. S. Van Den Broeke**, 2019: Infrasound measurements from a tornado in Oklahoma. *Proc. Mtgs. Acoust.*, **33**, 045003.
<https://doi.org/10.1121/2.0001015>

Wilson, M. B., and **M. S. Van Den Broeke**, 2019: Developing a Python-based algorithm to identify and track Z_{DR} arcs in supercells. *99th Annual Meeting of the American Meteorological Society*. Phoenix, AZ, Amer. Meteor. Soc.

Lee, K.-Y., and **M. S. Van Den Broeke**, 2019: Polarimetric radar observations of aerosol effects on the microphysical structure of Great Plains thunderstorms. *99th Annual Meeting of the American Meteorological Society*. Phoenix, AZ, Amer. Meteor. Soc.

Petrin, C. E., **M. S. Van Den Broeke**, and B. R. Elbing, 2018: Severe storm infrasound observations during spring 2018. *71st Annual Meeting of the APS Division of Fluid Dynamics*. Atlanta, GA, Amer. Physical Soc.

Wilson, M. B., and **M. S. Van Den Broeke**, 2018: How well do Z_{DR} arc metrics indicate potential for strong low-level rotation in supercells? *29th Conference on Severe Local Storms*. Stowe, VT, Amer. Meteor. Soc.

Petrin, C. E., **M. S. Van Den Broeke**, and B. R. Elbing, 2018: Tornado and hail infrasound observations during severe storms. *29th Conference on Severe Local Storms*. Stowe, VT, Amer. Meteor. Soc.

Elbing, B. R., C. E. Petrin, and **M. S. Van Den Broeke**, 2018: Monitoring infrasound from a tornado in Oklahoma. *175th Meeting of the Acoustical Society of America*. Minneapolis, MN, Acous. Soc. Of Amer.

Hartzler, J. C., C. E. Petrin, B. R. Elbing, and **M. S. Van Den Broeke**, 2018: Infrasonic recordings during a tornado. *38th Oklahoma AIAA/ASME Symposium*. Edmond, OK, Amer. Inst. of Aeronautics and Astronautics/Amer. Soc. of Mech. Engineers.

Petrin, C. E., J. C. Hartzler, **M. S. Van Den Broeke**, and B. R. Elbing, 2018: Infrasound from May 11, 2017 tornado in Perkins Oklahoma. *Oklahoma NSF EPSCoR 2018 Annual State Conference*. Oklahoma City, OK, Oklahoma EPSCoR.

Paltz, E., M. Hayes, and **M. S. Van Den Broeke**, 2018: Impact of past experiences with tornadoes on future decisions in Nebraska. *98th American Meteorological Society Annual Meeting*. Austin, TX, Amer. Meteor. Soc.

- Engel, A. J., and **M. S. Van Den Broeke**, 2017: Spatiotemporal variability of Z_{DR} column areal and altitudinal extent in tornadic and nontornadic supercells. *38th Conference on Radar Meteorology*. Chicago, IL, Amer. Meteor. Soc.
- Engel, A. J., and **M. S. Van Den Broeke**, 2017: Z_{DR} column maximum altitudinal extent in tornadic and nontornadic supercells. *21st Annual Severe Storms and Doppler Radar Conference*. Ankeny, IA, Central Iowa National Weather Association.
- Whitby, M. D., **M. Van Den Broeke**, C. Allen, and Z. Warren, 2017: Discerning migratory patterns of bats in Nebraska using RADAR. *North American Society for Bat Research 2017 Symposium*. Knoxville, TN, North American Society for Bat Research.
- Caruthers, A. L., and **M. S. Van Den Broeke**, 2017: Land use land cover change effects on Southern Great Plains precipitation patterns. *97th American Meteorological Society Annual Meeting*. Seattle, WA, Amer. Meteor. Soc.
- Heuscher, L., and **M. Van Den Broeke**, 2016: Hail variability in supercell storms and response to environmental variables. *28th Conference on Severe Local Storms*. Portland, OR, Amer. Meteor. Soc.
- Engel, A. J., and **M. S. Van Den Broeke**, 2016: Z_{DR} column altitudinal extent in isolated tornado-producing supercells. *28th Conference on Severe Local Storms*. Portland, OR, Amer. Meteor. Soc.
- Caruthers, A. L., and **M. Van Den Broeke**, 2016: Sensitivity of Tropical Storm Erin to land use land cover changes in the Southern Great Plains. *National Weather Association 41st Annual Meeting*. Norfolk, VA, National Weather Association.
- Paltz, E., and **M. Van Den Broeke**, 2016: Polarimetric radar signatures of supercell thunderstorms in tropical cyclones. *UNL Spring 2016 Research Fair*. Lincoln, NE, University of Nebraska-Lincoln.
- Van Den Broeke, M. S.**, 2015: Polarimetric variability of supercell storms in similar environments. *37th Conference on Radar Meteorology*. Norman, OK, Amer. Meteor. Soc. [personally presented]
- Van Den Broeke, C. A., and **M. S. Van Den Broeke**, 2015: Polarimetric radar characteristics of warm front-crossing storms on 9 April 2015. *37th Conference on Radar Meteorology*. Norman, OK, Amer. Meteor. Soc. [personally presented]
- Heuscher, L., and **M. S. Van Den Broeke**, 2015: Hail and small-drop DSD variability by environment in supercell storms. *37th Conference on Radar Meteorology*. Norman, OK, Amer. Meteor. Soc.

