

JOSHUA J. ALLAND

University Corporation for Atmospheric Research (UCAR) ◊ 3450 Mitchell Lane ◊ Boulder, CO 80301
jalland@ucar.edu ◊ <http://jjalland.weebly.com/> ◊ he/him/his

EMPLOYMENT

NOAA/NWS National Hurricane Center | UCAR July 2021–Present
Associate Scientist

National Center for Atmospheric Research (NCAR) June 2019–July 2021
Advanced Study Program (ASP) Postdoctoral Fellow
Member of the Early Career Faculty Innovator Program

EDUCATION

University at Albany, State University of New York August 2013–May 2019
Ph.D. in Atmospheric Science
Advisors: Kristen Corbosiero and Brian Tang
Thesis: *Synergistic effects of midlevel dry air and vertical wind shear on tropical cyclone development*

Iowa State University May 2013
B.S. *summa cum laude* with honors in Meteorology
Thesis: *On the observed and modeled development of Hurricane Earl (2010) during rapid intensification*

FELLOWSHIPS AND HONORS

Phi Beta Kappa Society 2012–present
American Meteorological Society Beacon 2017–present
University at Albany Narayan R. Gokhale Distinguished Research Award 2019
National Science Foundation Graduate Research Fellowship 2013–2018
University at Albany Bernard Vonnegut Teaching Award 2018
UCAR Capitol Hill Visits Essay Contest Award Winner 2018
National Oceanic and Atmospheric Administration
Ernest F. Hollings Undergraduate Scholarship 2011–2013
Iowa State University Liberal Arts and Sciences Commencement Student Speaker 2013
Iowa State University Best Senior Thesis Award 2012
American Meteorological Society Named Scholarship 2012
National Weather Association Phillips Family Undergraduate Scholarship in Meteorology 2011

REFEREED PUBLICATIONS

Bukvic, A., K. Mandli, D. Finn, T. Mayo, G. Wong-Parodi, A. Merdjanoff, **J. J. Alland**, C. Davis, R. Haacker, R. Morss, C. O'Lenick, O. Wilhelmi, and D. Lombardozzi (2022): Advancing interdisciplinary and convergent science for communities: Lessons learned through the NCAR Early-Career Faculty Innovator Program, *Bull. Amer. Meteor. Soc.*, **103**, E2513-E2532, doi: 10.1175/BAMS-D-21-0265.1.

Alland, J. J. and C. A. Davis, 2022: Effects of surface fluxes on ventilation pathways and the intensification of Hurricane Michael (2018). *J. Atmos. Sci.*, **79**, 1211-1229, doi: 10.1175/JAS-D-21-0166.1.

Bergin, S. M., C. M. Barton, J. Watts, **J. J. Alland**, and R. E. Morss, 2022: CHIME: Communicating Hazards in the Modern Environment. *CoMSES Computational Model Library*, doi: 10.25937/fqah-sj53.

Alland, J. J., B. H. Tang, K. L. Corbosiero, and G. H. Bryan, 2021: Combined effects of midlevel dry air and vertical wind shear on tropical cyclone development. Part I: Downdraft ventilation, *J. Atmos. Sci.*, **78**, 763-782, doi: 10.1175/JAS-D-20-0054.1.

Alland, J. J., B. H. Tang, K. L. Corbosiero, and G. H. Bryan, 2021: Combined effects of midlevel dry air and vertical wind shear on tropical cyclone development. Part II: Radial ventilation, *J. Atmos. Sci.*, **78**, 783–796, doi: 10.1175/JAS-D-20-0055.1.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2017: Effects of midlevel dry air on development of the axisymmetric tropical cyclone secondary circulation. *J. Atmos. Sci.*, **74**, 1455–1470, doi: 10.1175/JAS-D-16-0271.1.

Tang, B. H., R. Rios-Berrios, **J. J. Alland**, J. D. Berman, and K. L. Corbosiero, 2016: Sensitivity of axisymmetric tropical cyclone spin-up time to dry air aloft. *J. Atmos. Sci.*, **73**, 4269–4287, doi: 10.1175/jas-d-16-0068.1.

