

CURRICULUM VITAE

Ming Xue

Weathernews Chair Professor, School of Meteorology
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Google Scholar: <https://scholar.google.com/citations?user=NWywa8wAAAAJ&hl=en>

EDUCATION

Ph.D. in Meteorology, University of Reading, U.K. Oct. 1985 - Oct. 1989. Degree received Dec. 1989. Dissertation Title: "A nonhydrostatic numerical model in σ -coordinates and simulations of mesoscale phenomena". Advisor: Professor Alan Thorpe.

Master's degree program in Dept. of Atmospheric Sciences, Nanjing University, P.R. China. Oct. 1984 - Oct. 1985.

B.Sc. in Atmospheric Sciences (graduated first in the class), Nanjing University, P. R. of China. Sept. 1980 - July 1984.

PROFESSIONAL EMPLOYMENT

Weathernews Chair in Applied Meteorology, School of Meteorology, University of Oklahoma, April 2010 - Present.

Professor, School of Meteorology, University of Oklahoma, July 2008 - Present.

Associate Professor, School of Meteorology, University of Oklahoma. Jun. 2003 – June 2008.

Assistant Professor, School of Meteorology, University of Oklahoma. Oct. 1999 – Jun. 2003.

Research Assistant Professor, School of Meteorology, University of Oklahoma. Jan. 1999 – Oct. 1999.

Adjunct Assistant Professor, School of Meteorology, University Of Oklahoma. Jan. 1997 - Jan 1999.

Senior Research Scientist, Center for Analysis and Prediction of Storms (CAPS), University of Oklahoma. Aug. 1993 – 1999.

Research Scientist, Center for Analysis and Prediction of Storms. Aug. 1992 - July 1993.

Post-Doctoral Fellow, Center for Analysis and Prediction of Storms. Oct. 1989 - Aug. 1992.

Teaching Assistant, Department of Meteorology, University of Reading, U.K. 1988.

PROFESSIONAL POSITIONS HELD

Director, Center for Analysis and Prediction of Storms, July 2006 –

Associate Director, ERC for Collaborative Adaptive Sensing of the Atmosphere (CASA) and the Analysis and Prediction Thrust Leader, 2006 -

Scientific Director, Center for Analysis and Prediction of Storms, 2001 – June 2006

Director, ARPS Model Development Project, Center for Analysis and Prediction of Storms. February 1993 – October 1999.

Co-Director, the ARPS Model Development Project, Center for Analysis and Prediction of Storms. July 1991 - December 1992.

HONORS AND AWARDS

‘National Thousand Person Plan’ Professor, School of Atmospheric Sciences, Nanjing University, Nanjing, China. 2011-.

Weathernews Chair Professor for Applied Meteorology, 2010-

Regents’ Award for Superior Research and Creative Activity, 2007.

Dean’s Award for Excellence in Research and Scholarship, 2007.

Outstanding Overseas Young Scientists Collaborative Research Award, Chinese Natural Science Foundation, 2000-2004.

Junior Faculty Research Award, Office of Vice President of Research, 2000.

University of Oklahoma recognition of inventing (with 30% credit) the Advanced Regional Prediction System technology which contributes to the academic and public service mission of the University, 2000.

The ARPS model was the (sole) winner of the Discover Magazine Award for Technology Innovation in computer software category and the Computerworld Smithsonian Award in science category in 1997. The model development project was co-directed by Prof. Kelvin Droegemeier and myself from 1991 through 1992 and by myself alone since 1993.

Technical Corporation Award (selected as the first among all candidates in the entrance exam to enter graduate program at Department of Meteorology, Nanjing University), British Council. U.K. 1985 - 1989.

Outstanding Student Awards, Nanjing University. 1981, 1982, 1983.

RESEARCH

PH.D. DISSERTATION

Xue, M., 1989: A nonhydrostatic numerical model in sigma-coordinates and simulations of mesoscale phenomena. Ph.D. Dissertation, Department of Meteorology, Reading University, 258pp. Advisor: Prof. Alan Thorpe.

REFEREED PUBLICATIONS (TOTAL SCI PUBLICATIONS: 233)

Total number of citations as of January 2018:


Web of Science SCI Citations: 5,829. H-index: 38.

Google Scholar Citations: 11,596. H-index: 52.

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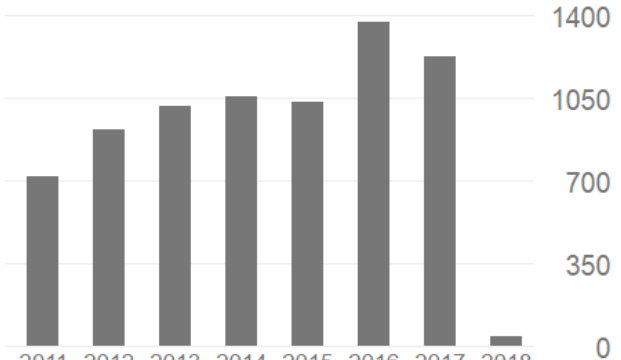
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Meteorology atmospheric science