Humrich, N. R., and **M. S. Van Den Broeke**, 2015: Association between rear flank gust front mesocyclone-relative position and supercell microphysical variability. *37th Conference on Radar Meteorology*. Norman, OK, Amer. Meteor. Soc.

Van Den Broeke, M. S., 2015: Polarimetric radar observations of spring migration in Nebraska and Oklahoma. *2015 Joint Meeting of The American Ornithologists' Union and The Cooper Ornithological Society*. Norman, OK, AOU/COS. [personally presented]

Van Den Broeke, M. S., 2015: Polarimetric radar observations of bioscatter transport by tropical cyclones. *2015 Joint Meeting of The American Ornithologists' Union and The Cooper Ornithological Society*. Norman, OK, AOU/COS. [personally presented]

Petr, J., and **M. Van Den Broeke**, 2015: Synoptic and polarimetric radar analysis of the 2 March 2014 winter storm in the south-central United States. *95th Annual Meeting of the American Meteorological Society*. Phoenix, AZ, Amer. Meteor. Soc.

Jauernic, S. T., and **M. S. Van Den Broeke**, 2014: Tornado knowledge, perceptions, and safety actions taken among undergraduates. *16th Annual High Plains Conference*. Hastings, NE. High Plains Chapter of the American Meteorological Society and National Weather Association.

Van Den Broeke, M. S., 2014: Identifying optimal instructional methods in synoptic meteorology. *2014 Peer Review of Teaching Final Workshop*. Lincoln, NE. University of Nebraska-Lincoln. [personally presented]

Boggs, L., and **M. S. Van Den Broeke**, 2014: Peak current and polarity of cloud-to-ground lightning strikes in multicell and supercell convection related to polarimetric radar data. *2014 National Conference on Undergraduate Research*. Lexington, KY. Council on Undergraduate Research.

Lee, K.-Y., and **M. S. Van Den Broeke**, 2014: Polarimetric radar analysis of the microphysics of charge separation in an MCC event on June 15, 2013. *2014 National Conference on Undergraduate Research*. Lexington, KY. Council on Undergraduate Research.

Humrich, N. R., and **M. S. Van Den Broeke**, 2014: Tropical cyclone lightning related to polarimetric radar variables. *5th International Lightning Meteorology Conference*. Tucson, AZ, Vaisala.

Boggs, L., and **M. S. Van Den Broeke**, 2014: Electrification of multicell and supercell convection related to polarimetric radar data. *5th International Lightning Meteorology Conference*. Tucson, AZ, Vaisala.

Lee, K.-Y., and **M. S. Van Den Broeke**, 2014: Polarimetric radar analysis of lightning in an MCC event on June 15, 2013. *5th International Lightning Meteorology Conference*. Tucson, AZ, Vaisala.

Van Den Broeke, M. S., 2014: Polarimetric debris signature spatial and temporal characteristics. *94th Annual Meeting of the American Meteorological Society*. Atlanta, GA, Amer. Meteor. Soc. [personally presented]

Duell, R., and **M. Van Den Broeke**, 2014: Eastern dryline climatology and synoptic-scale environment. *94th Annual Meeting of the American Meteorological Society*. Atlanta, GA, Amer. Meteor. Soc.

