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EDUCATION

Doctor of Philosophy, Atmospheric Sciences
University of Illinois, Urbana, IL — September 2004
Advisor: Professor Robert Wilhelmson

Bachelor of Science, Meteorology
Texas A&M University, College Station, TX — May 1997

PROFESSIONAL EXPERIENCE

Professor — 2019-Present
University of Nebraska – Lincoln, Department of Earth and Atmospheric Sciences

Associate Professor — 2012-2019
University of Nebraska – Lincoln, Department of Earth and Atmospheric Sciences

Assistant Professor — 2006-2012
University of Nebraska – Lincoln, Department of Earth and Atmospheric Sciences

Visiting Instructor — August 2005-May 2006
University of Nebraska – Lincoln, Department of Geosciences

Post-Doctoral Research Assistant — June 2005-August 2005
Purdue University, State Climate Office, West Lafayette, IN

Visiting Assistant Professor — August 2004 – May 2005
Purdue University, Dept. of Earth and Atmospheric Sciences, West Lafayette, IN

REFEREED PUBLICATIONS

† Denotes student that I supervised
‡ Denotes post-doc that I mentored

De Bruin, M., †, A.L. Houston, B.M. Argrow, E. Frew, C. Weiss, E. Rasmussen, A. Schueth, C. Gomez-Faulk, and R. Sasse, **2026**: A UAS-Centered Investigation of Vorticity Characteristics and Cold Pool 1 Structure Across Left/Forward-Flank Boundaries in Supercells. *Monthly Weather Review*. **In Review.**

Moll, B.W. †, A.L. Houston, G.B.H. de Azevedo, S.C.C. Bailey, T.M. Bell, J. Bradley, A. Dachtler, G. Phillips, D.A. Rico, J. Tweedie, and T. Wiens, **2026**: The Urban Heat Island and its Role in Shaping Convective Environments: An Observational Study. *Journal of Applied Meteorology and Climatology*. **In Review.**

Matousek, K †, and A.L. Houston, **2026**: The performance of CIN versus CIN depth for anticipating thunderstorm initiation in the central US. *Weather and Forecasting*. **In Review.**

Pittman, K.D. †, and A.L. Houston, **2026**: The Combined Impacts of Mid-Level Humidity and Low-Level Shear on Supercell Evolution on 22 May 2019. *Monthly Weather Review*. **Accepted pending revisions.**

Murdzek, S.S., T.L. Ladwig, A.L. Houston, and E.P. James, **2026**: The Impacts of Assimilating Various Densities of Uncrewed Aircraft System Observations on Regional NWP Forecasts in an OSSE. *Monthly Weather Review*. **Accepted pending revisions.**

58. Shield, S.A. † and A.L. Houston, **2025**: Machine Learning Predictions of Deep Convection Initiation: The Importance of Spatial Information, the Sensitivity to Training Region, and Dominant Environmental Parameters. *Monthly Weather Review*. **Accepted.** DOI: https://doi.org/10.1175/AIES-D-24-0106.1.

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55. Martz, R. †, 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. Doi: https://doi.org/10.1175/JAMC-D-23-0153.1

54. Wilson, M.B. † and A.L. Houston, **2025**: Examining the Impact of Assimilating Surface, PBL, and Free Atmosphere Observations from TORUS on Analyses and Forecasts of Two Supercells on 8 June 2019. *Monthly Weather Review*, **153,** 1105-1128. Doi: https://doi.org/10.1175/MWR-D-23-0247.1

53. Shield, S.A. † and A.L. Houston, **2024**: A Comparison of Thunderstorm Identification Methods. Journal of Applied Meteorology and Climatology, **41,** 1005–1016 Doi: 10.1175/JTECH-D-23-0084.1**.**

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supercell observed by TORUS on 28 May 2019. *Monthly Weather Review*, **152,** 97-121. Doi: 10.1175/MWR-D-23-0007.1.

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44. Houston, A.L. and G. Limpert≠, **2022**: Vortex Sheet Sensitivity to Low-Level Vertical Shear and Airmass Temperature Perturbation. *Mon. Wea. Rev.*, **150,** 2423-2441. Doi: 10.1175/MWR-D-21-0249.1.

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11. Houston, A. L., B. Argrow, J. Elston, J. Lahowetz†, E. W. Frew, and P. C. Kennedy, **2012**: The Collaborative Colorado-Nebraska Unmanned Aircraft System Experiment. *Bulletin of the American Meteorological Society*, **93**, 39-54. doi: 10.1175/2011BAMS3073.1.

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6. Elston, J. S., B. Argrow, E. Frew, A. L. Houston, and, J. Straka, **2011**: Evaluation of Unmanned Aircraft Systems for Severe Storm Sampling using Hardware-in-the-Loop Simulations. *Journal of Aerospace Computing, Information, and Communication,* **8**, 269-294. doi: 10.2514/1.53737.