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2017	~1200
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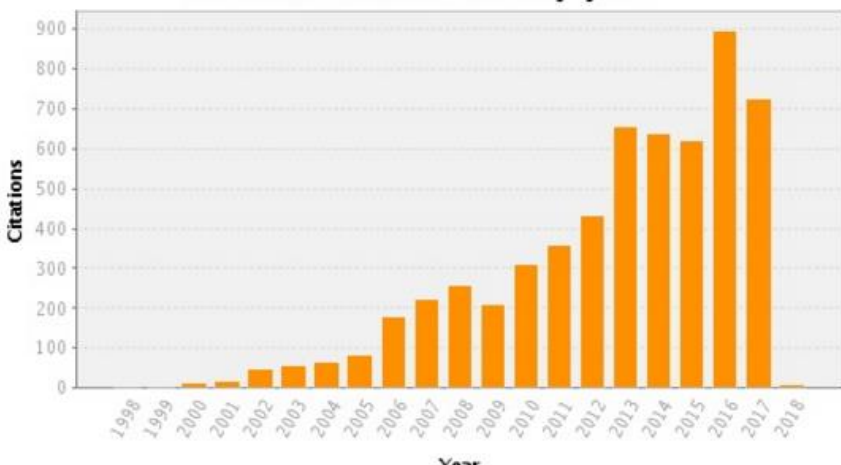
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ORCID: <http://orcid.org/0000-0003-1976-3238>

My Publications: Citation Metrics

This graph shows the number of times the articles on the publication list have been cited in each of the last 20 years. Note: Only articles from Web of Science Core Collection with citation data are included in the calculations. [More information about these data.](#)

Citation Distribution by year



Total Articles in Publication List: 233

Articles With Citation Data: 214

Sum of the Times Cited: 5841

Average Citations per Article: 27.42

h-index: 38

Last Updated: 01/16/2018 18:10 GMT

Publication list. Those by graduate students and post-docs he directly advised are preceded with ‘*’.

1991 - 2005

1. **Xue**, M. and A. J. Thorpe, 1991: A mesoscale numerical model using the nonhydrostatic sigma-coordinate equations: Model experiments with dry mountain flows, *Mon. Wea. Rev.*, 119, 1168-1185.
2. Droegemeier, K.K., M. **Xue**, K. Johnson, K. Mills, and M. O’Keefe, 1993: Experiences with the scalable- parallel ARPS cloud/mesoscale prediction model on massively parallel and workstation cluster architectures. *Parallel Supercomputing in Atmospheric Science*, G.R. Hoffman and T. Kauranne, Eds., World Scientific, 99-129.
3. Johnson, K.W., J. Bauer, G.A. Riccardi, K.K. Droegemeier, and M. **Xue**, 1994: Distributed processing of a regional prediction model. *Mon. Wea. Rev.* 122. 2558-2572.
4. Sathye, A., G. Bassett, K. Droegemeier, and M. **Xue**, 1995: Towards operational severe weather prediction using massively parallel processing, *High Performance Computing*. Tata McGraw Hill, New Dehli, India.
5. Droegemeier, K.K., M. **Xue**, K. Johnson, M. O’Keefe, A. Sawdey, G. Sabot, S. Wholey, N.T. Lin, and K. Mills, 1995: Weather prediction: A scalable storm-scale model. In *High Performance Computing*, G. Sabot (Ed.), Addison-Wesley, Reading, Massachusetts, 45-92.
6. Sathye, A., G. Bassett, K. Droegemeier, M. **Xue**, and K. Brewster, 1996: Experiences using high performance computing for operational storm scale weather prediction, In: *Concurrency: Practice and Experience, special issue on Commercial and industrial Applications on High Performance Computing*. John Wiley & Sons, Ltd., 731-740.
7. Xu, Q., M. **Xue**, and K.K. Droegemeier, 1996: Numerical simulations of density currents in sheared environments within a vertically confined channel. 53, *J. Atmos. Sci.* 770-786.
8. Sathye, A., M. **Xue**, G. Bassett, and K.K. Droegemeier, 1997: Parallel weather modeling with the Advanced Regional Prediction System. 23, *Parallel Computing*, 2243-2256.
9. **Xue**, M., Q. Xu, and K.K. Droegemeier, 1997: A Theoretical and numerical study of density currents in non-constant shear flows. *J. Atmos. Sci.* **54**, 1998-2019.
10. Gao, J., M. **Xue**, A. Shapiro, K.K. Droegemeier, 1999: A variational method for the retrieval of three-dimensional wind fields from dual-Doppler radars. *Mon. Wea. Rev.*, **127**, 2128-2142.
11. **Xue**, M., 2000: Density currents in two-layer shear flows. *Quart. J. Roy. Met. Soc.*, **126**, 1301-1320.
12. **Xue**, M., 2000: High-order monotonic numerical diffusion and smoothing, *Mon. Wea. Rev.* **128**, 2853-2864.