Jauernic, S., and **M. Van Den Broeke**, 2014: The influence of tornado knowledge and perceptions on safety actions taken among undergraduates. *94th Annual Meeting of the American Meteorological Society*. Atlanta, GA, Amer. Meteor. Soc.

Lojero, G. A., and **M. Van Den Broeke**, 2014: Aerosol association with severe weather in Oklahoma. *94th Annual Meeting of the American Meteorological Society*. Atlanta, GA, Amer. Meteor. Soc.

Arthurs, L., and **M. Van Den Broeke**, 2013: Revealing and characterizing novice conceptions of hurricane formation using textual and diagrammatic analyses. *LearnLab Summer Workshop*. Pittsburgh, PA. Carnegie Mellon University.

Arthurs, L., and **M. Van Den Broeke**, 2012: Textual and diagrammatic analyses reveal novice ideas about hurricane formation. *2012 Conference on Transforming Research in STEM Education*, St. Paul, MN.

Van Den Broeke, M. S., J.M. Straka, and E. Rasmussen, 2010: Mesocyclone and RFD evolution in simulated supercell storms with varying wind profiles. Preprints, *25th Conf. on Severe Local Storms*, Denver, CO, Amer. Meteor. Soc., 8A.6.
http://ams.confex.com/ams/25SLS/techprogram/paper_175853.htm

Van Den Broeke, M. S., 2010: Mesocyclone and RFD evolution in simulated supercell storms with varying wind profiles. *25th Conf. on Severe Local Storms*, Denver, CO, Amer. Meteor. Soc. [personally presented]

Van Den Broeke, M. S., D. M. Schultz, R. H. Johns, J. S. Evans, and J. E. Hales, 2005: Cloud-to-ground lightning production in strongly forced, low-instability convective lines associated with damaging wind. Preprints, *Fourth AMS Student Conference*, San Diego, CA, Amer. Meteor. Soc., CD-ROM, P1.34.

Van Den Broeke, M. S., 2005: Cloud-to-ground lightning production in strongly forced, low-instability convective lines. *Second Annual Great Lakes Meteorology Conference*, La Porte, IN, Valparaiso University. [personally presented]

PUBLICATIONS IN PEER REVIEW

Scott, C., **M. S. Van Den Broeke**, and C. M. Kuster: Specific differential phase signatures associated with quasi-linear convective system mesovortices. (*J. Operational Meteor.*, in revision)

Schweigert, B. J., and **M. S. Van Den Broeke**: A dual-polarimetric benchmark for left-moving supercells. (*Mon. Wea. Rev.*, in revision)

Carothers, E. A., and **M. S. Van Den Broeke**: Radar precursors to severe hail reports in left-moving supercells. (*Wea. Forecasting*, in revision)

Barker, C. A., and **M. S. Van Den Broeke**: Environmental controls of hail in quasi-linear convective systems. (*Mon. Wea. Rev.*, in revision)

Kauzlarich, T. S., L. Chen, C. L. Walker, **M. S. Van Den Broeke**, and C. Wittich: A winter storm climatology for the north-central United States. (*J. Clim.*, submitted)

PUBLICATIONS IN PREPARATION

Van Den Broeke, M. S.: Polarimetric radar characteristics of sea clutter. To be submitted Nov. 2026 (*Rem. Sensing*).

Van Den Broeke, M. S., and R. E. Nelson: Polarimetric radar signatures in significant severe left-moving supercells. To be submitted Oct. 2026 (*Atmosphere*).

Van Den Broeke, M. S.: The influence of meteorological factors and moon phase on radar-detected migration density in central North America. To be submitted Dec. 2026 (*Rem. Sens. Ecol. Conserv.*).

NON-PEER-REVIEWED PUBLICATIONS

Van Den Broeke, M. S., 2014: Peer Review of Teaching Inquiry Portfolio (2014): METR 341 (Synoptic Meteorology). UNL: Peer Review of Teaching program. Available at

<https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1063&context=prtunl>

Van Den Broeke, M. S., 2013: Peer Review of Teaching benchmark portfolio (2013): METR 200 (Weather and Climate). UNL: Peer Review of Teaching program. Available at

