

## Curriculum Vitae – William A. Gallus, Jr.

### CONTACT INFORMATION

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### EDUCATION

<u>Degree</u>	<u>Institution</u>	<u>Date</u>	<u>Field</u>
Ph.D.	Colorado State University	1993	Atmospheric Science
M.S. (National Science Foundation Graduate Fellow)	Colorado State University	1989	Atmospheric Science
B.S. (Highest Distinction)	The Pennsylvania State University	1987	Meteorology

### PROFESSIONAL EXPERIENCE

<u>Position</u>	<u>Date</u>
• Professor, Dept. of Geological and Atmospheric Sci. Iowa State University, Ames, IA 50011	July 1, 2006 --
• Professor-in-charge, Meteorology Program, Associate Chair, Dept. of Geological and Atmospheric Sci. Iowa State University, Ames, IA 50011	April 1, 2019 --
• Professor-in-charge, Meteorology Program Iowa State University, Ames, IA 50011	July 1, 2004 – June 30, 2010
• Associate Professor, Dept. of Geological and Atmospheric Sci. Iowa State University, Ames, IA 50011	July 1, 2001 – June 30, 2006
• Assistant Professor, Dept. of Geological and Atmospheric Sci. Iowa State University, Ames, IA 50011	Aug. 15, 1995 – June 30, 2001
• Univ. Corp. for Atmos. Research Visiting Postdoctoral Scientist National Meteorological Center, Camp Springs, MD	Oct. 1, 1993 – Aug. 7, 1995

**RESEARCH AND SCHOLARSHIP (Citations: 5,434-Google Scholar, H-index: 32-Web of Science, 40-Google Scholar, I10-index: 83)**

#### *Primary Research Interests:*

- High resolution numerical weather prediction
- Convective system dynamics and rainfall prediction
- Use of innovative technologies for geoscience education
- Tornadoes and Severe thunderstorms

#### *Refereed Papers and Book Chapters*

##### *Book Chapters*

1. Gallus, W. A., Jr., 2012: The Challenge of Warm-Season Convective Precipitation Forecasting. Rainfall Forecasting, Nova Science Publishers, 129-160, ISBN 978-61942-134-9.

*Scientific Journals*

1. Johnson, R. H., W. A. Gallus, Jr. and M. D. Vescio, 1990: Near-tropopause vertical motion within the trailing stratiform regions of squall lines. *J. Atmos. Sci.*, **47**, 2200-2210.
2. Gallus, W. A., Jr., and R. H. Johnson, 1991: Heat and moisture budgets of an intense midlatitude squall line. *J. Atmos. Sci.*, **48**, 122-146.
3. Gallus, W. A., Jr., and R. H. Johnson, 1992: The momentum budget of an intense midlatitude squall line. *J. Atmos. Sci.*, **49**, 422-450.
4. Gallus, W. A., Jr. and R. H. Johnson, 1995: The dynamics of circulations within the stratiform regions of squall lines: Part II: Influence of the convective line and ambient environment. *J. Atmos. Sci.*, **52**, 2188-2211.
5. Gallus, W. A., Jr. and R. H. Johnson, 1995: The dynamics of circulations within the stratiform regions of squall lines: Part I: The 10-11 June PRE-STORM system. *J. Atmos. Sci.*, **52**, 2161-2187.
6. Gallus, W. A., Jr., 1996: The influence of microphysics on the formation of intense wake lows: A numerical modeling study. *Mon. Wea. Rev.*, **124**, 2267-2281.
7. Gallus, W. A., Jr. and M. Rancic, 1996: A nonhydrostatic version of the NMC's regional eta model. *Quart. J. Roy. Meteorol. Soc.*, **122**, 495-513.
8. Gallus, W. A., Jr. and J. F. Bresch, 1997: An intense small-scale wintertime vortex in the midwest United States. *Mon. Wea. Rev.*, **125**, 2787-2807.
9. Gallus, W. A., Jr. and M. Segal, 1999: Cold front acceleration over Lake Michigan. *Wea. and Forecasting*, **14**, 771-781.
10. Gallus, W. A., Jr., 1999: Eta simulations of three extreme precipitation events: Impact of resolution and choice of convective parameterization. *Wea. and Forecasting*, **14**, 405-426.
11. Gallus, W. A., Jr. and M. Segal, 1999: Diabatic effects on late winter cold front evolution: Conceptual and numerical model evaluations. *Mon. Wea. Rev.*, **127**, 1518-1537.
12. Yarger, D. N., W. A. Gallus, Jr., M. Taber, J. P. Boysen and P. Castleberry, 2000: A forecasting activity for a large introductory meteorology course. *Bull. Amer. Meteor. Soc.*, **81**, 31-39.
13. Gallus, W. A., Jr. and J. B. Klemp, 2000: On the behavior of flow over step orography. *Mon. Wea. Rev.*, **128**, 1153-1164.
14. Olsen, M. A., W. A. Gallus, Jr., J. L. Stanford, and J. M. Brown, 2000: Fine-scale comparison of TOMS total ozone data with model analysis of an intense Midwestern cyclone. *J. Geophys. Res.*, **105**, 20,487-20,495.
15. Gallus, W. A., Jr., and M. Segal, 2000: Sensitivity of forecasted rainfall in a Texas convective system to soil moisture and convective parameterization. *Wea. Forecasting*, **15**, 509-525.
16. Gallus, W. A., Jr., 2000: The impact of step orography on flow in the Eta model: Two contrasting examples. *Wea. Forecasting*, **15**, 630-637.
17. Gallus, W. A., Jr., D. N. Yarger and D. E. Herzmann, 2000: An interactive severe weather activity to motivate student learning. *Bull. Amer. Meteor. Soc.*, **81**, 2205-2212.
18. Goering, M. A., W. A. Gallus, Jr., J. L. Stanford, and M. A. Olsen, 2001: The role of stratospheric air in a severe weather event: analysis of PV and total ozone. *J. Geophys. Res.*, **106**, 11,813-11,823.
19. Wei, H., M. Segal, W. J. Gutowski, Jr., Z. Pan, R. W. Arritt, and W. A. Gallus, Jr., 2001: Sensitivity of simulated regional snowmelt characteristics to the selection of the first model level height. *Journal of Hydrometeorology*, 395-405.
20. Gallus, W. A., Jr., and M. Segal, 2001: Impact of improved initialization of mesoscale features on convective system rainfall in 10 km Eta simulations. *Wea. Forecasting*, **16**, 680-696.
21. Zhang, J., Pu, J., J. McCalley, H. Stern, and W. A. Gallus, Jr., 2002: A Bayesian approach for short-term transmission line thermal overload risk assessment. *Institute of Electrical and Electronics Engineering Transactions on Power Delivery*, **17**, **3**, 770-778.
22. Gale, J. J., W. A. Gallus, Jr., and K. A. Jungbluth, 2002: Toward improved forecasting of mesoscale convective system dissipation. *Wea. Forecasting*, **17**, 856-872.
23. Chen, T.-C., M.-C. Yen, W.-R. Huang, and W. A. Gallus, Jr., 2002: An East-Asian cold surge: Case study. *Mon. Wea. Rev.*, **130**, 2271-2290.

24. Gallus, W. A., Jr., 2002: Impact of verification grid box size on warm season QPF skill measures. *Wea. Forecasting*, **17**, 1296-1302.
25. Prusa, J., M. Segal, W. A. Gallus, Jr., and E. S. Takle, 2002: Conceptual and scaling evaluation of vehicles' traffic thermal effect on road snow/ice. *J. Appl. Meteor.*, **41**, 1225-1240.
26. Gallus, W. A., Jr., D. N. Yarger, C. Cruz-Neira, and R. Heer, 2003: An example of a virtual reality learning environment. *Bull. Amer. Meteor. Soc.*, **84**, 18-21.
27. Knollhoff, D. S., E. S. Takle, W. A. Gallus, Jr., D. Burkheimer, and D. McCauley, 2003: Evaluation of a frost accumulation model. *Meteor. Applications*, **10**, 337-343.
28. Segal, M., E. A. Aligo, and W. A. Gallus, Jr., 2004: A conceptual and scaling evaluation of the surface wetness effect on daytime moisture convergence along a surface cold front with differential cloud cover. *J. of Hydrometeorology*, **5**, 363-369.
29. Jankov, I., and W. A. Gallus, Jr., 2004: Some contrasts between good and bad forecasts of warm season convective system rainfall. *J. of Hydrology*, **288**, 122-152.
30. Jankov, I., and W. A. Gallus, Jr., 2004: MCS rainfall forecast accuracy as a function of large-scale forcing. *Wea. Forecasting*, **19**, 428-439.
31. Gallus, W. A., Jr., and M. Segal, 2004: Does increased predicted warm season rainfall indicate enhanced likelihood of rain occurrence? *Wea. Forecasting*, **19**, 1127-1135.
32. Carmichael, C. G., W. A. Gallus, Jr., B. R. Temeyer, and K. M. Bryden, 2004: A winter weather index for estimating winter highway maintenance costs. *J. Appl. Meteor.*, **43**, 1783-1790.
33. Chen, T.-C., S.-Y. Wang, M.-C. Yen and W. A. Gallus, Jr., 2004: Role of the monsoon gyre in the interannual variation of tropical cyclogenesis over the western North Pacific. *Wea. Forecasting*, **19**, 776-785.
34. Gallus, W. A., Jr., C. Cervato, C. Cruz-Neira, G. Faidley, and R. Heer, 2005: Learning storm dynamics with a virtual thunderstorm. *Bull. Amer. Meteor. Soc.*, **86**, 162-163.
35. Gallus, W. A., Jr., J. Correia, Jr., and I. Jankov, 2005: The 4 June 1999 derecho event: A particularly difficult challenge for numerical weather prediction. *Wea. Forecasting*, **20**, 705-728.
36. Jankov, I., W. A. Gallus, Jr., B. Shaw, and S. E. Koch, 2005: On the impacts of different physical parameterizations and their interactions on warm season MCS rainfall. *Wea. Forecasting*, **20**, 1048-1060.
37. Grams, J. S., W. A. Gallus, Jr., L. S. Wharton, S. E. Koch, A. Loughe, and E. E. Ebert, 2006: The use of a modified Ebert-McBride technique to evaluate mesoscale model QPF as a function of convective system morphology during IHOP 2002. *Wea. Forecasting*, **21**, 288-306.
38. Gallus, W. A., Jr., and J. F. Bresch, 2006: Comparison of impacts of WRF dynamic core, physics package, and initial conditions on warm season rainfall forecasts. *Mon. Wea. Rev.*, **134**, 2632-2641.
39. Gallus, W. A., Jr., C. Cervato, C. Cruz-Neira, and G. Faidley, 2006: A virtual tornadic thunderstorm enabling students to construct knowledge about storm dynamics through data collection and analysis. *Advances in Geoscience*, 27-32, SRef-ID: 1680-7359/adgeo/2006-8-27.
40. Gallus, W. A., Jr., 2006: Cyclone at the Cyclone game. *Bull. Amer. Meteor. Soc.*, **87**, 1190-1191.
41. Gallus, W. A., Jr., M. E. Baldwin, and K. L. Elmore, 2007: Evaluation of probabilistic precipitation forecasts determined from Eta and AVN forecasted amounts. *Wea. Forecasting*, **22**, 207-215.
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43. Aligo, E. A., W. A. Gallus, Jr., and M. Segal, 2007: Evaluation of rainfall forecast spread in an ensemble initialized with different soil moisture analyses. *Wea. Forecasting*, **22**, 299-314.
44. Clark, A., W. A. Gallus, Jr., and T.-C. Chen, 2007: Comparison of the diurnal cycle in convection-resolving and non-convection-resolving mesoscale models. *Mon. Wea. Rev.*, **135**, 3456-3473.
45. Kuai, L, F. L. Haan, Jr., W. A. Gallus, Jr., and P. P. Sarkar, 2008: CFD Simulations of the flow field of a laboratory-simulated tornado for parameter sensitivity studies and comparison with field measurements. *Wind and Structures*, **11**, 2, 75-96.
46. Clark, A., W. A. Gallus, Jr., and T.-C. Chen, 2008: Contributions of mixed physics and perturbed lateral boundary conditions to the skill and spread of precipitation forecasts from a WRF ensemble. *Mon. Wea. Rev.*, **136**, 2140-2156.
47. Gallus, W. A., Jr., E. V. Johnson, and N. Snook, 2008: Spring and summer severe weather reports over the Midwest as a function of convective mode: A preliminary study. *Wea. Forecasting*, **23**, 101-113.
48. Haan, F. L., Jr., P. P. Sarkar, and W. A. Gallus, Jr., 2008: Design, construction and performance of a large tornado simulator for wind engineering applications. *Engineering Structures*, **30**, 1146-1159.

49. Gallus, W. A., Jr., and M. Pfeifer, 2008: Intercomparison of simulations using 5 WRF microphysical schemes with dual-Polarization data for a German squall line. *Advances in Geosciences*, **16**, 109-116.
50. Aligo, E. A., W. A. Gallus, Jr., and M. Segal, 2009: On the impact of WRF model vertical grid resolution on Midwest summer rainfall forecasts. *Wea. Forecasting*, **24**, 575-594.
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52. Clark, A. J., and W. A. Gallus, Jr., 2009: A comparison of precipitation skill between small convection-resolving and large non-convective-resolving ensembles. *Wea. Forecasting*, **24**, 1121-1140.
53. Ebert, E. E., and W. A. Gallus, Jr., 2009: Toward better understanding of the contiguous rain area (CRA) method. *Wea. Forecasting*, **24**, 1401-1415.
54. Cervato, C., W. A. Gallus, Jr., P. Boysen, and M. Larsen, 2009: Today's forecast: higher thinking with a chance of conceptual growth. *EOS*, **90**, 20, 19 May 2009.
55. Boudreaux, H., P. Bible, C. Cruz-Neira, T. Parham, C. Cervato, W. A. Gallus, Jr., and P. Stelling, 2009: V-Volcano: Addressing student misconceptions in Earth Sciences learning through virtual reality simulations. *International Symposium on Visual Computing*, 1009-1018.
56. Gallus, W. A., Jr., 2010: Application of object-oriented verification techniques to ensemble precipitation forecasts. *Wea. Forecasting*, **25**, 144-158.
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58. Parham, T. L., C. Cervato, W. A. Gallus, Jr., M. Larsen, P. Stelling, J. Hobbs, T. Greenbowe, T. Gupta, J. A. Knox, T. E. Gill, and A. Kar, 2010: The InVEST Volcanic Concept Survey Exploring Student Understanding About Volcanoes. *J. Geoscience Education*, **58**(3), 177-187.
59. Clark, A. J., W. A. Gallus, Jr., M. Xue, and F. Kong, 2010: Growth of spread in convection-allowing and convection-parameterizing Ensembles. *Wea. Forecasting*, **25**, 594-612.
60. Duda, J. D., and W. A. Gallus, Jr., 2010: Spring and summer Midwestern severe weather reports in supercells compared to other morphologies. *Wea. Forecasting*, **25**, 190-206.
61. Clark, A. J., W. A. Gallus, Jr., M. Xue, and F. Kong, 2010: Convection-allowing and convection-parameterizing ensemble forecasts of a mesoscale convective vortex and associated severe weather. *Wea. Forecasting*, **25**, 1052-1081.
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64. Le, V. T., W. A. Gallus, Jr., M. A. Olsen, and N. Livesy, 2010: Comparison of Aura MLS water vapor measurements with GFS and NAM analyses in the upper troposphere/lower stratosphere. *J. Atmos. Ocean. Tech.*, **27**, 274-289.
65. Schaffer, C. J., W. A. Gallus, Jr., and M. Segal, 2011: Improving probabilistic ensemble forecasts of convection through the application of QPF-POP relationships. *Wea. Forecasting*, **26**, 319-336.
66. Cervato, C., W. A. Gallus, Jr., P. Boysen, and M. Larsen, 2011: Dynamic Weather Forecaster: Results of the testing of a collaborative, on-line educational platform for weather forecasting. *Earth Science Informatics*, **4**, 181-189.
67. Le, V. T., and W. A. Gallus, Jr., 2012: Effect of an extratropical mesoscale convective system on water vapor transport in the upper troposphere/lower stratosphere: A modeling study. *J. Geophys. Res.*, **117**, D03111, doi: 10.1029/2011JD016685.
68. Deppe, A. J., W. A. Gallus, Jr., and E. S. Takle, 2013: A WRF ensemble for improved wind forecasts at turbine height. *Wea. Forecasting*, **28**, 212-228.
69. Karstens, C. D., W. A. Gallus, Jr., B. D. Lee, and C. A. Finley, 2013: Analysis of tornado-induced tree-fall using aerial photography from the Joplin, MO and Tuscaloosa-Birmingham, AL tornadoes of 2011. *J. Appl. Meteor. Clim.*, **52**, 1049-1068.
70. Suess, L., W. A. Gallus, Jr., C. Cervato, and J. Hobbs, 2013: Weather forecasting as a learning tool in a large service course: Does practice make perfect? *Wea. Forecasting*, **28**, 762-771.
71. Duda, J. D., and W. A. Gallus, Jr., 2013: The impact of large-scale forcing on skill of simulated convective initiation and upscale evolution with convection-allowing grid spacings in the WRF. *Wea. Forecasting*, **28**, 994-1018.

72. Snively, D. V., and W. A. Gallus, Jr., 2014: Prediction of convective morphology in near-cloud permitting WRF model simulations. *Wea. Forecasting*, **29**, 130-149.
73. Walton, R. A., E. S. Takle, and W. A. Gallus, Jr., 2014: Characteristics of 50-200 m winds and temperatures derived from an Iowa tall tower network. *J. Appl. Meteor. Clim.*, **53**, 2387-2393.
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76. Moser, B. A., W. A. Gallus, Jr., and R. Mantilla, 2015: An initial assessment of radar data assimilation on warm season rainfall forecasts for use in hydrologic models. *Wea. Forecasting*, **30**, 1491-1520.
77. Lawson, J., and W. A. Gallus, Jr., 2016: On contrasting ensemble simulations of two Great Plains bow echoes. *Wea. Forecasting*, **31**, 787-810.
78. Squitieri, B. J., and W. A. Gallus, Jr., 2016: WRF forecasts of Great Plains nocturnal low-level jet-driven MCSs. Part I: Correlation between low-level jet forecast accuracy and MCS precipitation forecast skill. *Wea. Forecasting*, **31**, 1301-1323.
79. Yan, H., and W. A. Gallus, Jr., 2016: An evaluation of QPF from the WRF, NAM and GFS models using multiple verification methods over a small domain. *Wea. Forecasting*, **31**, 1363-1379.
80. Lawson, J., and W. A. Gallus, Jr., 2016: Adapting the SAL method to evaluate model reflectivity forecasts of summer precipitation in the central United States. *Atmos. Sci. Let.*, doi:10.1002/asl.687.
81. Squitieri, B. J., and W. A. Gallus, Jr., 2016: WRF forecasts of Great Plains nocturnal low-level jet-driven MCSs. Part II: Identifying the differences between strongly and weakly forced low-level jet forecast environments. *Wea. Forecasting*, **31**, 1491-1510.
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86. Kochasic, M., W. A. Gallus, Jr., and Christopher J. Schaffer, 2017: Further evaluation of probabilistic convective precipitation forecasts using the QPF-POP neighborhood relationship. *Wea. Forecasting*, **32**, 1423-1440.
87. Stelten, S. and W. A. Gallus, Jr., 2017: Pristine nocturnal convective initiation: A climatology and preliminary examination of predictability. *Wea. Forecasting*, **32**, 1613-1635.
88. Gallus, W. A., Jr., A. Parodi, and M. Maugeri, 2017: Possible impacts of a changing climate on intense Ligurian Sea rainfall events. *International J. of Climatology*, DOI: 10.1002/joc.5372.
89. Saaman, A., and W. A. Gallus, Jr., 2018: A classification of synoptic patterns that produced heavy precipitation in the Kingdom of Saudi Arabia during the period 2000-2014. *Atmosfera*, **31(1)**, 47- 67.
90. Jahn, D. E. and W. A. Gallus, Jr., 2018: Impacts of modifications to a local planetary boundary layer scheme on Great Plains low-level jet forecasts. *Wea. Forecasting*, **33**, 1109-1120.
91. Carlberg, B., W. A. Gallus, Jr., and K. Franz, 2018: A preliminary examination of WRF ensemble prediction of convective mode evolution. *Wea. Forecasting*, **33**, 783-796.
92. Saaman, A. and W. A. Gallus, Jr., 2018: A climatology of low-level jets in the Saudi Arabian region. *International J. of Climatology*, 1-17, DOI:10.1002/joc.5742.
93. Gallus, W. A., Jr., J. Wolff, J. Halley Gotway, and M. Harrod, 2019: The impacts of using mixed physics in the Community Leveraged Unified Ensemble. *Wea. Forecasting*, **34**, 849-867.
94. Saaman, A., and W. A. Gallus, Jr., 2019: Causes of the winter low level jet over the Red Sea. *Quart. J. of Roy. Meteor. Soc.*, 291-2509.

95. Jahn, D. E., W. A. Gallus, Jr., P. Nguyen, Q. Pan, K. Cetin, E. Byon, L. Manuel, Y. Zhou, and E. Jahani, 2019: Challenges in predicting most likely future urban high temperature extremes by mid-century for the central U.S., *Atmosphere*, 10(12), 727, 15pp. DOI 10.3390/atmos10120727.
96. Thielen, J., and W. A. Gallus, Jr., 2019: Horizontal grid spacing influences on WRF forecasts of convective morphology evolution for nocturnal MCSs in weakly-forced environments. *Wea. Forecasting*, 34, 1495-1517.
97. Weckwerth, T. M., J. Hanesiak, J. W. Wilson, X. Wang, R. D. Roberts, W. A. Gallus, Jr., and S. B. Trier, 2019: Nocturnal convective initiation during PECAN 2015. *Bull. Amer. Meteor. Soc.*, 100, 2223-2339.
98. Squitieri, B. J. and W. A. Gallus, Jr., 2019: Corrigendum: WRF forecasts of Great Plains nocturnal low-level jet-driven MCSs. Part I: Correlation between low-level jet forecast accuracy and MCS precipitation forecast skill. *Wea. Forecasting*, 481-482.
99. Parodi, A., M. Lagasio, M. Maugeri, B. Turato, and W. A. Gallus, Jr., 2019: Observational and modelling study of a major downburst event in Liguria: the 14 October 2016 case. *Atmosphere*, 10 (12), 788, 16pp. DOI: 10.3390/atmos10120788.
100. Jahani, E., S. Vanage, D. E. Jahn, K. Cetin, and W. A. Gallus, Jr., 2020: City-scale energy modeling to assess impacts of extreme heat on electricity consumption and production using WRF-UCM modeling with bias correction. *Canadian Society for Civil Engineers Annual Conference*, Montreal, Quebec, June 12-15, 2019.
101. Jahani, E., S. Vanage, D. E. Jahn, K. Cetin, and W. A. Gallus, Jr., 2020: Urban weather predictions compared to a dense network of ground-based weather station data for assessment of urban energy consumption. *ASHRAE Transactions 2019* Vol. 125, Part 2, (<https://par.nsf.gov/biblio/10111078>).
102. Squitieri, B. J., and W. A. Gallus, Jr., 2020: On the forecast sensitivity of MCS cold pools and related features to horizontal grid spacing in convection-allowing WRF simulations. *Wea. Forecasting*, 35, 325-346.
103. Lawson, J., W. A. Gallus, Jr., and C. K. Potvin, 2020: Sensitivity of a bowing mesoscale convective system to horizontal grid spacing in a convection-allowing ensemble. *Atmosphere*, 11, 384: doi:10.3390/atmos11040384.
104. Jahani, E., S. Vanage, K. Cetin, W. A. Gallus, Jr., and D. Jahn, 2020: The Impact of Urban Heat Island on Calibrated Building Energy Model Predictions, *2020 ASHRAE Virtual Conference*, June 27-July 1, 2020.
105. Mauri, E. M. and W. A. Gallus, Jr., 2021: Differences between Severe and Non-Severe Warm-Season Nocturnal Bow Echo Environments. *Wea. Forecasting*, 36, 53-74. DOI: 10.1175/WAF-D-20-0137.1.
106. Carlberg, B., W. A. Gallus, Jr., and K. Franz, 2020: Spatial shifting of QPF as a tool to provide probabilistic streamflow guidance. *Water*, 12(12), 3505; <https://doi.org/10.3390/w12123505>.
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108. Vertz, N., W. A. Gallus, Jr., and B. J. Squitieri, 2021: Relationship of MCS initiation errors to moisture errors in the inflow region. *Atmosphere*. 12(1), 7; <https://doi.org/10.3390/atmos12010007>.
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111. Kiel, B., W. A. Gallus, Jr., and K. Franz, 2022: A climatology of displacement errors for warm-season precipitating systems in two convection-allowing ensembles. *J. Hydromet.*, 23 (6), 1007-1024. <https://doi.org/10.1175/JHM-D-21-0076.1>
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113. Squitieri, B. J., and W. A. Gallus Jr., 2022: On the Changes in Convection-Allowing WRF Forecasts of MCS Evolution due to Decreases in Model Horizontal and Vertical Grid Spacing. Part II: Impacts on QPFs. *Wea. Forecasting*, 37, 1925-1940, doi:10.1175/WAF-D-22-0042.1
114. Hugelback, K., K. Franz, and W. A. Gallus, Jr., 2023: Short-term ensemble streamflow prediction using spatially shifted QPF informed by displacement errors. *J. Hydromet.* 24, 21-34. <https://doi.org/10.1175/JHM-D-21-0252.1>.

115. Gallus, W. A., Jr. and A. Duhachek, 2022: Differences in near-storm parameters useful for forecasting intensity of nocturnal and diurnal bow echo winds. *Wea. Forecasting*, 37, 2331-2347.
116. Jang, Y., E. Boyd, S. Vanage, K. Cetin, W. A. Gallus, Jr., and L. Manuel, 2023: Spatio-temporal bias correction in numerical weather prediction models with application to urban temperature modeling during heatwave events. *IEEE Transactions on Automation Science and Engineering*, (conditionally accepted).
117. Zhou, Y., Chen, Y., W. Chen, U. Passe, X. Li, and W. A. Gallus, Jr., 2023: An automated calibration approach for urban building energy use model. *Computers, Environment, and Urban Systems*, (submitted).
118. Gallus, W. A., Jr., and M. A. Harrold, 2023: Challenges in numerical weather prediction of the 10 August 2020 midwestern derecho: Examples from the FV3-LAM. *Wea. Forecasting* (submitted).
119. Hugelback, K., W. A. Gallus, Jr., and H. Pico-Villegas, 2023: The use of machine learning to adjust WRF forecasts for support of wind energy. *Wea. Forecasting* (submitted).

#### *Other Refereed Publications*

Gallus, W. A., Jr., 1997: Forecasting the Weather. *Wild About Weather*, Ranger Rick Series, McGraw Hill Pub, 79-83.

#### *Nonrefereed Papers*

1. Clark, A. J., Schaffer, C. J., K. Johnson-O'Mara, and W. A. Gallus, Jr., 2009: Storm reports climatology relative to upper-level jet streaks. *Bull. Amer. Meteor. Soc.* (Papers of Note section), **90**, 9.
2. Gallus, W. A., Jr., 2006: The tornado: Beauty in the beast. Invited Essay for *Obsessed: Images of Weather*, exhibition at Brunner Art Museum, Ames, IA, 4pp.
3. Gallus, W. A., Jr., and I. Jankov, 2004: Simulations of warm season MCS rainfall using mixed physics in the Eta and WRF models. *Research Activities in Atmospheric and Oceanic Modelling*, H. Ritchie, Ed., No. 34, 5.09-5.10.
4. Gallus, W. A., Jr., and I. Jankov, 2003: Convective system rainfall forecast accuracy as a function of large-scale forcing. *Research Activities in Atmospheric and Oceanic Modelling*, H. Ritchie, Ed., No. 33, 5.12-5.13.
5. Gallus, W. A., Jr., 2002: Comparison of warm season convective system rainfall predictions from 10 km Eta deterministic and ensemble model systems. *Research Activities in Atmospheric and Oceanic Modelling*, H. Ritchie, Ed (internet publication).
6. Gallus, W. A., Jr., 2001: Impact of improved initialization of mesoscale features on warm season convective system QPF in the Eta model. Impact of step orography on flow in the Eta model: Two contrasting examples. *Research Activities in Atmospheric and Oceanic Modelling*, H. Ritchie, Ed., No. 32, 1.21-1.22.
7. Gallus, W. A., Jr., 2000: Impact of step orography on flow in the Eta model: Two contrasting examples. *Research Activities in Atmospheric and Oceanic Modelling*, H. Ritchie, Ed., No. 30, 5.7-5.8.
8. Gallus, W. A., Jr., 1999: Impact of horizontal resolution and convective parameterization on simulated precipitation. *Research Activities in Atmospheric and Oceanic Modelling*, H. Ritchie, Ed., No. 28, 4.7-4.8.
9. Gallus, W. A., Jr., 1998: The Ames IA flash flood of 16-17 June 1996. *Iowa Technical Journal*, **6**, 1-5.
10. Gallus, W. A., Jr., 1997: The Iowa mini-blizzard of February 1996: An intense small-scale vortex. *Iowa Technical Journal*, **5**, 1-6.
11. Gallus, W. A., Jr., 1993: The dynamics of circulations within the stratiform regions of squall lines. Ph. D. Thesis, Colorado State University, 290 pp.
12. Gallus, W. A., Jr., 1989: The heat, moisture and momentum budgets of a midlatitude squall line with a trailing stratiform region. M. S. Thesis, Colorado State University, 126 pp.