13. **Xue**, M., K. K. Droegemeier, and V. Wong, 2000: The Advanced Regional Prediction System (ARPS) - A multiscale nonhydrostatic atmospheric simulation and prediction tool. Part I: Model dynamics and verification. *Meteor. Atmos. Physics*. **75**, 161-193.
14. Doyle, J. D., D. R. Durran, B. A. Colle, C. Chen, M. Georgelin, V. Grubisic, W. R. Hsu, C. Y. Huang, D. Landau, Y. L. Lin, G. S. Poulos, W.Y.Sun, D. B. Weber, M. G. Wurtele, and M. **Xue**, 2000: An inter-comparison of model predicted wave breaking for the 11 January 1972 Boulder Windstorm. *Mon. Wea. Rev.*, **128**, 901-914.
15. **Xue**, M., and S. J. Lin, 2001: Numerical equivalence of advection in flux and advective forms and quadratically conservative high-order advection schemes. *Mon. Wea. Rev.*, **129**, 561-565.
16. **Xue**, M., K. K. Droegemeier, V. Wong, A. Shapiro, K. Brewster, F. Carr, D. Weber, Y. Liu, and D.-H. Wang, 2001: The Advanced Regional Prediction System (ARPS) - A multi-scale nonhydrostatic atmospheric simulation and prediction tool. Part II: Model physics and applications. *Meteor. Atmos. Physics*. **76**, 143-165.
17. Gao, J., M. **Xue**, A. Shapiro, Q. Xu, and K. K. Droegemeier, 2001: Three-dimensional simple adjoint velocity retrievals from single Doppler radar, *J. Atmos. Ocean Tech.*, **18**, 26-38.
18. **Xue**, M., 2002: Density currents in shear flows: Effects of rigid lid and cold-pool internal circulation, and application to squall line dynamics. *Quart. J. Roy. Met. Soc.*, **128**, 47-74.
19. Sharif, H. O., F. L. Ogden, W. F. Krajewski, and M. **Xue**, 2002: Numerical simulations of radar-rainfall error propagation. *Water Resources Research*, 38, 15-1 to 15-14.
20. **Xue**, M., D.-H. Wang, J.-D. Gao, K. Brewster, and K. K. Droegemeier, 2003: The Advanced Regional Prediction System (ARPS), storm-scale numerical weather prediction and data assimilation. *Meteor. Atmos. Physics*, 82, 139-170.
21. Souto, M. J., C. F. Balseiro, V. Pérez-Muñuzuri, M. **Xue**, and K. Brewster, 2003: Importance of cloud analysis and impact for daily forecast in terms of climatology of Galician region, Spain. *J. App. Meteor.*, 42, 129-140.
22. Gao, J.-D., M. **Xue**, K. Brewster, and K. K. Droegemeier, 2004: A three-dimensional variational data analysis method with recursive filter for Doppler radars. *J. Atmos. Ocean. Tech.*, 21, 457-469.
23. Sharif, H. O., F. K. Ogden, W. F. Krajewski, and M. **Xue**, 2004: Statistical analysis of radar-rainfall error propagation, *J. Hydrometeor.*, 5, 199-212.
24. *Nutter, P., D. Stensrud, and M. **Xue**, 2004: Effects of coarsely-resolved and temporally-interpolated lateral boundary conditions on the dispersion of limited-area ensemble forecasts, *Mon. Wea. Rev.*, 132, 2358-2377.
25. *Nutter, P., M. **Xue**, and D. Stensrud, 2004: Application of lateral boundary condition perturbations to help restore dispersion in limited area ensemble forecasts. *Mon. Wea. Rev.*, 132, 2378-2390.

26. *Ren, D. and M. **Xue**, 2004: A revised force-restore model for land-surface modeling, *J. App. Meteor.*, **43**, 1768-1782.
27. *Ren, D., M. **Xue**, and A. Henderson-Sellers, 2004: Incorporating hydraulic lift into a land surface model and its effect on surface moisture prediction. *J. Hydrometeorol.*, **5**, 1181-1191.
28. *Tong, M. and M. **Xue**, 2005: Ensemble Kalman filter assimilation of Doppler radar data with a compressible nonhydrostatic model: OSSE Experiments. *Mon. Wea. Rev.*, **133**, 1789-1807.
29. Chow, F. K., R. L. Street, M. **Xue**, and J. H. Ferziger, 2005: Explicit filtering and reconstruction turbulence modeling for large-eddy simulation of neutral boundary layer flow. *J. Atmos. Sci.*, **62**, 2058-2077.
30. *Xiao, Y., M. **Xue**, W. J. Martin, and J. Gao, 2005: Development of an adjoint for a complex atmospheric model, the ARPS, using TAF. In *Automatic Differentiation: Applications, Theory, and Implementations*, H. M. Bücker, G. F. Corliss, P. Hovland, U. Naumann, and B. Norris, Eds., Springer, 263-272.
31. Droegemeier, K. K., K. Brewster, M. **Xue**, D. Weber, D. Gannon, B. Plale, D. Reed, L. Ramakrishnan, J. Alameda, R. Wilhelmson, T. Baltzer, B. Domenico, D. Murray, M. Ramamurthy, A. Wilson, R. Clark, S. Yalda, S. Graves, R. Ramachandra, J. Rushing, E. Joseph, and V. Morris, 2005: Service-oriented environments for dynamically interacting with mesoscale weather. *Computing in Science and Engineering*, **7**, 12-27.

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32. **Xue**, M. and W. Martin, 2006: A high-resolution modeling study of the 24 May 2002 case during IHOP. Part I: Numerical simulation and general evolution of the dryline and convection. *Mon. Wea. Rev.*, **134**, 149–171.
33. **Xue**, M. and W. Martin, 2006: A high-resolution modeling study of the 24 May 2002 case during IHOP. Part II: Horizontal convective rolls and convective initiation. *Mon. Wea. Rev.*, **134**, 172–191.
34. ***Xue**, M., M. Tong, and K. K. Droegemeier, 2006: An OSSE framework based on the ensemble square-root Kalman filter for evaluating impact of data from radar networks on thunderstorm analysis and forecast. *J. Atmos. Ocean Tech.*, **23**, 46–66.
35. Chow, F. K., A. P. Weigel, R. L. Street, M. W. Rotach, and M. **Xue**, 2006: High-resolution large-eddy simulations of flow in a steep Alpine valley. Part I: Methodology, verification and sensitivity experiments. *J. Appl. Meteor.*, **45**, 63-86.
36. Weigel, A. P., F. K. Chow, M. W. Rotach, R. L. Street, and M. **Xue**, 2006: High-resolution large-eddy simulations of flow in a steep Alpine valley. Part II: Flow structure and heat budgets. *J. Appl. Meteor.*, **45**, 87-107.