<https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1041&context=prtunl>

Grinter, C. C., and **M. S. Van Den Broeke**, 2013: Probable rediscovery of *Ethmia monachella* Busck (Gelechioidea) from a photograph on BugGuide.net. *News of the Lepidopterists' Society*, **55**, 124–125,

https://images.peabody.yale.edu/lepsoc/nls/2010s/2013/2013_v55_n3.pdf

Van Den Broeke, M. S., 2011: *Mesocyclone and Microphysical Evolution in Simulated Supercell Storms with Varying Wind and Moisture Profiles*. Doctoral Dissertation, 134 pp., <https://shareok.org/items/79ae0077-e154-4aed-9f7c-d08cd6c57695>

Van Den Broeke, M. S., 2007: *Polarimetric Signatures and Microphysical Processes in Tornadoic Southern and High Plains Classic Supercells*. Master's Thesis, 166 pp., <https://digitalcommons.unl.edu/geosciencefacpub/305/>

EXTERNAL GRANTS AWARDED

- NSF: "Collaborative Research: Polarimetric Radar and Modeling Perspectives of Updraft, Cold Pool, and Mesovortex Evolution in Quasi-Linear Convective Systems." Role: PI, \$677,338 (UNL: \$368,983). Aug. 2025 – Jul. 2028.
- NSF: "Developing a Structural, Morphological, and Microphysical Understanding of Left-moving Supercells." Role: PI, \$473,485 (UNL: \$272,344). Aug. 2022 – Jul. 2027.
- NOAA: "Infrasound Observations and Demonstration of Real-Time Tools." Role: Co-PI, \$499,907 (UNL: \$135,539). Sept. 2019 – Aug. 2022.
- NOAA: "Identification of the Physical Mechanism Responsible for Tornado Infrasound." Role: Co-PI, \$271,478 (UNL: \$128,869). Sept. 2018 – Aug. 2021.
- NSF: "EAGER: Cloud Microphysics Measurements using Unmanned Aircraft Systems." Role: PI, \$51,466 (UNL: \$51,466). Aug. 2017 – Jul. 2018.
- NSF: "Aeroecology as a Test-bed for Interdisciplinary STEM Training." Role: PI-UNL, \$3,057,337 (UNL: \$391,463). Sept. 2015 – Aug. 2022.
- NSF: "Unmanned Aircraft System for Atmospheric Physics." Role: Co-PI, \$5,995,869 (UNL: \$1,454,757; Van Den Broeke research group: \$260,242). Aug. 2015 – Jul. 2019.
- NSF: "Quantifying the Relative Roles of Progressive Land Use Change, Irrigation, and Remote Forcing in Southern Great Plains Precipitation Variability." Role: PI, \$446,697 (UNL: \$446,697). Jul. 2014 – Jun. 2017.

TEACHING (U = undergraduate; G = graduate)

Synoptic Meteorology (U/G)	2014, 2016, 2018, 2021, 2023–25
Advanced Synoptic Meteorology (U/G)	2014, 2016, 2018, 2021–25
Radar Signal Processing and Applications (G)	2013, 2015, 2018, 2022, 2023
Cloud Physics (U/G)	2013, 2015–16, 2018, 2020, 2022, 2026
Tropical Meteorology (U/G)	2012, 2013, 2016, 2017, 2019, 2021, 2025
Pathways to Success in Meteorology-Climatology (U)	2025
Teaching and Outreach in Meteorology (U/G)	2024
Weather and Climate (U)	2011–13, 2015, 2017, 2020

Radar Meteorology (U/G), guest lecturer	2021
Avian Biology (U/G), guest lecturer	2021
Meteorology Internship Coordinator (U/G)	2019–26
Interdisciplinary Research Practicum (G)	2019
Thermodynamics, Microphysics, and Radiation (indep. study) (G)	2014
High Plains Severe Storms (indep. study) (U)	2014
Radar-Lightning Research (U)	2013, 2014
Mid-latitude Precipitation Predictability (G)	2013
Advanced Synoptic Theory and Application (G)	2013
Weather Data Interpretation and Applications (U)	2012
Radar Meteorology and Polarimetry (U)	2012
Severe Storm Theory and Forecasting (U)	2012
Tropical Cyclone Assoc. with ENSO Phase (U)	2012
Severe and Unusual Weather (U. of Oklahoma) (U)	2010–11

CURRENT GRADUATE STUDENTS (PRIMARY ADVISOR)

Holiday, Trey, M.S. Aug. 2026 – present
TBD: will be focused on coastal supercell transition in tropical cyclones