#### *External Grants Awarded (Grantee is ISU in all cases) (\$12,847,000 as PI/co-PI/funded Senior Personnel)*

- **Co-Principal Investigator:** (PI: C. Poleacovschi) "Collaborative Research: NNA Research: Responding to Energy Insecurity in Arctic Housing using a Community-based Participatory Research." National Science Foundation, Total Award: \$1,126,858.
- **Co-Principal Investigator:** (PI: P. Sarkar) "Mid-Scale RI-EW: Planning Workshop for Development of the Next Generation Tornado-Downburst-Gust Simulation and Testing (NexToDoGuST) Facility for Investigating Extreme Wind and Debris Impact on Infrastructure." National Science Foundation, Total Award: \$49,995, 8/22-12/22

- **Co-Principal Investigator:** (PI: A. Alipour) “CIVIC Innovation Planning Grant.” National Science Foundation, Total Award \$50,000, 8/22-7/23
- **Co-Principal Investigator:** (PI: Ian Williams) “Interactions between clouds and wind-driven surface heat exchanges over land.” Dept. of Energy, Total Award \$354,141, 8/21-8/24.
- **Co-Principal Investigator:** (PI: Hugo Villegas-Pico): ‘Orchestrating the restoration of wind-dominant grids from blackouts’, Dept. of Energy, Total Award: \$729,349. 9/20-8/23.
- **Principal Investigator:** ‘Enhancing the understanding of nocturnal convective system morphological evolution’, National Science Foundation, Total Award: \$548,052, 8/20-7/23.
- **Principal Investigator:** ‘Evaluating CCPP physics across scales for severe convective events’, NCAR/NOAA Developmental Testbed Center Visitor Program, Total Award: \$~20,000 (amount is given as an honorarium), 6/20-6/21
- **Co-Principal Investigator:** (Lead PI: Cristina Poleacovschi, co-PIs: Michael Perez, Boris Cetin, Kristen Cetin): NNA Track 2: Responding to the housing crisis in the arctic: A transdisciplinary approach across physical, natural and social systems, National Science Foundation, Total Award: \$250,000, 1/20-12/21 (after 3 co-PIs left ISU, budget adjusted to \$169,334)
- **Principal Investigator:** (co-PIs: Eric Weber, Jennifer Newman, Ranjan Maitra, Somak Dutta): ‘Improved diagnosis of severe wind occurrence through machine learning’, National Oceanic and Atmospheric Administration, Total Award: \$652,194, 7/19-6/22
- **Co-Principal Investigator:** (Lead PI: Kristie Franz): ‘Applications of HRRR ensembles for ensemble hydrologic prediction using the WRF-Hydro and SACSMA models as testbeds’, National Oceanic and Atmospheric Administration CSTAR Program, Total Award: \$229,768, 7/17-6/21 with NCE.
- **Co-Principal Investigator:** (Lead PI: Kristen Cetin, Co-PI: Yuyu Zhou): ‘Collaborative Proposal: Maintaining the reliability and sustainability of modern electric grids in multi-hazard extreme heat and drought scenarios’, National Science Foundation, Total Award: \$396,488 (ISU portion of \$625,000 total award), 9/17-8/21 (with NCE).
- **Principal Investigator:** ‘Improved understanding of nocturnal mesoscale convective system evolution’, National Science Foundation, Total Award: \$501,991, 8/16-7/21 with NCE.
- **Principal Investigator:** ‘REU Supplement to: Improved understanding of nocturnal mesoscale convective system evolution’, National Science Foundation, Total Award: \$10,000, 8/17-7/21 with NCE.
- **Principal Investigator:** ‘Use of the CLUE to examine importance of mixed physics in ensembles’, NCAR/NOAA Developmental Testbed Center Visitor Program, Total Award: \$~19,000 (amount is given as an honorarium), 1/17-3/18.
- **Principal Investigator:** ‘Improved mesoscale model forecasts for flood forecasting at the Iowa Flood Center: Use of Radar Data Assimilation’, Iowa Flood Center/University of Iowa, Total Award: \$30,000, 8/14-6/15.
- **Principal Investigator:** ‘Understanding the predictability of initiation and morphological evolution of PECAN (Plains Elevated Convection at Night) nocturnal mesoscale convective systems’, National Science Foundation, Total Award: \$91,537, 9/14-8/15.
- **Principal Investigator:** (co-PI: Moti Segal): ‘Supplement to: Improved understanding of convective system evolution’, National Science Foundation, Total Award: \$59,787, 12/14-10/16.
- **Co-Principal Investigator:** (Lead PI: Craig Ogilve, with 11 other co-PIs): ‘Iowa State University: Engaged to Excel’, Howard Hughes Medical Institute, Total Award: \$1,800,000, 9/14-8/19.
- **Principal Investigator:** (Co-PI: Kristie Franz): ‘The use of radar data assimilation in high resolution WRF runs for improved short term QPF for flood forecasting, convective morphological prediction, probability of precipitation guidance’, National Oceanic and Atmospheric Administration CSTAR Program, Total Award: \$204,552, 5/14-4/17 with NCE.
- **Principal Investigator:** ‘Improved mesoscale model forecasts for flood forecasting at the Iowa Flood Center: Use of Radar Data Assimilation’, Iowa Flood Center/University of Iowa, Total Award: \$30,000, 8/13-6/14.
- **Principal Investigator:** ‘Continued analysis of convective system evolution using convection-permitting grid spacing WRF simulations’, National Science Foundation, Total Award: \$532,010, 11/12-10/15.
- **Principal Investigator:** ‘Improved mesoscale model rainfall forecasts for flood forecasting at the Iowa Flood Center: Use of Radar Data Assimilation’, Iowa Flood Center/University of Iowa, Total Award: \$30,000, 7/12-6/13.



- **Principal Investigator:** ‘Installation of AWIPS2 EDEX servers for sharing of present data and future distribution of archived data with community’, Unidata (Community Equipment Request), Total Award: \$19,500, 7/12-6/13.
- **Senior Personnel:** (Lead PI: James McCalley, with 9 other senior personnel): ‘IGERT: A new interdisciplinary PhD program in Wind Energy Science, Engineering, and Policy (WESEP), National Science Foundation, Total Award: 3,163,130, 1/12-12/15.
- **Principal Investigator:** ‘Improved mesoscale model rainfall forecasts for flood forecasting at the Iowa Flood Center. Total Award: \$25,000 7/11-6/12.
- **Senior Personnel:** (Lead PI: Eugene Takle, Co-PI: James McCalley, with 9 other senior personnel): ‘An REU Site in Wind Energy Science, Engineering, and Policy (REU-WESEP)’, National Science Foundation, Total Award: \$390,240, 4/11-4/14.
- **Principal Investigator:** ‘Improved mesoscale model rainfall forecasts for flood forecasting at the Iowa Flood Center’, Iowa Flood Center/University of Iowa, Total Award: \$50,000 7/10-6/11.
- **Principal Investigator:** ‘Establishment of THREDDS Server and RAMADDA for community access to 78-year weather data archive’, Unidata (Community Equipment Request), Total Award: \$7,500, 6/10-8/10.
- **Senior Personnel:** (Lead PI: Craig Ogilvie, Co-PIs: Cinvia Cervato, Tom Greenbowe, JoAnn Powell-Coffman, Eugene Takle, with other senior personnel): ‘Undergraduate Science Education 2010’, Howard Hughes Medical Institute, Total Award: \$1,600,000, 9/10-8/14.
- **Principal Investigator:** ‘Generation of Mesoscale Model Rainfall Forecasts for improved flood forecasting to assist the Iowa Flood Center’, Iowa Flood Center/University of Iowa, Total Award: 16,110, 5/10-6/10.
- **Co-Principal Investigator:** (Lead PI: Partha Sarkar, Co-PIs: Fred Haan, Hui Hu, Vinay Dayal, Soorish Sriharan): ‘Enhancing the understanding of extreme winds near ground and their damaging effects for hazard mitigation.’ National Oceanic and Atmospheric Administration, Total Award: \$828,150, 9/09-8/10.
- **Principal Investigator:** (Co-PIs: Eugene Takle, Patricia Caragea, Moti Segal): ‘Wind Forecast Model Validation and Improvement for the Central U.S.’, Ames Lab/Dept. of Energy, Total Award: \$250,000, 10/09-8/10.
- **Principal Investigator:** (Co-PI: Moti Segal): ‘Analysis of predictability of convective initiation and morphological evolution using near-cloud permitting grid spacing model’, National Science Foundation, Total Award: \$455,862, 7/09-6/12.
- **Principal Investigator:** (Co-PI: Eugene Takle): ‘Design of a meteorological model ensemble forecasting system for improved wind energy forecasting’, Electric Power Research Center, Total Award: \$49,236, 5/09-5/11.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PIs: Roger Elmore, Jerry Hatfield, P. Pedersen, Moti Segal, Elwynn Taylor): ‘Optimizing wind and biomass energy production in an intensely managed agricultural landscape’. Ames Lab/Dept. of Energy, Total Award: \$50,000, 1/09-12/10.
- **Co-Principal Investigator:** (Lead PI: Partha Sarkar, Co-PIs: Fred Haan, Hui Hu, Vinay Dayal, Eugene Takle): ‘Reducing wind-induced damages from storms.’ National Oceanic and Atmospheric Administration, Total Award: \$568,000, 9/08-8/09.
- **Principal Investigator:** ‘Verification of WRF ensembles using object-oriented approaches’, NCAR/NOAA Developmental Testbed Center Visitor Program, Total Award: \$19,120, 8/07-8/08.
- **Co-Principal Investigator:** (Lead PI: Partha Sarkar, Co-PIs: Fred Haan, Hui Hu, Vinay Dayal, Eugene Takle): ‘Reducing wind-induced damages from storms.’ National Oceanic and Atmospheric Administration, Total Award: \$923,241, 9/06-8/07.
- **Principal Investigator:** (Co-PIs: Cinvia Cervato, Carolina Cruz-Neira, Tom Greenbowe): ‘Development of cutting edge geoscience virtual reality applications for classroom instruction and pedagogical evaluation of the impact on learning of VR technology’, National Science Foundation, Total Award: \$500,000, 9/06-8/09.
- **Principal Investigator:** (Co-PI: Moti Segal): ‘Evaluating the predictability of mesoscale circulations, morphologies, and rainfall evolution for warm season convective systems using near-cloud resolving grid resolution’, National Science Foundation, Total Award: \$345,229, 1/06-12/09.
- **Principal Investigator:** ‘Model investigations of Upper Troposphere/Lower Stratosphere water vapor and transport into the stratosphere’, National Aeronautical and Space Administration, Total Award: \$136,843 (ISU portion), 2/06-1/09.

- **Principal Investigator:** (Co-PI: Daryl Herzmann): ‘Unidata Equipment Request: Increasing GIS Web services capacity to serve the Unidata community’, Unidata (Community Equipment Request), Total Award: \$12,000, 6/05-12/05.
- **Principal Investigator:** ‘Study of the impacts of grid spacing and physical parameterizations on WRF-RR simulations of convective system rainfall and morphology’. NCAR/NOAA Developmental Testbed Center Visitor Program, Total Award: \$32,479 (given as honorarium), 7/05-8/05.
- **Principal Investigator:** (Co-PI: Moti Segal): ‘Evaluation of mesoscale convective system rainfall predictability in the Upper Midwest considering system morphology’, National Science Foundation, Total Award: \$281,996, 11/02-10/05.
- **Principal Investigator:** ‘REU Supplement to: Evaluation of mesoscale convective system rainfall predictability in the Upper Midwest considering system morphology’, National Science Foundation, Total Award: \$3,750, 5/04-10/05.
- **Co-Principal Investigator:** (Lead PI: Partha Sarkar, Co-PI: Fred Haan): ‘Study of tornadoes and their effect on built structures considering system morphology’, National Science Foundation, Total Award: \$300,000, 10/02-9/05.
- **Principal Investigator:** (Co-PIs: Carolina Cruz-Neira, Cinzia Cervato): ‘A virtual tornadic thunderstorm to enable student-centered learning about complex storm-scale dynamics’, National Science Foundation, Total Award: \$74,949, 2/01-1/04.
- **Principal Investigator:** ‘A comparison of simulated and observed convective system morphology with an emphasis on role of model physics’, National Oceanic and Atmospheric Administration, Total Award: \$34,255, 5/03-8/03.
- **Principal Investigator:** (Co-PIs: Eric Bartlett, Eugene Takle): ‘Improved frost forecasting through coupled artificial neural network time series prediction techniques and a frost deposition model’, National Oceanic and Atmospheric Administration COMET/Federal Highway Administration, Total Award: \$66,937, 5/01-4/03.
- **Co-Investigator:** (Lead PI: Steve Andrle, Co-PIs: Dennis Kroeger): ‘Maintenance decision support system’, Federal Highway Administration, Total Award: \$36,464, 12/02-4/03.
- **Co-Investigator:** (Lead PI: Steve Andrle, Co-PIs: Dennis Kroeger): ‘Evaluation of weather forecasting services for the Iowa Dept. of Transportation’, Federal Highway Administration, Total Award: \$24,993, 11/02-4/03.
- **Principal Investigator:** ‘Eta ensemble forecasts of elevated nocturnal convection’, National Oceanic and Atmospheric Administration COMET, Total Award: \$8,600, 12/01-12/02.
- **Principal Investigator:** (Co-PIs: Ray Arritt, Moti Segal): ‘Impact of improved initialization on warm-season mesoscale rainfall prediction in a nonhydrostatic Eta model’, National Science Foundation, Total Award: \$227,680, 10/99-9/02.
- **Principal Investigator:** ‘REU for: Impact of improved initialization on warm-season mesoscale rainfall prediction in a nonhydrostatic Eta model’, National Science Foundation, Total Award: \$3,650, 3/02-9/02.
- **Principal Investigator:** (Co-PI: Eugene Takle): ‘Roadway frost prediction and winter weather index’, Iowa Dept. of Transportation, Total Award: 40,776, 1/01-6/02.
- **Co-Principal Investigator:** (Lead PI: William Gutowski, Co-PIs: Moti Segal, Ray Arritt, Zaitao Pan): ‘Coupled atmosphere-snow model evaluation of sub-regional snowmelt’, National Aeronautical and Space Administration, Total Award: \$270,000, 7/98-6/02).
- **Principal Investigator:** (Co-PIs: Ray Arritt, Moti Segal): ‘Evaluation of the Effects of Land Surface Processes on Convective Precipitation Using a Nonhydrostatic Version of the NCEP Eta model’, National Science Foundation, Total Award: \$232,011, 9/97-8/00.
- **Principal Investigator:** ‘REU for: Evaluation of the Effects of Land Surface Processes on Convective Precipitation Using a Nonhydrostatic Version of the NCEP Eta model’, National Science Foundation, Total Award: \$5,000, 5/99-8/00.
- **Principal Investigator:** ‘Creation and distribution of agriculturally-important weather data from IDOT mesonetwork sites’, Iowa Agricultural and Home Economics Experiment Station, Total Award: \$19,068, 9/95-8/00.
- **Principal Investigator:** ‘Improved prediction of mesoscale convective system dissipation’, National Oceanic and Atmospheric Administration COMET, Total Award; \$33,966, 8/98-8/00.

- **Principal Investigator:** (Co-PI: Tsing-Chang Chen): ‘Large-scale signals for wintertime mesoscale systems affecting Iowa’, National Oceanic and Atmospheric Administration COMET, Total Award: \$5,250, 6/99-8/00.
- **Principal Investigator:** (Co-PI: Eugene Takle): ‘Improving the use of weather data in winter maintenance decision-making’, Iowa Dept. of Transportation, Total Award: \$39,500, 7/99-6/00.
- **Principal Investigator:** (Co-PI: Doug Yarger): ‘Relay node computer upgrade and servers for archived weather data’, National Science Foundation – UNIDATA Equipment Request, Total Award: \$3,933, 7/99-6/00.
- **Principal Investigator:** (Co-PI: Eugene Takle): ‘Improving the use of weather data in winter maintenance decision-making’, Iowa Dept. of Transportation, Total Award: \$48,291, 8/98-7/99.
- **Principal Investigator:** (Co-PI: Eugene Takle): ‘Maximizing the use of roadway weather information systems’, Iowa Dept. of Transportation, Total Award: \$89,291, 8/96-7/97.

### *Internal Grants Awarded*

- **Principal Investigator:** ‘Improved understanding of severe thunderstorm wind environments’, Iowa State University College of Liberal Arts & Sciences High Impact Award (for student Nathan Erickson): Total Award: \$1,200, 1/20-5/20.
- **Principal Investigator:** (Co-PIs: Cinzia Cervato, Dave Flory): ‘SWAT: A Severe WeATher tool to expose students in science learning communities to authentic research’, ISU Miller Faculty Fellowship Program, Total Award: \$14,000, 7/15-6/16.
- **Co-Principal Investigator:** (Lead PI: Heather Bolles, Co-PIs: Cinzia Cervato, Jane Rongerude, Craig Ogilvie): ‘A STEM Neighborhood: Using service learning to improve large numbers of students’ science and math literacy’, ISU Miller Faculty Fellowship Program, Total Award: \$11,000, 7/15-6/16.
- **Principal Investigator:** ‘Foreign Travel Grant (for EGU Conference in Vienna, Austria)’, ISU Foreign Travel Grant Program, Total Award: \$975, 2015.
- **Co-Principal Investigator:** (Lead PI: Craig Ogilvie, 14 other Co-PIs): ‘I-AMASE – Interdisciplinary Math and Science Education’, ISU College of Liberal Arts & Sciences Signature Research Initiative, Total Award: \$71,000, 9/13-8/16.
- **Principal Investigator:** ‘A cluster computer system for environmental research’, ISU Funding Request for Research Equipment, Total Award: \$110,000, 4/2005.
- **Co-Principal Investigator:** (Lead PI: Tsing-Chang Chen, Co-PIs: William Gutowski, Ray Arritt): ‘Probabilistic forecasting for water status of the Agroecosystem’, Agronomy Endowment Fund, Total Award: \$100,000, 8/04-7/06.
- **Co-Principal Investigator:** (Lead PI: Tsing-Chang Chen, Co-PIs: Dennis Todey, Ray Arritt, Zaitao Pan): ‘Verification and application of Iowa Environmental Mesonet data’, Agronomy Endowment Fund, Total Award: \$59,286, 5/02-4/04.
- **Co- Investigator:** (Lead PI: A Somani, Co-PIs: Soresh Kothari, Vinay Vittal, other Co-Is): ‘Information Infrastructure Institute’, ISU Presidential Initiative Competition, Total Award: \$1,000,000, 7/02-6/04.
- **Principal Investigator:** (Co-PIs: Eric Bartlett, Moti Segal): ‘A novel technique for summer regional rainfall prediction: numerical weather prediction model and neural network hybridization’, ISU Carver Trust Grant Program, Total Award: \$16,123, 7/02-6/03.
- **Principal Investigator:** ‘Augmentation of a meteorology data storage system providing students with state-of-the-art access to historical data’, ISU Computer Allocation Committee Program, Total Award: \$3,950, 2002.
- **Principal Investigator:** ‘Foreign Travel Grant (for QPF conference in Reading, England)’, ISU Foreign Travel Grant Program, Total Award: \$711, 2002.
- **Principal Investigator:** ‘Prototype modeling of a tornado simulator for assessment of fluid-structure interaction’, College of Liberal Arts & Sciences Faculty Development Grant, Total Award: \$7,500, 1/01-12/01.
- **Principal Investigator:** (Co-PI: Doug Yarger): ‘Enhancing student learning through the building of a student outcomes assessment tool’, ISU Miller Faculty Fellowship Program, Total Award: \$25,000, 7/00-6/01.

- **Principal Investigator:** (Co-PIs: Doug Yarger, Carolina Cruz-Neira): ‘Creation of a virtual tornadic thunderstorm: Enabling student-centered learning about complex storm-scale atmospheric dynamics’, ISU Miller Faculty Fellowship Program, Total Award: \$25,000, 7/99-6/00.
- **Principal Investigator:** ‘Foreign Travel Grant (for NWP conference in Athens, Greece)’, ISU Foreign Travel Grant Program, Total Award: \$1250, 1997.

### *Pending Proposals*

- **Co-Principal Investigator:** (Lead PI: Kristie Franz; Co-PI Somak Dutta): ‘Improved hydrometeorological forecasting using machine learning to mitigate QPF errors’, National Oceanic and Atmospheric Administration, Total Award: \$727,557 8/22-7/25.

### *Unsuccessful Proposals*

- **Principal Investigator:** ‘The role of scale and nonhydrostatic dynamics in simulations of synoptic and mesoscale phenomena’, National Science Foundation – National Centers for Environmental Research Joint Program in NWP, Amount Requested: \$96,328, Submitted: 12/95.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PIs: William Gutowski, Ray Arritt): ‘Project to Intercompare Regional Climate Simulations’, Center for Global and Regional Environmental Research, Amount Requested: \$45,000, Submitted: 12/95.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PIs: William Gutowski, Ray Arritt): ‘Project to Intercompare Regional Climate Simulations’, National Oceanic and Atmospheric Administration, Amount Requested: \$325,212, Submitted: 12/95.
- **Co-Principal Investigator:** (Lead PI: William Bachelor, Co-PI: Gary Munkvold): ‘Neural network model development for prediction of corn ear rots and mycotoxins’, USDA (NRICGP), Amount Requested: \$173,757, Submitted: 2/96.
- **Principal Investigator:** (Co-PIs: Tsing-Chang Chen, Jordan Alpert): ‘A diagnostic study of mesoscale phenomena utilizing surface mesonet network data’, National Oceanic and Atmospheric Administration (COMET), Amount Requested: \$48,960, Submitted: 1/97.
- **Co-Principal Investigator:** (Lead PI: William Gutowski, Co-PI: Eugene Takle): ‘Investigations of the North American Monsoon under the Project to Intercompare Regional Climate Simulations’, National Oceanic and Atmospheric Administration – Global Ocean Atmosphere Land System (GOALS) Program, Amount Requested: \$337,000, Submitted: 1/97.
- **Principal Investigator:** (Co-PI: Tsing-Chang Chen): ‘Large-scale signals for mesoscale phenomena affecting Iowa’, National Oceanic and Atmospheric Administration COMET, Amount Requested: \$72,200, Submitted: 3/97.
- **Co-Principal Investigator:** (Lead PI: William Gutowski, Co-PIs: Moti Segal, Ray Arritt): ‘Evaluation of Atmosphere-Snow cover interactions in the Upper Mississippi River Basin’, National Oceanic and Atmospheric Administration, Amount Requested: \$290,140, Submitted: 5/97.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle): ‘Maximizing the use of roadway weather information: Phase 2: Procedures for Effective Use by the State, Cities and Counties’, Iowa Dept. of Transportation/Highway Research Board, Amount Requested: \$216,921, Submitted: 8/97.
- **Co-Principal Investigator:** (Lead PI: T. Austin, Co-PIs: Sunday Tim, R. Gu): ‘Impact of land management decisions and global climate change on Flood Hazard Risk’, National Aeronautics and Space Administration, Amount Requested: \$475,744, Submitted: 8/97.
- **Co-Investigator:** (Lead PI: T. Austin, Co-PIs: Sunday Tim, Max Porter, Bruce Babcock, other Co-Is): ‘Center on Weather Related Disaster Research’, National Science Foundation, Amount Requested: \$8,200,000, Submitted: 10/97.
- **Principal Investigator:** ‘Extreme Precipitation Events: High-resolution simulations initialized with regional climate model output’, National Science Foundation (CAREER), Amount Requested: \$385,349, Submitted: 4/98.
- **Co-Investigator:** (Lead PI: Suresh Kothari, Co-PIs: P. Chitnis, B. Harmon, Eugene Takle, S. Upda, other Co-Is): ‘Multidisciplinary Environment in Research and Graduate Education built around Parallel Computing’, National Science Foundation, Amount Requested: \$2,698,604, Submitted: 6/98.

- **Co-Principal Investigator:** (Lead PI: John Stanford, Co-PI: Mark Olsen): ‘VOLCAM – A critical natural hazards research mission. Step Two ESSP Mission Proposal’, National Aeronautics and Space Administration, Amount Requested: \$918,984, Submitted: 7/98.
- **Co-Principal Investigator:** (Lead PI: Tsing-Chang Chen, Co-PIs: Ray Arritt, Moti Segal): ‘East Asian Cold Front and Diurnal Rainfall Variation in an East Asian Island’, National Science Foundation, Amount Requested: \$20,828, Submitted: 3/99.
- **Principal Investigator:** (Co-PI: Ray Arritt): ‘Improved forecasting of elevated nocturnal convection’, National Oceanic and Atmospheric Administration, Amount Requested: \$246,357, Submitted: 6/99.
- **Co-Principal Investigator:** (Lead PI: Soresh Kothari, Co-PIs: S. Mitra, William Gutowski): ‘Automatic software reengineering: Addressing a critical need’, National Science Foundation, Amount Requested: \$450,000, Submitted: 8/99.
- **Principal Investigator:** (Co-PI: John Stanford): ‘The use of TOMS total ozone data in analysis and prediction of mesoscale tropospheric dynamic features’, National Aeronautics and Space Administration, Amount Requested: \$162,284, Submitted: 10/99.
- **Principal Investigator:** ‘Toward improved simulation of warm season precipitation’, National Science Foundation (CAREER), Amount Requested: \$398,986, Submitted: 1/00.
- **Co-Principal Investigator:** (Lead PI: Doug Yarger, Co-PI: Tom Andre): ‘Collaborative Research: Production and Evaluation of Web-based Laboratory Activities’, National Science Foundation, Amount Requested: \$95,573, Submitted: 6/00.
- **Principal Investigator:** (Co-PIs: Carolina Cruz-Neira, Doug Yarger): ‘Creation of a virtual tornadic thunderstorm: Enabling student-centered learning about complex storm-scale atmospheric dynamics’, ISU SPRIG Competition, Amount Requested: \$17,000 Submitted: 9/00.
- **Principal Investigator:** (Co-PI: John Stanford): ‘Use of high-resolution TOMS data and mesoscale meteorological model output to improve understanding of stratospheric-tropospheric exchange and near-tropopause dynamics’, National Aeronautics and Space Administration, Amount Requested: \$160,742, Submitted: 10/00.
- **Principal Investigator:** (Co-PI: Ray Arritt): ‘Improved forecasting of elevated nocturnal convection’, National Oceanic and Atmospheric Administration COMET, Amount Requested: \$105,228, Submitted: 1/01.
- **Principal Investigator:** ‘Enhancing student learning through the building of a web-based weather forecasting exercise emphasizing student outcomes assessment’, National Science Foundation, Amount Requested: \$63,184, Submitted: 3/01.
- **Co-Principal Investigator:** (Lead PI: Soresh Kothari, Co-PIs: S. Mitra, William Gutowski): ‘Automatic software reengineering: Addressing a critical need’, National Science Foundation (ITR), Amount Requested: \$450,000, Submitted: 5/01.
- **Principal Investigator:** (Co-PI: Cinzia Cervato): ‘A Web-Based Student Outcomes Assessment Tool Using Archived Weather Data to Permit Sequential Weather Forecasts’, ISU Miller Faculty Development Fund, Amount Requested: \$25,000, Submitted: 5/01.
- **Principal Investigator:** (Co-PI: Dennis Todey): ‘Surface signatures of bow echoes and mesoscale convective vortices’, National Science Foundation, Amount Requested: \$236,474, Submitted: 9/01.
- **Principal Investigator:** ‘Evaluation of high-resolution model forecasts of convection using the Ebert-McBride technique with an emphasis on morphology’, National Oceanic and Atmospheric Administration COMET, Amount Requested: \$69,887, Submitted: 1/04.
- **Co-Principal Investigator:** (Lead PI: Chris Harding, Co-PIs: D. Reiners, William Gutowski): ‘Hapto-visual investigation of 4D+-dimensional meteorological data’, ISU Carver Trust Grant Program, Amount Requested: \$23,052, Submitted: 1/04.
- **Principal Investigator:** (Co-PI: Mark Olsen at NASA): ‘The Asian Monsoon and Stratospheric Water Vapor’, National Aeronautics and Space Administration, Amount Requested: \$81,106, Submitted: 8/03.
- **Principal Investigator:** (Co-PIs: Cinzia Cervato, Carolina Cruz-Neira, Brian Hand, Tom Greenbowe): ‘Development of cutting edge geoscience virtual reality applications for classroom instruction and pedagogical evaluation of the impact on learning of VR technology’, National Science Foundation, Amount Requested: \$499,998, Submitted: 6/04.
- **Co-Principal Investigator:** (Lead PI: Partha Sarkar, Co-PIs: Fred Haan, F. Battaglia): ‘Preproposal for Center for Multi Hazard Protection of Critical and Essential Structures’, National Science Foundation (ERC), Amount Requested: \$710,525 (ISU portion of \$17,750,000), Submitted: 6/06.