37. Martin, W. J. and M. **Xue**, 2006: Initial condition sensitivity analysis of a mesoscale forecast using very-large ensembles. *Mon. Wea. Rev.*, **134**, 192–207.
38. *Hu, M., M. **Xue**, and Keith Brewster, 2006: 3DVAR and cloud analysis with WSR-88D Level-II data for the prediction of the Fort Worth tornadic thunderstorms. Part I: Cloud analysis and its impact. *Mon. Wea. Rev.*, **134**, 675-698.
39. *Hu, M., M. **Xue**, J. Gao and K. Brewster, 2006: 3DVAR and cloud analysis with WSR-88D Level-II data for the prediction of the Fort Worth tornadic thunderstorms. Part II: Impact of radial velocity analysis via 3DVAR. *Mon. Wea. Rev.*, **134**, 699-721.
40. *Liu, H. and M. **Xue**, 2006: Retrieval of moisture from slant-path water vapor observations of a hypothetical GPS network using a three-dimensional variational scheme with anisotropic background error. *Mon. Wea. Rev.*, **134**, 933-949.
41. *Dawson, D. T., II and M. **Xue**, 2006: Numerical forecasts of the 15-16 June 2002 Southern Plains severe MCS: Impact of mesoscale data and cloud analysis. *Mon. Wea. Rev.*, **134**, 1607-1629.
42. Gao, J., K. Brewster, and M. **Xue**, 2006: A comparison of the radar ray path equations and approximations for use in radar data assimilation. *Adv. Atmos. Sci.*, **32**, 190-198.
43. Gao, J., M. **Xue**, S. Y. Lee, K. K. Droegemeier, and A. Shapiro, 2006: A three-dimensional variational method for velocity retrievals from single-Doppler radar observations on supercell storms. *Meteor. Atmos. Phys.*, **94**, 11-26.
44. *Sheng, C., S. Gao, and M. **Xue**, 2006: Short-term prediction of a heavy precipitation event by assimilating Chinese CINRAD radar reflectivity data using complex cloud analysis. *Meteor. Atmos. Phys.*, **94**, 167-183.
45. Xu, Q., S. Liu, and M. **Xue**, 2006: Background error covariance functions for vector wind analysis using Doppler radar radial-velocity observations. *Quart. J. Roy. Meteor. Soc.*, **132**, 2887-2904.

2007 (10)

46. *Hu, M. and M. **Xue**, 2007: Impact of configurations of rapid intermittent assimilation of WSR-88D radar data for the 8 May 2003 Oklahoma City tornadic thunderstorm case. *Mon. Wea. Rev.*, **135**, 507–525.
47. **Xue**, M., S. Liu, and T. Yu, 2007: Variational analysis of over-sampled dual-Doppler radial velocity data and application to the analysis of tornado circulations. *J. Atmos. Ocean Tech.*, **24**, 403–414.
48. Liu, S., M. **Xue**, and Q. Xu, 2007: Using wavelet analysis to detect tornadoes from Doppler radar radial-velocity observations. *J. Atmos. Ocean Tech.*, **24**, 344-359.

49. *Liu, H., M. **Xue**, R. J. Purser, and D. F. Parrish, 2007: Retrieval of moisture from GPS slant-path water vapor observations using 3DVAR with isotropic and anisotropic recursive filters. *Mon. Wea. Rev.*, **135**, 1506–1521.
50. Chu, K., Z.-M. Tan, and M. **Xue**, 2007: Impact of four-dimensional variational assimilation of rainfall data on precipitation forecast of mesoscale convective systems in a meiyu heavy rainfall event. *Adv. Atmos. Sci.*, **24**, 281-300.
51. *Hu, M. and M. **Xue**, 2007: Implementation and evaluation of cloud analysis with WSR-88D reflectivity data for GSI and WRF-ARW. *Geophys. Res. Letters*. **34**, L07808, doi:10.1029/2006GL028847.
52. ***Xue**, M., Y. Jung, and G. Zhang, 2007: Error modeling of simulated reflectivity observations for ensemble Kalman filter data assimilation of convective storms. *Geophys. Res. Letters*, **34**, L10802, doi:10.1029/2007GL029945.
53. Limpasuvan, V., D. L. Wu, M. J. Alexander, M. **Xue**, M. Hu, S. Pawson, and J. R. Perkins, 2007: The ARPS stratospheric gravity wave simulation over Greenland during 24 January 2005. *J. Geo. Res.*, **112**, D10115, doi:10.1029/2006JD007823.
54. **Xue**, M., K. K. Droegemeier, and D. Weber, 2007: Numerical prediction of high-impact local weather: A driver for petascale computing. In *Petascale Computing: Algorithms and Applications*, D. Bader, Ed., Taylor & Francis., 103-124.
55. May, R. M., M. I. Biggerstaff, and M. **Xue**, 2007: A Doppler radar emulator with an application to the detectability of tornadic signatures. *J. Atmos. Ocean Tech.*, **24**, 1973-1996.