Leffler, Zebulon, Ph.D. Aug. 2026 – present
TBD: will be focused on dual-pol radar observations of QLCSSs

Scott, Caitlyn, M.S. Apr. 2025 – present
“Polarimetric Radar Precursors of Severe Weather Reports in QLCSSs”

Stapleton, Kate, M.S. Apr. 2025 – present
“Polarimetric Radar Observations of QLCS Updrafts”

FORMER GRADUATE STUDENTS (PRIMARY ADVISOR)

- Asherman, Jacob T., M.S. Aug. 2019 – Aug. 2020
“Comparison of Tornadic and Nontornadic Supercell Storms in Similar Environments”
- Barker, Cameron, M.S. Apr. 2023 – Aug. 2025
“QLCS Environments and Polarimetric Radar Signatures”
- Began, A. Noah, M.S. Apr. 2023 – Aug. 2025
“Polarimetric Radar Evolution in Cyclically Tornadic Supercells”
- Carothers, Eric, M.S. Apr. 2023 – May 2025
“Radar Signatures and Severe Weather Precursors in Left-moving Supercells”
- Caruthers, Alexandra, M.S. Aug. 2015 – Dec. 2017
“Southern Plains Precipitation Variability Related to Landcover Changes”
- Duell, Rebecca S., M.S. Aug. 2012 - Aug. 2014
“Eastern U.S. Dryline Climatology and Synoptic-scale Environment”
- Engel, Adrienne, M.S. Aug. 2014 – Oct. 2021; Dec. 2024 – May 2026
“Updraft Polarimetric Characteristics and Variability by Environment in a Large Sample of Supercell Storms”
- Gabel, Andrew J., M.S. Aug. 2012 – Dec. 2013
“Land-use/Land-cover Change Effects on Southern Plains Precipitation and Drought”
- Green, Erik R., M.S. Aug. 2018 – May 2022
“Associations between Time Series of Radar Metrics in Severe Storms”
- Gunkel, Timothy J., M.S. Aug. 2018 – Jun. 2020
“Polarimetric Radar Characteristics of Cold- and Warm-Based Supercell Storms”
- Healey, Devon J., M.S. Jun. 2020 – May 2022
“Comparing Polarimetric Signatures of Proximate Tornadic and Non-tornadic Supercells in Similar Environments”
- Healey, Devon J., Ph.D. May 2022 – Aug. 2025
“Polarimetric Radar Signatures of QLCS Events”
- Heuscher, Lena V., M.S. Aug. 2014 – Dec. 2016
“Hail Variability in Supercell Storms and Response to Environmental Variables”

Humrich, Nicholas R., M.S. Aug. 2014 – Aug. 2021
“Downdraft Polarimetric Characteristics and Variability by Environment in a Large Sample of Supercell Storms”

Jauernic, Sabrina T., M.S. Aug. 2013 – Nov. 2015
“Perceptions of Tornadoes, Tornado Warnings, Safety Actions, and Risk: Effects on Warning Response among Undergraduates in Nebraska”

Jauernic, Sabrina T., Ph.D. Nov. 2015 – Aug. 2017
“Microphysical and Dynamical Responses of Supercells during Boundary Interactions using Polarimetric Radar and Lightning Data”

Kalin, Andrew J., M.S. Oct. 2014 – Dec. 2016
“Influence of Land Cover Type and the Reliability of Selected Land Surface Models: A Comparison of WRF Version 3.6 Coupled to CLM Version 4.0, Noah-MP, and the Bucket Hydrology”

Lee, Kun-Yuan, M.S. May 2017 – Aug. 2019
“Condensation Nucleus Effects on Thunderstorm Microphysics”

Lee, Kun-Yuan, Ph.D. Aug. 2019 – Jul. 2021
“Polarimetric Radar Features related to Lightning Characteristics of Supercells”
“Aerosol Association with Severe Weather in the Great Plains”

Mustered, Sarah K., M.S. Aug. 2012 – Jul. 2013
“Polarimetric Radar Features of Extreme Southern Plains Hailstorms”

Nelson, Raychel, M.S. May 2021 – May 2024
“Polarimetric Radar Signatures in Significant Severe Left-moving Supercells”

Schweigert, Ben, M.S. May 2022 – May 2024
“A Dual-Polarimetric Analysis of a Large Sample of Left-moving Supercells”