- **Faculty Associate:** (Lead PI: Eric Weber): ‘Vector valued transforms for image and weather data’, National Science Foundation, Amount Requested: \$155,185, Submitted: 2/06.
- **Co-Principal Investigator:** (Lead PI: Kristie Franz, Co-PI: M. Baker): ‘Improving the skill and lead time of flood prediction in small watersheds: testing alternative hydrologic models and precipitation forecasts’, National Oceanic and Atmospheric Administration (COMET), Amount Requested: \$64,049, Submitted: /07.
- **Co-Principal Investigator:** (Lead PI: Partha Sarkar, Co-PIs: Fred Haan, Hui Hu, Vinay Dayal, Eugene Takle): ‘Study of Extreme Winds Near Ground and their Damaging Effects on the Built Environment’, National Oceanic and Atmospheric Administration, Amount Requested: \$685,412, Submitted: 5/07.
- **Co-Principal Investigator:** (Lead PI: Fred Haan, Co-PI: Partha Sarkar): ‘Vortex2: In situ measurement of near ground winds in tornadoes and correlation to tornado damage’, National Science Foundation, Amount Requested: \$892,261, Submitted: 9/07.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PIs: Ray Arritt, William Gutowski, Bruce Babcock): ‘Midwest Consortium for climate assessment’, NOAA-Climate Program Office, Amount Requested: \$1,359,889, Submitted: 10/07.
- **Co-Principal Investigator:** (Lead PI: Kristie Franz): ‘Building a comprehensive verification approach for the National Weather Service Hydrologic Prediction Services’, National Oceanic and Atmospheric Administration, Amount Requested: \$239,507, Submitted: 10/08.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PIs: M. Al-Kaisi, S. Aluru, Chris Anderson, Ray Arritt, K. Boote, Roger Elmore, William Gutowski, Brian Hornbuckle, P. Pedersen): ‘Seasonal climate forecasting for agricultural and environmental decision making in the Midwest’, Agronomy Department Endowment, Amount Requested: \$600,000, Submitted: 7/08.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PIs: Ray Arritt, William Gutowski, Mark Gleason, Roger Elmore, Brian Hornbuckle): ‘Improving Agricultural Decisions And Predictions (ADAPT) for the U.S. Midwest by use of satellite products and regional climate models’, National Aeronautics and Space Administration, Amount Requested: \$1,239,022, Submitted: 11/08.
- **Co-Investigator:** (Lead PI: G. Rajagopalan, other senior personnel, other Co-PIs at other institutions): ‘IAMWind Project: A test bed for high penetration of reliable and economic wind energy supply’, Dept. of Energy, Amount Requested: \$20,000,000, Submitted: 4/09.
- **Co-Investigator:** (Lead PI: Tom Greenbowe, Co-PIs: 4 others, other senior personnel): ‘Special Emphasis in Iowa Schools on Science, Mathematics, and Engineering Connections (SEISSMEC)’, National Science Foundation, Amount Requested: \$12,493,676, Submitted: 7/09.
- **Co-Principal Investigator:** (Lead PI: Cinzia Cervato, Co-PI: Craig Ogilvie): ‘Developing a pre-collegiate learning community for high-ability high-school students in Iowa’, Porter Foundation, Amount Requested: \$59,793, Submitted: 2/10.
- **Co-Principal Investigator:** (Lead PI: Cinzia Cervato, Co-PIs: Craig Ogilvie, Michael Clough, Xiaoqing Wu): ‘Developing a Midwestern partnership for climate literacy and global climate change education’, National Aeronautics and Space Administration, Amount Requested: \$482,363, Submitted: 4/10.
- **Co-Investigator:** (Lead PI: Eugene Takle, Co-PIs: William Gutowski, C. Kling, B. Lickilder, Sunday Tim, other senior personnel): ‘Building resiliency to climate change in the US Midwest: Using past changes in precipitation extremes to inform future adaptation’, National Science Foundation, Amount Requested: \$999,227, Submitted: 8/10.
- **Subcontractor** (Lead PI: A. Kusiak at Univ. of Iowa, Gallus is sole subcontractor at ISU): ‘SMART: Smart Wind and Power Estimator’, Dept. of Energy, Amount Requested: \$38,239 (ISU portion), Submitted: 7/10.
- **Co-Investigator:** (Lead PI: Steve Martin, other senior personnel): ‘IGERT: Biosphere Energy Systems and Technology (BEST)’, National Science Foundation, Amount Requested: \$3,500,000, Submitted: 2/11.
- **Co-Principal Investigator:** (Lead PI: Cinzia Cervato, Co-PIs: D. Niderhauser, Peter Moore): ‘DIP: Collaborative research: Promoting authentic geoscience inquiry through user-centered design, development, and evaluation of model-driven simulations’, National Science Foundation, Amount Requested: \$648,702, Submitted: 1/12.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PIs: Chris Anderson, Kristie Franz): ‘STC: Flood Research Center’, National Science Foundation, Amount Requested: \$748,342, Submitted: 2/12.
- **Principal Investigator:** (Co-PI: Kristie Franz): ‘The use of radar data assimilation in high resolution WRF runs for improved short-term QPF for flood forecasting, convective morphology prediction, and probability of precipitation guidance’, National Oceanic and Atmospheric Administration, Amount Requested: \$240,206, Submitted: 10/12.

- **Co-Investigator:** (Lead ISU PI: Partha Sarkar, Senior Personnel: Vinal Dayal): ‘Hazards SEES Type 2: An integrated framework for enhancing community resiliency to severe thunderstorms’, National Science Foundation, Amount Requested: \$459,850 (ISU portion of total of \$2,999,944), Submitted: 2/12.
- **Co-Investigator:** (Lead PI: Steve Martin, other senior personnel): ‘BEST (Biosphere Energy Systems and Technology’, Iowa State University Presidential Initiative (PIIR), Amount Requested: \$500,000, Submitted: 2/13.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle): ‘Validation and skill assessment of a wind power forecast model with emphasis on high shear and ramp events’, Center for Global and Regional Environmental Research/University of Iowa, Amount Requested: \$30,000, Submitted: 2/13.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PI: Mark Kaiser): ‘Wind plant diagnosis and power forecast improvement’, Mid-American Energy Corporation, Amount Requested: \$482,766, Submitted: 5/14.
- **Co-Principal Investigator:** (Lead PI: Eve Wuertele, Co-PIs: Diane Bassham, Cinzia Cervato): ‘Using cognitive science principles to deepen student-processing and optimize learning in STEM-focused highly-engaging games’, National Science Foundation, Amount Requested: \$1,063,507, Submitted: 2/14.
- **Co- Investigator:** (Lead PI: Cinzia Cervato, 3 Co-PIs, 2 other senior personnel): ‘A STEM Neighborhood: Using service learning to improve large numbers of students' science and math literacy’, National Science Foundation, Amount Requested: \$725,870, Submitted: 2/14.
- **Co- Investigator:** (Lead PI: J. Jackman, Co-PI: D. Peterson, 9 other senior personnel): ‘A national REU site in Wind Energy Science, Engineering, and Policy (REU-WESEP)’, National Science Foundation, Amount Requested: \$413,443, Submitted: 6/13.
- **Co-Principal Investigator:** (Lead PI: Eugene Takle, Co-PI: Mark Kaiser): ‘Wind plant diagnosis and power forecast improvement, Mid-American Energy Corp., Amount Requested: \$250,000, Submitted: 3/15.
- **Co-Principal Investigator:** (Lead PI: William Gutowski), ‘Online implementation of Model Evaluation Tools (MET) to utilize satellite products for numerical weather and climate prediction models’, National Aeronautics and Space Administration, Amount Requested: \$124,799 (ISU portion), Submitted: 1/15.
- **Co- Investigator:** (Lead PI: W. Krajewski at Univ. of IA, other senior personnel): ‘STC: Flood Research Center’, National Science Foundation, Amount Requested: \$748,342, Submitted: 1/15.
- **Co- Investigator:** (Lead PI: Partha Sarkar, Co-PIs: Hui Hu, A. Kelkar, S. Sritharan, 2 other senior personnel): ‘NHERI-Experimental Facility 2015-2019: Wind Simulation and Testing (WiST) Laboratory for Wind Engineering Research, Education, and Service at Iowa State University’, National Science Foundation, Amount Requested: \$2,750,800, Submitted: 1/15.
- **Co-Principal Investigator:** (Lead PI: Cinzia Cervato, 5 other Co-PIs): ‘A STEM Neighborhood: Using service learning to improve large numbers of students' science and math literacy’, National Science Foundation, Amount Requested: \$599,999, Submitted: 2/15.
- **Principal Investigator:** (Co-PI: Kristie Franz): ‘Using a convection-allowing WRF ensemble with radar data assimilation multiple neighborhood techniques for probabilistic streamflow prediction’, National Oceanic and Atmospheric Administration, Amount Requested: \$222,444, Submitted: 1/16.
- **Principal Investigator:** ‘Improved mesoscale model forecasts for flood forecasting at the Iowa Flood Center: Use of Radar Data Assimilation’, Iowa Flood Center/University of Iowa, Amount Requested: \$30,000, Submitted: 6/16.
- **Co-Principal Investigator:** (Lead PI: Yuyu Zhou, Co-PIs: Kristen Cetin, William Simpkins, I. Rudik): ‘INFEWS/T3: Resilience and Sustainability of Food-Energy-Water Systems under concurrent heat waves and drought events’, National Science Foundation, Amount Requested: \$1,463,231, Submitted: 3/17.
- **Co-Principal Investigator:** (Lead PI: W. Peng, Co-PI: Hui Hu): ‘CPS: Medium: Collaborative Research: Real-Time Cyber-Physical-Human System for UAS Flight Safety Assurance in Adverse Weather Conditions’, National Science Foundation, Amount Requested: \$599,999, Submitted: 1/18.
- **Co-Principal Investigator:** (Lead PI: C. Mackenzie, Co-PIs: J. Leal, J. Tian, P. Wei): ‘CRISP Type 2: Collaborative Research: Impact of human behavior on the resilience of critical infrastructure due to severe weather’, National Science Foundation, Amount Requested: \$432,165, Submitted: 3/18.
- **Co-Principal Investigator:** (Lead PI: Cinzia Cervato, Co-PI: Elizabeth Swanner): ‘GP IMPACT: Creating multiple paths for discovery of geology and meteorology degrees and careers to broaden participation in the geosciences’, National Science Foundation, Amount Requested: \$300,000, Submitted: 1/18.
- **Co-Investigator:** (Lead PI: Steve Martin, many other senior personnel): ‘Biosphere Energy Materials and Manufacturing Technologies (BEM2T) (Pre-Proposal)’, Iowa State University Presidential Research Initiative, Amount Requested: \$750,000, Submitted: 3/17.

- **Co-Principal Investigator:** (Lead PI: W. Peng, Co-PI: Hui Hu): ‘CPS: Medium: Collaborative Research: Real-Time Cyber-Physical-Human System for UAS Flight Safety Assurance in Adverse Weather Conditions’, National Science Foundation, Amount Requested: \$599,973, Submitted: 6/18.
- **Co-Principal Investigator:** (Lead PI: S. Marru at Purdue, Co-PIs: M. Pierce, Ming Xue, Keith Brewster, Ramyaa): ‘FRAMEWORK: DATA: HDR: ASGARD: A platform for enabling accelerated harnessing of atmospheric data’, National Science Foundation, Amount Requested: \$166,373 (ISU portion), Submitted 3/18.
- **Co-Principal Investigator:** (Lead PI: Kristie Franz): ‘Improving flood forecasts using operational ensemble QPF and spatial shifting techniques in support of HMT’, National Oceanic and Atmospheric Administration, Amount Requested: \$407,802, Submitted: 1/19.
- **Co-Principal Investigator:** (Lead PI: S. Marru at Purdue, Co-PIs: M. Pierce, Ming Xue, Keith Brewster, Ramyaa): ‘FRAMEWORK: DATA: HDR: ASGARD: A platform for enabling accelerated harnessing of atmospheric data’, National Science Foundation, Amount Requested: \$166,373 (ISU portion), Submitted 3/19.
- **Principal Investigator:** ‘Enhancing the understanding of nocturnal convective system morphological evolution’, National Science Foundation, Amount Requested: \$548,052, Submitted: 6/19.
- **Co-Principal Investigator:** (Lead PI: James McCalley, Co-PIs: J. Min, P. Koch): ‘An operating and planning market to manage financial and physical risk for electric infrastructure systems’, Dept. of Energy, Amount Requested: \$2,400,000, Submitted: 3/20.

#### *Software/Videotapes/CDs/Innovative Technologies*

- Gallus, W. A., Jr., C. Cruz-Neira, and C. Cervato, 2004: Virtual tornadic thunderstorm activity made available via download from <http://www.vrac.iastate.edu/research/sites/tornado>
- Parham, T. L., C. Cervato, W. A. Gallus, Jr., and P. Stelling. Prototype virtual volcano activity available for download (late 2009) at <http://create.louisiana.edu/index.php/downloads?task=viewcategory&catid=4>
- Gallus, W. A., Jr., D. M. Flory, K. Subramanian, and C. Cervato, 2016: Severe WeAther Tool (SWAT) citizen science application (<http://meteor.geol.iastate.edu/swat>)

#### *Preprints/Extended Abstracts (104 total)*

1. Jahn, D. E., William A. Gallus, Jr., and E. S. Takle, 2014: Evaluation of the MYNN PBL scheme closure constants for low-level jet events in a stable boundary layer. 21<sup>st</sup> Symposium on Boundary Layers and Turbulence, Leeds, United Kingdom, Jun 9-13.
2. Camerline, I., W. A. Gallus, Jr., and E. S. Takle, 2014: Meteorological conditions associated with ramp events in wind farms. 5<sup>th</sup> Conf. On Weather, Climate, and the New Energy Economy, Austin, TX, Feb. 2-6, 733.
3. Gallus, W. A., Jr., and D. V. Snively, 2013: Prediction of convective morphology in near-cloud permitting WRF model simulations. 14<sup>th</sup> Annual WRF Users Workshop, Boulder, CO, Jun. 25-27, P74.
4. Walton, R., W. A. Gallus, Jr., and E. S. Takle, 2013: Wind ramp events at turbine height – spatial consistency and causes at two Iowa wind farms. 4<sup>th</sup> Conf. on Weather, Climate, and the New Energy Economy, Austin, TX, Jan 6-10, P421.
5. Moser, B., W. A. Gallus, Jr., and R. Mantilla, 2013: The ability of radar data assimilation to improve warm season heavy rainfall forecasts for use in hydrologic models. 27<sup>th</sup> Conf. on Hydrology, Austin, TX, Jan 6-10, P523.
6. Gallus, W. A., Jr., 2012: Revisiting the 1976 Jordan, Iowa F5 tornado: A case of extreme sensitivity of WRF simulations to initial conditions. 26<sup>th</sup> Conf. on Severe Local Storms, Nashville, TN, Nov. 6-10, P127.
7. Gallus, W. A., Jr., A. Robertson, R. Showers, and A. J. Deppe, 2012: A comparison of WRF simulated low-level shear to observations in the 10-80m layer. Third Conference on Weather, Climate, and the New Energy Economy, New Orleans, LA, Jan 22-26, 580.
8. Suess, E. J., W. A. Gallus, Jr., and C. Cervato, 2012: The offering of prizes for student performance in a weather forecasting activity in a large service course: Does it improve student performance? 21<sup>st</sup> Symposium on Education, New Orleans, LA, Jan 22-26, 139.



9. Gallus, W. A., Jr., 2011: A comparison of simulated radar information to observations for a well-forecasted derecho event. 35<sup>th</sup> Conf. On Radar Meteorology, Pittsburgh, PA, Sept. 26-30, 49.
10. Deppe, A. J., and W. A. Gallus, Jr., 2011: Creation of a WRF ensemble for improved wind forecasts at turbine height. Annual Meeting of the Electric Power Research Center, Ames, IA, May 5.
11. Suess, E. J., C. Cervato, and W. A. Gallus, Jr., 2011: Weather forecasting as a learning tool in a large service course: Does practice make perfect? 20<sup>th</sup> Symposium on Education, Seattle, WA, Jan 23-27, 173.
12. Duda, J. D., and W. A. Gallus, Jr., 2011: Comparison of convective initiation and evolution in 3 km WRF simulations with and without the Kain-Fritsch scheme. 24<sup>th</sup> Conf. On Weather and Forecasting/20<sup>th</sup> Conf. On Num. Wea. Pred., Seattle, WA, Jan. 23-27, 13B.1.
13. Carter, K. C., Deppe, A. J., and W. A. Gallus, Jr., 2011: Simulation of nocturnal LLJs with a WRF PBL scheme ensemble and comparison to observations from the ARM project. 24<sup>th</sup> Conf. on Weather and Forecasting/20<sup>th</sup> Conf. on Num. Wea. Pred., Seattle, WA, Jan. 23-27, 474.
14. Deppe, A. J., W. A. Gallus, Jr., and E. S. Takle, 2011: Creation of a WRF ensemble for improved wind forecasts at turbine height. 2<sup>nd</sup> Conf. On Weather, Climate, and the New Energy Economy, Seattle, WA, Jan. 23-27, 777.
15. Gallus, W. A., Jr., and A. J. Deppe, 2011: Wind ramp events at an Iowa wind farm: a climatology and evaluation of WRF ensemble forecast skill. 2<sup>nd</sup> Conf. On Weather, Climate and the New Energy Economy, Seattle, WA, Jan. 23-27, 805.
16. Schaffer, C. J., W. A. Gallus, Jr., and M. Segal, 2011: Improving probabilistic ensemble forecasts of convection through the application of QPF-POP relationships. 24<sup>th</sup> Conf. on Weather and Forecasting/20<sup>th</sup> Conf. on Num. Wea. Pred., Seattle, WA, Jan. 23-27, 123.
17. Aligo, E. A., W. A. Gallus, Jr., G. Thompson and B. Ferrier, 2011: Comparison of Hydrometeor Fall Speed Distributions in Bin and Bulk Microphysical Schemes. 24<sup>th</sup> Conf. on Weather and Forecasting/20<sup>th</sup> Conf. on Num. Wea. Pred., Seattle, WA, Jan. 23-27, 13B.4.
18. Karstens, C. D., T. Samaras, W. A. Gallus, Jr., C. Finley, and B. Lee, 2010: Analysis of near-surface wind flow in close proximity to tornadoes. 24<sup>th</sup> Conf. On Severe Local Storms, Denver, CO, Oct. 11-15, P10.12.
19. Carletta, N., W. A. Gallus, Jr., M. Fowle, and D. Miller, 2010: Severe wind-driven hail events as a function of convective morphology. 24<sup>th</sup> Conf. On Severe Local Storms, Denver, CO, Oct. 11-15, P2.12.
20. Schaffer, C. J., W. A. Gallus, Jr., and M. Segal, 2009: Application of a QPF-POP relationship to ensembles to generate probabilistic precipitation forecasts. 19<sup>th</sup> Conf. on Num. Wea. Pred., Omaha, NE, June 1-5, JP2.1.
21. Clark, A., W. A. Gallus, Jr., M. Xue, and F. Kong, 2009: Growth of spread in convection-allowing and convection-parameterizing ensembles. 19<sup>th</sup> Conf. on Num. Wea. Pred., Omaha, NE, June 1-5, JP3.1.
22. Clark, A., W. A. Gallus, Jr., M. Xue, and F. Kong, 2009: A comparison of precipitation forecast skill between small convection-allowing and large convection-parameterizing ensembles. 19<sup>th</sup> Conf. on Num. Wea. Pred., Omaha, NE, June 1-5, JP3.2.
23. Clark, A., W. A. Gallus, Jr., M. Xue, and F. Kong, 2009: Predictability of convective rainfall events during different large-scale weather regimes in convection-allowing and convection-parameterizing simulations. 19<sup>th</sup> Conf. on Num. Wea. Pred., Omaha, NE, June 1-5, 19B.4.
24. Gallus, W. A., Jr., 2009: Application of object-oriented verification techniques to ensemble precipitation forecasts. 19<sup>th</sup> Conf. on Num. Wea. Pred., Omaha, NE, June 1-5, 19B.1.
25. Aligo, E. A., and W. A. Gallus, Jr., 2009: Impact of Fall Speed Computations on the Structure of Mesoscale Convective Systems in Spectral and Bulk Microphysical Schemes. 19<sup>th</sup> Conf. on Num. Wea. Pred., Omaha, NE, June 1-5, 7A.1.
26. Clark, A. J., C. J. Schaffer, K. Johnson-O'Mara, and W. A. Gallus, Jr., 2008: Climatology of storm reports relative to upper-level jet streaks. 23<sup>rd</sup> Conf. on Severe Local Storms, Savannah, GA, Oct. 27-31, CD-ROM.
27. Karstens, C. D., T. M. Samaras, T. Laubach, B. D. Lee, C. A. Finley, W. A. Gallus, Jr., and F. L. Haan, 2008: TWISTEX 2008: In situ and mobile mesonet observations of tornadoes. 23<sup>rd</sup> Conf. on Severe Local Storms, Savannah, GA, Oct. 27-31, CD-ROM.
28. Karstens, C., and W. A. Gallus, Jr., 2008: Simulations of near ground hurricane winds in built environments. 28<sup>th</sup> Conf. on Hurricanes and Tropical Meteorology, Orlando, FL, Apr 28-May 2, CD-ROM.
29. Gutowski, W. J., and W. A. Gallus, Jr., 2007: Simulating strong precipitation events: Forecasts and Climate Projections. Nigerian Science Council Conference.

30. Gallus, W. A., Jr., Pfeifer, M., G. C. Craig, 2007: Intercomparison of simulations using 4 WRF microphysical schemes with dual-Polarization data for a German squall line. 18<sup>th</sup> Conf. on Num. Wea. Pred., Park City, UT, June 25-28, CD-ROM.
31. Clark, A., J., and W. A. Gallus, Jr., 2007: Forecast skill and spread in small convection-resolving and large non-convection resolving WRF model ensembles. 18<sup>th</sup> Conf. on Num. Wea. Pred., Park City, UT, June 25-28, CD-ROM
32. Aligo, E. A., and W. A. Gallus, Jr., 2007: The sensitivity of simulated convective morphologies to cloud microphysical scheme parameters. 18<sup>th</sup> Conf. on Num. Wea. Pred., Park City, UT, June 25-28, CD-ROM.
33. Thien, L., W. A. Gallus, Jr., and M. A. Olsen, 2007: Comparison of Aura MLS water vapor measurements with GFS and NAM analyses in the upper troposphere/lower stratosphere. 18<sup>th</sup> Conf. on Num. Wea. Pred., Park City, UT, June 25-28, CD-ROM.
34. Gallus, W. A., Jr., 2006: A cyclone at the Cyclone game on Nov. 12 2005 – a near-miss worst case scenario. Preprints, 23<sup>rd</sup> Conf. on Severe Local Storms, Amer. Meteor. Soc., St. Louis, MO, CD-ROM, 11.2.
35. Gallus, W. A., Jr., E. V. Johnson, and N. Snook, 2006: Severe weather reports as a function of convective system morphology. Preprints, 23<sup>rd</sup> Conf. on Severe Local Storms, Amer. Meteor. Soc., St. Louis, MO, CD-ROM, P2.8.
36. Gallus, W. A., Jr., I. Jankov, and E. A. Aligo, 2006: Study of the impacts of grid spacing and physical parameterizations on WRF simulations of convective system rainfall and morphology. WRF DTC Reunion. Boulder, CO, Aug. 17-18, 2006, 14 pp.
37. Gallus, W. A., Jr., F. L. Haan, P. P. Sarkar, K. Le, and J. Wurman, 2006: Comparison of numerical model and laboratory simulator tornado wind fields with radar observations of the Spencer, South Dakota tornado. Symposium on the Challenges of Severe Convective Storms. Atlanta, GA, Jan 29-Feb 2, 2006, CD-ROM.
38. Gallus, W. A., Jr., 2005: A comparison of impacts from dynamic core, physics, and initialization dataset in WRF simulations of warm season convection. 17<sup>th</sup> Conf. on Numerical Weather Prediction. Washington, D.C., Aug. 1-5, 2005, P1.89.
39. Jankov, I., W. A. Gallus, Jr., M. Segal, and S. E. Koch, 2005: The impacts of different WRF model physical parameterizations and their interactions on warm season MCS rainfall. 17<sup>th</sup> Conf. on Numerical Weather Prediction. Washington, D.C., Aug. 1-5, 2005, 16B.3.
40. Aligo, E. and W. A. Gallus, Jr., 2005: The impact of different microphysical schemes on mesoscale circulations and convective system morphology in 4-10 km grid spacing WRF simulations, 17<sup>th</sup> Conf. on Numerical Weather Prediction. Washington, D.C., Aug. 1-5, 2005, P1.24.
41. Grams, J., W. A. Gallus, Jr., S. E. Koch, L. Wharton, A. Loughe, and E. Ebert, 2005: The use of a modified Ebert-McBride technique to evaluate mesoscale model QPF as a function of convective system morphology during IHOP 2002. 17<sup>th</sup> Conf. on Numerical Weather Prediction. Washington, D.C., Aug. 1-5, 2005, 14A.2.
42. Sarkar, P. P., F. Haan, W. A. Gallus, Jr., K. Le, and J. Wurman, 2005: Velocity measurements in a laboratory tornado simulator and their comparison with numerical and full-scale data. Proceedings, 4<sup>th</sup> U.S./Japan Cooperative Program on Natural Resources, Tsukuba, Japan, May 14-21, CD-ROM.
43. Sarkar, P. P., F. L. Haan, W. A. Gallus, Jr., K. Le, R. Kardell, and J. Wurman, 2005: A laboratory tornado simulator: Comparison of laboratory, numerical and full-scale measurements. Proceedings, 10<sup>th</sup> Americas Conf. on Wind Engineering. Baton Rouge, LA, May 31-June 4. CD-ROM, 120-10ACWE-Sarkar.pdf.
44. Gallus, W. A., Jr., J. Correia, and I. Jankov, 2004: The 4 June 1999 derecho: The ultimate challenge for numerical weather prediction? Preprints, 22<sup>nd</sup> Conf. on Severe Local Storms, Hyannis, MA, October 4-8, CD-ROM, paper P15.1.
45. Snook, N., and W. A. Gallus, Jr., 2004: A climatology of severe weather reports as a function of convective system morphology. Preprints, 22<sup>nd</sup> Conf. on Severe Local Storms, Hyannis, MA, October 4-8, CD-ROM, paper P5.5.
46. Gallus, W. A., Jr., P. P. Sarkar, F. Haan, K. Le, R. Kardell, and J. Wurman, 2004: A translating tornado simulator for engineering tests: Comparison of radar, numerical model, and simulator winds. Preprints, 22<sup>nd</sup> Conf. on Severe Local Storms, Hyannis, MA, October 4-8, CD-ROM, paper 15.1.
47. Correia, J., I. Jankov, and W. A. Gallus, Jr., 2004: Convective contamination of model initializations and the poor forecasts that follow. Preprints, 22<sup>nd</sup> Conf. on Severe Local Storms, Hyannis, MA, October 4-8, CD-ROM, paper 17.8.
48. Gallus, W. A., Jr., and I. Jankov, 2004: Prediction of warm season convective systems using a matrix of 19 WRF physical configurations. 5<sup>th</sup> WRF Users' Workshop, Boulder, CO, June 22-25, 5-8.

49. Gallus, W. A., Jr., C. Cervato, C. Cruz-Neira, G. Faidley, and R. Heer, 2004: A virtual tornadic thunderstorm enabling students to construct knowledge about storm dynamics through data collection and analysis. *13th Symposium on Education*, Seattle, WA, Jan 11-15, CD-ROM, paper 4.2.
50. Jankov, I., W. A. Gallus, Jr., B. Shaw, and S. E. Koch, 2004: An investigation of IHOP convective system predictability using a matrix of 19 WRF members. *20th Conf. on Wea. Analysis and Forecasting/16th Conf. on Num. Wea. Prediction*, Seattle, WA, Jan 11-15, CD-ROM, paper 2.19.
51. Grams, J., W. A. Gallus, Jr., L. S. Wharton, and S. Koch, 2004: Use of a modified Ebert-McBride technique to verify IHOP QPF forecasts as a function of convective system morphology. *20th Conf. on Wea. Analysis and Forecasting/16th Conf. on Num. Wea. Prediction*, Seattle, WA, Jan 11-15, CD-ROM, paper J13.4.
52. Aligo, E., W. A. Gallus, Jr., and T.-C. Chen, 2003: Using Iowa Environmental Mesonet (IEM) data to assess the effects of small-scale variations in soil moisture and sources of errors in precipitation forecasts. *13th Conf. on Mesoscale Processes*, Portland, OR, June 27-30, CD-ROM, paper P1.18.
53. Temeyer, B. R., W. A. Gallus, Jr., K. A. Jungbluth, D. Burkheimer, and D. McCauley, 2003: Using an artificial neural network to predict parameters for frost deposition on Iowa bridgeways. *Mid-Continent Transportation Research Symposium*, August, Ames, IA, August 21-22.
54. Sarkar, P. P., R. Kardell, F. Haan, and W. A. Gallus, Jr., 2003: Design of ISU Tornado Vortex Simulator. *International Wind Engineering Conference*, June 2, Lubbock, TX.
55. Temeyer, B. R., W. A. Gallus, Jr., E. S. Takle, T. M Greenfield, and K. A. Jungbluth, 2003: Applications of a roadway frost prediction system in Iowa. *Preprints, 19th International Conf. on IIPS*, Feb. 6-8, Long Beach, CA, Amer. Meteor. Soc, CD-ROM, P1.40.
56. Anderson C. J., W. A. Gallus, Jr., R. W. Arritt, and J. S. Kain, 2002: Impact of adjustments in the Kain-Fritsch convective scheme on QPF of elevated convection. *Preprints, 15th Conf. on Numerical Weather Prediction*, Aug. 12-16, San Antonio, TX, 23-24.
57. Gallus, W. A., Jr., M. Segal, I. Jankov and B. R. Temeyer, 2002: An exploration of several techniques to try to improve warm season rainfall forecasts in the Upper Midwest. *Preprints, 15th Conf. on Numerical Weather Prediction*, Aug. 12-16, San Antonio, TX, 373-374.
58. Jankov, I. and W. A. Gallus, Jr., 2002: Contrasts between good and bad forecasts of warm season MCSs in 10 km Eta simulations using two convective schemes. *Preprints, 15th Conf. on Numerical Weather Prediction*, Aug. 12-16, San Antonio, TX, 242-243.
59. Aves, S., W. A. Gallus, Jr., E. Kalnay, and M. Miller, 2002: The use of a phase shifted verification score to evaluate warm season QPF. *Preprints, 15th Conf. on Numerical Weather Prediction*, Aug. 12-16, San Antonio, TX, J107-108.
60. Sarkar, P. P., and W. A. Gallus, Jr., 2002: ISU tornado-like vortex simulator for assessment of wind loads. *Preprints, ASCE/SEI Structures Congress 2002*, Apr. 4-6, Denver, CO, 2pp.
61. Gallus, W. A., Jr., M. Segal, and I. Jankov, 2002: Impact of improved initialization of mesoscale features on QPF skill in both 10 km deterministic and ensemble forecasts. *Preprints, Symposium on Observations, Data Assimilation, and Probabilistic Prediction*, Jan. 13-17th, Orlando, FL, J127-J130.
62. Temeyer, B. R., W. A. Gallus, Jr., and C. G. Carmichael, 2002: A neural network approach to warm season rainfall in the Upper Midwest. *Preprints, 18th International Conf. on IIPS*, Jan. 13-17th, Orlando, FL, 232-235.
63. Today, D. P., D. A. Herzmann, W. A. Gallus, Jr., and B. R. Temeyer, 2002: An intercomparison of RWIS data with AWOS and ASOS observations in the state of Iowa. *The Third Symposium on Environmental Applications: Facilitating the Use of Environmental Information*, American Meteorological Society, January 13-17, 2002, Orlando, FL, 150-152.
64. Arritt, R. W., W. J. Gutowski, M. Segal, W. A. Gallus, Jr., and E. S. Takle, 2001: Effect of Vertical Discretization on Simulated Surface Fluxes Under Stable Stratification. *Preprints, Planetary Boundary Layer and Climate Workshop*.
65. Gallus, W. A., Jr., I. Jankov, and M. Segal, 2001: The use of a 10 km ensemble to improve warm season MCS rainfall prediction. *Preprints, 9th Conf. on Mesoscale Processes*, July 30-Aug 2, Ft. Lauderdale, FL.
66. Jankov, I., and W. A. Gallus, Jr., 2001: Variability in warm season MCS rainfall predictability. *Preprints, 9th Conf. on Mesoscale Processes*, July 30-Aug 2, Ft. Lauderdale, FL.
67. Arritt, R. W., W. A. Gallus, Jr. and C. J. Anderson, 2001: Ensemble forecasts using perturbed physics in a multidimensional parameter space, *Preprints, 14th Conf. on Numerical Weather Prediction*, July 30-Aug 2, Ft. Lauderdale, FL.