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56. Cheong, B. L., R. D. Palmer, and M. **Xue**, 2008: A time-series weather radar simulator based on high-resolution atmospheric models. *J. Atmos. Ocean. Tech.*, **25**, 230-243.
57. Gao, J. and M. **Xue**, 2008: An efficient dual-resolution approach for ensemble data assimilation and tests with assimilated Doppler radar data. *Mon. Wea. Rev.*, **136**, 945-963.
58. *Tong, M. and M. **Xue**, 2008: Simultaneous estimation of microphysical parameters and atmospheric state with radar data and ensemble Kalman filter. Part I: Sensitivity analysis and parameter identifiability. *Mon. Wea. Rev.*, **136**, 1630-1648.
59. *Tong, M. and M. **Xue**, 2008: Simultaneous estimation of microphysical parameters and atmospheric state with radar data and ensemble Kalman filter. Part II: Parameter estimation experiments. *Mon. Wea. Rev.*, **136**, 1649-1668.
60. Gao, S., S. Yang, M. **Xue**, and C. Cui, 2008: The total deformation and its role in heavy precipitation events associated with deformation-dominant flow patterns. *Adv. Atmos. Sci.*, **25**, 11-23.

61. *Jung, Y., G. Zhang, and M. **Xue**, 2008: Assimilation of simulated polarimetric radar data for a convective storm using ensemble Kalman filter. Part I: Observation operators for reflectivity and polarimetric variables. *Mon. Wea. Rev.*, **136**, 2228–2245.
62. *Jung, Y., M. **Xue**, G. Zhang, and J. Straka, 2008: Assimilation of simulated polarimetric radar data for a convective storm using ensemble Kalman filter. Part II: Impact of polarimetric data on storm analysis. *Mon. Wea. Rev.*, **136**, 2246–2260.
63. *Liu, H. and M. **Xue**, 2008: Prediction of convective initiation and storm evolution on 12 June 2002 during IHOP. Part I: Control simulation and sensitivity experiments. *Mon. Wea. Rev.*, **136**, 2261–2283.
64. Xu, Q., H. Lu, S. Gao, M. **Xue**, and M. Tong, 2008: Time-expanded sampling for ensemble Kalman filter: Assimilation experiments with simulated radar observations. *Mon. Wea. Rev.*, **136**, 2651–2667.
65. Gao, J., K. Brewster, and M. **Xue**, 2008: Variation of radio reflectivity with respect to moisture and temperature and influence on radar ray path. *Adv. Atmos. Sci.*, 1098–1106.
66. Tanamachi, R. L., W. Feltz, and M. **Xue**, 2008: Observations and numerical simulation of a water vapor oscillation event during the International H2O Project (IHOP_2002). *Mon. Wea. Rev.*, **136**, 3106–3120.
67. *Snook, N. and M. **Xue**, 2008: Effects of microphysical drop size distribution on tornadogenesis in supercell thunderstorms. *Geophys. Res. Letters*, **35**, L24803, doi:10.1029/2008GL035866.
68. Zhang, G., M. Xue, Q. Cao, and D. Dawson, 2008: Diagnosing the intercept parameter for exponential raindrop size distribution based on video disdrometer observations. *J. Appl. Meteor. Climatol.*, **47**, 2983–2992.

2009 (9)

69. ***Xue**, M., M. Tong, and G. Zhang, 2009: Simultaneous state estimation and attenuation correction for thunderstorms with radar data using an ensemble Kalman filter: Tests with simulated data. *Quart. J. Roy. Meteor. Soc.*, **135**, 1409–1423.
70. *Sheng, C., M. **Xue**, and S. Gao, 2009: The structure and evolution of sea breezes during Qingdao Olympics sailing test event in 2006. *Adv. Atmos. Sci.*, **26**, 132–142.
71. *Zhao, K. and M. **Xue**, 2009: Assimilation of coastal Doppler radar data with the ARPS 3DVAR and cloud analysis for the prediction of Hurricane Ike (2008). *Geophys. Res. Letters*, **36**, L12803, doi:10.1029/2009GL038658.
72. Potvin, C. K., A. Shapiro, T.-Y. Yu, J. Gao, and M. **Xue**, 2009: Using a low-order model to characterize and detect tornadoes in multiple-Doppler radar data. *Mon. Wea. Rev.*, **137**, 1230–1249.

73. Dunning, T. H., Jr., K. Schulten, J. Tromp, J. P. Ostriker, K. K. Droegemeier, M. **Xue**, and P. Fussell, 2009: Science and engineering in the petascale era. *Computing Sci. Engineering*, **11**, 28-36.
74. *Schwartz, C., J. Kain, S. Weiss, M. **Xue**, D. Bright, F. Kong, K. Thomas, J. Levit, and M. Coniglio, 2009: Next-day convection-allowing WRF model guidance: A second look at 2 vs. 4 km grid spacing. *Mon. Wea. Rev.*, **137**, 3351-3372.
75. Clark, A. J., W. A. Gallus, Jr., M. **Xue**, and F. Kong, 2009: A comparison of precipitation forecast skill between small convection-permitting and large convection-parameterizing ensembles. *Wea. Forecasting*, **24**, 1121-1140.
76. McLaughlin, D., D. Pepyne, V. Chandrasekar, B. Philips, J. Kurose, M. Zink, K. Droegemeier, S. Cruz-Pol, F. Junyent, J. Brotzge, D. Westbrook, N. Bharadwaj, Y. Wang, E. Lyons, K. Hondl, Y. Liu, E. Knapp, M. Xue, A. Hopf, K. Kloesel, A. DeFonzo, P. Kollias, K. Brewster, R. Contreras, B. Dolan, T. Djaferis, E. Insanic, S. Frasier, and F. Carr, 2009: Short-wavelength technology and the potential for distributed networks of small radar systems. *Bull. Amer. Meteor. Soc.*, *Bull. Amer. Meteor. Soc.*, **90**, 1797-1817.
77. Stensrud, D. J., M. **Xue**, L. Wicker, K. Kelleher, M. Foster, J. Schaefer, R. Schneider, S. Benjamin, J. Ferree, J. Tuell, and J. Hayes, 2009: Convective-scale Warn on Forecast: A vision for 2020. *Bull. Am. Meteor. Soc.*, **90**, 1487-1499.