5. Elston, J. S., J. Roadman, M. Stachura, B. Argrow, A. L. Houston, and, E. Frew, **2011**: The Tempest Unmanned Aircraft System for In Situ Observations of Tornadic Supercells: Design and VORTEX2 Flight Results. *Journal of Field Robotics,* **28,** 461-483. doi: 10.1002/rob.20394.

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3. Houston, A. L., and R. B. Wilhelmson, **2007**: Observational analysis of the 27 May 1997 central Texas tornadic event. Part I: Pre-storm environment and storm maintenance/propagation. *Monthly Weather Review,* **135**, 701-726.

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GRANTS *(Total: **$25,221,310**; UNL total: **$7,912,905**)*

NOAA, Expanding Understanding of UAS Observation Impacts on Regional NWP using an OSSE: Sensitivity Tests and Targeted UAS Observations; Role: **co-PI**; $935,483 (UNL: **$335,483**), 2025

NSF, Collaborative Research: AGS-FIRP Track 1 – The 2025 Nebraska-RaXPol Education and Outreach (NREO-2025) Project; Role: **PI**; $49,986 (UNL: **$34,984**), 2025

NSF, Collaborative Research: Maritime to Inland Transitions Towards ENvironments for Convection Initiation (MITTEN CI); Role: **Contractor**; UNL: **$86,116,** 2024.

NOAA, Investigating the Impact of Uncrewed Aircraft Systems Observations on Weather Forecasts from a Regional Weather Model Using Observing System Simulation Experiments; Role: **co-PI**; $564,531 (UNL: **$208,952**), 2023-2025

NSF, Collaborative Research: Investigation of Supercell Left-Flank Boundaries and Coherent Structures: TORUS-LItE; Role: PI; $867,257 (UNL: **$328,105**), 2023-2025

NSF, AGS-FIRP Track 1: 2023 University of Nebraska DOW Education and Outreach (UNDEO-2023) Project; Role: **PI**; $49,986 (UNL: **$49,986**), 2023

NSF, Planning Grant: Engineering Research Center for Precision Meteorology (ERC-PM); Role: **Co-PI**; $99,946 (UNL: **$0**), 2021-2022

NSF, Collaborative Research: Mesoscale Airmasses with High Theta-E (MAHTE); Role: **Co-PI**; $438,795 (UNL: **$248,795**), 2021-2024

NSF, Collaborative Research: NRI: Dispersed Autonomy for Marsupial Aerial Robot Teams; Role: **Co-PI**; $1,500,000 (UNL: **$454,570**), 2022-2025.

NOAA VORTEX-SE, Collaborative Research: Ensemble Sensitivity Analysis to Investigate Mesoscale Heterogeneity in Southeast US Tornado Events; Role: **Co-PI**; $282,189 (UNL: $260,822), 2020-2022.

NASA, ULI Step-B, Real-time Weather Awareness for Enhanced UTM Safety Assurance; Role: Co-PI; $5,200,000 (UNL: **$805,406**), 2020-2024.

NSF, National Robotics Initiative: Collaborative Research: Raining Drones: Mid-Air Release & Recovery of Atmospheric Sensing Systems; Role: **Co-PI**; $ 1,047,143 (UNL: **$643,600**), 2019-2022.

NE EPSCoR, LAPSE-RATE Workshop; Role: **PI**; **$39,000**; 2019-2020

Black Swift Technologies, SBIR: Black Swift Technologies UAS for Atmospheric Soundings; Role: **Contractor**; **$101,467**; 2019-2020.

NSF, Collaborative Research: Targeted Observations using Radars and UAS of Supercells (TORUS); Role: **PI**; $2,921,526 (UNL: **$939,784**), 2018-2023.

NASA, Investigating Soil Moisture-Convective Precipitation Feedbacks with Soil Moisture-Active Passive; Role: **Co-PI**; $799,786 (UNL: **$402,364**), 2016-2019.

NSF, National Robotics Initiative: Collaborative Research: Targeted Observation of Severe Local Storms Using Aerial Robots; Role: **Co-PI**; $1,900,000 (UNL: **$425,652**), 2015-2018.

NSF, Research Infrastructure Improvement Program: Track-2 Focused EPSCoR Collaborations: Unmanned Aircraft Systems for Atmospheric Exploration; Role: **Co-PI [UNL lead];** $5,995,869 (UNL: **$1,454,757**), 2015-2019.

NSF, RAPID: Collaborative Research: Integration of UAS into the Program for Research on Elevated Convection with Intense Precipitation; Role: **PI**; $183,944 (UNL: **$183,944**), 2015-2017.

Unidata, A Standalone EDEX Server and Enhanced Local IDD/LDM Infrastructure at the University of Nebraska-Lincoln. Role: **PI**; $11,050 (UNL: **$11,050**).