MANUSCRIPTS IN PREPARATION

Alland, J. J., Y.-M. Cheng, K. L. Corbosiero, C. D. Thorncroft, and B. H. Tang, 2022: The role of African easterly waves north of the African easterly jet on tropical cyclogenesis. *Mon. Wea. Rev.*, *in prep.*

NON-REFEREED PUBLICATIONS

Alland, J. J., K. C. Carter, A. J. Drager, S. M. Hitchcock, and E. R. Nielsen, 2018: Mistakes will happen in graduate school. *Bulletin of the American Meteorological Society*.

Drager, A. J., E. R. Nielsen, S. M. Hitchcock, **J. J. Alland**, and K. C. Carter, 2017: Building your professional webpage. *Bulletin of the American Meteorological Society*.

Nielsen, E. R., S. M. Hitchcock, A. J. Drager, **J. J. Alland**, and K. C. Carter, 2017: Finding the right match: Tips on the job search and application process. *Bulletin of the American Meteorological Society*.

Carter, K. C., **J. J. Alland**, A. J. Drager, S. M. Hitchcock, and E. R. Nielsen, 2017: Preparing a good CV. *Bulletin of the American Meteorological Society*.

Carter, K. C., **J. J. Alland**, and A. J. Drager, 2017: Observing leaders of today to become the leaders of tomorrow. *Bulletin of the American Meteorological Society*.

Alland, J. J., K. C. Carter, and A. J. Drager, 2016: A conference for students, by students. *The SPS Observer*.¹

Rios-Berrios, R., **J. J. Alland**, and J. D. Berman, 2014: The role of water vapor in tropical cyclone development. *Down to Earth, Physics Today*.²

RESEARCH EXPERIENCE

Changing Mobility of Coastal Populations November 2020–present
Investigator with Anamaria Bukvic (NCAR Innovator) and Alexandra Ramos Boulder, CO

• Using machine learning with survey data to understand when and where coastal populations decide to move when flooding and other extreme weather consistently threaten their residence.

Twitter Analysis of Hurricane Michael (2018) December 2020–present
Investigator with Rebecca Morss, Julie Demuth, Robert Prestley, and Alyssa Cannistraci Boulder, CO

• Analyzing how risk perceptions of the public adjust to rapidly-changing forecast information on this social media platform.

¹Available online at <https://www.spsnational.org/the-sps-observer/spring-summer/2016/conference-students-students>

²Available online at <http://scitation.aip.org/content/aip/magazine/physicstoday/news/10.1063/PT.5.4008;jsessionid=k8ke637rjr0.xaip-live-03>