2010 (13)

78. *Jung, Y., M. **Xue**, and G. Zhang, 2010: Polarimetric radar signatures of a simulated supercell storm using a two-moment microphysics scheme and polarimetric radar emulator. *J. Appl. Meteor. Climatol.*, **49**, 146-163.
79. *Jung, Y., M. **Xue**, and G. Zhang, 2010: Simultaneous estimation of microphysical parameters and atmospheric state using simulated polarimetric radar data and an ensemble Kalman filter in the presence of an observation operator error. *Mon. Wea. Rev.*, **138**, 539-562.
80. ***Xue**, M., Y. Jung, and G. Zhang, 2010: State estimation of convective storms with a two-moment microphysics scheme and an ensemble Kalman filter: Experiments with simulated radar data. *J. Roy. Meteor. Soc.*, **136**, 685-700.
81. *Dawson, D. T., II, M. **Xue**, J. A. Milbrandt, and M. K. Yau, 2010: Comparison of evaporation and cold pool development between single-moment and multi-moment bulk microphysics schemes in idealized simulations of tornadic thunderstorms. *Mon. Wea. Rev.*, **138**, 1152-1171.
82. Ge, G., J. Gao, K. Brewster, and M. **Xue**, 2010: Impacts of beam broadening and earth curvature on 3D variational radar data assimilation radial velocity with two Doppler radars. *J. Atmos. Ocean Tech.*, **27**, 617-636.

83. *Schwartz, C. S., J. S. Kain, S. J. Weiss, M. **Xue**, D. R. Bright, F. Kong, K. W. Thomas, J. J. Levit, M. C. Coniglio, and M. S. Wandishin, 2010: Toward improved convection-allowing ensembles: model physics sensitivities and optimizing probabilistic guidance with small ensemble membership. *Wea. Forecasting*, **25**, 263-280.
84. Coniglio, M. C., K. L. Elmore, J. S. Kain, S. Weiss, M. **Xue** and M. Weisman, 2010: Evaluation of WRF model output for severe-weather forecasting from the 2008 NOAA Hazardous Weather Testbed Spring Experiment. *Wea. Forecasting*, **25**, 408-427
85. Clark, A. J., W. A. Gallus, M. **Xue**, and F. Kong, 2010: Growth of spread in convection-allowing and convection-parameterizing ensembles *Wea. Forecasting*, **25**, 594-612.
86. 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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 192. *Hu, X. and M. **Xue**, 2016: Influence of synoptic sea breeze fronts on the urban heat island intensity in Dallas-Fort Worth, Texas. *Mon. Wea. Rev.*, 144, 1487-1507.
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240. Meng, Z., L. Bai, M. Zhang, Z. Wu, Z. Li, M. Pu, Y. Zheng, X. Wang, D. Yao, M. **Xue**, K. Zhao, Z. Li, S. Peng, and L. Li, 2018: The Deadliest Tornado (EF4) in the Past 40 Years in China. *Wea. Forecasting*, Conditionally accepted.
241. Fu, P., K. Zhu, K. Zhao, B. Zhou, and M. **Xue**, 2018: The role of nocturnal low-level jet in the formation of morning precipitation peak over Dabie Mountains. *Adv. Atmos. Sci.*, Under review.
242. *Zhu, K., M. **Xue**, Y. Pan, M. H. S. G. Benjamin, S. S. Weygandt, and H. Lin, 2018: The Impact of Assimilating Polar-Orbiting Satellite Radiance Data using GSI-based Ensemble Kalman Filter and GSI 3DVar for a Rapid Refresh Configuration. *J. Adv. Modeling Earth Systems*, Under review.
243. *Luo, L., M. **Xue**, K. Zhu, and B. Zhou, 2018: Explicit prediction of hail in a long-lasting multi-cellular convective system in Eastern China using multi-moment microphysics schemes. *J. Atmos. Sci.*, Conditionally accepted.

PH.D. STUDENT DISSERTATIONS AS MAJOR ADVISOR

1. Paul Nutter, 2003: Effects of nesting frequency and lateral boundary perturbations on the dispersion of limited-area ensemble forecasts, Ph.D. Dissertation, School of Meteorology, University of Oklahoma, 156 pp.
2. Diandong Ren, 2004: 4DVAR Retrieval of Prognostic Land Surface Model Variables, Ph. D. Dissertation, School of Meteorology, University of Oklahoma, 228 pp.
3. Ming Hu, 2005: 3DVAR and cloud analysis with WSR-88D level-II data for the prediction of tornadic thunderstorms, Ph. D. Dissertation, School of Meteorology, University of Oklahoma, 217pp.
4. Mingjing Tong, 2006: Ensemble Kalman filter assimilation of Doppler radar data for the initialization and prediction of convective storms, Ph.D. Dissertation, School of Meteorology, University of Oklahoma, 243pp.
5. Haixia Liu, 2007: Analysis of GPS Slant-path Water Vapor Observations using 3DVAR with Anisotropic Filters and Their Impact on the Prediction of Convective Initiation and Precipitation, School of Meteorology, University of Oklahoma, 188pp.
6. Chunyan Sheng, 2007: Data Assimilation for North China Torrential Rain and Numerical Simulation of Orographic Heavy Rainfall (in Chinese). Ph.D. Dissertation, Institute of Atmospheric Physics, Chinese Academy of Sciences, 140pp.
7. Youngsun Jung., 2008: State and parameter estimation using polarimetric radar data and an ensemble Kalman filter, Ph.D. Dissertation, School of Meteorology, University of Oklahoma, 209pp