Air Force Office of Scientific Research, Integrated tracker and mobile mesonet for research on energy-aware, airborne, dynamic data-driven application systems, Role: **PI**; $81,678, (UNL: **$81,678**), 2014-2015.

UNL Research Council**,** Interdisciplinary Research Grant: The Representation of Mesoscale Atmospheric Phenomena by Unmanned Aircraft Systems: A Multidisciplinary Observing System Simulation Experiment, Role: **PI**; $19,942, (UNL: **$19,942**), 2013.

Air Force Office of Scientific Research, Energy-Aware Aerial Systems for Persistent Sampling and Surveillance, Role: **co-PI**; $1,512,757, (**UNL: $381,581**), 2012-2015.

NSF**,** Supplement to **"**Criticality: A Theory for Understanding and Forecasting Deep Convective Initiation", Role: **PI**; $37,676, (UNL: **$37,676**), 2011-2012.

USGS, "Towards Groundwater Recharge Forecasting: Monitoring and Modeling Episodic Recharge Responses to Weather Events", Role: **co-PI**; $19,644, (UNL: **$19,644**), 2010-2011.

NSF, Supplement to "Development of an Unmanned Aircraft System for Research in a Severe Storm Environment; A Part of the Verification of the Origins of Rotation in Tornadoes Experiment 2", Role: **co-PI**; $13,561, (UNL: **$13,561**), 2010-2011.

NSF, "Development of an Unmanned Aircraft System for Research in a Severe Storm Environment; A Part of the Verification of the Origins of Rotation in Tornadoes Experiment 2", Role: **co-PI**; $421,497, (UNL: **$74,624**), 2009-2011.

NSF**, "**Criticality: A Theory for Understanding and Forecasting Deep Convective Initiation", Role: **PI**; $189,054, (UNL: **$189,054**), 2008-2011.

UNL Office of Research and Economic Development, Layman Award, **"**The Dependence of High-Precipitation Supercells on Pre-existing Airmass Boundaries: A Targeted Modeling Study", Role; **PI**; $9,912, (UNL: **$9,912**), 2008/2009.

NSF, "Collaborative Research: SGER: Unmanned Aircraft System (UAS) for In-Situ Sensing along Atmospheric Airmass Boundaries", Role: **Co-PI**; $99,995, (UNL: **$48,571**), 2007-2008.

Unidata, "WAHTER: Integrating Meteorology Data in Hydrology Research and Education, and Expanding the University of Nebraska's IDD Capabilities", Role: **PI**, $20,000, (UNL: **$20,000**), 2006-2007.

FIELD PROJECTS

FIELD COORDINATOR FOR UNCREWED AIRCRAFT SYSTEMS

SCALES Small-UAS Coordination for Atmospheric Low-Level Environmental Sampling — 2024

TORUS-LItE Targeted Observation by Radars and UAS of Supercells-Left-flank-Intensive Experiment — 2023

TORUS Targeted Observation by Radars and UAS of Supercells — 2019, 2022

Oklahoma intercomparison and rotorwash experiments — 2021

LAPSE-RATE Lower Atmospheric Process Studies at Elevation - a Remotely-piloted Aircraft Team Experiment — 2018

National Robotics Initiative — 2016, 2018

RiVorS Rivers of Vorticity in Supercells — 2017

PRECIP Program for Research on Elevated Convection with Intense Precipitation — 2016

EADDDAS Energy-Aware Dynamic Data-Driven Applications Systems — 2014

MET-MAP Multi-sUAS Evaluation of Techniques for Measurement of Atmospheric Properties — 2014

AVIATE Airdata Verification and Integrated Airborne Tempest Experiment — 2013

VORTEX2 Second Verification of the Origin of Rotation in Tornadoes Experiment — 2010