Wilson, Matthew B., M.S. Apr. 2017 – Aug. 2019
“An Analysis of Z_{DR} Arc Characteristics in a Large Sample of Supercell Storms”

Wood, Michaela, M.S. Jun. 2021 – May 2023
“Polarimetric Radar Signatures in Tropical Cyclone Supercells”

SERVED AS GRADUATE COMMITTEE MEMBER

Abadi, Azar, Ph.D.	May 2018 – Aug. 2018
Ahasic, Eric, M.S.	Feb. 2013 – Dec. 2015
Alavez, Jose Abraham Torres, Ph.D.	Oct. 2015 – Dec. 2017
Alsarraaf, Hussain, Ph.D.	Sept. 2012 – Dec. 2013
Apke, Jason, M.S.	Sept. 2012 – Nov. 2013
Axon, Kristen, M.S.	Feb. 2020 – May 2022
Blomberg, Kierstin, Ph.D.	Apr. 2024 – present
Buescher, Judson, M.S.	Apr. 2017 – May 2020
Butler, Dan, M.S.	Apr. 2021 – Aug. 2024
Cecava, John, M.S.	Feb. 2020 – May 2021
Chowdhury, Tayabur, M.S., UN-Omaha	Jul. 2023 – May 2025 (external rep)
DeBruin, Mark, M.S.	Oct. 2023 – Aug. 2025
Deng, Xu, M.S.	Apr. 2016 – Dec. 2017
Erwin, Alex, M.S.	Nov. 2018 – May 2020
Fasanmi, Anuoluwapo, M.S. (Chemistry)	Aug. 2021 - Apr. 2022 (minor rep)
Hanft, Wolfgang, M.S.	Feb. 2016 – Sept. 2017
Herber, Katy, M.S.	Sept. 2025 – present
Kauzlarich, Thomas, Ph.D.	Feb. 2025 – present
Krull, Alex, M.S.	Jan. 2017 – May 2019
Leighty, Haeli, M.S.	Apr. 2017 – Apr. 2022
McClam, Bradrick, M.A.S	Nov. 2012 – Jan. 2013
Molette, Kiahna, Ph.D.	Sept. 2026 – present
More, David, M.S.	Feb. 2013 – Mar. 2013
Obermeier, Holly, M.S.	Mar. 2013 – Jun. 2014
Petr, Jake, M.S.	Mar. 2017 – Aug. 2019
Pittman, Kyle, M.S.	Feb. 2021 – Dec. 2023
Rick, Nathan, M.S.	Jan. 2019 – May 2021
Riganti, Curtis, M.S.	Dec. 2013 – Nov. 2015
Shield, Stephen, Ph.D.	Apr. 2019 – May 2023
Stevenson, Peyton, M.S.	Oct. 2022 – Jul. 2024
Swan, Alex, M.S.	Oct. 2025 – Aug. 2026
Szot, Robert, M.S.	Jan. 2025 – May 2026
Walker, Curtis, Ph.D.	Mar. 2018 – Jul. 2018
Wang, Yi, Ph.D.	Sept. 2014 – Jul. 2017
Wilson, Matthew, Ph.D.	Aug. 2020 – May 2023
Wunderlin, Cameron, M.S.	Mar. 2019 – May 2021
Wunderlin, Cameron, Ph.D.	May 2021 – present
Zeeb, Aaron, Ph.D., Cent. Michigan Univ.	Apr. 2025 – present

Ph.D. THESIS EXAMINER

Rogers, Rebecca, Ph.D.
Charles Darwin University, Australia
“Harnessing the Potential of Weather Surveillance Radar to Monitor Waterbirds in Australia”

UNDERGRADUATE STUDENTS SUPERVISED

Buescher, Judson Aug. 2014 – Aug. 2015
“Effects of Air Masses over the United States on Tropical Cyclone Intensity Changes Prior to Landfall”

Boggs, Levi Jun. 2013 – Aug. 2014
“Lightning Relationships with Polarimetric Radar Variables in Isolated Convective Cells”

Conner, Amy Feb. 2023 – Jan. 2024
“Constructing a Left-moving Supercell Dataset”

Cook, Ashton Feb. 2023 – Jan. 2024
“Constructing a Left-moving Supercell Dataset”

Darrah, Brennen Jan. 2020 – Dec. 2020
“Radar Predictors of Tornadogenesis and Tornadogenesis Failure”