68. Gallus, W. A., Jr., and M. Segal, 2001: Impact of improved initialization of mesoscale boundaries on heavy rainfall events in 10 km Eta simulations. *Preprints, Symposium on precipitation extremes, prediction, impacts and responses*, Jan. 14-18, Albuquerque, NM, 252-255.
69. Yarger, D. N., and W. A. Gallus, Jr., 2001: Creation of a virtual tornadic thunderstorm: Enabling student-centered learning about complex storm-scale atmospheric dynamics. *Preprints, 10th Symposium on Education*, Jan. 14-18, Albuquerque, NM.
70. Temeyer, B., W. A. Gallus, Jr., E. S. Takle, D. Burkheimer, and D. McCauley, 2001: A winter weather index to estimate maintenance costs in the Midwest. *Preprints, 17th International Conf. on Interactive Information and Processing Systems*, Jan. 14-18, Albuquerque, NM.
71. Knollhoff, D. S., E. S. Takle, W. A. Gallus, Jr., D. Burkheimer, and D. McCauley, 2001: A model for forecasting frost accumulation on bridges that uses Roadway Weather Information System (RWIS) data. *Preprints, 17th International Conf. on Interactive Information and Processing Systems*, Jan. 14-18, Albuquerque, NM.
72. Gale, J. J., W. A. Gallus, Jr., and K. A. Jungbluth, 2000: Toward improved prediction of MCS dissipation. *Preprints, 20th Conf. on Severe Local Storms*, Sept. 15-19, Orlando, FL, 343-344.
73. Gallus, W. A., Jr., C. J. Anderson, and A. E. Frederick, 2000: Estimates of rear-flank downdraft buoyancy as a predictor of low-level tornadogenesis. *Preprints, 20th Conf. on Severe Local Storms*, Sept 15-19, Orlando, FL, 234-235.
74. Goering, M. A., W. A. Gallus, Jr., M. A. Olsen, and J. L. Stanford, 2000: The role of stratospheric air in the April 8, 1999 Iowa tornado outbreak: An analysis using EP-TOMS total ozone and Eta trajectories. *Preprints, 20th Conf. on Severe Local Storms*, Sept 15-19, Orlando, FL, 571-574.
75. Gallus, W. A., Jr., M. Segal, and S. Aves, 2000: Impact of improved initialization of mesoscale boundaries on convective rainfall in 10 km Eta simulations. *Preprints, 20th Conf. on Severe Local Storms*, Sept. 15-19, Orlando, FL, 469-472.
76. Gallus, W. A., Jr. and D. N. Yarger, 2000: Using interactive severe weather activities to motivate student learning. *Preprints, 9th Symposium on Education*, Jan. 9-14, Long Beach, CA, 214-215.
77. Gallus, W. A., Jr., M. A. Olsen, J. L. Stanford and J. M. Brown, 2000: Fine-scale upper-tropospheric dynamics in an intense midwestern cyclone: Comparison of TOMS total ozone data with model analyses. *Preprints, 11th Conference on the Middle Atmosphere*, Jan. 9-14, Long Beach, CA.
78. Gallus, W. A., Jr. and M. Segal, 1999: Cold frontal acceleration over Lake Michigan. *Preprints, 8th Conf. on Mesoscale Processes*, June 28 - July 2, Boulder, CO, 166-169.
79. Gallus, W. A., Jr., 1999: Impact of choice of convective parameterization on model QPF-horizontal resolution dependence. *Preprints, 8th Conf. on Mesoscale Processes*, June 28 - July 2, Boulder, CO, 300-303.
80. Gallus, W. A., Jr., 1998: Dependence of Eta model-predicted excessive rainfall events on horizontal resolution. *Preprints, 19th Conf. on Severe Local Storms*, Sept. 14-18, Minneapolis, MN, 615-618.
81. Gallus, W. A., Jr., 1998: High resolution Eta simulations of the Jarrell, TX tornadic event. *Preprints, 19th Conf. on Severe Local Storms*, Sept. 14-18, Minneapolis, MN, 667-668.
82. Knollhoff, D. S., G. S. Takle and W. A. Gallus, Jr., 1998: Use of pavement temperature measurements for winter maintenance decisions. *Proceedings, Crossroads 2000, 1998 Transportation Conf.*, Aug 19-21, Ames, IA, 33-36.
83. Gallus, W. A., Jr., 1998: The use of mesoscale data to improve forecasting of small-scale extreme weather events: The Ames, Iowa flood case. *Preprints, 16th Conf. on Weather Analysis and Forecasting*, January 11-16, Phoenix, AZ, 273-274.
84. Gallus, W. A., Jr., T. Li, M. Segal and R. W. Arritt, 1998: The effect of surface processes on fronts and convective precipitation systems: Results of high resolution Eta simulations. *Preprints, 12th Conf. on Numerical Weather Prediction*, January 11-16, Phoenix, AZ, J99-J100.
85. Gallus, W. A., Jr., 1997: Step corner effects in high-resolution Eta simulations. *Proceedings, Symposium on Regional Weather Prediction*, October 14-17, Athens, Greece, 201-210.
86. Gallus, W. A., Jr., M. Segal, R. W. Arritt and T. Li, 1997: The effect of late-winter solar irradiance on frontogenesis: Eta simulations of the 9 March 1992 case. *Proceedings, Symposium on Regional Weather Prediction*, October 14-17, Athens, Greece, 307-314.
87. Yarger, D. N., J. P. Boysen, W. A. Gallus, Jr., R. A. Thomas, 1997: Weather forecasting: an authentic situated learning environment. *Computer Assisted Learning in Meteorology Biannual Conference*, Melbourne, Australia, July 1-9, 1997.

88. Arritt, R. W., W. D. Bachelor and W. A. Gallus, Jr., 1997: Development of a two-way interactive model for land cover and climate. *Symposium on Boundary Layer and Turbulence*, Long Beach, CA, Feb 2-7 1997.
89. Gutowski, William J., Jr., E. S. Takle, R. W. Arritt, W. A. Gallus, Jr., R. W. Turner and Z. Pan, 1997: Project to intercompare regional climate simulations (PIRCS). *13th Conf. on Hydrology*, Long Beach, CA, Feb 2-7 1997.
90. Arritt, R. W., E. S. Takle, W. J. Gutowski, Jr., W. A. Gallus, Jr. and Z. Pan, 1997: Project to intercompare regional climate simulations (PIRCS). *1997 Assemblies of the International Association for Meteorology and Atmospheric Sciences*, Melbourne, Australia, July 1-9 1997.
91. Takle, E. S., W. J. Gutowski, R. W. Arritt, W. A. Gallus, Jr., R. W. Turner and Z. Pan, 1996: Project to Intercompare Regional Climate Simulations (PIRCS). *Second International Scientific Conference on the Global Energy and Water Cycle*, 17 June- 20 June 1996, Washington, D.C.
92. Gallus, W. A., Jr. and J. F. Bresch, 1996: An intense small-scale winter vortex in the Midwest. *Preprints, 15th Conference on Weather Analysis and Forecasting*, Norfolk, VA, 54-55.
93. Gallus, W. A., Z. Janjic, T. L. Black and J. P. Gerrity, 1996: The nonhydrostatic Eta model at NCEP – Preliminary comparisons with hydrostatic simulations. *Preprints, 11th Conference on Numerical Weather Prediction*, Norfolk, VA, 164-165.
94. Gallus, W. A., Jr., 1994: The dynamics of circulations within the stratiform regions of squall lines. *Preprints, 6th Conference on Mesoscale Processes*, Portland, OR, 17-22 July, 1994, 611-614.
95. Gallus, W. A., Jr. and M. Rancic, 1994: A nonhydrostatic version of the NMC Regional Eta model. *Preprints, 10th Conference on Numerical Weather Prediction*, Portland, OR, 17-22 July, 1994, 372-373.
96. Gallus, W. A., Jr. and J. F. Bresch, 1993: A case study of a severe multiple-updraft HP supercell complex. *Preprints, 17th Conference on Severe Local Storms*, St.Louis, October, 1993, 220-223.
97. Johnson, R. H., J. F. Bresch, P. E. Ciesielski and W. A. Gallus, Jr., 1993: The TOGA/COARE atmospheric sounding array: Its performance and preliminary scientific results. *Preprints, 20th Conference on Hurricanes and Tropical Meteorology*, San Antonio, TX, 10-14 May, 1993, 1-4.
98. Gallus, W. A., Jr., 1992: A modeling study of the dynamic response to precipitation processes within the stratiform region of a squall line. *Preprints, 5th Conference on Mesoscale Processes*, Atlanta, GA, 5-10 January, 1992, 270-275.
99. Bresch, J. F., and W. A. Gallus, Jr., 1990: Relationship between sounding parameters, synoptic forcing, and tornados in the northeast Colorado area. *Preprints, 16th Conference on Severe Local Storms*, Kananaskis Provincial Park, Alberta, Canada, 22-26 October, 1990, 542-547.
100. Johnson, R. H., W. A. Gallus, Jr. and M. D. Vescio, 1990: Near-tropopause vertical motion within the trailing stratiform regions of squall lines. *Preprints, 16th Conference on Severe Local Storms*, Kananaskis Provincial Park, Alberta, Canada, 22-26 October, 1990, 669-674.
101. Gallus, W. A., Jr., and R. H. Johnson, 1990: Temporal and spatial variations in the momentum budget of the 10-11 June PRE-STORM squall line. *Preprints, 4th Conference on Mesoscale Meteorology*, Boulder CO, 25-29 June, 1990, 192-193.
102. Stumpf, G. J., and W. A. Gallus, Jr., 1989: An examination of new convective development with a PRE-STORM squall line case. *Preprints, 24th Conference on Radar Meteorology*, Tallahassee, FL, 27-31 March, 1989, 506-509.
103. Johnson, R. H., and W. A. Gallus, Jr., 1989: Further evidence for the important role of mesoscale vertical motions in the thermodynamic budgets of cloud ensembles. *Preprints, Symposium on the role of clouds in atmospheric chemistry and global climate*, Anaheim, CA, January 3- February 2.
104. Johnson, R. H., and W. A. Gallus, Jr., 1988: The wake structure of an intense midlatitude squall line in OK PRE-STORM. *Preprints, 15th Conference on Severe Local Storms*, Baltimore, MD, 22-26 February, 1988, 229-232.

***Presentations (227 total)***

***Invited (59 total)***

*Invited - National & International Meetings and Workshops*

1. Gallus, W.A., Jr., 2022: The prediction challenges of storm morphology, Richard H. Johnson Symposium, Amer. Meteor. Soc., Houston, TX (remote) January 23-27, 2022.

2. Gallus, W. A., Jr., K. K. Hugeback, and K. Franz, 2021: Accounting for Spatial Displacement Errors in Ensemble Member QPF to Create Short-Term Ensemble Streamflow Forecasts. NOAA seminar, FFaIR Experiment, July 13, 2021 (remote).
3. Gallus, W. A., Jr., 2021: Interesting behavior in FV3-LAM simulations of the Midwestern Derecho of August 10, 2020 (and contrasts with 2 other MCS cases). NCAR/DTC weekly seminar (remote), April 22, 2021.
4. Gallus, W. A., Jr., 2020: A Machine Learning Tool to Provide Probabilities that Severe Thunderstorm Wind Damage Reports are due to Winds of 50 Knots or More. Southern Region NWS Guest Speaker Series – hosted by Dallas, TX NWS office (remote), June 11, 2020.
5. Gallus, W. A., Jr., 2020: Improving our understanding of severe thunderstorm winds. Central Region NWS Guest Speaker Series – hosted by Duluth, MN NWS office (remote), June 8, 2020.
6. Gallus, W. A., Jr., 2016: Success in Graduate School – what does it take? Amer. Meteor. Soc. 2016 Annual Meeting Student Conference, New Orleans, LA, Jan. 10.
7. Gallus, W. A., Jr., 2013: Lessons learned from the debris of the 2011 tornadoes. Douglas County Severe Weather Symposium, Lawrence, KS, March 9.
8. Gallus, W. A., Jr., and E. S. Takle, 2010: Forecasting wind speed at hub height and potential impact of turbines on crops. Midwest Wind Energy: Beyond 20% by 2030, Ames, IA, Oct. 28.
9. Gallus, W. A., Jr., 2010: Severe storm reports as functions of jet streaks and convective morphology. 14<sup>th</sup> Northern Plains Convective Workshop, Sioux Falls, SD, Apr 21-22.
10. Gallus, W. A., Jr., 2010: Journey to the center of a volcano – teaching with a 3-D virtual volcano simulation. NSF/NSDL/UNAVCO Workshop on planning for the future of cybereducation in the geosciences, Arlington, VA, Jan 6-8.
11. Gallus, W. A., Jr., 2009: Application of spatial verification methods to ensembles. WRF-DTC Verification Workshop, Boulder, CO, Aug 26.
12. Gallus, W. A., Jr., 2008: Application of object-oriented techniques to ensemble forecasts of precipitation, DTC Workshop, Boulder, CO, Apr. 16.
13. Gallus, W. A., Jr., and E. E. Ebert, 2008: The CRA technique applied to “fake” cases, at Intercomparison Project Workshop, Boulder, CO, Apr. 14.
14. Gallus, W. A., Jr., 2007: Modified Ebert-McBride technique verification applied to SPC data, *Verification Workshop*, Feb. 20, Boulder, CO.
15. Gallus, W. A., Jr., 2006: DTC visit summary, *DTC Reunion*, Aug. 17-18, Boulder, CO
16. Gallus, W. A., Jr., 2006: Use of a virtual modeled storm in the classroom. *Unidata Faculty Workshop*, July 10-14, Boulder, CO.
17. Yarger, D. N., and W. A. Gallus, Jr., 2004: CAL - Enabling students to learn by doing what meteorologists do, *CALmet workshop*, July 15, Boulder, CO.
18. Gallus, W. A., Jr., 2002: Invited panel discussion participant, *Verification Workshop*, Aug. 2, Boulder, CO.
19. Gallus, W. A., Jr., 2002: Numerical Weather Prediction - White Paper. *United States Weather Research Programme Warm Season QPF Workshop*, March 5, Boulder, CO. (invited as substitute speaker).
20. Gallus, W. A., Jr., 2000: Model issues related to heavy precipitation forecasting. *National Weather Service River Forecast Center/Hydrometeorological Prediction Center Hydrometeorology Course*, November 14-21, Boulder, CO.
21. Gallus, W. A., Jr., 2000: Severe Weather Laboratory Exercise. *UNIDATA faculty workshop*, June 21-22, Boulder, CO.
22. Gallus, W. A., Jr., 1999: QPF issues in NWP. *COMET Faculty Course on Numerical Weather Prediction*, June 11, Boulder, CO.
23. Gallus, W. A., Jr., 1999: Use of the workstation Eta model. *Planning meeting for Taiwan cold surge experiment*, April 15, Chung-lu, Taiwan.
24. Gallus, W. A., Jr., 1995: A nonhydrostatic version of the NCEP's regional Eta model. *First Eta Model Users Workshop*, Dec. 12, Camp Springs, MD.

*Invited - University and National Laboratory Seminars*

25. Gallus, W. A., Jr., I E. Tirone, S. Pal, S. Dutta, R. Maitra, J. Newman, and E. S. Weber, 2022; Improved diagnosis of severe wind occurrence through machine learning. NOAA Science Sharing Session, (May 25, 2022, remote).

26. Gallus, W. A., Jr., 2022: Is the answer “blowin’ in the wind?” – what do we know after and before severe thunderstorm winds occur?, University of Missouri, (March 21, 2022, remote).
27. Gallus, W. A., Jr., 2022: Challenges in numerical weather prediction of convective initiation and upscale growth. Stout Lecture, University of Nebraska-Lincoln, (February 25, 2022).
28. Gallus, W. A., Jr., 2020: Challenges in Numerical Weather Prediction of Thunderstorm Upscale Growth. Tarbell Lecture, Pennsylvania State University (remote), Sept. 23, 2020.
29. Gallus, W. A., Jr., 2020: Challenges in Numerical Weather Prediction of thunderstorm initiation and upscale growth. University of Nebraska – Lincoln, planned April 9, 2020 (delayed due to Covid).
30. Gallus, W. A., Jr., 2018: Possible collaboration to improve severe weather forecasting/diagnosis via machine learning. Theoretical and Applied Data Science Group, Iowa State University, Nov. 8.
31. Gallus, W. A., Jr., 2017: Challenges in improving the predictability of MCSs. Northern Illinois University Colloquium, DeKalb, IL, Oct. 20.
32. Gallus, W. A., Jr., 2016: Numerical weather prediction of mesoscale convective systems in the Central U.S. (and Italy): What have we learned? National Research Council of Italy Institute of Atmospheric Sciences and Climate (CNR-ISAC)/Regional Weather Service of Emilia-Romagna, Bologna, Italy, Dec. 19.
33. Gallus, W. A., Jr., 2016: Numerical weather prediction of mesoscale convective systems in the Central U.S. (and Italy): What have we learned? CIMA (Centro Internazionale in Monitoraggio Ambientale) Research Institute, Savona, Italy, Nov. 9.
34. Gallus, W. A., Jr., 2016: The challenges of understanding tornadoes. University of Milan, Dept. of Physics, Oct. 4.
35. Gallus, W. A., Jr., 2016: Predictability of convective storms. National Weather Service – Des Moines, IA, Science Sharing Conference, Johnston, IA, Feb. 26.
36. Gallus, W. A., Jr., 2015: Simulating Heavy Rain-Producing MCSs in the Central U.S. – What Have We Learned? University of Alabama-Huntsville, Sept. 16.
37. Gallus, W. A., Jr., 2013: The difficult quest to unravel the secrets of the tornado. Iowa State University, LAS Dean's Lecture, Ames, IA, November 18.
38. Gallus, W. A., Jr., 2012: Convective morphology and evolution: How well can they be predicted? University of North Dakota, Grand Forks, ND, October 5.
39. Gallus, W. A., Jr., 2012: Joplin: What we observed on a damage survey. University of North Dakota, Grand Forks, ND, October 5.
40. Gallus, W. A., Jr., 2012: Predictability of heavy warm season rainfall in the 06-30 hour period for use by the Iowa Flood Center. University of Iowa, Iowa City, IA, February 1, 2012.
41. Gallus, W. A., Jr., 2011: NWP Workshop on Mesoscale Physics, July 26, 2011, at NCEP, Washington, D.C.
42. Gallus, W. A., Jr., 2010: Simulation of MCS Rainfall: Impacts of use of convection-allowing grid spacing and object-based verification techniques – National Center for Environmental Prediction, Washington, D.C., Jan. 4, 2010.
43. Gallus, W. A., Jr., 2009: Severe Storms and tornadoes – AmesLab (Academies Creating Teacher Scientists), Ames, IA, June 25, 2009.
44. Gallus, W. A., Jr., 2009: Tornadoes and Severe Storms – Iowa Science Teachers Section of IA Academy of Science, Des Moines, IA, Oct. 27, 2009.
45. Gallus, W. A., Jr., 2008: An overview of WRF: Lessons learned at ISU, at National Weather Service – Des Moines office, Feb. 1.
46. Gallus, W. A., Jr., 2008: Chasing the wind, invited to give at 2008 Fall Conference Breakfast to Iowa Science Teachers Section – IAS, Cedar Rapids, Oct 16, 2008.
47. Gallus, W. A., Jr., 2007: Forecasting issues related to convective system morphology, *National Severe Storms Laboratory/Storm Prediction Center*, May 15, Norman, OK.
48. Gallus, W. A., Jr., 2006: Weather in the Bible, *Brunier Art Museum*, Dec. 3, Ames, IA.
49. Gallus, W. A., Jr., and A. J. Clark, 2006: Some insights into the WRF model from years of research at ISU, *National Weather Service Quad Cities office*, Aug. 8, Davenport, IA.
50. Gallus, W. A., Jr. 2006: QPF and heavy precipitation events. University of Northern Iowa Update Conference, March 31, Cedar Falls, IA.
51. Gallus, W. A., Jr., C. Cervato, C. Cruz-Neira, and G. Faidley, 2006: A virtual tornadic thunderstorm enabling students to construct knowledge about storm dynamics through data collection and analysis. University of Northern Iowa Update Conference, March 31, Cedar Falls, IA.

52. Gallus, W. A., Jr., 2004: Use of a modified Ebert-McBride technique to evaluate IHOP QPF as a function of convective system morphology (and other warm season rainfall prediction ideas). *National Severe Storms Laboratory/ Storm Prediction Center/ University of Oklahoma*, May 26, Norman, OK.
53. Gallus, W. A., Jr., 2004: Eta and WRF simulations of warm season convection -- how good are the forecasts of rainfall? *St. Louis University*, Mar. 13, St. Louis, MO.
54. Gallus, W. A., Jr. 2004: Warm season rainfall predictability issues. *Forecast Systems Laboratory*, Aug. 2, Boulder, CO.
55. Gallus, W. A., Jr., 2003: Predictability issues for warm season convective system rainfall. *National Severe Storms Laboratory/ Storm Prediction Center/ University of Oklahoma*, May 2, Norman, OK.
56. Gallus, W. A., Jr., 2001: Predictability of warm season convective system rainfall in the Eta model. *National Severe Storms Laboratory/ Storm Prediction Center/ University of Oklahoma*, May 11, Norman, OK.
57. Gallus, W. A., Jr., 1995: *The Pennsylvania State University*, University Park, PA (April 1995)
58. Gallus, W. A., Jr., 1993: Development Division, *National Meteorological Center*, Camp Springs, MD (June 1993)
59. Gallus, W. A., Jr., 1993: Mesoscale and Microscale Meteorology, *National Center for Atmospheric Research*, Boulder, CO (May 1993)

Volunteered (168 total)

1. Tirone, E., S. Pal, W. A. Gallus, Jr., S. Dutta, R. Maitra, J. Newman, E. S. Weber, and I. Jirak, 2022: Introducing a Machine Learning Tool to Improve Thunderstorm Wind Reports in the NCEI Storm Events Database, 30<sup>th</sup> Severe Local Storms Conference, Amer. Meteor. Soc., October 24-28, 2022, Santa Fe, NM.
2. Gallus, W. A., Jr., and M. A. Harrold, 2022: The Midwestern Derecho of August 10, 2020: Challenges and Surprises in FV3-LAM Simulations, 30<sup>th</sup> Severe Local Storms Conference, Amer. Meteor. Soc., October 24-28, 2022, Santa Fe, NM, 15.3B.
3. Dodson, D. J., and W. A. Gallus, Jr., 2022: Bow echo depiction in 1 km and 3 km WRF simulations. 30<sup>th</sup> Severe Local Storms Conference, Amer. Meteor. Soc., October 24-28, 2022, Santa Fe, NM.
4. Gallus, W. A., Jr., E. Tirone, S. Pal, S. Dutta, R. Maitra, J. Newman, E. S. Weber, and I. Jirak, 2022: A tool to estimate probability that severe thunderstorm wind reports are due to severe wind. National Weather Association Annual Meeting, Aug. 20-24, 2022, Pittsburgh, PA.
5. Gallus, W. A., Jr. and A. Duhachek, 2022: Day versus night bow echoes: which wind intensity predictors work best. National Weather Association Annual Meeting, Aug. 20-24, 2022, Pittsburgh, PA.
6. Gallus, W. A., Jr. and M. Harrold, 2022: Unusual behavior in FV3-LAM simulations of the Midwestern derecho of August 10, 2020. European Geophysical Union Annual Meeting, May 23-27, 2022.
7. Tirone, E., S. Pal, W. A. Gallus, Jr., S. Dutta, J. Newman, R. Maitra, and E. Weber, 2022: Evaluating the performance of a machine learning based tool to predict the probability that a severe wind report is due to severe intensity winds. National Weather Association Severe Storms and Doppler Radar Conference., Des Moines, IA, March 31-April 2, 2022.
8. A. Duhachek, and W. A. Gallus, Jr., 2022: Differences in near-storm parameters useful for forecasting intensity of nocturnal and diurnal bow echoes. National Weather Association Severe Storms and Doppler Radar Conference., Des Moines, IA, March 31-April 2, 2022.
9. Gallus, W.A., Jr., 2022: Unusual behavior in FV3-LAM simulations of the Midwestern derecho of August 10, 2020. National Weather Association Severe Storms and Doppler Radar Conference., Des Moines, IA, March 31-April 2, 2022.
10. Dodson, D. J. and W. A. Gallus, Jr., 2022: Bow echo depiction in 1 km and 3 km WRF simulations. 31<sup>st</sup> Conf. on Weather Analysis and Forecasting/27<sup>th</sup> Conf. on Num. Wea. Pred., Amer. Meteor. Soc., Houston, TX, January 23-27, 2022.
11. Luthi, S. and W. A. Gallus, Jr., 2022: Attributing causation to differences in depictions of convective lines in 1-km and 3-km WRF simulations. 31<sup>st</sup> Conf. on Weather Analysis and Forecasting/27<sup>th</sup> Conf. on Num. Wea. Pred., Amer. Meteor. Soc., Houston, TX, January 23-27, 2022.
12. Thielen, J. A., R. Schumacher, A. Haberlie, W. A. Gallus, Jr., E. Tirone, and K. Hugelback, 2022: SVRIMG for detailed morphology: A crowdsourced dataset of convective morphology attribute labels on radar mosaic images. 21<sup>st</sup> Conf. on Artificial Intelligence for Environmental Science, Amer. Meteor. Soc., Houston, TX, January 23-27, 2022.