CoCoNUE Collaborative Colorado-Nebraska UAS Experiment — 2009

FIELD COORDINATOR FOR MOBILE RADAR

NREO 2025 The 2025 Nebraska RaXPol Education and Outreach — 2025

UNDEO 2023 University of Nebraska and DOW Education and Outreach — 2023

UNDEO-6 Sixth University of Nebraska and DOW Education and Outreach — 2019

UNDEO-5 Fifth University of Nebraska and DOW Education and Outreach — 2017

UNDEO-4 Fourth University of Nebraska and DOW Education and Outreach — 2015

UNDEO-3 Third University of Nebraska and DOW Education and Outreach — 2013

UNDEO-2 Second University of Nebraska and DOW Education and Outreach — 2011

UNDEO University of Nebraska and DOW Education and Outreach — 2008

TEACHING

Dynamic Meteorology I, Upper-level undergraduate	2005-2009, 2011,2014, 2015, 2017, 2019, 2021, 2023, 2025
Dynamic Meteorology II, Upper-level undergraduate	2005-2010, 2012, 2015, 2016, 2018, 2020. 2022, 2024
Mesoscale Meteorology, Upper-level undergraduate and graduate-level	2011, 2012, 2014, 2017, 2020, 2022, 2024
Radar Meteorology, Upper-level undergraduate and graduate-level	2008, 2011, 2013, 2015, 2017, 2019, 2021, 2023, 2025
Dynamics of Severe Convective Storms, Graduate-level	2005, 2008, 2010, 2011, 2013, 2016, 2018, 2020, 2022, 2024, 2026
Weather and Climate, Survey-level	2013, 2016, 2018, 2023
Seminar in Meteorology, The impact of environmental heterogeneities on supercells, tornadoes, and deep convection initiation	2021
Mobile Measurement System Design	2017, 2018
Weather Discussion, (Co-taught), Upper-level undergraduate and graduate-level	2009-2010
Climatology Research Forum, (Co-taught), Graduate-level	2009
Severe and Unusual Weather, (University of Illinois, Purdue University, University of Nebraska), Survey-level	2001, 2005, 2006
Weather Analysis and Forecasting, (Purdue University), Upper-level undergraduate	2005
Introduction to Atmospheric Sciences, (Purdue University), Survey-level	2005

STUDENTS SUPERVISED

GRADUATE STUDENTS – MAJOR PROFESSOR

Millicent Tsey, M.S. 2026—Present
The Potential Impact of Targeted versus Routine UAS Observations on Numerical Weather Prediction: Observing System Simulation Experiments

Alex Swan, M.S. 2025—Present
Observing System Simulation Experiments to Investigate Impacts of Deep-Tropospheric Uncrewed Aircraft System Flights on Forecasts

Robert Szot, M.S. 2024—Present

Assessing the Impact of Assimilating Observations from the TORUS Campaign on Forecasts of Severe Convection

Ben Moll, M.S. Graduated 2025
Investigating the Effects of the Urban Heat Island on PBL Thermodynamics Relevant to Deep Convection using Uncrewed Aircraft Systems

Mark DeBruin, M.S. Graduated 2025
A UAS-Centered Investigation of Forward and Left Flank Boundaries in Supercells

Peyton Stevenson, M.S. Graduated 2024
Multi-case study of left-flank boundaries with supercells

Daniel Butler, M.S. Graduated 2024
Design and Evaluation of an ESA-based Method of Ensemble Subsetting for a WOFS (Warn on Forecast-like System

Charles Kropiewnicki, M.S. Graduated 2023
A climatology of mesoscale airmasses with high theta-e.

Kyle Pittman, M.S. Graduated 2023
An empirical examination of the environmental variability that impacted supercell evolution, longevity, and severe weather production on 22 May 2019 in Oklahoma

Matthew Wilson, Ph.D. Graduated 2023
Using observations from TORUS to better understand and simulate the evolution of two proximate supercells on 8 June 2019

Stephen Shield, Ph.D. Graduated 2023
Leveraging "big data" to better understand and predict deep convection initiation

Kristen Axon, M.S. Graduated 2022
Using remote and in situ observations from TORUS to investigate a preexisting airmass boundary and its influence on a tornadic supercell on 28 May 2019

Alexander Erwin, M.S. Graduated 2021
Assessing Deep Convection in a Mountain-Valley System

Alexander Krull, M.S. Graduated 2019
"The role of boundary-parallel vertical wind shear in convection initiation"

Wolfgang Hanft, M.S. Graduated 2017
"Observations and mesoscale simulations of mesoscale airmasses with high θ_e"

Curtis Riganti, M.S. Graduated 2015
"The Formation of Rear Flank Internal Surges: A Case Study from VORTEX2"

George Limpert, Ph.D. Graduated 2013
"Thermodynamic and microphysical controls on mesovortex genesis"

Noah Lock, M.S. Graduated 2012

"The environments of deep convection initiation"

Alexander Gibbs, M.S. Graduated 2011
"Periodicities of peak current and flash multiplicity in cloud to ground lightning strikes"

Jennifer Laflin, M.S. Graduated 2010
"Supercells and preexisting airmass boundaries: A targeted modeling study"

Anthony Reinhart, M.S. Graduated 2009
"Numerical study of mesoscale airmasses with high equivalent potential temperature"

Brian Barjenbruch, M.S. Graduated 2009
"A technique for developing an objective climatology of supercell and non-supercell thunderstorms"