8. Daniel Dawson, 2009: Impacts of single- and multi-moment microphysics on numerical simulations of supercells and tornadoes of the 3 May 1999 Oklahoma tornado outbreak. Ph.D. Dissertation, School of Meteorology, University of Oklahoma. 173pp.
9. Jili Dong, 2010: Applications of Ensemble Kalman Filter Data Assimilation: From Convective Thunderstorms to Hurricanes, Ph.D. Dissertation, School of Meteorology, University of Oklahoma, 199 pp.
10. Kefeng Zhu, 2010: Research and Applications of Radar Data Assimilation for the Forecasting of Convective Systems (In Chinese). Ph.D. Dissertation, Institute of Atmospheric Physics, Chinese Academy of Sciences, 167pp.
11. Nathan Snook, 2011: Assimilation of CASA and WSR-88D Radar Data for Tornadic Convective Storms using an Ensemble Kalman Filter and Applications in Probabilistic Ensemble Forecasting, Ph.D. Dissertation, School of Meteorology, University of Oklahoma, 195 pp.
12. Alexander Schenkman, 2012: Exploring tornadogenesis with high-resolution simulations initialized with real data, Ph.D. Dissertation, School of Meteorology, University of Oklahoma, 186 pp.
13. Jing Cheng, 2013: Assimilation of Attenuated Data from X-Band Network Radars using Ensemble Kalman Filter, School of Meteorology, University of Oklahoma, 160pp.
14. Gang Zhao, 2013: Development of ARPS LETKF with Four Dimensional Extension and Intercomparison with ARPS EnSRF, School of Meteorology, University of Oklahoma, 200 pp.
15. Yongzuo Li, 2014: Assimilation of radar observations with ensemble-variational hybrid data assimilation method for the initialization and prediction of hurricanes. School of Meteorology, University of Oklahoma (Co-advisor).
16. Nathan Dahl, 2015: Coupling the Advanced Regional Prediction System and the Discrete Event Specification Fire Spread Model to Predict Wildfire Behavior, School of Meteorology, University of Oklahoma, 137 pp.
17. Chong-chi Tong, 2015: Limitations and potential of complex cloud analysis and its improvement for radar reflectivity data assimilation using OSSEs, School of Meteorology, University of Oklahoma, 176 pp.
18. Bryan Putnam, 2016: The Prediction and Assimilation of Polarimetric Radar Data Using Ensemble-Based Methods, School of Meteorology, University of Oklahoma, 206 pp.
19. Jeffery Duda, 2016: Optimal Design of a Convection-Allowing Ensemble from a Model Error Perspective School of Meteorology, University of Oklahoma, 236 pp. (Co-advisor)

20. Brett Roberts, 2017: Roberts, B., 2017: The Role of Surface Drag in Supercell Tornadogenesis and Mesocyclogenesis: Studies Based on Idealized Numerical Simulations, School of Meteorology, University of Oklahoma, 164 pp.

EXTERNALLY SPONSORED RESEARCH GRANTS AT OU

(TOTAL STATISTICS UPDATED UP TO APRIL 2013)

TOTAL NUMBER OF EXTERNALLY FUNDED GRANTS AS PI OR CO-PI:	77 (UP TO 2013)
TOTAL AMOUNT OF EXTERNALLY GRANTS AS PI OR CO-PI:	\$40.59 MILLION.
TOTAL AMOUNT OF EXTERNALLY GRANTS AS PI:	\$16.87 MILLION.
TOTAL AMOUNT OF EXTERNALLY FUNDING CREDITED TO MING XUE:	\$13.04 MILLION.

PI and Chief Scientist, “Observation, Prediction and Analysis of Convection of China (OPACC)” Ministry of Science and Technology of China, 34 million RMB (34 million Chinese Yuan ~ \$5.4 million), 2013-2017. Hosted by Nanjing University, China.

Active Grants in 2017

Xue, M., (PI, 45% credit), with co-PIs Alex Fierro, Edward Mansell, Donald MacGorman, Gang Zhao “Assimilation of High Frequency GOES-R Geostationary Lightning Mapper (GLM) Flash Ex-tent Density Data in GSI-Based EnKF and Hybrid for Improving Convection Scale Weather Predictions”. DOC-NOAA, \$581,144, 04/01/2017 – 03/31/2020.

Xue, M., (PI, 30% credit), Hu, X. (Co-PI, 30%) Jung, Y., (Co-PI, 20% credit), Brewster, K., (Co-PI, 20% credit) “Assessment and Optimization of YSU-Type Non-Local PBL Scheme for the Prediction of Day- and Night-Time Storm Environment and Tornadoic Storms during VORTEX-SE” NOAA, \$287,126. 9/1/2017 – 8/31/2019.