13. Thielen, J. A., R. Schumacher, and W. A. Gallus, Jr., 2022: Insights from a 20-year radar climatology of mesoscale convective system morphology in the Central and Eastern United States. Richard H. Johnson Symposium, Amer. Meteor. Soc., Houston, TX, January 23-27, 2022.
14. A. Duhachek, and W. A. Gallus, Jr., 2022: Differences in near-storm parameters useful for forecasting intensity of nocturnal and diurnal bow echoes. 31<sup>st</sup> Conf. on Weather Analysis and Forecasting/27<sup>th</sup> Conf. on Num. Wea. Pred., Houston, TX, Jan. 23-27, 2022.
15. Tirone, E., S. Pal, W. A. Gallus, Jr., S. Dutta, J. Newman, R. Maitra, and E. Weber, 2022: Evaluating the performance of a machine learning based tool to predict the probability that a severe wind report is due to severe intensity winds. 21<sup>st</sup> Conf. on Artificial Intelligence for Environmental Science, Houston, TX, Jan 23-27, 2022.
16. Tirone, E., S. Pal, W. A. Gallus, Jr., S. Dutta, J. Newman, R. Maitra, and E. Weber, 2022: Evaluating the performance of a machine learning based tool to predict the probability that a severe wind report is due to severe intensity winds. 21<sup>st</sup> Conf. on Artificial Intelligence for Environmental Science, Houston, TX, Jan 23-27, 2022.
17. Pal, S., S. Dutta, E. Tirone, R. Maitra, J. L. Newman, E. S. Weber, and W. A. Gallus, Jr., 2022: Performance of machine learning-based tools to predict the probability that severe thunderstorm wind reports are from severe intensity wind. 21<sup>st</sup> Conf. on Artificial Intelligence for Environmental Science, Amer. Meteor. Soc., Houston, TX, January 23-27, 2022.
18. Gallus, W. A., Jr. and M. Harrold, 2022: An example of forecast degradation as horizontal grid spacing is refined: FV3-LAM simulations of the Midwestern derecho of August 10, 2020. 31<sup>st</sup> Conf. on Weather Analysis and Forecasting/27<sup>th</sup> Conf. on Num. Wea. Pred., Houston, TX, Jan. 23-27, 2022.
19. Thielen, J. E., W. A. Gallus, Jr., and E. Tirone, 2021: OpenMosaic: Open-source and extensible NEXRAD mosaic creation and storm object feature extraction in Python. Artificial Intelligence Conference (virtual), Jan. 10-15
20. Hugelback, K. K., W. A. Gallus, Jr., and K. J. Franz, 2021: Accounting for displacement errors in HRRRE QPF to create short-term ensemble streamflow forecasts. 35th Conf. on Hydrology (virtual), Jan. 10-15
21. Hiris, Z. A., and W. A. Gallus, Jr., 2021: Factors contributing to upscale convective growth in the central Great Plains of the United States. Special Symposium on Mesoscale Meteorology (virtual), Jan. 10-15.
22. Tirone, E., S. Pal, W. A. Gallus, Jr., S. Dutta, J. Newman, R. Maitra, and E. Weber, 2021: Evaluating the performance of a machine learning based tool to predict the probability that a severe wind report is due to severe intensity winds. Artificial Intelligence Conference (virtual), Jan. 10-15.
23. Gallus, W. A., Jr., and M. Fowle, 2020: Illegal Procedure, Mother Nature: The “Iowa State – Iowa Game” Forecast Failure, 24th National Weather Association Severe Storms and Doppler Radar Conference, Ankeny, IA, Mar. 26-28. Presentation cancelled due to Covid19 adjustments to conference.
24. Vos, J., and W. A. Gallus, Jr., 2020: Lightning distribution within individual cells: An assessment of lightning risk during outdoor sporting events, 24th National Weather Association Severe Storms and Doppler Radar Conference, Ankeny, IA, Mar. 26-28.
25. Hiris, Z. A., and W. A. Gallus, Jr., 2020: Factors which contribute to upscale convective growth of Great Plains convection, 24th National Weather Association Severe Storms and Doppler Radar Conference, Ankeny, IA, Mar. 26-28. Presentation cancelled due to Covid19 adjustments to conference.
26. Tirone, E., S. Pal, W. A. Gallus, Jr., S. Dutta, R. Maitra, J. Newman, and E. S. Weber, 2020: Using machine learning to classify severe wind reports, 24th National Weather Association Severe Storms and Doppler Radar Conference, Ankeny, IA, Mar. 26-28. Presentation cancelled due to Covid19 adjustments to conference.
27. Erickson, N., and W. A. Gallus, Jr., 2020: Statistical analysis of NOAA SPC Storm Reports, 2003-2017, 24th National Weather Association Severe Storms and Doppler Radar Conference, Ankeny, IA, Mar. 26-28. Presentation cancelled due to Covid19 adjustments to conference.
28. Hugelback, K., B. M. Kiel, W. A. Gallus, Jr., and K. Franz, 2020: Generation of WRF-Hydro probabilistic streamflow forecasts by shifting ensemble QPF based on a climatology of forecast rainfall displacement errors, 34th Conf. on Hydrology, Boston, MA, Jan. 13-16.
29. Squitieri, B. J., and W. A. Gallus, Jr., 2020: On the changes in MCS cold pool characteristics to simultaneous changes in horizontal and vertical grid spacing in WRF runs. 30th Conf. on Wea. Anal. and Forecasting/26th Conf. on Num. Wea. Pred., Boston, MA, Jan. 13-16.
30. Mauri, E. L. and W. A. Gallus, Jr., 2020: Differences between Well-Forecast and Poorly-Forecast Bow Echo Events in the WRF, 30th Conf. on Wea. Anal. and Forecasting/26th Conf. on Num. Wea. Pred., Boston, MA, Jan. 13-16.

31. Hiris, Z., and W. A. Gallus, Jr., 2020: Differentiating Convective Cases with Upscale Growth into MCSs and those without Upscale Growth during PECAN, 30th Conf. on Wea. Anal. and Forecasting/26th Conf. on Num. Wea. Pred., Boston, MA, Jan. 13-16.
32. Garberoglio, M., and W. A. Gallus, Jr., 2020: Sensitivity of Boundary Layer Characteristics and related Low-Level Jet Behavior to Planetary Boundary Layer Schemes in the WRF Model for several MCS cases, 30th Conf. on Wea. Anal. and Forecasting/26th Conf. on Num. Wea. Pred., Boston, MA, Jan. 13-16.
33. Tirone, E., W. A. Gallus, Jr., S. Pal, S. Dutta, R. Maitra, J. L. Newman, and E. S. Weber, 2020: The use of machine learning to provide probabilities that thunderstorm wind damage reports are truly due to severe intensity winds. 19th Conf. on Artificial Intelligence, Boston, MA, Jan. 13-16.
34. Jahani, E., S. Vanage, D. E. Jahn, K. Cetin, W. A. Gallus, Jr., P. Nguyen, Y. Jang, E. Byon, and L. Manuel, 2019: City-scale energy modeling to assess impacts of extreme heat on electricity consumption and production using WRF-UCM modeling with bias correction. ASHRAE 2019 Annual Conference, Kansas City, MO, Jun 22-26.
35. Thielen, J. E., W. A. Gallus, Jr., and A. M. Haberlie, 2019: A comparison of machine learning techniques for convective morphology classification from radar imagery. 18th Student Conference, Amer. Meteor. Soc., Phoenix, AZ, Jan 6-10.
36. Kiel, B. M., W. A. Gallus, Jr., K. Franz, and B. Carlberg., 2019: Convective system QPF displacement errors in HRRRE and potential use for shifting QPF fields to improve flood forecasting. 33rd Conf. On Hydrology, Phoenix, AZ, Jan 6-10.
37. Goenner, A., K. Franz, and W. A. Gallus, Jr., 2019: An approach to create probabilistic streamflow forecasts from HRRRE probabilistic quantitative precipitation forecasts. 33rd Conf. On Hydrology, Phoenix, AZ, Jan 6-10.
38. Carlberg, B., K. Franz, and W. A. Gallus, Jr., 2019: Ensemble streamflow forecasts using spatially shifted QPF. 33rd Conf. On Hydrology, Phoenix, AZ, Jan 6-10.
39. Zhou, Y., W. Li, Y. Chen, Y. Wang, K. Cetin, and W. A. Gallus, Jr., 2018: Developing a city building energy use model (CityBEUM) for mitigating energy use under climate change and urbanization. AGU, Washington, DC., Dec. 6-10.
40. Jahn, D. E., W. A. Gallus, Jr., 2018: Challenges in determining most likely future urban hot temperature extremes by mid-century in the central U.S, AGU, Washington, DC, Dec. 6-10.
41. Gallus, W. A., Jr., J. T. Thielen, and B. J. Squitieri, 2018: The impact of horizontal grid spacing on convective morphology and propagation in convection-allowing simulations of severe weather-producing convective systems. 29<sup>th</sup> Conf. on Severe Local Storms, Stowe, VT, Oct. 22-26.
42. Cetin, K. S., W. A. Gallus, Jr., E. Byon, D. E. Jahn, and E. Jahani, 2018: Prediction and uncertainty quantification of future heat waves on the individual city scale. ASHRAE 2018 Annual Conference, Houston, TX, Jun 27.
43. Squitieri, B. J. and W. A. Gallus Jr., 2018: Forecast sensitivities of MCS stratiform precipitation shields with respect to changes in horizontal grid spacings in WRF simulations. 29<sup>th</sup> Conf. on Wea. Anal. and Forecasting/25th Conf. on Num. Wea. Pred., Denver, Colorado, June 4-8, 10B.5.
44. Gallus, W. A., Jr., J. Halley-Gotway, J. K. Wolff, and M. Harrold, 2018: The impact of adding mixed physics to a mixed initial and lateral boundary condition ensemble used for convection forecasts – results from the 2016 and 2017 Community Leveraged Unified Ensembles. 29th Conf. on Wea. Anal. and Forecasting/25th Conf. on Num. Wea. Pred., Denver, Colorado, June 4-8, 14B.5.
45. Thielen, J. T., W. A. Gallus, Jr., and B. J. Squitieri, 2018: Microphysical and horizontal grid spacing influences on WRF forecasts of stratiform rain regions and general convective morphology evolution in nocturnal MCSs. 29th Conf. on Wea. Anal. and Forecasting/25th Conf. on Num. Wea. Pred., Denver, Colorado, June 4-8, 10B.6.
46. Vertz, N. J. and W. A. Gallus, Jr., 2018: Can moisture and temperature errors within the inflow region be used to predict MCS displacement errors in WRF? 29th Conf. on Wea. Anal. and Forecasting/25th Conf. on Num. Wea. Pred., Denver, Colorado, June 4-8, 10A.4.
47. Jahn, D. E., W. A. Gallus, Jr., K. Cetin, Y. Zhou, E. Jahani, 2018: High-resolution WRF forecasts of mid-21<sup>st</sup> century urban extreme heat events. 29th Conf. on Wea. Anal. and Forecasting/25th Conf. on Num. Wea. Pred., Denver, Colorado, June 4-8, 344828.
48. Carlberg, B. R., K. J. Franz, and W. A. Gallus, Jr., 2018: Creating ensemble streamflow forecasts through the systematic shifting of QPF. 29th Conf. on Wea. Anal. and Forecasting/25th Conf. on Num. Wea. Pred., Denver, Colorado, June 4-8, 16A.5.

49. Krastel, J. and W. A. Gallus, Jr., 2018: Relation of latitudinal extent of tornado outbreaks to latitudinal extent of favorable parameters. 22<sup>nd</sup> Annual NWA Severe Storms Conference, Des Moines, IA, Mar. 22-24.
50. Vertz, N. J. and W. A. Gallus, Jr., 2018: Can moisture and temperature errors within the inflow region be used to predict MCS displacement errors in WRF? 22<sup>nd</sup> Annual NWA Severe Storms Conference, Des Moines, IA, Mar. 22-24.
51. Thielen, J. T. and W. A. Gallus, Jr., and B. J. Squitieri, 2018: Microphysical and resolution influences on WRF forecasts of convective morphology evolution for nocturnal MCSs in weakly-forced environments, 22<sup>nd</sup> Annual NWA Severe Storms Conference, Des Moines, IA, Mar. 22-24.
52. Smith, J. and W. A. Gallus, Jr., 2018: Role of rear-flank downdraft surges in tornado damage characteristics in the Moore 2013 tornado. 22<sup>nd</sup> Annual NWA Severe Storms Conference, Des Moines, IA, Mar. 22-24.
53. Gallus, W. A., Jr., J. T. Thielen, and B. J. Squitieri, 2018: Microphysical and resolution influences on WRF forecasts of convective morphology evolution for nocturnal MCSs in weakly-forced environments. EGU General Assembly 2018, Vienna, Austria, April 8-12, 2018.
54. Gallus, W. A., Jr., 2018: What is the value of adding mixed physics to a mixed initial and lateral boundary condition ensemble used for convection forecasts – results from the 2016 Community Leveraged Unified Ensemble. EGU General Assembly 2018, Vienna, Austria, April 8-12, 2018.
55. Parodi, A., W. A. Gallus, Jr., and M. Maugeri, 2018: Sensitivity of simulations of the extreme Ligurian wind event of October 2016 to parameterizations. EGU General Assembly 2018, Vienna, Austria, April 8-12, 2018.
56. Squitieri, B. J. and W. A. Gallus, Jr., 2018: The use of PECAN observations to verify MCS cold pools simulated with varying horizontal grid spacing. A Special Symposium on Plains Elevated Convection at Night (PECAN), Amer. Meteor. Soc., Austin, TX, Jan 7-11, 2018 (accepted).
57. Thielen, J. T. and W. A. Gallus, Jr., 2018: Microphysical and resolution influences on WRF forecasts of convective morphology evolution for nocturnal MCSs in weakly-forced environments. A Special Symposium on Plains Elevated Convection at Night (PECAN), Amer. Meteor. Soc., Austin, TX, Jan 7-11, 2018.
58. Cervato, C., D. Flory, W. A. Gallus, Jr., and E. Sandquist, 2017: IOWATER: A Freshman Research Initiative for geology and meteorology majors. GSA Annual Meeting, 22-25 October, Seattle, WA.
59. Vertz, N. J. and W. A. Gallus, Jr., 2017: Moisture discrepancies of WRF forecasts of Great Plains nocturnal low-level jet-driven MCSs during their initiations. Midwest Student Conference on Atmospheric Research, Oct. 7-8, Champaign, IL.
60. Parodi, Antonio, G. Boni, L. Ferraris, W. A. Gallus, Jr., M. Maugeri, L. Molini, and F. Siccardi, 2017: Feasibility of performing high resolution cloud-resolving simulations of historic extreme events: The San Fruttuoso (Liguria, Italy) case of 1915. EGU General Assembly 2017, Apr. 24-28, Vienna, Austria.
61. Stelten, S. and W. A. Gallus, Jr., 2017: A climatology and preliminary investigation of predictability of pristine nocturnal convective initiation in the central United States. EGU General Assembly 2017, Apr. 24-28, Vienna, Austria.
62. Gallus, W. A., Jr., A. Parodi, M. Miglietta, and M. Maugeri, 2017: A preliminary look at the impact of warming Mediterranean Sea temperatures on some aspects of extreme thunderstorm events in Italy, EGU General Assembly 2017, Apr. 24-28, Vienna, Austria.
63. Gallus, W. A., Jr., D. M. Flory, K. Subramanian, and C. Cervato, 2017: The Severe WeAther Tool (SWAT): a citizen science activity to expose introductory students to authentic geoscience research. 26<sup>th</sup> Symposium on Education, Jan 23-26, Seattle, WA, Amer. Meteor. Soc. Annual Meeting.
64. Carlberg, B., W. A. Gallus, Jr., and K. Franz, 2017: Improving real-time forecast accuracy of convective morphology through use of an ensemble. 28<sup>th</sup> Conf. on Weather Analysis and Forecasting/24<sup>th</sup> Conf. on Numerical Weather Prediction, Jan. 22-26, 2017, Seattle, WA.
65. Squitieri, B. J., and W. A. Gallus, Jr., 2017: On the acceleration of nocturnal mesoscale convective systems in simulations with increased horizontal grid spacing, 28<sup>th</sup> Conf. on Weather Analysis and Forecasting/24<sup>th</sup> Conf. on Numerical Weather Prediction, Jan. 22-26, 2017, Seattle, WA.
66. Stelten, S. and W. A. Gallus, Jr., 2017: Pristine nocturnal convective initiation: A climatology and preliminary examination of predictability, 28<sup>th</sup> Conf. on Weather Analysis and Forecasting/24<sup>th</sup> Conf. on Numerical Weather Prediction, Jan. 22-26, 2017, Seattle, WA.

67. Jahn, D. E., and W. A. Gallus, Jr., 2017: Differences by PBL scheme in the morphology of environmental factors that influence the Great Plains LLJ. 28th Conf. on Weather Analysis and Forecasting/24th Conf. on Numerical Weather Prediction, Jan. 22-26, 2017, Seattle, WA.
68. Lawson, J. and W. A. Gallus, Jr., 2017: On the sensitivity of bow echo simulations to grid spacing. 28th Conf. on Weather Analysis and Forecasting/24th Conf. on Numerical Weather Prediction, Jan. 22-26, 2017, Seattle, WA.
69. Lawson, J. and W. A. Gallus, Jr., 2017: Adaptation of the SAL method to evaluate moist convection in the United States. 28th Conf. on Weather Analysis and Forecasting/24th Conf. on Numerical Weather Prediction, Jan. 22-26, 2017, Seattle, WA.
70. Lawson, J., W. A. Gallus, Jr., and J. Kain, 2016: Mapping the convective watershed: Assessing the predictability of convective evolution with idealized numerical simulations. 28th Conf. on Severe Local Storms, Nov. 7-11, 2016, Portland, OR, AMS.
71. Stelten, S. and W. A. Gallus, Jr., 2016: Pristine nocturnal convective initiation: A climatology and preliminary examination of predictability, PECAN Workshop, Sept.19-21, 2016, Norman, OK.
72. Jahn, D. E. and W. A. Gallus, Jr., 2016: Evaluating the use of RAP analyses for model validation as compared to PECAN observations for Great Plains LLJ events. PECAN Workshop, Sept.19-21, 2016, Norman, OK.
73. Gallus, W. A., Jr., J. Lawson and B. J. Squitieri, 2016: On the sensitivity of convective system structure and propagation in convection-allowing runs to horizontal grid spacings, EGU General Assembly 2016, Apr. 18-22, Vienna, Austria.
74. Gallus, W. A., Jr., D. Flory, and D. Herzmann, 2016: The use of a displaced radar dataset to provide an authentic environment for a radar-based severe weather laboratory exercise. 25Th Symposium on Education, Jan 10-14, New Orleans, LA, AMS Annual Meeting.
75. Flory, D. M., W. A. Gallus, Jr., C. Cervato, and C. Ogilvie, 2016: Development and implementation of an inquiry based lab approach and severe weather tool (SWAT) to expose students to authentic research. 25Th Symposium on Education, Jan 10-14, New Orleans, LA, AMS Annual Meeting.
76. Gallus, W. A., Jr., J. Lawson, 2016: Practical versus intrinsic predictability of convective system details: a comparison of PECAN expert forecasts of MCS timing, bores, and pristine convective initiation with ensemble simulations of bow echoes. Special Symposium on Seamless Weather and Climate Prediction – Expectations and Limits of Multi-scale Predictability. Jan 10-14, New Orleans, LA, AMS Annual Meeting.
77. Carlberg, B., W. A. Gallus, Jr., and K. Franz, 2016: High resolution NWP for improvements in real-time hydrological forecasts for central Iowa. 30Th Conf. On Hydrology. Jan 10-14, New Orleans, LA, AMS Annual Meeting.
78. Stelten, S., and W. A. Gallus, Jr., 2015: PECAN expert forecasts of convective system evolution, bores, and pristine nocturnal initiation – an overview of the results. AGU Annual Meeting, Dec. 14-18, San Francisco, CA.
79. Jahn, D. E., E. S. Takle, and W. A. Gallus, Jr., 2015: Sensitivity of numerical wind forecasts to variations in the closure constants of the MYNN boundary layer scheme in context of low-level jet cases within a stable boundary layer. ISU Wind Energy Symposium, Ames, IA, Sept. 29, 2015.
80. Carlberg, B., W. A. Gallus, Jr., and K. Franz, 2015: Bigger impact: radar data assimilation or initialization timing? Unidata Triennial Workshop, June 22-25, Boulder, CO.
81. Jahn, D. E., E. S. Takle, and W. A. Gallus, Jr., 2015: Sensitivity of numerical wind forecasts to variations in the closure constants of the MYNN boundary layer scheme in context of low-level jet cases within a stable boundary layer. International Conference on Energy Meteorology, June 22-25, Boulder, CO, 32.
82. Yan, Haifan, and W. A. Gallus, Jr., 2015: A comparison of QPF from 4 km grid spacing WRF simulations with operational NAM and GFS output using multiple verification methods. 27<sup>Th</sup> Conf on Weather Analysis and Forecasting/23rd Conf. on Numerical Weather Prediction, June 30-July 3, 2015, Chicago, IL, 19.
83. Lawson, J., W. A. Gallus, Jr., and *M. Krocak*, 2015: Butterflies and bow echoes. 27<sup>Th</sup> Conf on Weather Analysis and Forecasting/23rd Conf. on Numerical Weather Prediction, June 30-July 3, 2015, Chicago, IL, 8B8.
84. Gallus, W. A., Jr., and J. Lawson, 2015: On the predictability of convective mode in high resolution WRF simulations. EGU General Assembly, Apr. 13-17, 2015.
85. Lawson, J., and W. A. Gallus, Jr., 2014: Sensitivity of bow-echo forecasts to ensemble and model configuration. 27th Conf. On Severe Local Storms, Madison, WI, Nov. 4-8.

86. Takle, E. S., D. Rajewski, J. Lundquist, W. A. Gallus, Jr., and A. Sharma, 2014: Wind farm measurements, analysis, and modeling in Iowa: The Crop/Wind-energy Experiments (CWEX). European Academy of Wind Energy Conference, Copenhagen, Denmark, June 18-20.
87. Jahn, D. E., W. A. Gallus, Jr., and E. S. Takle, 2014: Evaluation of MYNN PBL scheme closure constants for LLJ events in a stable boundary layer. 21<sup>st</sup> Symposium on Boundary Layers and Turbulence, Leeds, United Kingdom, Jun 9-13.
88. Walton, R. A., E. S. Takle, and W. A. Gallus, Jr., 2014: High wind shear and ramp events within the rotor layer across the Iowa Tall Tower Network. 5<sup>th</sup> Conf. On Weather, Climate, and the New Energy Economy, Austin, TX, Feb. 2-6, 12.5.
89. Squitieri, B., and W. A. Gallus, Jr., 2014: Evaluation of the Great Plains low level jet and its influence on mesoscale convective systems in the Weather Research and Forecasting Model. 26<sup>th</sup> Conf. on Weather and Forecasting/22nd Conf. on Num. Wea. Pred., Atlanta, GA, Feb. 2-6, 3B.5.
90. Kochasic, M., and W. A. Gallus, Jr., 2014: Additional exploration of a neighborhood-based probability of precipitation forecasting technique. 26th Conf. on Weather and Forecasting/22nd Conf. on Num. Wea. Pred., Atlanta, GA, Feb. 2-6, 128.
91. Moser, B. A., and W. A. Gallus, Jr., 2014: The impact of radar data assimilation on warm season rainfall forecasts for use in hydrologic models: Examples from extreme rain events in Iowa. 26<sup>th</sup> Conf. on Weather and Forecasting/22nd Conf. on Num. Wea. Pred., Atlanta, GA, Feb. 2-6, J9.1.
92. Lawson, J. R., and W. A. Gallus, Jr., 2014: Simulating convective mode of mesoscale phenomena with a WRF-GEFS ensemble. 13<sup>th</sup> Student Conference, Amer. Meteor. Soc. Annual Meeting, Atlanta, GA, Feb 2-6, S18.
93. Kochasic, M., W. A. Gallus, Jr., and C. J. Schaffer, 2013: Additional exploration of a neighborhood-based probability of precipitation forecasting technique. National Weather Association Annual Meeting, Charleston, SC, Oct. 14-17, P2.13.
94. Coffman, C. R., P. I. Armstrong, J. I. Compton, E. R. Elliott, W. A. Gallus, Jr., A. M. Gansemer-Topf, T. J. Greenbowe, W. S. Harpole, D. Nettleton, C. A. Ogilvie, R. D. Reason, and C. Cervato, 2013: First-year STEM retention: Development of an integrated predictive analytic model. Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, Jul 11-14.
95. Gallus, W. A., Jr., and D. V. Snively, 2013: Prediction of convective morphology in near-cloud permitting WRF model simulations. 17<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conference, Ankeny, IA, Apr. 4-6.
96. Keller, J. M., and W. A. Gallus, Jr., 2013: Long term trends in tornado track direction in Iowa. 17<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conference, Ankeny, IA, Apr. 4-6.
97. Moser, B., W. A. Gallus, Jr., R. Mantilla, and W. Krajewski, 2013: The use of radar data assimilation to improve warm season heavy rainfall forecasts for use in hydrologic models. European Geophysical Union Annual Meeting
98. Karstens, C. D., W. A. Gallus, Jr., and P. P. Sarkar, 2012: Understanding terrain impacts on tornado flow through tree-fall analysis of the Joplin and Tuscaloosa-Birmingham tornadoes of 2011 and through numerical and laboratory vortex simulations. 26<sup>th</sup> Conf. on Severe Local Storms, Nashville, TN, Nov. 6-10, 4B.2.
99. Karstens, C. D., W. A. Gallus, Jr., P. P. Sarkar, and T. Marshall, 2012: Supplemental damage indicators discovered in recent strong tornadoes. 26<sup>th</sup> Conf. on Severe Local Storms, Nashville, TN, Nov. 6-10, P106.
100. Parham, T. L., Jr., A. Peer, C. Cervato, and W. A. Gallus, Jr., 2012: Better together: Enriching eye tracking data from a virtual volcano simulation with concurrent usability measures and conceptual assessments. GSA Annual Meeting and Exposition, Charlotte, NC, GSA Abstracts with Programs, Nov. 4-7, (in press).
101. Showers, R., W. A. Gallus, Jr., and E. S. Takle, 2013: Ramp events. 4<sup>th</sup> Conf. On Weather, Climate, and the New Energy Economy, Austin, TX, Jan 6-10, 2013.
102. Moser, B., W. A. Gallus, Jr., and W. Krajewski, 2013: The impact of radar assimilation on nowcasts made with the WRF model and used for streamflow prediction. 27<sup>th</sup> Conf. On Hydrology, Austin, TX, Jan 6-10.
103. Karstens, C. D., W. A. Gallus, Jr., and P. P. Sarkar, 2012: Laboratory simulations of tornado flow over terrain. 25<sup>th</sup> Conf. On Severe Local Storms, Nashville, TN, Nov. 6-10 (in press).
104. Karstens, C. D., W. A. Gallus, Jr., P. P. Sarkar, and T. Marshall, 2012: New damage indicators for the EF Scale. 25<sup>th</sup> Conf. On Severe Local Storms, Nashville, TN, Nov. 6-10 (in press).

105. Gallus, W. A., Jr., 2012: The Jordan, Iowa F5 tornado of 1976 revisited: A case of extreme model sensitivity to initial conditions. 25<sup>th</sup> Conf. On Severe Local Storms, Nashville, TN, Nov. 6-10 (in press).
106. Snively, D., and W. A. Gallus, Jr., 2012: Prediction of convective morphology in near-cloud permitting WRF model simulations. 25<sup>th</sup> Conf. on Weather and Forecasting/21<sup>st</sup> Conf. on Num. Wea. Pred., Montreal, Quebec, Canada, May 28-June 1, 3B3.4.
107. Marquis, T., W. A. Gallus, Jr., M. Xue, and F. Kong, 2012: Investigating false alarm mesoscale convective systems with the 2010 CAPS real time storm-scale ensemble. 25<sup>th</sup> Conf. on Weather and Forecasting. 21<sup>st</sup> Conf. on Num. Wea. Pred., Montreal, Quebec, Canada, May 28-June 1, 4B3.5.
108. MacIntosh, C., and W. A. Gallus, Jr., 2012: A statistical spatial mesoscale analysis of tornadogenesis along CAPE gradients. 16<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conf., Ankeny, IA, Mar. 29-31.
109. Halvorson, J., and W. A. Gallus, Jr., 2012: Forecast parameter thresholds in Upper Midwestern thunderstorm environments. 16<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conf., Ankeny, IA, Mar. 29-31.
110. Karstens, C. D., and W. A. Gallus, Jr., 2012: Observation and Laboratory Experimentation of Tornadoes Translating Over Complex Topography. Special Symposium on the Tornado Disasters of 2011, New Orleans, LA, Jan. 22-26.
111. Parham, T. L., C. Cervato, W. A. Gallus, Jr., D. Magnidjem, C. Barberan, and J. A. Borrell, 2011: Virtual Volcano 2.0: Data-driven and student-centered design of an interactive volcano simulation. GSA Annual Meeting & Exposition, Minneapolis, MN, *GSA Abstracts with Programs*, **43(5)**, Oct. 9-12, Paper 192162.
112. A. J. Deppe, W. A. Gallus, Jr., and K. Carter, 2011: Sensitivity of WRF forecasts of Great Plains Low-Level Jets to Planetary Boundary Layer schemes: A comparison with Lamont wind profiler data. WRF Summer Workshop 2011, Boulder, CO, June 21-23.
113. Carletta, N., W. A. Gallus, Jr., M. Fowle, and D. J. Miller, 2011: Severe wind-driven hail events: Dependence on convective morphology and larger-scale environment. 15<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conference, Des Moines, IA, Mar. 31-Apr. 2.
114. Carter, K. C., A. J. Deppe, and W. A. Gallus, Jr., 2011: Forecast errors in WRF simulations of the low-level jet. 15<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conference, Des Moines, IA, Mar. 31-Apr. 2.
115. Minniear, J., W. A. Gallus, Jr., and C. Cervato, 2011: In Search of the Ideal Lead Time: an Empirical Analysis and Social Perspective of the Correlation Between Tornado Warning Lead Times and Casualties. 15<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conference, Des Moines, IA, Mar. 31-Apr. 2.
116. Deppe, A. J., W. A. Gallus, Jr., and E. S. Takle, 2010: Design of a WRF ensemble for improved wind forecasts at turbine height. American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 16.
117. Gallus, W. A., Jr., Severe storm reports as functions of jet streaks and convective morphology. 14<sup>th</sup> Northern Plains Convective Workshop, Sioux Falls, SD, Apr 21-22 (invited talk).
118. Cervato, C., W. A. Gallus, Jr., P. Boysen, and M. Larsen, 2010: Forecasting like the pros – the new on-line Dynamic Weather Forecaster. European Geophysical Union General Assembly, Vienna, Austria, May 2-7 (invited talk).
119. Parham, T., C. Cervato, C. Cruz-Neira, W. A. Gallus, Jr., and P. Stelling, 2010: Exploring volcanic systems with a virtual volcano simulation and the science writing heuristic. Geological Society of America, North-Central/South-Central Combined Meeting, Branson, MO, Apr. 12-15.
120. Duda, J., and W. A. Gallus, Jr., 2010: Storm reports as a function of convective morphology including supercells. 14<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conference, Des Moines, IA, Mar. 25-27.
121. Parham, T., H. Boudreaux, P. Bible, C. Cervato, C. Cruz-Neira, W. A. Gallus, Jr., and P. Stelling, 2009: Journey to the center of a volcano – teaching with a 3-D virtual volcano simulation. Annual Meeting, Geological Society of America, Portland, OR, Oct. 18-21.
122. Clark, A., W. A. Gallus, Jr., M. Xue, and F. Kong, 2009: A comparison of precipitation forecast skill between small convection-allowing and large convection-parameterizing ensembles. European Geophysical Union General Assembly, Vienna, Austria, Apr. 19-24.
123. Gallus, W. A., Jr., C. Cervato, T. L. Parham, Jr., and M. Larsen, 2009: The Interactive Virtual Earth Science Teaching (InVEST) project: preliminary results. European Geophysical Union General Assembly, Vienna, Austria, Apr. 19-24.