GRADUATE STUDENTS – COMMITTEE MEMBER

Dessydery Mngao Present
Isaac Arseneau, Ph.D., Texas Tech University Present
Jorden Gershenson, M.S., Univ. of Nebraska Omaha (Computer Science) Graduated 2025
Eric Caruthers, M.S. Graduated 2025
Cameron Barker, M.S. Graduated 2025
Devon Healey, Ph.D. Graduated 2025
Robert Sasse, Ph.D., University of Colorado Graduated 2025
Noah Began, M.S. Graduated 2025
Raychel Nelson, M.S. Graduated 2024
Sara McKnight Ph.D. (Math) Graduated 2024
Benjamin Schweigert, M.S. Graduated 2023
Michaela Wood, M.S. Graduated 2023
Devon Healey, M.S. Graduated 2022
Ajay Shankar, Ph.D. (Computer Science and Engineering) Graduated 2021
Timothy Gunkel, M.S. Graduated 2020
Kun-Yuan Lee, M.S. Graduated 2019
Matthew Wilson, M.S. Graduated 2019
Seth Blackwell, Ph.D. (Chemistry) Graduated 2018
Abraham Torres, Ph.D. Graduated 2017
Lena Heuscher, M.S. Graduated 2016
William Silva, M.S., University of Colorado Graduated 2015
Rebecca Duell, M.S. Graduated 2014
Gabriel Lojero, M.S. Graduated 2014
Jason Apke, M.S. Graduated 2013
Jeramie Lippman, M.S. Graduated 2012
Eric Holt, M.S. Graduated 2011
Jack Elston, Ph.D., University of Colorado Graduated 2011
Joshua Barnwell, M.S. Graduated 2011
Tyler Fleming, M.S. Graduated 2009
Natalie Umphlett, M.S. Graduated 2008

UNDERGRADUATE STUDENTS

Josie Pettis 2025—Present
Case Study of 25 June 2024 "Whitman, NE" tornadic supercell (UCARE) [1]

Amy Conner 2024—2025

Can Cloud-to-Ground Lightning Behavior Distinguish Between Tornadic and Non-Tornadic Supercells During Merger Events? (UCARE) [1]

Kylee Matousek 2024—2025
What is the spatiotemporal distribution of deep convection initiation in the Eastern United States? (UCARE) [1]

Anna James 2024—2025
Advancing Understanding of MAHTEs through Airmass Boundary Classification (Senior thesis)

Logan Howard 2022—2023
Seabreeze numerical weather prediction (Senior thesis)

Ryan Martz 2020-2023
"Impact of rotorwash on multi-rotor-based observations of temperature" (UCARE) [1]
The impact of urban heat islands on deep convection initiation (UCARE) [1]

Madeline Diedrichsen 2016-2020
"A radar-based thunderstorm climatology for the eastern US" (NASA)
"Verification of Supercell Thunderstorm Hotspot found in Northeast Colorado" (UCARE) [1]
"Development of an algorithm to extract vertical profiles from UAS flights" (Independent Study)

Faye Shanti 2017-2019
"UAS observations of the 2017 solar eclipse" (NSF)
"Generation of Sound Waves Associated to Merging Vorticity" (UCARE)[1]

Bryan Petersen 2017-2018
"A climatology of the San Luis Valley, Colorado" (NASA)

Nathan Rick 2016-2018
"Tornadic Environments in Eastern Colorado" (UCARE) [1]

Gwyneth Cross 2016-2017
"A radar-based thunderstorm climatology for the eastern US" (NASA)

Dalton Van Stratten 2016-2017
"A radar-based thunderstorm climatology for the eastern US" (NASA)

Taylor Whitney 2016
"Relation between Intensity Contrast and Magnetic Field for Active and Quiet Regions Observed on the Solar Photosphere" (Honors thesis)

[1] UNL Undergraduate Creative Activities and Research Experiences fellowship.

Brandon Centeno (University of Oklahoma) 2015-2016
"Observational examination of the relationship between boundary-normal vertical shear and CI"
(CLOUD-MAP)

Alex Schueth 2014-2016
"UAS observations of a gust front"
(UCARE) [1]
"Software development for IMeT: Data ingest and visualization"
(CLOUD-MAP)

Bradley McCune 2009-2010
"Tornado vortex signature position error"
(UCARE) [1]

Jeremiah Sjoberg 2007-2008
"Towards a radar-based climatology of thunderstorms"

Jamie Lahowetz 2006-2007
Visualization of multi-sensor data for use with unmanned aircraft systems

Jennifer Laflin 2006-2007
"3D initialization of convection in an idealized cloud model"
(UCARE) [1]

POST-DOCTORAL SCIENTISTS SUPERVISED

Matthew Wilson 2023
TORUS Observing System Experiments

Jason Keeler 2015-2018
Unmanned Aircraft Systems Observing System Simulation Experiments for targeted surveillance

George Limpert 2013-2019
- Development of atmospheric models for online planning
- Ensemble sensitivity analyses of supercells
- Observing system experiments for elevated convection

SYNERGISTIC ACTIVITIES

SERVICE TO PROFESSION

Member, UCAR Membership Committee Present

Editor, *Weather and Forecasting* (AMS) 2024-Present

Editor, *Journal of Unmanned Vehicle Systems* (CSP) 2019-Present

Member, American Meteorological Society Scientific and Technological Activities Council (STAC) Mesoscale Processes 2017-Present