- Longitudinal Survey of Hurricanes Laura and Marco (2020)** June 2020–present
Investigator with Julie Demuth, Rebecca Morss, Gabrielle Wong-Parodi, Andrea Schumacher, and Dakota Smith
 Boulder, CO
- Analyzing how risk perceptions of the public adjust to rapidly-changing forecast information via a longitudinal survey.
- Rapid Intensification of Tropical Cyclones** June 2019–present
Investigator with Chris Davis and Rebecca Morss
 Boulder, CO
- Utilizing the Model for Prediction Across Scales (MPAS) to investigate how dry air and vertical wind shear modulated Hurricane Michael’s (2018) intensity.
- Evacuation Decision-Making During Rapid Intensification** June 2019–present
Investigator with Rebecca Morss and Chris Davis
 Boulder, CO
- Utilizing an agent-based model to understand how forecast uncertainty in a tropical cyclone’s intensity influences evacuation decision-making among the public.
- Role of Northern and Southern Waves on Tropical Cyclogenesis** January 2015–present
Investigator with Yuan-Ming Cheng
 Albany, NY
- Utilizing the Advanced Research Weather Research and Forecasting Model to analyze the dynamics and thermodynamics of a merging northern and southern wave before developing into a tropical cyclone.
- Tropical Cyclone Development** September 2016–December 2020
Investigator with co-advisors Kristen Corbosiero and Brian Tang
 Albany, NY
- Utilized Cloud Model 1 (CM1) to investigate the synergistic effect of dry air and vertical wind shear on tropical cyclone development.
- Downdrafts, Dry Air, and Tropical Cyclone Spinup** August 2013–September 2016
Investigator with co-advisors Kristen Corbosiero and Brian Tang
 Albany, NY
- Utilized an axisymmetric hurricane model to investigate the role of dry air on the spinup timescale of tropical cyclones.
- Kessler Microphysics in a Simple Cloud Model** August 2015–December 2015
Investigator
 Albany, NY
- Analyzed the importance of autoconversion, accretion, evaporation, and environmental moisture on the development of rain water in a cloud model.
- Midlatitude Eddies and Tropical Cyclone Development** September–December 2014
Investigator with Rosimar Rios-Berrios
 Albany, NY
- Utilized reanalysis datasets to investigate the relationship between midlatitude transient and stationary eddies, the interannual variability of the western North Pacific monsoon trough, and tropical cyclone development.
- Water Vapor’s Role on Tropical Cyclone Development** January–May 2014
Investigator with Rosimar Rios-Berrios and Jeremy Berman
 Albany, NY
- Utilized CM1 to investigate the quantitative role of tropospheric relative humidity on tropical cyclone development using water vapor and relative angular momentum budgets.
- African Easterly Waves and Tropical Cyclogenesis** January–August 2013
Investigator with Tsing-Chang (Mike) Chen
 Ames, IA

- Determined the mechanism behind northern waves crossing the African Easterly Jet using satellite and reanalysis datasets.

Rapid Intensification of Hurricane Earl (2010) August–December 2012
Investigator with Sundararaman Gopalakrishnan and Tsing-Chang (Mike) Chen Ames, IA

- Analyzed the observed and modeled rapid intensification of Hurricane Earl (2010) using dropwindsonde data and the Hurricane Weather Research and Forecasting (HWRF) model.

Parameterization Schemes and Tropical Cyclone Development August–December 2012
Investigator with Amanda Black Ames, IA

- Analyzed the effect of parameterization schemes on the primary and secondary circulations of a tropical cyclone slab model.

Warm Core Structure and Tropical Cyclone Intensity May–August 2012
Intern at the Hurricane Research Division Miami, FL

- Conducted scientific research on the height and depth of the warm core in tropical cyclones and compared these results to the vertical distribution of Hurricane Earl's (2010) warm core before, during, and after Earl's rapid intensification.

SELECTED CONFERENCE AND SYMPOSIA PRESENTATIONS

Alland, J. J., J. Rhome, C. Fritz, M. Brennan, A. Penny, L. Alaka, 2022: NOAA/USGS Instrument deployment: Objective criteria. *National Hurricane Conference*, Orlando, FL.

Alland, J. J., J. Rhome, C. Fritz, A. Penny, L. Alaka, M. Brennan, 2021: P-Surge v2.9 Scientific Evaluation. *Coastal Act Annual Meeting*, virtual.

Alland, J. J., R. E. Morss, A. M. Cannistraci, J. L. Demuth, R. Prestley, S. M. Bergin, and C. M. Barton, 2021: Evacuation decision-making during Hurricane Michael (2018). *34th Conference on Hurricanes and Tropical Meteorology*, virtual.

Alland, J. J. and C. A. Davis, 2021: Effects of ventilation pathways on Hurricane Michael's (2018) intensification. *34th Conference on Hurricanes and Tropical Meteorology*, virtual.

Alland, J. J., C. A. Davis, and R. E. Morss, 2021: Effects of ventilation pathways on Hurricane Michael's (2018) intensification. *101st AMS Annual Meeting*, virtual.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2020: Combined effects of mid-level dry air and vertical wind shear on tropical cyclone development. *100th AMS Annual Meeting*, Boston, MA.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2019: Combined effects of mid-level dry air and vertical wind shear on tropical cyclone development. *19th Cyclone Workshop*, Seon, Bavaria, Germany.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2018: Synergistic effect of mid-level dry air and vertical wind shear on tropical cyclone ventilation pathways. *33rd Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra, FL.