Dornsife, Derek May 2025 – Aug. 2025
“Characteristics of Proximate Right-moving and Left-moving Supercells”

Hoppe, Ian Feb. 2015 – May 2015
“Polarimetric Radar Signatures of Springtime Migration on the Great Plains”

Humrich, Nick Aug. 2012 – Aug. 2014
“Lightning Relationships with Intensity Variations and Polarimetric Radar Signatures in Hurricane Irene (2011)”

Kerkman, Regan May 2017 – May 2019
“Cloud Microphysics Measurements using Unmanned Aircraft Systems”

Kirby, Simon Apr. 2021 – Dec. 2021
“Developing a Database of Left-moving Supercell Storms”

Kleckner, Kyle May 2021 – Aug. 2021
“Characteristics of Cold Frontal Passages near Lake Superior”

Lammes, Annie May 2024 – Aug. 2024
“Understanding the Impacts of Weather on Protests in the Washington, D.C., Area”

Lee, Kun-Yuan Jun. 2013 – Aug. 2014
“Lightning Relationships with Polarimetric Radar Variables in a Mesoscale Convective Complex”

Martinez, Eli Mar. 2024 – May 2024
“Developing Mobile Weather Stations for Outreach”

Melcher, Lucille Aug. 2016 – May 2020
“Predicting Hail and Tornado Occurrence in Tropical Cyclones”

Paltz, Emily Apr. 2015 – Aug. 2016
“Polarimetric Radar Signatures of Supercell Thunderstorms in Tropical Cyclones”

Petr, Jacob Dec. 2014 – Jun. 2015
“Environmental and Polarimetric Radar Observations of the 2-3 March 2014 Winter Storm in the Southern United States”

Schweigert, Ben Apr. 2021 – Aug. 2021
“Developing a Database of Left-moving Supercell Storms”

UNDERGRADUATE THESIS ADVISING

Connor, Amy (2024): Lightning and supercell tornadogenesis during cell mergers
James, Anna (2024): Classifying parent boundaries of MAHTEs
Lammes, Annie (2024): Weather conditions associated with demonstration events
Martz, Ryan (2023): Urban area impacts on convection initiation distributions
Scott, Caitlin (2024): Polarimetric indicators of QLCS tornadoes
Shaffer, Chris (2025): Hurricane Helene precipitation predictability

UNDERGRADUATE ADVISING

Undergraduate Advisor, Meteorology-Climatology at the Univ. of Nebraska-Lincoln, Jun.
2016 – Aug. 2017

SERVICE TO PROFESSION: JOURNAL RESPONSIBILITIES

Journal of Applied Meteorology and Climatology
Editor, Jan. 2024 – present
Associate Editor, Oct. 2023 – Jan. 2024

Remote Sensing in Ecology and Conservation: Associate Editor, May 2018 – present

Atmosphere: Editorial Board member, May 2020 – Jan. 2024
Special Issue Editor: “Radar Applications for Severe Weather Understanding and Nowcasting”, Aug. 2020 – May 2021

SERVICE TO PROFESSION: CONFERENCES

40th Conference on Radar Meteorology (American Meteorological Society, Minneapolis, MN, 28 Aug. – 1 Sept. 2023): Subcommittee on Radar Observations of Severe Storms and Mesoscale Phenomena

SERVICE TO PROFESSION: NATIONAL ASSOCIATION DUTIES

National Weather Association: Remote Sensing Committee, Nov. 2015 – present

National Weather Association: Annual Meeting abstract reviewer, 2020

SERVICE TO PROFESSION: PEER REVIEWER

National Science Foundation (Multiple panels and ad-hoc reviews)

National Science Centre of Poland (Ad-hoc review)

Proceedings of the National Conference of Undergraduate Research

Bulletin of the American Meteorological Society

Quarterly Journal of the Royal Meteorological Society

Weather and Forecasting

Monthly Weather Review

Journal of the Atmospheric Sciences

Journal of Applied Meteorology and Climatology

Journal of Atmospheric and Oceanic Technology

Journal of Hydrometeorology

Electronic Journal of Severe Storms Meteorology

Journal of Geophysical Research-Atmospheres

Journal of Operational Meteorology

Remote Sensing (Exceptional Reviewer recognition, 2024 Quarter 4)