Member, Steering Committee, International Society for Atmospheric Research using Remotely-Piloted Aircraft 2017-Present

Session Chair, AMS Mesoscale Symposium	2025
Member, WMO Scoping Planning Committee for the Uncrewed Aircraft Systems Demonstration Campaign	2022-2024
Session Chair, AMS Severe Local Storms Conference	2024
Session Chair, ISARRA Conference	2024
Leadership team, ISARRA Flight Week	2024
Session Chair, Mesoscale Processes Conference	2023
Panel review member, National Academy of Sciences Research Associateship Programs review	2013-2018
Session Chair, Annual Conference of *International Society for Atmospheric Research using Remotely-Piloted Aircraft*	2018
Session Chair, 28th Conference on Weather Analysis and Forecasting / 24th Conference on Numerical Weather Prediction; and the 21st Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface	2017
Session Chair, 21st Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface	2017
Session Chair, 28th AMS Conference on Severe Local Storms	2016
Member, Program Committee, Annual Conference of *International Society for Atmospheric Research using Remotely-Piloted Aircraft*	2016
Session Chair, Annual Conference of *International Society for Atmospheric Research using Remotely-Piloted Aircraft*	2015
Member, Program Committee, Annual Conference of *International Society for Atmospheric Research using Remotely-Piloted Aircraft*	2015
Panel review member, NSF	2014, 2015
Panel review member, NOAA Climate Programs Office Climate Observations and Monitoring	2014
Co-chair, American Meteorological Society Special Symposium on Severe Local Storms: The Current State of the Science and Understanding Impacts	2014
Invited science representative, Weather Ready Nation: A Vital conversation Workshop	2011
Co-chair, American Meteorological Society 25th Severe Local Storms conference	2010

Member, Program Committee for American Meteorological Society's 23rd Conference on Weather Analysis and Forecasting and 19th Conference on Numerical Weather Prediction — 2009

Member, American Meteorological Society Scientific and Technological Activities Council (STAC) Severe Local Storms Committee — 2008-2016

Peer Reviewer

- *Bulletin of American Meteorological Society*
- *Nature*
- *Quarterly Journal of the Royal Meteorological Society*
- *Monthly Weather Review*
- *Journal of Applied Meteorology and Climatology*
- *Journal of the Atmospheric Sciences*
- *Journal of Atmospheric and Oceanic Technology*
- *Journal of Geophysical Research – Atmospheres*
- *Weather Forecasting*
- *Atmospheric Science Letters*
- *International Journal of Climatology*
- *Atmospheric Measurement Techniques*
- *Geoscientific Instrumentation, Methods, and Data Systems*
- *Water Resources Research*
- *Remote Sensing*
- NSF

Member, Review panel for the Central Iowa National Weather Association Pam Daale Scholarship — 2007

External Reviewer, New Mexico Climate Center climate data management — 2007

SERVICE TO UNIVERSITY, COLLEGE, AND DEPARTMENT

Representative, Faculty Senate — 2025-Present

Member, Search Committee College of Arts and Sciences Associate Dean of Research and Graduate Studies — 2024-Present

Chairman, Department of EAS Outreach Committee — 2024-Present

Member, College of Arts and Sciences Freedom of Expression and Academic Freedom Committee — 2017-2019, 2023-Present

Member, University Graduate Council — 2019-2023

Member, Department of EAS Executive Committee — 2019-Present

Member, Department of EAS Graduate Admissions Committee — 2008-2013, 2022-Present

Advisor, UNL student chapter of the American Meteorology Society — 2007-Present

Member, College of Arts and Sciences Executive Committee — 2016-2017, 2020-2021

Member, College Awards committee 2020-2021

Member, Ad hoc University-level graduate grade appeal committee 2020

Chairman, Department of EAS search committee (PTF) 2020

Chairman, Department of EAS faculty search committee (RCM) 2019-2020

Member, University Grading and Examinations Committee 2017-2019

Member, Department of EAS Fellowship and Awards committee 2017-2018

Vice-chair, Department of Earth and Atmospheric Sciences (EAS) 2014-2018

Chairman, Department of EAS faculty search committee 2016-2017

Chairman, College of Arts and Sciences grade appeal (ad hoc) 2016

Member, University of Nebraska UAS working group – develop policy for University-level authorization of UAS operations 2015-2016

Member, College of Arts and Sciences Scholarships and Distinction Committee 2013-2016

Member, Department of EAS Salary Advisory Committee 2007, 2015-2016

Co-coordinator, Weather exhibits (5-6), "Dinosaurs and Disasters" 2007-2013

Reviewer, University of Nebraska Office of Research 2009-2013

Member, Center for Great Plains Studies Scholarship Committee 2009-2011

Member, Department of EAS faculty search committee 2007, 2009, 2011

Chairman, Department of EAS faculty search committee 2010

Panelist (of 4)**,** University of Nebraska *Preparing Future Faculty* program 2008