Alland, J. J., and Y.-M. Cheng, 2018: The role of African easterly waves north of the African easterly jet on tropical cyclogenesis. *33rd Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra, FL.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2017: Synergistic effect of mid-level dry air and vertical wind shear on the development of the tropical cyclone secondary circulation. *18th Cyclone Workshop*, Sainte Adele, Quebec, Canada.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2017: Synergistic effect of mid-level dry air and vertical wind shear on the development of the tropical cyclone secondary circulation. *8th Northeast Tropical Meteorology Workshop*, Rensselaerville, NY.

Alland, J. J., and Y.-M. Cheng, 2017: The role of African easterly waves north of the African easterly jet on tropical cyclogenesis. *97th AMS Annual Meeting*, Seattle, WA.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2016: Sensitivity of tropical cyclone spinup time and convection to the initial entropy deficit. *32nd Conference on Hurricanes and Tropical Meteorology*, San Juan, PR.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2015: Sensitivity of tropical cyclone convection to the initial entropy deficit. *17th Cyclone Workshop*, Pacific Grove, CA.

Alland, J. J., B. H. Tang, and K. L. Corbosiero, 2015: Sensitivity of tropical cyclone convection to the initial entropy deficit. *7th Northeast Tropical Meteorology Workshop*, Dedham, MA.

Alland, J. J., R. Rios-Berrios, and J. D. Berman, 2015: Investigating the role of tropospheric water vapor on tropical cyclone development: Water vapor and angular momentum budgets. *14th Annual AMS Student Conference*, Phoenix, AZ.

Alland, J. J., and T.-C. Chen, 2014: North Atlantic hurricanes contributed by African Easterly Waves north and south of the African Easterly Jet, Part II. *31st Conference on Hurricanes and Tropical Meteorology*, San Diego, CA.

Alland, J. J., and T.-C. Chen, 2014: North Atlantic hurricanes contributed by African Easterly Waves north and south of the African Easterly Jet, Part II. *13th Annual AMS Student Conference*, Atlanta, GA.

Alland, J. J., and T.-C. Chen, 2013: North Atlantic hurricanes contributed by African Easterly Waves north and south of the African Easterly Jet, Part II. *2013 Honors Poster Presentation*, Ames, IA.

Alland, J. J., T.-C. Chen, S. G. Gopalakrishnan, T. Quirino, and X. Zhang, 2012: On the observed and modeled development of Hurricane Earl (2010) during rapid intensification. *2013 Honors Alumni Board Meeting*, Ames, IA.

Alland, J. J., T.-C. Chen, S. G. Gopalakrishnan, T. Quirino, and X. Zhang, 2012: On the observed and modeled development of Hurricane Earl (2010) during rapid intensification. *12th Annual AMS Student Conference*, Austin, TX.

Alland, J. J., T.-C. Chen, S. G. Gopalakrishnan, T. Quirino, and X. Zhang, 2012: On the observed and modeled development of Hurricane Earl (2010) during rapid intensification. *20th Annual Iowa State University Atmospheric Science Undergraduate Research Symposium*, Ames, IA.

Alland, J. J., T.-C. Chen, S. G. Gopalakrishnan, T. Quirino, and X. Zhang, 2012: Importance of warm core processes on the rapid intensification of Hurricane Earl (2010). *2012 Student Science & Education Symposium*, Silver Spring, MD.

Alland, J. J., T.-C. Chen, S. G. Gopalakrishnan, T. Quirino, and X. Zhang, 2012: Importance of warm core processes on the rapid intensification of Hurricane Earl (2010). *2012 Hurricane Research Division Student Symposium*, Miami, FL.

OPERATIONAL EXPERIENCE

NOAA National Hurricane Center
Associate Scientist

November 2022–Present
Miami, FL

- Lead the design, development, optimization, and testing of new or revised NHC products.
- Liaison to USGS for instrument deployments during a landfalling hurricane threat.