Applied Sciences

Atmosphere

Meteorology and Atmospheric Physics

Journal of Geophysical Research-Biogeosciences

Remote Sensing in Ecology and Conservation

Global Change Biology

International Journal of Disaster Risk Reduction

Applied Geography

The Professional Geographer

Scientific Reports (Nature Publishing Group)

Applied Optics

SERVICE TO PROFESSION: REVIEWS FOR PUBLISHERS/COMPETITIONS

2017–26	National Science Bowl
2023	IET Press: chapter reviewer, content on weather radar advances
2016	Pearson: textbook reviewer
2012	Brooks/Cole Cengage Learning: textbook reviewer
2011	Oxford University Press: textbook proposal review
2011	Red Line Editorial: book series content consultant

SERVICE TO DEPARTMENT & UNIVERSITY

EAS Graduate Committee, UNL Committee Chair (EAS Graduate Chair)	2015–16, 2021–26 2021–26
UNL CAS Comm. for Advancing Undergraduate Success and Equity (originally the CAS Undergraduate Education Working Group, 2019 – Aug. 2023) METR major representative	2019–26 2022–26
CAS Cares Application Reviewer, UNL	2022–26
Graduate Committee for the Minor in College STEM Education Committee Chair	2013–26 2017–26
EAS Mentoring and Peer-Review Committee Committee Chair	2025–26 2025–26
EAS Curriculum Committee, UNL	2021–26
EAS Grade Appeal Committee, UNL	2018, 2023–26
Local Manager, Weather Challenge, UNL	2011–26
EAS Information Committee, UNL Committee Chair	2016–21, 2022–25 2017–21
EAS Salary Advisory Committee, UNL	2013, 2019, 2024–25
Coordinator/Presenter, Friday weather discussions, UNL	2011–21, 2023
Hydrometeorologist/hydroclimatologist Faculty Search Committee Committee Chair	2021–22
EAS Ombudsperson	2017–23

Graduate Committee for Earth Observation Science for Society and Sustainability Committee Chair	2016–20
Hydrogeology/Groundwater Modeling Search Committee	2018–19
EAS Space Committee	2018–19
EAS Mentorship and Peer Review Committee	2017–18
Application Reviewer, Education Abroad Scholarship (UNL)	2017, 2019
Graduate Education Specialization Committee	2012–17
Undergraduate Advisor, Meteorology-Climatology	2016–17
Professor of Practice Search Committee (Met.-Clim.)	2016–17
EAS Beautification Committee	2014–16
Advisor, Student AMS Chapter at UNL	2014 (spring)
Reviewer, 5 posters for UNL Graduate Research Conference	2014
Reviewer, twelve student proposals for GEOS 900	2011–13
Guest Presenter, land use/landcover and climate, METR 470	2012
Ad-hoc Committee on ACE-4 Requirements	2011–12
Guest Presenter, lecture on interview/CV skills for GEOS 900	2011
Community Consultant, Westside High School, Omaha, NE	2011
Participant, UCAR Alliance Workshop, Boulder, CO	2011
Presenter, UNL AMS student chapter	2011, 2018

OUTREACH ACTIVITIES

Conservation Nebraska invited Radar Aeroecology presentation	2026
Homeschool group weather outreach, Lincoln, NE	2024
Kindergarten weather outreach, Lincoln, NE	2022, 2024
Volunteer, Dinosaurs and Disasters	2011–13, 2016–17, 2020–22
Nebraska State Museum, Science Chats volunteer	2017
Nebraska Game & Parks BioBlitz presenter	2017

PROFESSIONAL DEVELOPMENT

CLOUD-MAP field campaign and workshop	2016, 2017, 2019
Radar Aeroecology Workshop instructor	2017
37 th Conference on Radar Meteorology	2015
2015 Joint Meeting of the AOU and COS	2015
Weather Radar Ornithology Workshop	2015
Scientific Teaching Workshop (Just-in-Time Teaching)	2014
American Meteorological Society 94 th Annual Meeting	2014
Peer Review of Teaching Program, UNL	2012–14
Research Development Fellows Program, UNL	2012–13
Write Winning Grant Proposals Workshop, UNL	2012
Obtaining Research Funding from the DoD Workshop, UNL	2012
National Science Foundation Day, UNL	2012
UCAR Annual Meeting, Boulder, CO	2011
PARs and Effort Reporting Workshop, UNL	2011
Administering Grants Workshop, UNL	2011