Member, Department of EAS Information Committee 2008

Chairman, Department of EAS Web Page Committee 2006-2007

PROFESSIONAL SERVICE TO COMMUNITY

Featured Scientist, "Weather Geeks" podcast 2022

Presenter, York summer day camp (15 rising 5th graders, 10 middle schoolers) 2022

Featured Scientist, "Weather Geeks" podcast 2019

Featured Scientist, Xploration Earth 2050 2017
"The Future of Weather Prediction"; Season 4 Ep. 1

Lead, *Investigate: Second Saturday Science Lab at the State Museum* 2017

Exhibitor, Weather Camp 2016, 2017

Exhibitor, IMeT to Allen Consolidated and Wakefield Consolidated junior high and high school students 2016

Featured Scientist, NSF-GEO+NBC-Learn 2015
http://www.nbclearn.com/whennaturestrikes/cuecard/103844

Exhibitor, UNL Women in Science Conference 2015 (outreach exhibit) 2015

Presenter, Crete robotics team for the First Lego League 2013 Nature's Fury Challenge 2013

Presenter, DOW mobile radar exhibition to Girl Scout and Brownie troops 2013

Presenter, DOW mobile radar exhibition to Omaha North STEM magnet science club 2013

Presenter, DOW mobile radar exhibition to Burke HS (Aeronautics and Space career specialty) 2013

Presenter, DOW mobile radar exhibition to FFA State Convention 2013

Presenter, Schoo Middle School, Lincoln, NE 2011

Presenter, Park Middle School, Lincoln, NE 2011

Co-Presenter, *Sunday with a Scientist*, Nebraska State Museum 2011

Presenter, Allen Middle/High School, Allen, NE 2011

Consultant, Durham museum exhibit "We Lived It: Nebraska Storm Stories" 2010

***N-The-Know* online video**, University of Nebraska Communications office (http://www1.unl.edu/mediahub/media/871) 2009

Science fair judge, King Science and Technology's Science Fair, Omaha 2007

Volunteer, UNL-sponsored high school Science Bowl 2007

Co-Coordinator, Weather exhibits (5), *Dinosaurs and Disasters* 2007-2015

Volunteer, *Dinosaurs and Disasters* 2006

AWARDS

UNL, Department of Earth and Atmospheric Sciences, Outstanding Faculty Member, 2024

2024 Spring Nebraska Lecture Series 2024

UNL, Department of Earth and Atmospheric Sciences, Outstanding Faculty Member, 2018

UNL, Department of Earth and Atmospheric Sciences, Lawson Award for Outstanding Teaching	2017
The American Meteorological Society Severe Local Storms 2014 Committee Award	2014
UNL, Department of Earth and Atmospheric Sciences, Outstanding Faculty Member,	2012
NSF, "University of Nebraska Doppler on Wheels Education and Outreach project"	2008, 2011, 2013, 2015, 2017 2019
Fellow, Center For Great Plains Studies	2007-Present
National Center for Atmospheric Research Earth Observing Laboratory, Facilities Allocation, Role: PI, ~$15,000	2007
Big 12 Faculty Fellowship	2006
National Center for Supercomputing Applications, Development Allocation, Role: PI, 10,000 Service Units	2006-2007

INVITED TALKS

Penn State University Department of Meteorology and Atmospheric Science	2025
University of Oklahoma School of Meteorology	2025
Physics and Astronomy Summit	2024
Emergency Management & Disaster Science Open House (Panelist)	2024
Northern Illinois University Seminar Series	2023
Omaha/Valley NWS Spring Seminar Series	2021
High Plains AMS/NWA Conference	2021
Colorado State University, Department of Atmospheric Sciences	2021
LAPSE-RATE Workshop	2020
University of Kansas, Department of Geography and Atmospheric Sciences	2020
Current and Future Uses of Unmanned Aircraft Systems (UASs) for Improved Forecasts/Warnings and Other Scientific Studies, University of Oklahoma	2019
Faculty Connector – UNL	2019
University of Alabama – Huntsville, Department of Atmospheric Sciences	2017
Second Nebraska Data Analytics Workshop	2017
AMS Special Symposium on Severe Local Storms: Observation needs to advance research, prediction and communication	2017
AIAA-Aviation Conference, Characterization of the Atmospheric Environment using UAS	2016
Kansas City AMS club	2015