- Coordinated the release of on-land instrumentation before a landfalling hurricane threat.
- Coordinated the post-storm assessment after a landfalling hurricane.
- Collaborated with modelers at NOAA’s Environmental Modeling Center to get a best-case realization of what happened during a landfalling hurricane (2D mapping of wind, surge, and rainfall hazards) to split up insurance claims.

Mission Flight into Tropical Storm Gordon
Flight Scientist

September 2018
Lakeland, FL

- Collaborated with scientists and Hurricane Hunters onboard NOAA’s WP-3D Orion aircraft to collect radar, dropsonde, and buoy data.

Hurricane and Severe Storm Sentinel (HS3)
Forecaster

September 2014
Wallops Island, VA

- Co-led tropical weather discussions to scientists and pilots associated with HS3. Scientists and pilots gathered information from these briefings to plan flights into tropical disturbances.³

Instrumentation Tower Construction
Co-investigator with Justin Hayward

January–May 2012
Ames, IA

- Assembled an instrumentation tower and analyzed the temperatures of two different temperature sensors to determine if the more expensive sensor was more accurate.

TEACHING EXPERIENCE

Physical Meteorology
Instructor of Record

Spring 2018
Albany, NY

- Designed, prepared, and taught lecture material on cloud microphysics and effective presentation strategies.
- Facilitated in-class discussions and interactive activities to stimulate student interest.
- Prepared homeworks, pop-quizzes, and an exam to assess student growth.

Guest Lecturer

2013, 2015–2018

Dynamic Meteorology I (2018), Atmospheric Thermodynamics (2018), Global Physical Climatology (2017), Weather & Climate Issues (2016), Tropical Meteorology (2015), Atmospheric Dynamics (2013)

Teaching Assistant

2011–2013, 2016, 2017

- Synoptic Meteorology I (2017), Environmental Statistics and Computation (2017), The Oceans (2016), Introduction to Meteorology (2011–2013)

WORKSHOPS AND TRAINING

Florida Atlantic University Geographic Information System (GIS) Advanced Certificate	2021–Present
NHERI RAPID Facility Intensive Training on Reconnaissance Equipment and Data	Summer 2022
USGS Storm-Tide Monitoring Program Training	Summer 2021
NCAR Leadership, Diversity, Equity, and Inclusion Training (UNEION 201)	Winter 2021
Artificial Intelligence for Earth System Science (AI4ESS) Summer School	June 2020
NCAR Leadership, Diversity, Equity, and Inclusion Training (UNEION 101)	Winter 2020
Model for Prediction Across Scales (MPAS) Tutorial	September 2019

³NASA Group Achievement Award

NCAR GIS Program BRIGHTTE Workshop	July 2019
Student Rapporteur at the AMS Summer Community Meeting	August 2018
National Hazards Workshop	Summer 2018
NCAR ASP Graduate Student Visitor	Summer 2018
Disaster, Crisis, and Emergency Management and Policy (graduate-level course)	Fall 2017
University at Albany Seminar in College Teaching	Fall 2016
National Science Foundation Expert Witness Training Academy	August 2015
American Meteorological Society Summer Policy Colloquium	June 2015
Intensive Summer School for Computing in Environmental Sciences (ISSCENS)	June 2014
Advanced Spotter Training	April 2013
Intern at the Hurricane Research Division	Summer 2012
NCAR Undergraduate Leadership Workshop	June 2012
Intern at the National Weather Service in Chanhassen, MN	Summer 2011
Intern at KEYC-TV	Summer 2011

FORMAL MENTORSHIP

Angelie Nieves Jimenez <i>SOARS Protégé at NCAR</i>	2021
Angelie investigated how dry air layers and vertical wind shear affect tropical cyclone development.	
Hannah Messier <i>Iowa State University</i>	2018
Hannah investigated how the subtropical high influences tropical cyclone track for her undergraduate senior thesis.	