124. Gallus, W. A., Jr., 2009: Application of object-oriented verification techniques to ensemble precipitation forecasts. European Geophysical Union General Assembly, Vienna, Austria, Apr. 19-24.
125. Parham, T. L., Jr., C. Cervato, M. D. Larsen, and W. A. Gallus, Jr., 2009: Hollywood volcanoes causing conceptual damage: The InVEST volcanic concept survey and student sources of knowledge. North-Central Section, 43<sup>rd</sup> Annual Meeting, Geological Society of America, Rockford, IL, April 2-3, 2009.
126. Takle, E. S., D. A. Rajewski, M. Segal, W. A. Gallus, Jr., R. W. Elmore, J. L. Hatfield, J. P. Pedersen, and S. E. Taylor, 2008: Optimizing wind and biomass energy production in the intensely managed agricultural landscape of the Midwest. 1<sup>st</sup> ISU Wind Energy Symposium: Challenges and Opportunities, Ames, IA, Dec 9.
127. Thien, L. V., and W. A. Gallus, Jr., 2008: Upper troposphere and lower stratosphere water vapor and transport processes in the vicinity of deep convection. AGU Joint Assembly, Ft. Lauderdale, FL, May 27-30.
128. Thien, L. V., W. A. Gallus, Jr., and M. A. Olsen, 2008: Comparison of Aura MLS water vapor measurements with GFS and NAM analyses in the upper troposphere/lower stratosphere. AGU Joint Assembly, Ft. Lauderdale, FL, May 27-30.
129. Gallus, W. A., Jr., A. Clark, and C. Schaffer, 2008: Relationship of severe storm reports to jet streak quadrants and divergence patterns. 12<sup>th</sup> Annual National Weather Association Severe Storms and Doppler Radar Conference, Des Moines, IA, Mar. 27-29.
130. Butterworth, R. E., C. Cervato, W. A. Gallus, Jr., and K. A. Kloesel, 2008: Communicating weather radar to public audiences. 7<sup>th</sup> Annual AMS Student Conference, New Orleans, LA, Jan. 18-26.
131. Gallus, W. A., Jr., Pfeifer, M., G. C. Craig, 2007: Intercomparison of simulations using 4 WRF microphysical schemes with dual-Polarization data for a German squall line. International Radar Conference, Cairns, Australia, Aug. 1-7.
132. Franz, K., and W. A. Gallus, Jr., 2007: A comparison of two hydrologic models using high resolution WRF QPF. HEPEX Meeting, Italy, July 3-7.
133. Gallus, W. A., Jr., Pfeifer, M., G. C. Craig, 2007: Intercomparison of simulations using 4 WRF microphysical schemes with dual-Polarization data for a German squall line. European Geophysical Union 2007, Vienna, Austria, Apr. 15-20.
134. Clark, A., W. A. Gallus, Jr., and T.-C. Chen, 2007: Contributions of mixed physics and perturbed lateral boundary conditions to the skill and spread of precipitation forecasts from a WRF ensemble. 18<sup>th</sup> Conf. on Num. Wea. Pred., Park City, UT, June 25-28 (submitted).
135. Gallus, W. A., Jr., 2006: A near-miss worst-case scenario: Cyclone at the Cyclone game on Nov. 12. 2006 NWA Severe Storms and Doppler Radar Conference, Des Moines, IA, Mar. 23-25.
136. Gallus, W. A., Jr., M. E. Baldwin, and K. L. Elmore, 2006: Evaluation of probabilistic precipitation forecasts determined from Eta and AVN forecasted amounts. 2<sup>nd</sup> International Symposium on Quantitative Precipitation Forecasting and Hydrology, Boulder, CO, June 4-8.
137. Clark, A., W. A. Gallus, Jr., and T.-C. Chen, 2006: Trends in warm season precipitation forecast skill from four Eta and WRF model configurations. 2<sup>nd</sup> International Symposium on Quantitative Precipitation Forecasting and Hydrology, Boulder, CO, June 4-8.
138. Aligo, E., W. A. Gallus, Jr., and M. Segal, 2006: An evaluation of probabilistic precipitation forecasts from an ensemble forecast system using soil moisture perturbations. 2<sup>nd</sup> International Symposium on Quantitative Precipitation Forecasting and Hydrology, Boulder, CO, June 4-8.
139. Jankov, I., W. A. Gallus, Jr., M. Segal, and S. E. Koch, 2006: The role of physical scheme interactions in design of a mixed-physics ensemble for warm season MCS rainfall forecasting. 2<sup>nd</sup> International Symposium on Quantitative Precipitation Forecasting and Hydrology, Boulder, CO, June 4-8.
140. Gallus, W. A., Jr., C. Cervato, C. Cruz-Neira, and G. Faidley, 2005: A virtual tornadic thunderstorm enabling students to construct knowledge about storm dynamics through data collection and analysis. 2005 EGU Assembly, Vienna, Austria, April 24-29.
141. Gallus, W. A., Jr., J. Correia, and I. Jankov, Numerical prediction of the 4 June 1999 Midwestern U.S. derecho event: An impossible challenge. 2005 EGU Assembly, Vienna, Austria, April 24-29.
142. Gallus, W. A., Jr., Sarkar, P. P., F. L. Haan, Jr., K. Le, and J. Wurman, 2005: The WiST Tornado Simulator at ISU: a translating tornado in a lab to measure loads on structures. 2005 NWA Severe Storms and Doppler Radar Conference, Des Moines, IA, Mar. 31-Apr. 2.
143. Gallus, W. A., Jr., and I. Jankov, 2004: Impacts of mixed physics on ensemble spread in warm season rainfall forecasts. AGU Fall Meeting, San Francisco, CA, Dec. 13-17.

144. Gallus, W. A., Jr. and I. Jankov, 2003: Verification issues and ensemble design for warm season convective system rainfall forecasting. *Ensemble Weather Forecasting Workshop*, Val-Morin, Quebec, September 18-20.
145. Chen, T.-C., S.-Y. Wang, W. A. Gallus, Jr., R. W. Arritt, D. Todey, Z. Pan, and E. S. Takle, 2003: Variation of Iowa Summer Rainfall. *Baker Endowment Fund Annual Meeting*, March 25, Ames, IA.
146. Gallus, W. A., Jr., B. R. Temeyer, E. B. Bartlett, E. S. Takle, D. A. Herzmann, D. P. Todey, D. Burkheimer, D. McCauley, and K. A. Jungbluth, 2002: Improved frost forecasting through coupled artificial neural network time series prediction techniques and a frost deposition model. *COMET/FHWA Project Meeting*, Sept. 16-17, 2002, Washington, D.C.
147. Arritt, R. W., C. J. Anderson, and W. A. Gallus, Jr. Quantitative Precipitation Forecasts Using a Perturbed Physics Matrix Ensemble. *World Weather Programme QPF Conference*, Sept. 2-6, 2002, Reading, United Kingdom.
148. Temeyer, B. R., W. A. Gallus, Jr., and C. G. Carmichael, 2002: A neural network warm season rainfall prediction system for the American Midwest. *World Weather Programme QPF Conference*, Sept. 2-6, 2002, Reading, United Kingdom.
149. Gallus, W. A., Jr., 2002: Impact of verification grid box size on warm season QPF skill scores, 2002: *World Weather Programme QPF Conference*, Sept. 2-6, 2002, Reading, United Kingdom.
150. Gallus, W. A., Jr., M. Segal, and I. Jankov, 2002: How can 10 km grid spacing model QPF output best be used to improve warm season rainfall forecasts? *World Weather Programme QPF Conference*, Sept. 2-6, 2002, Reading, United Kingdom.
151. Anderson C. J., W. A. Gallus, Jr., R. W. Arritt, and J. S. Kain, 2002: Impact of adjustments in the Kain-Fritsch convective scheme on QPF of elevated convection. *World Weather Programme QPF Conference*, Sept. 2-6, 2002, Reading, United Kingdom.
152. Gallus, W. A., Jr., I. Jankov, and S. Aves, 2002: Equitable threat score applied to MCS rainfall: scale dependence, disagreement with subjective evaluations and impact of phase-shifting. *Verification Workshop*, Jul. 30-Aug. 1, Boulder, CO.
153. Gallus, W. A., Jr., M. Segal, I. Jankov, and B. R. Temeyer, 2002: An exploration of several techniques to improve warm season rainfall forecasts in the Upper Midwest. *4th United States Weather Research Program Science Symposium*, Apr. 22-24, Denver, CO.
154. Jankov, I. and Gallus, W. A., Jr., 2002: Contrasts between good and bad forecasts of warm season MCSs in 10 km Eta simulations using two convective schemes. *4th United States Weather Research Program Science Symposium*, Apr. 22-24, Denver, CO.
155. Gallus, W. A., Jr., C. J. Anderson, and S. Konarik, 2002: A parameter for rear-flank downdraft buoyancy: a predictor of tornadogenesis?, *6th Central Iowa Severe Weather and Doppler Radar Conference*, March 21-23.
156. Yarger, D. N., W. A. Gallus, Jr., J. P. Boysen, C. Cruz-Neira, L. Pease, P. Castleberry, K. Meinert, R. Heer, and M. Taber, 2000: The use of visualization to engage students in active learning. *American Geophysical Union Fall Meeting*, Dec. 11-15, San Francisco, CA.
157. Goering, M. A., W. A. Gallus, Jr., M. A. Olsen, and J. L. Stanford, 2000: The role of stratospheric air in the April 8, 1999 Iowa tornado outbreak: An analysis using EP-TOMS total ozone and Eta trajectories. *National Weather Service Southwestern Conf.*, Sept. 21-22, Tucson, AZ.
158. Gale, J. J., and W. A. Gallus, Jr., 2000: Toward improved prediction of MCS dissipation. *Third National Weather Association Severe Storm Conference*, March 31- April 2, Des Moines, IA.
159. Frederick, A. E., W. A. Gallus, Jr., and C. J. Anderson, 2000: Estimates of rear-flank downdraft buoyancy as a predictor of low-level tornadogenesis. *Third National Weather Association Severe Storm Conference*, March 31- April 2, Des Moines, IA.
160. Goering, M. A., W. A. Gallus, Jr., and J. L. Stanford, 2000: Analysis of Trajectories and Ozone in the Tornado Outbreak of April 8, 1999. *Third National Weather Association Severe Storm Conference*, March 31- April 2, Des Moines, IA.
161. Gallus, W. A., Jr., S. Aves, M. Segal, and R. W. Arritt, 2000: Impact of improved initialization of mesoscale features on warm-season QPF. *Second USWRP Science Symposium*, Boulder, CO, 27-28 March.
162. Gutowski, W. J., Jr., H. Wei, M. Segal, Z. Pan, R. W. Arritt, and W. A. Gallus, Jr., 2000: Simulations of Rapid Snowmelt, *European Geophysical Society XXV General Assembly*, April 25-29, Nice, France.
163. Gutowski, W. J., Jr., H. Wei, M. Segal, Z. Pan, R. W. Arritt, and W. A. Gallus, Jr., 1999: Regional Simulation of Snowmelt by Atmospheric Warm Advection: April 5, 1997 North Central U.S. Flood. *NASA Land Surface Hydrology Program Investigators Meeting*, Columbia, MD, Nov. 2-3, 1999.



164. Gallus, W. A., Jr., 1999: Sensitivity of model QPF forecasts of excessive rainfall events to horizontal resolution and role of convective parameterization. *First USWRP Science Symposium*, Boulder, CO, 29-31 March.
165. Gallus, W. A., Jr., and M. Segal, 1999: Potential impacts of soil moisture on frontal and convective precipitation: Results from scaling arguments and Eta simulations. *First USWRP Science Symposium*, Boulder, CO, 29-31 March.
166. Gallus, W. A., Jr., and J. B. Klemp, 1999: On the behavior of flow over step orography. *First USWRP Science Symposium*, Boulder, CO, 29-31 March.
167. Gallus, W. A., Jr., 1999: Impact of horizontal resolution and convective parameterization on simulated precipitation. *Proceedings, The 22nd General Assembly of the International Union of Geodesy and Geophysics*.
168. Olsen, M., W. A. Gallus Jr., J. Stanford, and J. Brown, 1999: Upper tropospheric dynamics in an intense Midwestern cyclone: Comparison of model analyses with TOMS total ozone data. *TOMS Science Team Meeting*, Greenbelt, MD, 7-8 April.
169. Gallus, W. A., Jr., and J. J. Gale, 1998: Improved prediction of mesoscale convective system dissipation. *Low Level Jet Science Sharing Session - National Weather Service*, Sept. 2, Ames, IA.
170. Tannura, M., and W. A. Gallus, Jr., 1998: A synoptic climatology of Iowa significant tornadoes. *National Weather Association Severe Storms Conference*, Des Moines, IA, Apr 5-7, 1998.
171. Gallus, W. A., Jr., 1997: The Ames IA flash flood of 16-17 June 1996. *National Weather Association Severe Storms Conference*, Des Moines, IA, March 15-16, 1997.
172. Gallus, W. A., Jr., 1996: The Iowa mini-blizzard of February 1996: An intense small-scale vortex. *National Weather Service Cold Season Conference*, Des Moines, IA, Oct. 29, 1996.
173. Gallus, W. A., Jr., 1995: A nonhydrostatic version of the NCEP's regional Eta model. *First Eta Model Users Workshop*, Camp Springs, MD, Dec. 11-13, 1995.

## TEACHING AND ADVISING

### *Courses at Iowa State University*

Course	Semesters	Credits	TA	Cumulative (most recent) Enrollment	% Effort
Introductory Seminar (MTEOR 101)	F01	R	Y	57	100
Severe and Hazardous Weather (MTEOR 107)	F11-F14	1	N	929 (260)	100
Synoptic Applications (MTEOR 111)	F96-F99	1	Y	220 (52)	50
Instrumentation/Measurement (MTEOR 301L)	S96	1	Y	6	100
Synoptic Lab I (MTEOR 302L)	F95	1	Y	12	100
Intro. To Synoptic Meteorology (MTEOR 311)	F96-F02	2	Y	112 (25)	100
Meteorology Internship (MTEOR 321)	F01-S13 (every semester)	1 or 2	N	90 (5)	100
Mesoscale Dynamic Meteorology (MTEOR 407/507)	S98,S00, S02, S04, S06, S08, S10, S12, S14, S16, S18, S20, S22	3	N	272 (17)	100
Synoptic Meteorology (MTEOR 411/511)	F96-F15, F17-F22	3	Y	412 (14)	100
Mesoscale Forecast Lab. (MTEOR 417/517)	S96-S23	3	Y	401 (12)	100
Synoptic Lab II (MTEOR 454L)	F95	2	Y	17	100

Senior Thesis (MTEOR 499)	F07	2	N	18	100
Advanced Synoptic lab (MTEOR 455L)	S96	2	Y	17	100
Convective System Dynamics (MTEOR 590C)	S99	3	N	1	100
Satellite Meteorology (MTEOR 590C)	F99	3	N	1	100
Synoptic Meteorology (MTEOR 590A)	F00	3	N	1	100
Convective Modeling (MTEOR 490A)	S15	2	N	1	100

Also (instructor for portion of semester):

Atmospheric Physics II (MTEOR 342)	S01	Last 16 lectures of semester
Introductory Seminar (MTEOR 101)	F95-F00	1 lecture each year
Earth, Wind and Fire Learning (MTEOR 112x)	F09-F15	1 lecture each year
Introductory Seminar (MTEOR 201)	F03-F21	1 lecture each year
Introductory Meteorology (MTEOR 206)	S98-S15	2 lectures each year through S12, 1 lecture after
Dynamic Meteorology I (MTEOR 443)	F95-F00	Occasional substitute lectures each year
Wind Energy Science, Engineering and Policy (WESEP 501/Agron 590)	F12-F15, F19	2 lectures in 2012, 2013, 1 lecture in 2014-2015, 2019
Wind Engineering (AeroE570/EM570)	SS12-13	1 lecture each year

### ***Course and curricular development activity:***

Curricula for all courses listed above were developed by me (for the portion under my responsibility) when I began teaching them. Two new courses, MTEOR 407/507 and MTEOR 111 were introduced one year after my arrival at Iowa State. Several existing courses were modified and/or expanded, re-named and renumbered at that time, including MTEOR 311 (from MTEOR 302L), MTEOR 411/511 (from MTEOR 454L) and MTEOR 417/517 (from MTEOR 455L). I developed Course Works documents for MTEOR 301L (~ 200 pp.), MTEOR 311 (~ 100 pp.), MTEOR 417/517 (~ 250 pp.), and MTEOR 407/507 (~ 800 pp.) because existing textbooks were inadequate. In addition, I assisted a Ph.D. student of mine, Chris Karstens, in the development of a new 1 credit, last-half of semester course, Mteor 107, during summer and fall 2009, and began teaching that course yearly beginning fall semester 2011.

In addition to these activities, I have served on the program curriculum committee (1996-present) and instituted significant changes in courses offered and in requirements for graduate degrees. I assisted in restructuring the requirements for the minor in 1998. I also attended the University Corporation for Atmospheric Research UNIDATA workshop shortly after arrival at Iowa State (Sept. 1995), in order to improve the use of weather data processing software used in many meteorology courses. The improved software has been used by myself in collaboration with Drs. Douglas Yarger and Cinzia Cervato over the nearly 26 years to establish several innovative geoscience education tools that are being used in a range of meteorology courses nationwide. Several research grants and refereed publications are associated with this curricular development.

### ***Advising***

*Undergraduate Teaching:* Faculty advisor for an average of 16 students per year (1995-2021)

Also serve unofficially as advisor mentor for new advisors (answer questions from new advisors, communicate news relating to advising issues in meteorology)

*Undergraduate Research:* (~130 students in total)

Faculty mentor for MTEOR 499 (Senior Thesis) for 1 - 7 students per year (1995-2022). In 2022, this included C. Pekar, M. DeBruin, J. Dosedel, T. Rabidoux). 19 senior thesis research projects have been extended for presentation at national conferences (Tannura and Gallus 1998; Frederick, Gallus, and Anderson 2000; Temeyer et al. 2001; Stewart and Gallus 2007; Johnson-O'Mara and Gallus, 2007; Butterworth, Cervato, Gallus and Kloesel 2008; Gallus, Clark, and Schaffer 2008, Carletta et al. 2011; Suess et al. 2011; Minniear et al. 2011, MacIntosh and Gallus,

2012, Halvorson and Gallus 2012, Keller and Gallus 2013, Walton et al. 2013, Iyer 2014, Krastel and Gallus 2018; Smith and Gallus 2018; Thielen and Gallus 2019; Vos and Gallus 2020), with 6 appearing as extended abstracts (Gallus, Anderson and Frederick 2000; Temeyer et al. 2001; Clark, Schaffer, Johnson-O'Mara and Gallus, 2008; Carletta et al. 2011; Suess et al. 2011, Walton et al. 2013). The Clark et al. (2008) work was published in 2009 in a refereed journal. Work from Duda in 2008 was published in 2010 in a refereed journal. The Frederick project was awarded first place in the Liberal Arts and Sciences Undergraduate Poster Competition in April 2000.

Faculty advisor for 20 Undergraduate Freshmen Honors Program projects (Stephen Konarik-2001, Adam Kuban-2002, Elise Johnson-2003, Christopher Davidson-2004, Bonnie Goodman- 2005, Michael Peterson – 2006, Elizabeth Boal – 2007, Casey Zoellick – 2008, Anthony Lueck – 2009, Krystina Carter – 2010, Renee Showers – 2011, Katie Berlund – 2012, Natalie Luluzerne – 2013, Cameron Miller – 2014, Zane Satre – 2015, Jonathon Thielen, N. Erickson and J. Carlson – 2019, Nathan Sontag – 2021, Rachel Voss - 2022)

Faculty advisor for 4 Undergraduate Senior Honors Projects (M. Peterson-2008; B. Schwedler-2009; K. Krocak-2015, C. Wood-2019)

Faculty mentor for one Undergraduate Research Assistantship Awardee (Meredith Lips)

Faculty mentor for 19 undergraduates working under NSF grants: (Samual Johnson, Tony Manriquez (2022); Zachary McDonald, Nathan Sontag, Anna Duhachek (2021-2022) Jonathan Thielen – 2017-18, Steven Aves, Aaron Todd, Elise Johnson – 2004-2006, Nathan Snook - 2004) and under NOAA grants (Nathan Erickson – 2019-2020, Mark De Bruin – 2020-2022, Katie Heylmun – 2019, Ian Kennedy – 2019 co-advised with K. Franz, Jared Schadler -2019, Ben Kiel – 2018 co-advised with K. Franz; Nick Lesser and Kris Tuftedal – 2017 co-advised with K. Franz; Chris Karstens - 2007). Research from Johnson and Snook was published in a refereed journal article (Gallus, Johnson and Snook, 2008). Research with Thielen has been published in a refereed journal (Thielen and Gallus 2019) and presented at 5 national/international conferences (Thielen et al. 2018a, b, c, d, Gallus et al. 2018).

Faculty mentor for 4 undergraduates in Wind Energy Science, Engineering, and Policy REU: Anna Robertson (2011), Renee (Showers) Walton (2012), Ian Camerlin (2013). Extended abstracts and national presentations were given based on the work of all three.

Faculty mentor for 4 students presenting research in 2011 at ISU Symposium on Undergraduate Research and Creative Expression, 1 of whom (a sophomore) earned 490 credit under my supervision.

*Graduate, Major Professor: (51 total, 49 completed degrees or are in progress)*

1. Tianshi Li, Ph.D. (S97 – 2006), Meteorology (Did not complete degree, currently employed as computer engineer in Kansas City area).
2. Melissa Goering, M. S. (F98-F00, defended 8/00), Meteorology: The Use of EP/TOMS Total Column Ozone Data as a Mesoscale Analysis Tool for Convective Events. (currently employed at NOAA/NWS)
3. Joseph Gale, M. S. (F98-F00, defended 9/00), Meteorology: Toward Improved Prediction of Mesoscale Convective System Dissipation. (left the field)
4. David Knollhoff, M. S. (S99-F01, defended 8/01), Meteorology: Analysis and interpretation of roadway weather data for winter highway maintenance. (co-major professor, with E. Takle) (current status unknown)
5. Isidora Jankov, M. S. (Su00-F02, defended 9/02), Meteorology: Variations in convective system rainfall predictability. (currently Branch Chief of ATD at NOAA/GSL)
6. Bradley Temeyer, M. S. (Su01-F03, defended 8/03), Meteorology: A neural network time-series prediction system for use with a frost deposition model. (currently employed at NOAA/NWS-EAX)
7. Eric Aligo, M. S. (F01-S04, defended 4/04), Meteorology: The use of IEM data to determine soil moisture impacts and precipitation errors in model forecasts. (co-major professor with T.-C. Chen) (currently Regional Modeler at NOAA/NCEP)
8. Jeremy Grams, M. S. (Su03-Sp05, defended 4/05), Meteorology: Use of a modified Ebert-McBride technique to evaluate quantitative precipitation forecasts as a function of convective system morphology. (currently forecaster at NOAA/SPC)
9. Kuai Le, M. S. (F03 – F05, defended 12/05), Meteorology: CFD simulation study of the flow field in a tornado-like vortex. (currently Assistant Researcher, JIFRESSE/JPL)

10. Isidora Jankov, Ph.D. (S03 – S06, defended 1/06), Meteorology: The role of physical scheme interactions on warm season rainfall forecasts. (currently Branch Chief of ATD at NOAA/GSL)
11. Adam Clark, M.S. (F04 – SS06, defended 6/06), Meteorology. Examination of the diurnal cycle of rainfall and ensemble prediction strategies in WRF model simulations. (co-major professor with T.-C. Chen) (currently Research Scientist at NOAA/NSSL/CIMMS)
12. Adam Clark, Ph. D. (F06 – SS09, defended 8/09), Meteorology: Predictability associated with convection-allowing and convection parameterizing forecasts. (currently Research Scientist at NOAA/NSSL/CIMMS)
13. Le Van Thien, M. S. (F06 – SS09, defended 10/08), Meteorology: Near-tropopause water vapor content and exchange processes. (currently forecaster at Vietnamese Weather Bureau)
14. Christopher Karstens, M.S. (F07 – SS09, defended 7/09), Meteorology: Near-ground winds in hurricanes and tornadoes. (currently Techniques Development Meteorologist at NOAA/SPC)
15. Christopher Schaffer, M.S., (F08 – S10, defended 2/10), Meteorology: Improving probabilistic ensemble forecasts of convection through the application of QPF-POP relationships. (currently hydrologist at NOAA/Southeast River Forecast Center)
16. Eric Aligo, Ph. D. (S05 – F10, defended 11/10), Meteorology: An evaluation of fall speed characteristics in bin and bulk microphysical schemes and use of bin fall speeds to improve forecasts of warm-season rainfall. (currently Regional Modeler at NOAA/NCEP)
17. Adam Deppe, M.S. (F09 – SS11, defended 6/11), Meteorology (co-major professor with E. S. Takle): Improvements in numerical prediction of low level winds. (currently at WY DNR)
18. Jeffrey Duda, M.S., (F09 – SS11, defended 7/11), Meteorology: WRF simulations of mesoscale convective systems at convection-allowing resolutions. (currently Research Scientist at NOAA/GSL)
19. Justin Schultz, M.S. (F09 – SS11, defended 7/11), Meteorology: Numerical simulations of convective initiation failure: 12 June 2002 IHOP case study. (currently forecaster at NOAA/NWS-DLH)
20. Darren Snively, M.S. (F10 – F12, defended 8/12), Meteorology: Prediction of convective morphology in near-cloud permitting WRF model simulations. (currently forecaster at NOAA/NWS-LBF)
21. Christopher Karstens, Ph.D. (SS09 – F12, defended 10/12), Meteorology: Observations and laboratory simulations of tornadoes in complex topographical regions. (currently Techniques Development Meteorologist at NOAA/SPC)
22. Michael Kochasic, M.S., (F11 – SS13, defended 7/13), Meteorology: Further evaluation of improving probabilistic rainfall forecasts through the QPF-POP neighborhood relationship. (currently WCM at NOAA/NWS-LVX)
23. Timothy Marquis, M.S., (F11 – SS13, defended 7/13), Meteorology: Ramifications of spurious precipitation on MCSs modeled in the WRF. (currently Senior Product Manager, Precision Ag Analytics, John Deere)
24. Ben Moser, M.S., (F11 – S14, defended 3/14), Meteorology: The impact of radar data assimilation on warm season rainfall forecasts for use in hydrologic models: Examples from extreme rain events in Iowa. (current status unknown)
25. Brian Squitieri M.S., (F12 – F14, defended 10/14), Meteorology. WRF forecast skill of the Great Plains low-level jet and its correlation to forecast skill of mesoscale convective system precipitation. (currently forecaster at NOAA/SPC)
26. Patricia Fricke, M.S., (F13), Meteorology (Did not complete degree).
27. Renee Walton, M.S., (F13 – S15, defended 1/15), Meteorology: Strong wind shear events and improved numerical prediction of the wind turbine rotor layer in an Iowa tall tower network. (co-major professor with E. S. Takle). (current status unknown)
28. David Jahn, Ph.D., (F12 – S16, defended 2/16, Meteorology and Wind Energy Science and Policy (co-major professor E. S. Takle): Improvement of wind forecasts at wind turbine height for wind ramp events within the stable boundary layer. (currently Research Scientist II at NOAA/SPC/CIMMS)
29. Haifan Yan M.S., (F13 -- F15, defended 8/15), Meteorology: A comparison of QPF from 4 km grid spacing WRF simulations with operational NAM and GFS output using multiple verification methods. (current status unknown)
30. John Lawson, Ph.D., (F13 – S16, defended 4/16), Meteorology: Butterflies and bow echoes: Addressing poor forecasts with ensemble simulations. (current status unknown)
31. Bradley Carlberg, Ph.D., (F14 – F18, defended 9/18, Meteorology (co-advised by K. Franz): Improving convective mode and streamflow forecasting through the use of convective-allowing ensembles. (currently hydrologist at NOAA/Middle Atlantic River Forecast Center)

32. Ahmad Samman, Ph.D., (F14 – S19, defended 1/19), Meteorology: On the climatology and dynamics of heavy rainfall events and the winter low level jet in and near Saudi Arabia. (currently professor at KAU University, Saudi Arabia)
33. Sean Stelten, M.S., (F14 – SS16, defended 7/16, Meteorology. Predictability of pristine nocturnal elevated convection. (currently Meteorologist, Atmospheric Science Technology)
34. Brian Squitieri, Ph.D., (F14 – S22), Meteorology. Forecast sensitivities of MCS cold pools with increased spatial resolution in convection-allowing WRF simulations. (currently forecaster at NOAA/SPC)
35. Nicholas Vertz, M.S. (S17 – Su 18, defended 8/18), Meteorology: Can model errors in atmospheric parameter within the low-level inflow region of mesoscale convective systems be used to anticipate displacement errors in WRF forecasts. (currently forecaster at NOAA/NWS-BLX)
36. Andrew Goenner, M. S. (F17 – S19, defended 4/19), Meteorology (co-advised by K. Franz): An approach to create probabilistic streamflow forecasts from HRRRE & HREF probabilistic quantitative precipitation forecast. (currently hydrologist at NOAA/Northeast River Forecast Center)
37. Zachary Hiris, M. S. (F18 – S20, defended 4/20), Meteorology. Factors Contributing to Upscale Convective Growth in the Central Great Plains of the United States. (currently forecaster at NOAA/NWS-BOU)
38. Michael Garberoglio, M. S. (F18 – S20, defended 4/20), Meteorology. Sensitivity of Boundary Layer Characteristics and related Low-Level Jet Behavior to Planetary Boundary Layer Schemes in the WRF Model for several MCS cases. (currently forecaster at NOAA/NWS-PUB)
39. Elham Jahani, Ph.D. (F17 – F20, defended 9/20), CCCE (co-advised by K. Cetin). Assessing the Impact of Extreme Heat Climate Scenarios on City-Scale Residential Energy Use (currently post-doc UT-Austin)
40. Ezio Mauri, M.S. (S19 – F20, defended 9/20), Meteorology. Differences between Severe and Non-Severe Warm-Season Nocturnal Bow Echo Environments. (left the field)
41. Kyle Hugeback, M.S. (F19 – S21, defended 1/21), Meteorology (co-advised by K. Franz). Accounting for Spatial Displacement Errors in HRRRE QPF to Create Short-Term Ensemble Streamflow Forecasts. (currently Research Scientist at Iowa State Univ.)
42. Jonathan Thielen, M.S. (F19 – Su21, defended 7/21), Meteorology (co-advised by A. VanLoocke). Two tasks to improve mesoscale weather forecasts: automating convective morphology classification and bringing new physics into MYNN. (currently Ph.D. student at Colorado State University)
43. Yating Chen, Ph. D., (F18 – S22, defended 4/22) Environmental Science (co-advised by Y. Zhou).
44. Elise Schultz, Ph.D. (F20 – S23, defended 1/23), Meteorology. Lightning Characteristics Relative to Mesoscale Convective System Decay in the Central and Southeast United States. (CFD Research, Huntsville)
45. Elizabeth Tirone, Ph.D. (F19 – present), Meteorology
46. Dylan Dodson, M.S. (F20 – present), Meteorology
47. Samuel Luthi, M.S. (Su21 – present), Meteorology
48. Samuel Ritter, Ph.D. (F21 – present), Meteorology
49. Hashem Zahedipour, M.S. (S22 – present), Meteorology
50. Tyreek Frazier, Ph.D. (F22 – present), Meteorology
51. Anna Duhachek, M.S. (F22 – present), Meteorology

*Graduate, Committee Member (not advisor):*

Iowa State University:

1. Christopher Anderson, 1996, M. S., Agronomy.
2. Tae-Koon Wong, 1998, M. S., Atmospheric Science.
3. Paul Castleberry, 1998, M. S., Agronomy.
4. Seth Loyd, 1999, M. S., Atmospheric Science.
5. Chad Daniel, 1999, M. S., Agronomy.
6. Jun Zhang, 1999, M. S., Electrical and Computer Engineering.
7. Jin-ho Yoon, 1999, M. S., Atmospheric Science.
8. Shu-Ping Weng, 1999, Ph. D., Atmospheric Science.
9. Zhiwei Yang, 2000, Ph. D., Agronomy.
10. Paul Castleberry, 2000, Ph. D., Agronomy.
11. Tianshi Li, 2000, M. S., Computer Engineering.
12. Mark Olsen 2000, Ph. D., Physics.
13. Surendra Devarashetty, 2001, Ph. D., Computer Science.