University of Nebraska at Kearney	2015
University of Colorado, Aerospace Engineering	2014
Iowa State University, Environmental Sciences, Atmospheric Sciences	2014
University of North Dakota Department of Atmospheric Sciences	2013
Nebraska Citizens for Science	2012
Omaha-Offutt AMS club	2011
Central Plains Severe Weather Symposium	2009, 2011
Amateur Radio Relay League Nebraska State Convection	2011
Association for Unmanned Vehicle Systems International	2010
Durham Museum, Omaha	2010
Lincoln Amateur Radio Club	2010
Nebraska Wesleyan, Introduction to Meteorology course	2010
Omaha-Offutt AMS club	2010
Severe Storms Symposium, Glen Ellyn, IL	2009
University of Nebraska at Kearney	2009
University Corporation for Atmospheric Research (UCAR) Annual Meeting break out session: Atmospheric Observing Systems in the U.S.	2007
University of Nebraska, Department of Geosciences' Stout Lecture Series	2007
Texas A&M University, Department of Meteorology	2007
University of Colorado, Research and Engineering Center for Unmanned Vehicles	2006

PROFESSIONAL DEVELOPMENT

Institutional Review Board certification 2016 - Present

WRF tutorial, NCAR 2016

Participant, "Cutting Edge Workshop for Early Career Faculty in the Geosciences: Teaching, Research, and Managing Your Career", College of William and Mary 2007

PROFESSIONAL MEMBERSHIPS

American Meteorological Society

American Geophysical Union

MEDIA INTERVIEWS

2024 media exposure

Reach: 246M people; **Equivalent ad revenue**: $0.5M

Examples: MSN, Daily Mail

2023 media exposure

Reach: 191.9M people; **Equivalent ad revenue**: $0.4M

Examples: Knowable Magazine (picked up by MSN and Smithsonian)

2022 media exposure for TORUS

Reach: 153.7M people; **Equivalent ad revenue**: $1.4M

Examples: *New York Times*, *SBS Dateline Australia*

2019 media exposure for TORUS

Reach: 12M people; **Equivalent ad revenue**: $0.1M

Examples: *Axios*, *NET "What if…"* series, *The Weather Channel*

PRINT MEDIA

New York Times – "TORUS"	2018
The News & Advance – "Fluctuations in storm strength made tornado forecast difficult"	2018
Associated Press—"Drones might help explain how tornadoes form"	2014
USA Today – "Drones may help predict tornadoes in the future"	2014
Associated Press – "Okla. going nearly 250 days without tornado"	2014
Associated Press – "Power of US tornado dwarfs Hiroshima bomb"	2013
Omaha World Herald – "North High students get to check out Doppler on Wheels"	2013
Columns – "Doppler on Wheels Gives Students Rare Opportunity"	2013
Lincoln Journal Star – "Twister list snubs Nebraska"	2012
Scientific American – "Droning it in: Storm-chasing unmanned aerial vehicle makes first foray into nascent twister"	2010
Discovery News – "First unmanned aircraft in a supercell thunderstorm"	2010
USA Today – "Drone aircraft to aid tornado research study in Great Plains"	2010
Omaha World Herald – "Unexpected Data"	2010
Omaha World Herald – "Supercell Sleuths"	2010
Omaha World Herald – "Drone to probe birth of tornadoes"	2010
Omaha World Herald – "Tornado season has a slow start"	2010
Lincoln Journal Star – "UNL part of multi-state tornado project"	2009
Omaha World Herald – UAS and VORTEX-2	2009
The Scarlet– "Flying into the vortex: Houston to help probe severe storms with unmanned aircraft"	2009

TELEVISION, CINEMA, AND RADIO

"Consider this…", Nebraska Public Radio	2024
KZUM – Lincoln tornadoes	2024
Consultation with Director and Production Designer for *Twisters*	2023

WHYY *The Pulse* – TORUS	2022
Dateline Australia – TORUS	2022
NET Radio– Featured Conversation: Drones and storms	2017
NBC Nightly News – Storm chasing	2017
Fox News Radio – UAS and Severe Storms Research Group	2014
Canadian Broadcasting Corporation – 9 regional interviews, Moore, OK tornado	2013
WDEL (Delaware news station) – Moore, OK tornado	2013
KETV – Interview regarding value of storm chasing to research	2013
KHAS (TV Hastings)– "UNL Team Develops Technology To Track Tornadoes With Drones"	2013
KLKN (TV Lincoln)– Tornadoes	2012
KMTV (TV Omaha)– Feature story (VORTEX2)	2010
KVNO (Radio Omaha) – Interview	2009
KLKN (TV Lincoln)– UAS and VORTEX2	2009

REFERENCES

Dr. Brian Argrow, University of Colorado, Boulder
Distinguished Professor of Aerospace Engineering Sciences
Glenn Murphy Endowed Chair
Director of IRISS
National Academy Member

Dr. Clint Rowe, University of Nebraska-Lincoln
Professor of Atmospheric Science
Chair of Department of Earth and Atmospheric Sciences

Dr. James Pinto, National Center for Atmospheric Research
Science Deputy for the Aviation Application Program

Dr. Jamey Jacob, Oklahoma State University
Regents Professor of Aerospace Engineering
Executive Director, Oklahoma Aerospace Institute for Research and Education

Dr. Chris Weiss, Texas Tech University
Professor of Atmospheric Science