LEADERSHIP POSITIONS

American Meteorological Society Committee on Tropical Meteorology and Tropical Cyclones	
Award subcommittee	2022–present
Member	2021–present
American Meteorological Society Board on Societal Impacts	
Member	2021–present
NCAR ASP Networking Committee	
Chair	2020–2021
Member	2019–2021
American Meteorological Society Early Career Leadership Academy	
Member	2020–2021
Department of Atmospheric and Environmental Sciences Graduate Student Committee	
Intradepartmental Educational Resource Co-Chair	2017–2018
American Meteorological Society Student Conference Planning Committee	
Co-Chair	2015–2017
Session Chair	2013–2017
Poster Subcommittee	2013–2014
Co-Chair in Training	2014
New Ideas Forum Planning Committee	2014
University at Albany Future Faculty Leadership Council	
Member	2015–2017
Co-Organizer of the Summer Teaching Bootcamp	2017

Co-Organizer of the College Teaching Symposium	2016
Presenter: <i>Framing a Growth Mindset: Change What Happens in your Classroom</i>	2016
American Meteorological Society Board for Early Career Professionals	
Co-Organizer of the Early Career Networking Event	2016
Session Chair and Committee Member	2014
Iowa State University American Meteorological Society	
President ⁴	2012–2013
Academic Chair ⁵	2011–2012

INTERVIEWS

<i>Palm Beach Post</i> discussing the rapid intensification of Hurricane Iota	2020
<i>E&E News</i> discussing the rapid intensification of Hurricane Eta	2020
<i>Palm Beach Post</i> discussing the rapid intensification of Hurricane Sally	2020
<i>E&E News</i> discussing the rapid intensification of Hurricane Sally	2020
<i>E&E News</i> discussing Hurricanes Laura and Marco	2020
<i>9News Colorado</i> discussing Hurricanes Laura and Marco	2020

OUTREACH

101st AMS Annual Meeting Student Presentation Judge	2021
Judged student presentations for the <i>16th Symposium on Societal Applications: Policy, Research and Practice</i> and the <i>4th Special Symposium on Tropical Meteorology and Tropical Cyclones</i> .	
Colorado Science and Engineering Fair Judge	2020
Judged student presentations at the annual state-wide competition.	
National Science Foundation Natural Disaster Resilience Event	2020
Talked with Congressional staffers in Washington D.C. about NCAR-funded research to improve natural disaster resilience.	
13th Annual Earth System and Space Science Poster Conference Poster Judge	2019
Judged student posters at the University of Colorado-Boulder.	
NCAR Explorer Series	2018, 2019
Assisted NCAR staff prepare for public presentations led by Rebecca Morss titled <i>Hurricane forecasts: Communicating risk to communities</i> , and by Rebecca Centeno titled <i>Keeping an Eye on the Sun's Magnetism</i> .	
Student Discussions at NCAR	2018, 2019
Interacted with and offered advice to students in various NCAR programs (e.g., Bridge to the Geosciences program and the Undergraduate Leadership Workshop).	
Capitol Hill Discussions	2018
Visited Congressional staffers in Washington D.C. with UCAR's Board of Trustees and the UCAR President's Advisory Committee on University Relations to discuss the importance of funding scientific basic research.	
MiSci Science Festival of the Capital Region	2017, 2018
Demonstrated weather experiments and facilitated green screen weather broadcasts with families.	
Guilderland Elementary School	2018
Excited first grade students with fun STEM demonstrations on hurricanes and thunderstorms.	

⁴ Award: Student Chapter of the Year by the American Meteorological Society

⁵ Award: Student Chapter of the Year by the American Meteorological Society

SOARS Poster Judge 2018
 Judged student posters of research conducted during the Significant Opportunities in Atmospheric Research and Science (SOARS) program.

Super Science Saturday 2018
 Collaborated with NCAR staff to conduct fun weather demonstrations for families at the NCAR-Wyoming Supercomputer Center.

Rise High Program 2018
 Planned interactive activities and demonstrations to educate students and excite interest in meteorology.