14. Victor Chan, 2001, Ph. D., Statistics.
15. Jin-ho Yoon, 2003, Ph. D., Atmospheric Science.
16. Wan-Ru Huang, 2003, M.S., Atmospheric Science.
17. Ryan Kardell, 2003, M.S., Aerospace Engineering.
18. Michael Falk, 2004, M.S., Atmospheric Science.
19. Jenq-Dar (Simon) Tsay, 2004, M.S., Atmospheric Science.
20. Tina Greenfield, 2004, M.S., Atmospheric Science.
21. Christopher Anderson, 2004, Ph.D., Agronomy.
22. Frances Otieno, 2005, Ph.D., Atmospheric Science.
23. Oscar Murillo, Jr., 2005, M.S., Aerospace Engineering
24. Jesse Oltrogge, 2005, M.S., Aerospace Engineering.
25. Galen Faidley, 2006, M.S., Computer Engineering.
26. Anindya Sengupta, 2007, Ph. D., Aerospace Engineering & E.M.
27. Jimmy Correia, 2007, Ph.D., Agronomy.
28. Mike Neuerburg, 2007, M.S. (left w/o degree), Aerospace Engineering.
29. Dan Rajewski, 2007, M. S., Atmospheric Science.
30. Vasanth Balaramud, 2007, M. S., Aerospace Engineering
31. Mark Loeffelbein, 2008, M. S., Atmospheric Science.
32. Jesse Oltrogge, 2008, M. S. (left w/o degree), Engineering Mechanics
33. Wan-Ru Huang, 2008, Ph. D., Atmospheric Science.
34. Nikhil Kumar, 2008, M.S., Aerospace Engineering.
35. Nikhil Murgai, 2008, Ph.D. (left w/o degree) Aerospace Engineering.
36. Thomas Parham, 2009, M.S., Geology.
37. LiPing Deng, 2010, Ph.D., Atmospheric Science.
38. Miao Li, 2011, Ph.D., Mechanical Engineering.
39. Collin Reichert, 2011, M.S., Geology.
40. Justin Glisan, 2012, Ph.D., Atmospheric Science.
41. Bochao Cao, 2012, Ph.D., Aerospace Engineering.
42. Dan Rajewski, 2013, Ph.D., Atmospheric Science.
43. Guangyuan Zhang, 2015, Ph.D., Electrical Engineering.
44. Aaron Baker, 2016, Ph.D., Statistics.
45. Abiome Abatan, 2017, Ph.D., Atmospheric Science.
46. Yeon-jung Seo, 2018, Ph.D., Statistics.
47. Julian Neeley, 2018, Ph.D., Physics and Astronomy.
48. Alireza Razavi, 2018, Ph.D., Aerospace Engineering.
49. Justin Covert, 2019, M.S., Atmospheric Science
50. Jacob Spender, 2019, M.S., Atmospheric Science
51. Fawzan Alfawzan, 2021, Ph.D., CCCE
52. Alexandra Caruthers, 2023 (expected), Ph.D., Agronomy
53. Indrani Ganguly, 2023 (expected), Ph.D., Atmospheric Science
54. Dakota Forbis, 2023 (expected), Ph.D., Atmospheric Science
55. Travis Enzensperger, 2023 (expected), M.S., Atmospheric Science
56. Nathan Erickson, 2024 (expected), M.S., Atmospheric Science
57. Anwesha Biswas, 2025 (expected), Ph.S., Physics.

## SERVICE

### *Department of Geological and Atmospheric Sciences*

- Professor-in-Charge, Meteorology/Associate Chair of GEAT (2019 – present)
- Chair, Search committee for meteorology faculty position (2019-2020)
- Search committee for Department Chair (2020)
- Faculty Mentor, for Ian Williams (2020 – present)
- Recruitment and Retention Committee (2020 – present)
- Oetken Scholarship Review Committee (2018 – present)

- Watney Scholarship Review Committee (2020)
- Post-tenure review committee for X. Wu (2017-2018)
- Search committee for meteorology faculty position (2017-2018)
- Awards Committee (2015-2017) – handled awards packages for P. Spry and D. Flory
- Chair, Post-tenure review committee for C. Cervato (2017)
- Chair, Preliminary Review Committee for Y. Zhou (2017)
- External Chair Search Committee (2017)
- Chair, Graduate Applications Committee for Meteorology (2017-2019)
- Chair, Post-tenure review committee for P. Spry (2016)
- Chair, Search committee for Meteorology Lecturer position (2016)
- Chair, Curriculum Committee for Meteorology (2015— 2016), Member of Committee (2016 – present)
- Faculty Mentor for Yuyu Zhou (2015—2019)
- Alumni Coordinator, Meteorology (2015 – 2019)
- Curriculum Outcome and Review Committee (2013-present)
- Meteorology Alumni Luncheon organizer (2011-present)
- Faculty Advisor for ISU Student Chapter of the American Meteorological Society (1996-present)
- Faculty Advisor for ISU Graduate Meteorology Club (2003-present)
- Writer of 20-25 recommendation letters per year for students seeking employment, internships, graduate school admission (1996—present)
- Chair, Post-tenure review committee for W. Gutowski (2014)
- Evaluator, Senior Thesis Presentations (for award) (2013)
- Post-tenure review committee for M. Chen (2013)
- Faculty Evaluation Committee (2011-2012)
- Faculty Search Committee (Agronomy wind-energy modeling position – 2012-2013)
- Chair, Awards Committee (handled T. Chen nomination package for International Service Award, 2010-11)
- Chair, Promotion & Tenure Committee (for K. Franz - 2011-2012)
- Meteorology Professor-in-Charge and Associate Chair of GEAT (2004-2010) -- organized meetings relating to programmatic needs, organized Alumni luncheons during springs of 2005-2010, met with several prospective undergraduate and graduate students, handled many smaller tasks (e.g. writing letters of thanks to alumni donors, making budget decisions regarding program funds, coordinating curriculum and space issues)
- Supervisor for Chief Editorial Assistant (Tiffany Martinek 2007-2011)
- Supervisor for secretary (Darlene Pruisman through 4/08; Pam Mundt 8/08-5/09)
- Supervisor for 6-8 computer lab assistants (2001 – 2013)
- Newsletter Committee (2004-2012)
- New advisor mentor (2002-2011)
- Meteorology representative on Agronomy Classroom Committee (2007 – 2010)
- Faculty Mentor for K. Franz (2006- 2011)
- Promotion Committee, Chair, for Cinzia Cervato (2009-2010)
- Faculty Evaluation Committee, (2009)
- Curriculum Outcomes and Review Committee (2009 – present)
- Served on Career Panel at GEAT Alumni Days (2009)
- Committee member for secretary hire (2008)
- Drafted nomination package for teaching award for Bill Simpkins (2008)
- Meteorology representative for 1 Experience Iowa State event (Oct 2008)
- Writer of LAS-CAC proposals for Meteorology Program (2000 – 2007)
- Created Nomination Package for D. N. Yarger AMS Excellence in Teaching Award (2007)
- Curriculum Committee (1996-2006)
- Faculty Search Committee, Surface Hydrologist (2005-2006)
- P&T Committee, Chair, for Xiaoqing Wu (2005-2006)
- Outcomes Assessment Committee (2004-2005, chair in 2004) – prepared graduate school outcomes document individually in May 2005.
- Meteorology Program Seminar Organizer (1998-2003)

- Post-Tenure Review Committee for Paul Spry and Bill Simpkins (2002)
- Faculty Evaluation Committee (2002)
- Geoscience Educator Faculty Search Committee (2001)
- Governance Document Committee (1997-2000, Chair)
- Departmental United Way chairman (1997-2000)
- Social Events Committee (1997-1999)
- Meteorology Program Advising Coordinator (Summer 1998 - approx. 14 meetings)
- Departmental representative at Faculty Retreat, Grinnell College (1997)
- Atmospheric Science Program: Various program functions such as planning for external reviews (Spring 1998, 2006), visits by President Jischke, and hosting numerous prospective majors and their parents.
- Represented atmospheric science at physics department course discussing career opportunities in geosciences
- Meteorology Laboratory Real-Time Data Manager (1995--present): requires daily inspection of textual and graphical weather data products, directing of installation of new software, and design or adjustment of software to meet the needs of synoptic and mesoscale meteorology courses within Program. Since arrival in 1995, have been responsible for upgrading of WXP software, installation of McIDAS-X software and Gempak, Ntrans, Nwx, Nsat and Garp. Also have implemented numerous scripts to automate software to create maps for several Departmental web pages used in teaching of MT111, MT311, MT411, MT417, and MT511. Responsible for some training and educational activities to introduce software to Atmospheric Science Program students, researchers and faculty. Position now shared with D. Flory (since 2005).

### *College of Liberal Arts and Sciences*

- Morrill Professor Evaluation Group, member, 2012-2013, 2014-2016
- Planning committee for Global Citizens, Education, and Technology Signature Theme Workshop (held 2/16)
- Bailey Research Career Development Award Review Committee, member, 2013
- Substitute department representative at LAS Cabinet meeting – average of one meeting per year
- LAS Representative for ISU Day at the 2000 Iowa State Fair

### *University*

- Faculty Review Board (2013-2023)
- Provided science statement for reACT art exhibit at Bruier Art Museum, Ames, IA, 2017.
- Preparing Future Faculty/ELA mentor, 2016.
- Reviewer, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> Annual ISU Undergraduate Research Symposiums (2009, 2010, 2011, 2012, 2013, 2014, 2015)
- Disability Resources Liason for GEAT (2011-2016)
- Co-facilitator, Research Lab Faculty Learning Community (2012 - present)
- Honors Program Mentor Discussion Group Faculty Facilitator (3/7/2014)
- Gold Panel Member (invited to share advice on getting tenure with new faculty) (4/2014 and 4/2015)
- Letter writer in support of Dr. Sarkar receiving of Engineering College Research Award (3/24/2014)
- Faculty-Parent coffee participant – Summer 2008
- Faculty-Parent panel participation for summer 2006, 2007, 2009, 2010, 2012, 2013 and 2014 orientations
- Panelist, Workshop for Mentors of Undergraduates in Research (May 13, 2009)
- Admissions Partnership Program, Meteorology advisor (2008 – present)
- Member of Committee on Facilities and Educational Resources, (2001-2009)
- Member, Agricultural Meteorology Program (2011 - present)
- Member, Human Computer Interaction Program (2012 – present)
- Member, Wind Energy Science, Engineering and Policy Program (2012 – present)
- Member, Environmental Science Program (2018 – present)
- Faculty Advisor for Navigators (1996-present)
- Letter writer in support of Chris Nelson (English) for annual review



- UCAR Member Representative for ISU Meteorology Program (2004-2007)
- Science consultant for Brunnier Art Museum exhibit Obsessed: Images of Weather (several meetings during 2006)
- Invited Participant for Round-Table Training session for Honors Project Faculty Mentors - Nov. 2004
- Assisted with planning and gave one hour presentation for Science-in-Ag Day, (April 2006, April 2007)
- Road Scholars Program Participant, (1995)
- Distance Education Study Group on Pedagogy member (2004)
- Session Presenter (virtual tornadic storm) for MANNRS Diversity group (March 2004)

### ***Professional Service***

#### *Editorial responsibilities*

- Guest Editor, special issue, *Atmosphere* (Thunderstorm Morphology Evolution & Rainfall Forecasting) (2019-2020)
- Associate Editor, *Journal of Appl. Meteorology and Climatology* (2013-2017)
- Chief-Editor, *Weather and Forecasting*, 2007-2011
- Supervisor for Chief-Editorial Assistant, Tiffany Martinek (2007-2011)
- Associate Editor, *Weather and Forecasting*, 2001-2007. (asked to become Editor 2004-2007 but declined)
- Associate Editor, *Monthly Weather Review*, 2004-2007.

#### *Reviewer*

##### Journals:

- Monthly Weather Review (2-2020,5-2019,1-2017,2-2016,2-2015,2-2014,7-2013,1-2009,1-2007,5-2006,3-2005,8-2004,4-2003,1-2002,4-2001,3-2000,1-1999,1-1997)
- Weather and Forecasting (3-2022,2-2021,2-2020,3-2019,3-2015,1-2014,2-2013, 2-2012,1-2007,4-2006,6-2005,6-2004,7-2003,8-2002,2-2001,2-2000,2-1998,2-1995)
- Atmosphere (3-2022)
- Bulletin of Atmos. Sci. and Techn. (2-2020)
- Earth and Space Science (1-2016)
- J. of Climate (1-2021,3-2020)
- Int. J. of Climatology (2-2018)
- J. Geophysic. Res. (1-2020,1-2014)
- Atmosfera (3-2018)
- Geophysical Res. Letters (1-2022,1-2021,1-2014)
- Climate Dynamics (1-2012)
- Advances in Science and Research (1-2010, 1-2009)
- Meteorologische Zeitschrift (2-2018,1-2010)
- Wageningen Journal of Life Sciences (1-2012,1-2011)
- Journal of the Atmospheric Sciences (2-201,2-2020,1-2019,2-2016,2-1995)
- International Journal of Climate (1-2000)
- Journal of Hydrology (1-2013,1-2012,1-2003)
- Journal of Hydrometeorology (2-2018,1-2004,1-2003,1-2002,1-2001)
- Journal of Geoscience Education(1-2006,1-2005,1-2001)
- Quarterly Journal of Royal Meteor. Soc. (1-2018,1-2008,1-2006,2-2005,1-2004).
- Bulletin of the American Meteorological Society (2-2021,1-2020,2-2019,2-2015,2-2013,1-2009,1-2006)
- Geosphere (1-2005)
- Journal of Applied Meteorology and Climatology (1-2016,1-2015,1-2005)
- Advances in Geosciences (1-2008,2-2007,1-2005)
- EOS (2-2008)

- Electronic Journal of Severe Storms Meteorology (2-2020,2-2016,1-2014,2-2013)

#### Funding Agencies

- National Science Foundation(1997-2022- ~35).
- Univ. of Michigan GSFSI (3-2015)
- Polish Science Foundation (2012)
- Board of Austria Science Fund(2000-2)
- U.S. Dept. of Commerce (2018-3)
- National Oceanic and Atmospheric Administration (2003-1, 2009-1, 2010-1)
- Department of Energy (ARM program) (2005-1)
- National Aeronautics and Space Administration (1-2015,3-2014,1- 2011, 1-2008,1-2006)
- Research Corporation Foundation for the Advancement of Science (1-2006)
- Estonian Science Foundation (2011-1, 2007-1)
- National Geographic Society (2008-1,2007-1)
- University of Wisconsin Research Growth Initiative (2009-1)
- Foundation for Polish Science (2012 – 1)
- Davidson Scholarship Program (2020 – 1)

#### External Reviewer

- Promotion package at Arizona State University (2022)
- Promotion package at University of Arizona (2021)
- Application for Distinguished Professor at University of Nebraska-Lincoln (2019, 2020)
- Promotion package at University of Wisconsin-Milwaukee (2020)
- Promotion package at Central Michigan University (2020)
- Promotion package at University of Nebraska – Lincoln (2019)
- Promotion package at University of Nebraska (2018)
- Promotion & Tenure package at University of Nebraska (2016)
- Promotion & Tenure package at Texas Tech University (2015)
- Promotion & Tenure package at State University of NY - Albany (2013)
- Promotion & Tenure package at University of Missouri (2012)
- Application for Distinguished Professor at Univ. of Wisconsin (2011)
- Promotion & Tenure package at Purdue University (2011)
- Promotion & Tenure package at University of Missouri (2010)
- Promotion & Tenure package at University of North Carolina - Charlotte (2008)
- Promotion & Tenure package at University of North Carolina (2007)
- Promotion & Tenure package at Pennsylvania State University (2007)
- Promotion & Tenure package at Pennsylvania State University (2006)

#### *Committees, meetings, and panels*

- National Weather Association Awards Committee (2019 – present)
- Member, AGU Expert Outreach Network (2013-present)
- Weather Research and Forecasting model Ensemble Working Group member (2010 – present)
- EF-Scale Stakeholder's Group (2012 – present)
- Unidata Policy Committee (renamed Strategic Advisory Comm.), member (2011 – 2017)
- Chair, Unidata Strategic Advisory (formerly Policy) Committee (2014 – 2017)
- Evaluator for 5 applicants for Unidata User's Committee Student Representative (2013)
- Career Mentoring Panel participant, 17<sup>th</sup> – 22<sup>nd</sup> NWA Severe Storms Conf., Des Moines, IA, (2013- 2018)
- Developmental Testbed Center (NOAA/NSF/NCAR/USAF) Science Advisory Board (2010-2011)
- Unidata User's Committee, member (2007-2010)
- Chair, Unidata User's Committee subcommittee on CONDUIT (2008)

- Member, AMS Committee on Severe Local Storms, 2002-2005.
- Member, AMS Severe Local Storms Conference Program Committee, 2004-2006.
- Panelist, National Science Foundation Graduate Fellowship Program, Feb. 2003, Feb. 2004 and Feb. 2006, 2013, 2014
- Geoscience Panel Chair, National Science Foundation Graduate Fellowship Program, Mar. 2010.
- Geoscience Panel Chair, National Science Foundation Graduate Fellowship Program, Feb. 2009.
- Geoscience Panel Chair, National Science Foundation Graduate Fellowship Program, Feb. 2008.
- Geoscience Panel Chair, National Science Foundation Graduate Fellowship Program, Feb. 2007.
- Geoscience Panel Chair, National Science Foundation Graduate Fellowship Program, Feb. 2005.
- Member, AMS Severe Local Storms Conference Program Committee, 2004-2006 (planned Symposium on Challenges of Severe Convective Storms - Jan 2006, and 24th Conf. on Severe Local Storms - Oct. 2006).
- Scholarship Committee of the Central IA Chapter of the National Weather Association (2004-2010, 2014-2023).
- Agenda Team Chairman: 7<sup>th</sup> – 25<sup>th</sup> Annual National Weather Association Severe Storms Conferences, Des Moines, IA (held yearly in late March or early April) (2003 – 2023).
- Session Chairman: 4<sup>th</sup>, 6<sup>th</sup> - 14<sup>th</sup>, 16<sup>th</sup>-23<sup>rd</sup> Annual National Weather Association Severe Storms Conference, Des Moines, IA (held yearly in late March or early April) (20002, 2002-2010; 2012-2019).
- Session Chairman: Symposium on the Tornadoes of 2011, Amer. Meteor. Soc., New Orleans, LA (Jan. 2012).
- Session Chairman: 24<sup>th</sup> Severe Local Storms Conf., Amer. Meteor. Soc., Denver, CO (Oct. 2010)
- Session Chairman: 23<sup>rd</sup> Severe Local Storms Conf., Amer. Meteor. Soc., Savannah, GA (Oct 26-31, 2008)
- Session Chairman: 22nd Conf. on Severe Local Storms, Amer. Meteor. Soc., Hyannis, MA (Oct 2004)
- Forecast Activity Team Leader: Fifth Annual National Weather Association Severe Storms Conference, Des Moines, IA (Mar 2001)
- Session Chairman: 20th Conf. on Severe Local Storms, Amer. Meteor. Soc., Orlando, FL (Sept. 2000)
- Session Chairman: Symposium on Regional Weather Prediction, Athens, Greece (Oct. 1997)
- Session Chairman: 11th Conf. on Numerical Weather Prediction, Norfolk, VA (Aug. 1996)

### *Consulting*

- NOAA-COMET – 11/2002 – 6/2003: modified meteorology teaching material used by the U.S. Navy, and also provided information for a new COMET module on the isallobaric component of the wind and its usefulness in forecasting
- Expert Witness – 2003: Provided expert witness information regarding weather conditions contributing to the collapse of a grain bin in the Newton, Iowa area (case settled out of court)
- Expert Witness – 2005: Provided expert witness information regarding rainfall and antecedent soil moisture conditions contributing to flooding in the Huxley, Iowa area (case settled out of court)
- Expert Witness – 2007: Provided expert witness information regarding thunderstorms, tornadoes, and severe winds contributing to the damage at a hog confinement facility near Cando, North Dakota (case settled out of court)
- Expert Witness – 2008: Provided information on an F3 tornado that hit Eagle Pass TX for the defense (case settled out of court)
- Expert Witness – 2008-2009: Provided information on the Iowa City F2 tornado of 2006 for the plaintiff (testified in court)
- Expert Witness -- 2009-2010: Provided information on winter weather/road conditions during 2008 ice storm (case settled out of court)
- Expert Witness – 2011: Provided information on freezing rain event in Des Moines during Jan. 2010 (case settled out of court)
- Expert Witness – 2013-2014: Providing information on blizzard event leading to accident in northern IA during Jan. 2010. (Johnson vs Searles/Sand Creek, et al.)
- Expert Witness – 2013: Providing information on weather conditions at time of combine fire in northern IA during September 2013 (case settled out of court).
- Expert Witness – 2014: Provided information on winds occurring during thunderstorm in Sioux City area during August 2014, leading to structural damage (case settled out of court).

- Expert Witness -2015: Provided information on winter weather conditions affecting far western IA during March 10, 2013 in region where truck/auto accident occurred (case settled out of court).
- Expert Witness – 2015: Provided information on blizzard event that occurred December 20, 2012 in northern IA where truck/auto accident occurred (case settled out of court).
- Expert Witness – 2015-2016: Provided information to defense rebutting opposing side expert witness for case involving Home Depot hit by the Joplin, MO EF5 tornado of May 22, 2011. (Housel vs Home Depot) (case settled out of court)
- Expert Witness – 2017: Provided information on March 15, 2016 hailstorm in Keokuk for the defense. (Hila and Michael Cook vs Auto-Owners) (case settled out of court)
- Expert Witness – 2018: Provided information on severe thunderstorm wind event March 6, 2017 near Oelwein, for the defense. (Hilltop Livestock vs Norwegian Mutual) (case settled out of court)
- Expert Witness – 2019-23: Provided information on temperature inversions, for the defense (Dicamba Herbicides Litigation) (ongoing)

### ***Outreach***

Invited speaker for:

- Zoom meeting with Des Moines 5<sup>th</sup> grade school children to answer questions about severe weather (Mar. 10, 2022)
- Interviewed by 5<sup>th</sup> grade student at Briarcliff School District, NY on tornadoes (Apr. 18, 2022)
- Invited speaker to Gilbert Public Library summer children’s program, on “Camping Weather Safety: Heat, Hail, Wind, Lightning, and Tornadoes” on June 23, 2022.
- Invited speaker to Iowa State Women’s Club, on “Tornadoes and Derechos, How Will Climate Change Impact Them?” on March 30, 2022 (remote).
- Invited speaker to Ames Noon Rotary Club on “The December 15, 2021 Derecho and Tornado Outbreak, and Recent Developments in Severe Weather Research” on April 4, 2022 (remote).
- Invited speaker to Ames Morning Rotary Club, on “Tornadoes and Derechos, How Will Climate Change Impact Them?” on April 20, 2022 (remote).
- Manhasset School District, NY – 82 2<sup>nd</sup> graders, “Extreme Weather: (June 3, 2020)
- Christ Community Church Thrive Summer program – 4<sup>th</sup> graders, “Meteorology (June 13, 2019)
- Lecco Italy Lions Club (talk given in Italian), “Tornadoes, Intense Thunderstorms, and Climate Change Impacts for Italy (Nov. 22, 2016)
- BASF Corporation, Ames, IA, “Weather Safety” (Mar. 7, 2016)
- Gilbert, IA Middle School, “Meteorology as a Career” (Mar. 9, 2015)
- Central Iowa National Weather Association, “Iowa’s ten weirdest, most extreme weather events” (Feb. 12, 2015)
- ISU Honors Salon, “Catching a tiger by its tail: the struggle to understand tornadoes” (Feb. 6, 2015)
- BASF Corporation, Ames, IA, “Weather Hazards” (Mar. 11, 2014)
- Gilbert, IA Middle School – all 8<sup>th</sup> graders, “Tornadoes, Severe Thunderstorms, and Hurricanes” (Oct. 7, 2013)
- Lego League, Ames, IA, “Tornadoes” (Sept. 23, 2013)
- Boy Scout Troop, Ames, IA, “Severe Weather” (July 1, 2013)
- Upward Bound, Ames, IA, “Careers in Meteorology” (June 20, 2013)
- 4H Club, Ames, IA, “Severe Weather” (April 25, 2013)
- LIFT elder care group, Ames, IA, “Climate Change Impacts on Severe Weather” (Mar. 13, 2013)
- Ar-Wa-Ve High School – 3<sup>rd</sup> grade class, given in Ames, IA, “Severe Thunderstorms, Tornadoes, and Hurricanes” (Apr. 16, 2013)
- Gilbert, IA Middle School – all 8<sup>th</sup> graders, “Severe Thunderstorms, Tornadoes, and Hurricanes” (Oct. 10, 2012)
- Cub Scout Meeting, Ames, IA, “Severe Weather” (March 5, 2012)
- Cub Scout Meeting, Ames, IA, “Severe Weather” (Nov. 12, 2011)
- Gilbert, IA Middle School – all 8<sup>th</sup> graders, “Severe Thunderstorms, Tornadoes, and Hurricanes” (Oct. 11, 2011)