Voorheesville High School 2014–2016, 2018
 Co-participated in forecast discussions and fun demonstrations.

University at Albany Earth Day 2014–2015, 2017
 Educated students using meteorological demonstrations and built anemometers.

University at Albany Weather & Climate Camp 2015–2017
 Taught high school students about Earth’s atmosphere using a rotating tank, presented on hurricanes, and helped students develop presentable projects using data collected from a field trip.

Severe Weather Safety Bags 2013
 Co-led an effort to put severe weather safety information on over 1 million grocery bags throughout the Midwest.

Keep Austin Beautiful 2013
 Co-led over 20 members of the Iowa State University American Meteorological Society to clean up Austins’ parks.

Science Bowl Competition 2013
 Served as a judge for the annual middle and high school Science Bowl.

Science Olympiad Competition 2013
 Co-trained middle school students for Science Olympiad. These students received first place in their division.

Severe Weather Poster Contest 2013
 Organized a state-wide elementary school poster contest to promote severe weather safety.

Elementary School Science Nights 2012–2013
 Co-educated over 1000 students during numerous science nights. Activities included: weather *Jeopardy*, building anemometers, weather arts-and-crafts, and creating a tornado in a simulator.

Mobile Home Project 2012–2013
 Co-initiated an effort to provide severe weather safety information at all mobile home parks in Iowa.

Boy Scout Weather Merit Badge 2012
 Helped Boy Scouts earn their Weather Merit Badge by inviting speakers to talk about meteorology and by creating wooden anemometers.

Other Outreach
REU/Scholarship Night: Educated students on internships and scholarship opportunities. 2014–2018
AMS Annual Meeting: Organized a road trip so over 30 students could attend the Annual Meeting. 2013
Professional Development Activities: Co-organized many professional development activities including: forecasting for the local newspaper, launching a weather balloon, Buikit/GR tutorial, news station tour, National Severe Storms Laboratory tour, National Weather Service tour, and storm chasing seminar. 2012–2013

TECHNICAL STRENGTHS

Operating Systems Linux, Windows
Languages Python, GIS, NCL, FORTRAN, GrADS, HTML, CSS, Java

PROFESSIONAL SERVICE

35th Conference on Hurricanes and Tropical Meteorology

Co-chair of the award committee for the Max A. Eaton Student Prize and the Outstanding Student Presentation Awards. 2022

34th Conference on Hurricanes and Tropical Meteorology

Session chair for *Interdisciplinary research to improve the hurricane forecasting–warning–response system: Past, current, and future foci* 2021

101st American Meteorological Society Annual Meeting

Session chair for *Rapid Intensification of Tropical Cyclones* 2021

Manuscript Reviews

Associate Editor for *AMS Monthly Weather Review* 2021–present

Reviewer for National Aeronautics and Space Administration, National Science Foundation, *AGU Journal of Geophysical Research*, *Bulletin of the American Meteorological Society*, *AMS Journal of Applied Meteorology and Climatology*, *AMS Journal of the Atmospheric Sciences*, *AMS Journal of Climate*, *AMS Monthly Weather Review*, *AMS Weather and Forecasting*, and *AMS Weather, Climate, and Society*.

Other Service

Gave tropical weather briefings to scientists and flight crews during Hurricane Research Division (HRD) weather discussions. 2018, 2020

Co-designed flight plans for HRD’s Hurricane Field Program.⁶ 2020

Provided editorial comments to a book chapter titled “The Hurricane Boundary Layer”, written by Sundararaman G. Gopalakrishnan, C. Venkata Srinivas, and Kieran T. Bhatia. 2013

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science
American Geophysical Union
American Meteorological Society
National Weather Association
Nearshore Extreme Events Research (NEER) Association
Social Science Extreme Events Research (SSEER) Network

⁶The scientific motivation for the flight plans, as well as a description of the flight plans, is available online at: https://www.aoml.noaa.gov/wp-content/uploads/2020/05/2020HFP_EarlyStage_Science_AIPEX.pdf