- Science Camp, Science Center of Iowa, Des Moines, IA, “Nature’s Fury: Thunderstorms, Tornadoes, and Hurricanes” (Aug. 2, 2011)
- Cub Scout Meeting, Ames, IA, “Meteorology” (March 7, 2011)
- Gilbert, IA Middle School – all 8<sup>th</sup> graders in 2 presentations, “Tornadoes, and Severe Storms” (May 14, 2010)
- Fairfield, IA high school – all students, “The Children’s Blizzard of January 12, 1888” (taped Sept. 19, 2009)
- Gilbert, IA Middle School – all 8<sup>th</sup> graders, “Severe Thunderstorms, Tornadoes, and Hurricanes” (May 13, 2009)
- Iowa Science Center, Des Moines, IA, “Climate Change Impacts on Extreme Events” – 4 presentations (Feb. 26, 2009)
- IA Science Teacher’s Section of the Iowa Academy of Sciences Fall Conference, Des Moines, IA, “A look at tornadoes and how they form” (Oct. 23, 2008)
- Nevada, IA Golden Kiwanis, “Storm Chasing: In Pursuit of the Tornado” (1/20/09)
- Ames and Marshalltown, IA, Lego Leagues, “Tornadoes and Climate Change (10./16/08)
- Adult Day Care, Heartland Center, Ames, IA, “Severe storms and Tornadoes” (6/11/08)
- Gilbert, IA Middle School – all 8<sup>th</sup> graders, “Severe Storms and Tornadoes” (April 30, 2008)
- National Weather Service, Des Moines, IA, “Overview of WRF: Lessons Learned at ISU” (Feb. 1, 2008)
- Gilbert, IA Middle School – all 8<sup>th</sup> graders, “Tornadoes, Thunderstorms, and Hurricanes” (May 9, 2007)
- Brunnier Art Museum, for Des Moines Talented and Gifted Students, “Tornadoes and Thunderstorms” (Feb. 13, 2007)
- Ames Golden Kiwanis Club, “Tornadoes and Thunderstorms” (Sept. 8, 2005)
- Ankeny, IA Rotary Club, “Tornadoes and Thunderstorms” (May 17, 2005)
- Cub Scout Troop, Ames, IA, “Weather” (Apr. 18, 2005)
- Ames Collegiate United Methodist Church, Ames, IA, “Tornadoes” (Feb. 27, 2005)
- Ames Kiwanis Club Luncheon, Ames, IA, “Thunderstorm Systems and Tornadoes” (Jan. 14, 2005)
- University Freshman Honors Seminar, Ames, IA, “Severe Thunderstorms and Tornadoes” (Nov. 5, 2002)
- Gilbert, IA, Elementary School – 3<sup>rd</sup> grade presentation, “Tornadoes and Severe Thunderstorms” (Feb. 28, 2002)
- Gilbert, IA, Elementary School – 1<sup>st</sup> grade presentation, “Weather: (Mar. 11, 2002)
- American Meteorological Society, ISU Student Chapter, Ames, IA, “Floods and Tornadoes” (Oct. 18, 2001)
- American Meteorological Society, ISU Student Chapter, Ames, IA, “Meteorological Details of the May 3 1999 Oklahoma City Tornado Outbreak” (Feb. 21, 2000)
- National Weather Service, Des Moines, IA, “Large-scale Signals for Mesoscale Systems” (Nov. 22, 1999)
- American Meteorological Society, ISU Student Chapter, Ames, IA, “Severe Weather” (Nov. 1998)
- American Meteorological Society, ISU Student Chapter, Ames, IA, “Severe Weather” (Feb. 1998)
- Ames, IA Public Library – grades 1-6 presentation, “Tornadoes” (Spring 1997)
- Ames Christian School, Ames, IA, “Weather” (Spring 1997)
- ISU Visiting Scientist Program via ICN to Sioux City, IA High School, “Severe Weather” (Apr. 22, 1997)
- Society of Women Engineers, Heart of Iowa Chapter, Ames, IA, “Tornadoes” (Dec. 1996)

Featured in print interviews/stories:

- Iowa State Daily (p-3/29/04)
- Cedar Rapids Gazette (4/8/04)
- Des Moines Register (p-4/16/04)
- Ames Tribune (p-4/26/04)
- Iowa State Daily (October 2004)
- National Geographic Magazine (2005)
- Ames Tribune (September 2005)
- Council Bluffs Daily Nonpareil (September 2005)
- Council Bluffs Daily Nonpareil (December 2005)
- Visions – ISU Alumni Magazine (January 2006)
- Ames Tribune - Obsessed: Images of Weather exhibit participation (August 2006)

- Council Bluffs Daily Nonpareil - summer drought, tornado project (two times in spring/summer 2006)
- Discovery Channel News Online - Cyclone-Buffalo game and Nov. 12 2005 tornado (Sept. 2006)
- Newsweek – Interview about Iowa floods and storms (Jun 2008)
- Boone (IA) News-Republican – interview about lightning safety (Jun 2008)
- The Washington Post – interview about Iowa flooding (Jun 2008)
- The Tokyo Shimbun – interview about record U.S. tornado numbers (Jun 2008)
- Omaha World-Herald – interview about recent flooding and severe storms (Jun 2008)
- ISU Daily – interviewed about recent flooding and severe storms (Jun 2008)
- Cedar Rapids Gazette – interview about severe thunderstorms and tornadoes (Jun 2008)
- Waterloo (IA) Courier – interview about the Charles City IA 1968 tornado (Apr 2008)
- ISU Daily – interviewed about sudden late season snowfall (March 2008)
- ISU Daily – interviewed for story about 2007-08 extreme winter weather
- Discover Magazine (phone interview 2/08)
- ISU Daily – interviewed about seasonal forecasting and Farmer's Almanac (Oct 2009)
- Chronicle of Higher Education – interview about changes in field of meteorology (Jun 2009)
- SmartMoney magazine – interview about rainfall prediction and economic impacts (Mar 2009)
- ISU Daily – interviewed about storm chasing and severe weather (May 10, 2010)
- Ames Tribune – interviewed about severe weather safety (April 28, 2010)
- Argus-Leader – Sioux Falls – interviewed about talk at Northern Plains Conv. Workshop (April 2010)
- Inside Iowa State – interviewed about severe weather safety on campus (Mar 2010)
- ISU Daily – interviewed about winter weather (Jan 2010)
- NewScientist magazine (UK) – interviewed about tornado simulator work (Dec. 6, 2010)
- ISU Daily -- interviewed about winter weather forecasts (November 1, 2010)
- ISU Daily -- interviewed about flooding and climate change (Sept 2, 2010)
- PolitiFact website – brief interview about climate/weather connections (Jun 4, 2010)
- Johnstown Tribune-Democrat (PA) – interview on Joplin survey (May 31, 2011)
- ISU Daily – interview on what would happen if Ames was hit by tornado (May 31, 2011)
- Joplin Globe – interview on science behind EF5 tornadoes (May 26,2011)
- Huffington Post – interview (same given to Tokyo Shimbun) on Joplin, MO tornado (May 23,2011)
- Tokyo Shimbun newspaper – interview on Joplin, MO tornado (May 23, 2011)
- USA Today – interview on April 27, 2011 tornado outbreak (Apr. 28, 2011)
- Drake University newspaper – interview about tornadoes (Mar. 30, 2011)
- ISU Daily – interviewed about Northeastern severe winter/NAO (Feb. 10, 2011)
- National Geographic magazine – interview on extreme events in 2011 (July 21, 2011)
- Carroll (Daily Times Herald) – interview on tornado simulator research (July 14, 2011)
- Joplin Globe – interview on research findings from Joplin visit (June 23, 2011)
- Joplin Globe – interview on ways to improve ability of homes to withstand tornadoes (June 15, 2011)
- Iowa State Daily – interview on tornadoes and climate change (Mar. 21, 2012)
- Cedar Rapids Gazette – interview on tornado damage variability (Mar. 22, 2012)
- The Birmingham News – interview on April 27, 2011 tornado outbreak (Apr. 18, 2012)
- Iowa State Daily – interview on tornado simulator research (Apr. 23, 2012)
- Des Moines Register – interview on Ames storm damage survey (May 2, 2012)
- Nonfiction book on Joplin tornado – interview on tornado safety rules (Aug. 13, 2012)
- ISU LAS website – interview about cold March and drought impacts (Mar. 20, 2013)
- Ames Tribune – interview about spring weather in Iowa (Mar. 21, 2013)
- ISU website – interview about VEISHEA weather (April 15, 2013)
- LiveScience – interview about Moore, OK EF5 tornado (May 22, 2013)
- New York Times – interview about Moore, OK EF5 tornado (May 23, 2013)
- Ames Tribune – interview about Tim Samaras and his ISU ties (June 5, 2013)
- Iowa State Daily – interview about upcoming Dean's Lecture talk (Nov. 18, 2013)
- Iowa State Daily – interview about recent cold wave (Jan. 8, 2014)
- Des Moines Register – interview about sudden snowstorm of Jan 16 (Jan 17, 2014)
- Iowa State Daily – interview about my job, research, storms, and flooding (Jul 23, 2014)

- Iowa State Daily – interview about Cinzia Cervato (Aug 21, 2014)
- Iowa State College of Liberal Arts & Sciences Blog – interview about Nov. cold snap (Nov. 11, 2014)
- Iowa State LAS “Around LAS” newsletter – interview on weather folklore (Jan. 30, 2015)
- Iowa State LAS “Around LAS” newsletter – interview on Ph.D. student Brian Squitieri's NOAA-NSF visiting scientist program visit (Mar. 23, 2015)
- ISU Alumni Magazine, interview on exciting weather (Feb. 2015), provided weather trivia questions (Mar. 23, 2015)
- Author Brantley Hargrove, interview on Tim Samaras interaction with ISU for book (Mar. 30, 2015)
- Iowa State LAS “Around LAS” newsletter – interview on recent thunderstorm research (June 23, 2016)
- Ames Tribune, recent NSF grant examining energy use during heat waves and droughts (Nov. 22, 2017)
- LAS News story on recent NSF grant examining energy use during heat waves and droughts (story published Nov. 15, 2017)
- Iowa State Daily story on recent hurricanes (Sept. 26, 2017)
- Brantley Hargrove – several email/phone interviews for book on Tim Samaras (Jan-Feb. 2017)
- Ankeny High School student Jared Schadler on Feb. 19, 2018.
- Ankeny High School student Carl Preston on Feb. 21, 2018.
- Brandon Katona, PSU Ph.D. student, for course project of careers as professors (March 19, 2018)
- Smithsonian magazine about my collaboration with chaser Tim Samaras, (Mar. 28, 2018)
- Science News about tornado article coming out in Climate and Atmospheric Science (Oct. 16, 2018)
- Ottumwa Courier about tornado trend article (Oct 17, 2018)
- The Western Journal, interview on Iowa derecho of Aug. 10 (Aug. 13, 2020)
- Freelance writer Dylan Cooley, on Iowa derecho of Aug. 10 (Aug. 14, 2020)
- The Daily Bolt (podcast), on Iowa derecho of Aug. 10 (Aug. 19, 2020)
- Podcast “By George” (podcast) on derecho (Sept. 3, 2020)
- The Washington Post, on Iowa derecho of Aug. 10 (Aug. 19, 2020)
- Iowa State News Services (Mike Krapfl) on derecho (Aug. 25, 2020; story appeared 9/1)
- Iowa State Daily story on derecho (interview Sept. 8, story published Sept.11)
- Scholastic “Science World” magazine on derechos (interview Sept. 15, will be published Feb. 2021)
- Iowa State University Visions magazine, on Iowa derecho of Aug 10 (Nov. 10, 2020)
- St. Louis Post-Dispatch, interview on climate change impacts on tornadoes (Dec. 21, 2021)
- The Sun (London, UK) interview on climate change and tornadoes (Dec. 16, 2021)
- Des Moines Register, interview on climate change impacts on tornadoes (Dec. 16, 2021)
- The Conversation, interview on tornado formation (Dec. 15, 2021)
- El Agora (Spanish speaking media focused on environment/water), interviewed about unusual December tornadoes (December 14, 2021)
- Check Your Fact – fact-checker site, provided information on tornado/rainbow photo (July 26, 2021)
- NBC News (Universal), interview on forecasting tornado seasons and impact of climate change on tornadoes (March 23, 2021)
- Daily Iowan, interview on Iowa’s active tornadic spring (April 29, 2022)
- The Conversation, invited to write story published on “Heat Domes” (June 21, 2022)
- SMP News Services, Washington DC, interview on CA heat wave (Sept. 8, 2022)
- Newsweek, interview on sky color in thunderstorms (Dec. 14, 2022)
- Salon, interview on tornadoes (Mar. 23, 2023)
- Grist, interview on a recent Bull. Amer. Meteor. Soc. study on tornadoes and climate change (Mar. 29, 2023)
- USA Today about how tornadoes can transport objects large distances (Mar. 31, 2023)
- Vice News Tonight about climate trends in tornadoes (Apr. 6, 2023)
- Cedar Rapids Gazette on climate impacts on tornadoes (Apr. 12, 2023)

Featured in television/radio interviews/stories:

- German National Public Radio (September 2002)
- WOI-TV (DSM) (3/31/04)

- NBC-National News (4/5/04 - aired 10/19/04)
- FoxNews-Channel 9 Minneapolis (4/7/04)
- Eyewitness News-Channel 5 Minneapolis (4/14/04)
- National Public Radio (All Things Considered) (4/22/04)
- KCCI-TV (DSM) (p-4/23/04), WHO-TV (DSM) (April 2004)
- WOI-radio (Ames), guest of ISU President Geoffrey on Talk of Iowa program (6/11/04)
- ABC-Good Morning America (10/28/04)
- KGAN-TV (CID) (11/3/04)
- Ames KASI-radio –air stagnation issue (2/2/05)
- KCCI-TV Des Moines - air stagnation issue (2/1/05)
- WQAD (DVN) (2/15/05)
- Hearst Broadcasting Network (2/16/05)
- National Geographic/Explorer (filming 3/30-4/1/05)
- KWWL-TV (Waterloo, IA) (4/8/05)
- KIMT-TV (Mason City, IA) (4/8/05)
- KOKC-TV (Oklahoma City, OK) (4/13/05)
- WOI-radio (Ames), Talk of Iowa program (5/19/2005).
- Des Moines WHO-TV Hurricane Katrina (August 2005)
- National Geographic Channel (two separate producers filmed in October 2005)
- WOI (Ames), Talk of Iowa program (May 2005)
- KASI (Ames), 15 minute live interview on Hurricane Katrina (Aug. 2005)
- KASI (Ames), 15 minute live interview on Hurricane Rita (Sept. 2005)
- WHO-TV (Des Moines) - live TV interview on Hurricane Katrina (8/29/05)
- WHO-radio (Des Moines), NSF project on summer rainfall predictions (Jan. 2006)
- Iowa Radio Network (60 radio stations in IA) – summer rainfall prediction (Jan. 2006)
- KCCI-TV Des Moines, video footage of Ames tornado shown (Mar. 2006)
- WHO-TV Des Moines, Ames tornado (April 2006)
- History Channel (film crew in March 2006)
- Nippon Japanese Television Network (film crew in May 2007)
- Radio IA - NOAA tornado project (5/07)
- KCCI-TV Des Moines, ISU tornado data collection from NOAA project (5/07)
- CNN/CNN-Headline News - WiST Tornado Simulator (6/8/07)
- Mediacom Public Service Channel – for LAS within ISU Promotional material (10/07)
- Discovery Channel (consulted and answered questions for special) in 1/08
- History Channel (film crew on Feb. 11, 2008; aired 4/08) “Wildest Weather in the Cosmos”
- Discovery Channel (film crew on March 4, 2008) special on Greensburg, KS EF5 tornado
- WHO-radio (Des Moines) –tornado simulator (Apr 8, 2008)
- ISU-TV –tornado simulator and severe weather week (Apr 8, 2008)
- KIMT-TV (Mason City, IA) –tornado simulator research (Apr 2008)
- Charlotte, NC TV station –tornado simulator (April 21, 2008)
- Radio-Iowa (and NPR) –persistent storms and flooding (June 9, 2008)
- National Geographic Channel – “Naked Science” show (Jun 19, 2008)
- Discovery Channel –tornado simulator and 2008 weather (Aug. 19, 2008)
- KASI (Ames) radio –Hurricane Gustav (Aug. 29, 2008)
- KASI (Ames) radio –Hurricane Ike (Sept. 12, 2008)
- Discovery Science Channel –Manchester, SD 2004 tornado (Oct. 21, 2008)
- ISU TV (channel 18) –winter weather forecast (Nov. 10, 2008)
- KWMT-radio (Ft.Dodge) – live weather discussion on PowerLunch show (Dec. 15, 2008)
- KWMT-radio (Ft.Dodge) – live weather discussion on PowerLunch show (Dec. 29, 2008)
- Production company based in London for MSNBC-TV show – interview (Jan. 21, 2009)
- KWMT-radio (Ft.Dodge) – live weather discussion on PowerLunch show (Jan. 26, 2009)
- KCCI-TV (Des Moines) –winter weather pattern (Feb. 10, 2010)
- KWMT-radio (Ft.Dodge) – live weather discussion on PowerLunch show (Jan. 18, 2010)
- KWMT-radio (Ft.Dodge) – live weather discussion on PowerLunch show (Aug. 31, 2009)
- KWMT-radio (Ft.Dodge) – live weather discussion on PowerLunch show (Aug. 10, 2009)
- WOI-Radio (and Iowa Public Radio) – 30 minute interview on Parkersburg tornado (5/15/09)



- Radio Iowa –climate change and extreme events (March 2009)
- Japanese Television (Tokyo Broadcasting System) –Joplin tornado (May 26, 2011)
- WQAD-TV (Quad-Cities, IA) –Joplin, MO tornado (May 23, 2011)
- KCCI-TV (Des Moines) –Joplin, MO tornado (May 23, 2011)
- Iowa Radio Network –April 27, 2011 tornado outbreak (Apr. 29, 2011)
- BBC Television UK/Discovery Channel USA –tornado simulcast (Apr. 12, 2011)
- KWMT-radio (Ft. Dodge) – live weather discussion on PowerLunch show (Apr. 4, 2011)
- Interviewed on Ames tornado of Nov. 12, 2005 for Pioneer production company of London, England, for National Geographic Channel television show (October 6, 2010)
- KWMT-radio (Ft. Dodge) – live weather discussion on PowerLunch show (July 12, 2010)
- KWMT-radio (Ft. Dodge) – live weather discussion on PowerLunch show (Jun. 21, 2010)
- The Weather Channel – roundtable virtual interview on tornado research (Jun 17, 2011)
- Iowa Public Radio – several interviews related to NWA conference (Mar. 19, 2012)
- Iowa Public Radio - several phone interviews in Feb/Mar and final taped studio interview on Joplin, MO tornado (May 2012)
- KCCI-TV –potential severe weather for ISU football game (Oct. 12, 2012)
- Iowa Public Radio – River to River show –Moore, OK and other EF5 tornadoes (May 23, 2013)
- KCCI-TV –Tim Samaras and his ties to ISU (June 3, 2013)
- Iowa Radio Network –Tim Samaras and his ties to ISU (June 3, 2013)
- WHO-TV –Tim Samaras and his ties to ISU (June 3, 2013)
- KASI-radio –recent intense tornadoes (June 3, 2013)
- ABC5-TV (Des Moines) –Tim Samaras and ISU ties (June 3, 2013)
- Iowa Public Radio: Tim Samaras and storm chasing (June 6, 2013)
- KCCI-TV –possible new drought (July 15, 2013)
- WHO-TV –wind power and Iowa's very windy January (Mar. 6, 2014)
- KCRG-TV (Cedar Rapids, IA) –forecasting this tornado season (April 30, 2014)
- Iowa Public Radio “River to River” –2014 severe weather season (May 1, 2014)
- POLYGON – Google Hangout radio show – live interview on research (July 11, 2014)
- Iowa Public Radio “River to River” –paper claiming smoke creates violent tornadoes (Feb. 19, 2015)
- Iowa Public Radio “River to River” –tornadoes (May 14, 2015)
- KARE-TV, Minneapolis, MN –El Nino (October 22, 2015)
- KARE-TV, Minneapolis, MN –El Nino (October 22, 2015; aired Jan. 26, 2016)
- Discovery Channel Canada on tornadoes within hurricanes (Aug. 31, 2017)
- Oklahoma Public Television –my views of the NOAA Hazardous Weather Testbed Spring Experiment (May 11, 2017).
- TV show “Weather or Not” about extreme events – hour interview on tornadoes (May 3, 2017)
- Iowa Public Radio –recent tornado activity (March 10, 2017)
- KASI radio, Ames, IA, Hurricane Florence and Iowa summer flooding (Sept. 13, 2018)
- KICD radio, Spencer, IA, Aug. 10 derecho event in Iowa (Aug. 12, 2020)
- WHO radio, Des Moines, by Sue Danielson, on derecho event (Sept. 1, 2020)
- KCCI TV (internet), derecho appeared Sept. 1 (based on Krapfl ISU story)
- Iowa Public Radio, derecho for “River to River” broadcast (Sept. 3, 2020)
- Asharq News (Dubai) on December tornado outbreaks (Dec. 16, 2021)
- Podcast by George (Cedar Rapids, IA-based) on December tornadoes (Dec. 15, 2021)
- TV Globo, Brazilian network, interview on unusual December tornadoes (Dec. 13, 2021)
- Aljazeera Arabic TV, separate interview on unusual December tornadoes (Dec. 12, 2021)
- Al Jazeera English TV, interview on unusual December tornadoes (Dec. 12, 2021)
- NHK (Japanese Broadcasting Network) TV, interview on unusual December tornadoes (Dec. 11, 2021)
- Podcast by George (Cedar Rapids, IA-based) on 2020 derecho and pyrocumulus clouds (July 29, 2021)
- Philadelphia Inquirer, interview on thunderstorms and microbursts (July 28, 2021)
- KCCI TV, Des Moines, interview on the 2020 August Derecho (July 28, 2021)
- KCCI TV, Des Moines, interview on use of weather models to forecast severe weather (Mar. 17, 2021)
- Asharq News (Dubai) on climate change impacts on wildfires (Feb. 23, 2022)
- Podcast by George (Des Moines, IA) on March 5 tornado outbreak (Mar. 9, 2022)
- KCRG-TV (Cedar Rapids, IA) on derecho/tornado research (April 5, 2022)
- Podcast by George (Des Moines, IA) on Iowa drought and remembering the 2020 derecho (Aug. 11, 2022)

- Podcast by George (Des Moines, IA) on climate change and possible hurricane Ian (Sept. 23, 2022)
  - Iowa Public Radio, on climate change impacts on derechos (Nov. 14, 2022).
  - Australian Broadcasting Company, on tornado outbreak of Dec. 13-14 (Dec. 15, 2022).
  - KLKN-TV (Lincoln, NE) on derechos (Dec. 15, 2022).
  - Podcast-by-George (Des Moines, IA) on upcoming winter storm (Dec. 18, 2022)
  - Podcast “Weather or Not”, DC News Now, on my research related to winning the Fujita award (Mar. 22, 2023)
  - NBC News on Mississippi tornado event of March 24 (Mar. 27, 2023)
  - Podcast-by-George (Des Moines, IA) on March 31 tornadoes and upcoming possible severe weather (Apr. 3, 2023)
  - KNX CBS Radio (Los Angeles, CA) on tornadoes (Apr. 6, 2023)
  - Weather Channel on tornadoes and supercell trends with climate change (Apr. 6, 2023)
- Prior to 2002-2004, I also was frequently interviewed by television (KCCI-TV, KCRG-TV), radio (KASI, WHO) and print media on weather forecasting, and severe weather issues (including Ames Tribune, Ft. Wayne, IN paper, Fort Madison, IA paper, Des Moines Register, Health Watch Magazine), but did not keep detailed records.
  - Serving as research mentor for high school student at Columbus high school, Columbus, GA (10/2020 – present)
  - Expert used by PolitiFact – checking up on climate versus weather research claims by congressman (June 13, 2013).
  - Invited consultant to work with principals to change tornado drill safety procedures at Ames High School (4/9/12)
  - Supplied materials to Story County Emergency Manager for lobbying activities for storm shelters (2008)
  - Participant in meetings for “Weather in Art” exhibition to open Aug. 21, 2006 at Brunier Art Museum.
  - Supplied tornado video for “Storm Stories” episode airing on The Weather Channel (Apr 2006).
  - Developed real-time automated agricultural weather data Internet home page - accessed frequently by agricultural interests (1996 - 2003, averaged 200 hits per month in 2003 before being incorporated into Iowa Environmental Mesonet network page).
  - “Shadow” participant for autistic junior high student (4/13/05)
  - Demonstrated virtual tornadic thunderstorm educational activity to LAS Dean's Council - October 2000
  - Supplied information for American Red Cross brochure on flash flooding - August 1998
  - Mentor, NSF Portals Program, “Iowa Forecasting Program”, Davenport High School (Spring 1998)
  - Mentor, NSF Portals Program, “Acid Rain”, Davenport High School (Spring 1998)
  - Invited radio host (WOI) of weather call-in show on severe weather (April 25, 1997)
  - Participant in “shadow for a day” program with a northern Iowa high school (Spring 1997)
  - Participant in Iowa State University Road Scholars Program (Fall 1995)
  - Supplied tornado photos for Ames High School project - June 1998
  - Contributed tornado photograph to college textbook, Meteorology, 2nd Edition, by Danielson et al., 2001.

### ***Professional Organizations and Technical Association Activities***

- American Meteorological Society, Member (1988 – present)
- American Geophysical Union, Member (1997 – present)
- National Weather Association, Member (2013 – present)
- National Weather Association, Central Iowa Chapter, Member (1996 - present)
- Invited Participant in NOAA Hazardous Weather Testbed Spring Programs, Norman, OK (2001-2004, 2007-2008, 2010-2014, 2016-2022)
- Invited to be Lead Forecaster for Plains Elevated Convection At Night (PECAN) experiment (5/29-7/15/2015) based in Hays, KS
- Invited Participant in NOAA Flash Flood and Intense Rainfall Experiment Program, Washington, DC, (2013,2021-2022)

- Invited Participant in 2011 NOAA-NSF Weather Ready Nation: A Vital Conversation, Norman, OK (Dec. 2011)
- Invited Participant at 2011 NWP Workshop on Model Physics with Emphasis on Short-Range Prediction (NOAA and DTC), (July 2011).
- Invited Visitor to NCEP (Jan. 2010)
- Invited Summer Visiting Scientist at NCAR - WRF Developmental Test Bed Center (Aug 2008)
- Invited Participant in 2008 Verification Workshop and MET workshop, Boulder, CO (Apr. 2008)
- Invited Participant in 2008 Math-Meteorology Workshop, Valparaiso University, IN (Feb. 2008)
- Invited Summer Visiting Scientist at NCAR - WRF Developmental Test Bed Center (Aug 2007)
- Invited Participant in 2007 Verification Workshop, Boulder, CO (Feb. 2007)
- Invited Summer Visiting Scientist at NCAR - WRF Developmental Test Bed Center (July-Aug 2005)
- Invited Summer Visiting Scientist at NCAR - WRF Developmental Test Bed Center (July-Aug 2004)
- Invited Summer Visiting Scientist at Forecast Systems Laboratory (NOAA) - (summer 2003)
- Planning Team, International H2O (IHOP) Program, QPF issues group (2000-2002)
- Planning Team, Bow Echo and Mesovortex Experiment (BAMEX), (2000-2003)
- Microphysical and Convective Parameterization Advisory Group, Aviation Weather Development Program (1995-2003)
- Participant in 1997 Sub-VORTEX tornadogenesis experiment, Southern Plains, (May 1997)
- Participant in 1992-1993 TOGA-COARE experiment, Townsville, Australia, (Feb. 1993)

## HONORS

- T. Theodore Fujita Award, National Weather Association (8/24/2022) for research benefitting operations
- Stout Lecturer, University of Nebraska-Lincoln (2/25/2022) (one is chosen each year)
- Invited Tarbell Lecturer (remote) at Pennsylvania State University (fall 2020) (one is chosen each year)
- Fulbright Scholar Program Alternate (during fall 2016 sabbatical in Italy)
- National Weather Association Central Iowa Chapter Distinguished Member Award (given 3/31/2016)
- LAS Award for Outstanding Research Achievement (given 9/2015)
- LAS Dean's Lecturer (given 11/18/2013)
- Part of team chosen to show new ISU President (Leath) tornado simulator and discuss research (2/29/12)
- Exhibit at Chicago Museum of Science and Industry on tornado simulator research (2010 - present)
- American Meteorological Society Editor's Award for *Weather and Forecasting* – 2005 (awarded on 2/1/2006)
- ISU Foundation Award for Outstanding Achievement in Teaching, 2005 -- (This award is normally given to only 1 – 3 faculty members per year, recognizing outstanding teaching performance over an extended period of time. Ten years or more of classroom experience in higher education are needed, and the award is based on documented evidence, including student and peer evaluations, of outstanding classroom teaching performance supplemented by evidence of instructional contributions outside the classroom.)
- ISU College of Liberal Arts & Sciences Master Teacher, 2004-2005 – (This award is given to 5 faculty in the LAS College each year, and recognized in 2004-05 teachers who have a reputation for using unique methods to enhance student learning, and who have been successful in a range of teaching activities that inspire and encourage connections to other disciplines or courses, to civic engagements and communities, to research, and to real world problems and solutions to those problems.)
- Guest of President G. Geoffrey on WOI-radio Talk of Iowa program - 2004
- Member, International Who's Who of Professionals, 2004.
- Named one of top Faculty Mentors for Honors Projects (leading to invitation to be round table discussion member), 2004.
- Featured in profile in LAS Annual Report, 2002.
- Advisor Recognition Award Recipient (for ISU Chapter of American Meteo. Soc.), 2001.
- Profile story in Visions Magazine (ISU Alumni Magazine), 2001.
- Pennsylvania State University College of Earth & Mineral Sciences Centennial Fellow, 1996.