Xue, M., (PI, 40% credit), Jung, Y., (Co-PI, 20% credit), Kong, F. (Co-PI, 20%), Brewster, K., (Co-PI, 20% credit) “Enhancement and Evaluation of NGGPS Model FV3 at Convection-Allowing Resolutions through Hazardous Weather Testbed Spring Experiment towards Accelerated Operational Implementation of FV3 for Mesoscale Applications” NOAA, \$194,175 5/1/2017 – 4/30/2018.

Xue, M., (PI, 30% credit), Kong, F. (Co-PI, 30%) Jung, Y., (Co-PI, 20% credit), Liu, C., (Co-PI, 10% credit), "Development and Optimization of Radar-Assimilating Ensemble-Based Data Assimilation for Storm-Scale Ensemble Prediction in Support of HWT Spring Experiments." \$290,837. Sponsored by U.S. Dept. of Commerce, NOAA (July 1, 2017 - June 30, 2019).

- Xue, M., (PI, 30% credit), Kong, F. (Co-PI, 30%) Brewster, K., (Co-PI, 30% credit), Snook, N., (Co-PI, 10% credit), "Convection-Allowing Ensemble Prediction for Heavy Precipitation in Support of the Hydrometeorology Testbed (HMT): New QPF Products, Data Assimilation Techniques and Prediction Model." Sponsored by U.S. Dept. of Commerce, NOAA, \$289,961. (July 1, 2017 - June 30, 2019).
- Xue, M., (PI, 60% credit), Jung, Y., (Co-PI, 40% credit), "Advanced Data Assimilation and Prediction Research for Convective-Scale Warn-on-Forecast," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal, \$200,000. (July 1, 2017 - June 30, 2018).
- Xue, M., (PI, 30% credit), Snook, N. A., (Co-PI, 10% credit), Brewster, K. A., (Co-PI, 20% credit), Jung, Y., (Co-PI, 20% credit), Kong, F., (Co-PI, 20% credit), "A Partnership to Develop and Evaluate Optimized Realtime Convective-Scale Ensemble Data Assimilation and Prediction Systems for Hazardous Weather: Toward the Goals of a Weather-Ready Nation," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal. (May 1, 2016 - April 30, 2019).
- Xue, M., (PI, 50% credit), Zhang, G., (Co-PI, 50% credit), "Assessment of the Performance of Beijing Meteorological Service (BMS) X-band Polarimetric Radars and Data Quality Control and Assimilation for the BMS X-band Radar Network," Sponsored by Beijing Meteorological Service, Industry, \$120,000. (January 1, 2017 - December 31, 2018).
- Xue, M., (PI, 45% credit), Jung, Y., (Co-PI, 15% credit), McGovern, A., (Co-PI, 15% credit), Snook, N. A., (Co-PI, 25% credit), "The Severe Hail Analysis, Representation, and Prediction (SHARP) Project," NSF, Federal. \$819K. (September 15, 2013 - August 31, 2017).
- Xue, M., (PI, 100% credit), "Contribution to Model Development and Enhancement Research Team by the Center for Analysis and Prediction of Storms," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal, \$95,000. (October 1, 2016 - September 30, 2017).
- Xue, M., (PI, 60% credit), Jung, Y., (Co-PI, 40% credit), "Advanced Data Assimilation and Prediction Research for Convective-Scale Warn-on-Forecast," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal, \$200,000. (October 1, 2016 - September 30, 2017).
- Xue, M., (PI, 50% credit), Brewster, K. A., (Co-PI, 20% credit), Kong, F., (Co-PI, 30% credit), "Development of a Short-Range Realtime Analysis and Forecasting System based on the ARPS for Taiwan Region," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal. (March 1, 2012 - September 30, 2017).
- Xue, M., (PI, 30% credit), Snook, N. A., (Co-PI, 10% credit), Jung, Y., (Co-PI, 30% credit), Kong, F., (Co-PI, 30% credit), "Improving Initial Conditions and their Perturbations

- through Ensemble-Based Data Assimilation for Optimized Storm-Scale Ensemble Prediction in Support of HWT Severe Weather Forecasting," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal. (September 1, 2015 - August 31, 2017).
- Xue, M., (PI, 30% credit), Dawson, D., (Co-PI, 10% credit), Brewster, K. A., (Co-PI, 30% credit), Kong, F., (Co-PI, 30% credit), "Storm-Scale Ensemble Prediction Optimized for Heavy Precipitation Forecasting in Support of the Hydrometeorology Testbed (HMT)," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal. (September 1, 2015 - August 31, 2017).
- Jung, Y., (PI, 70% credit), Xue, M., (Co-PI, 30% credit), "Impact of Assimilating Polarimetric Phased Array Radar Observations on Convective-scale Numerical Weather Prediction Model for Severe Weather Forecasts." \$345,996, NOAA, 10/1/2017 – 9/30/2019.
- Snook, N. A., (PI, 40% credit), Xue, M., (Co-PI, 20% credit), Jung, Y., (Co-PI, 20% credit), McGovern, A., (Co-PI, 20% credit), "Development and Implementation of Probabilistic Hail Forecast Products using Multi-moment Microphysics and Machine Learning Algorithms," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal, \$335,084. (October 1, 2016 - September 30, 2018).
- Wang, X., (PI, 60% credit), Xue, M., (Co-PI, 20% credit), Kong, F., (Co-PI, 20% credit), "Optimal Design of Multi-scale Ensemble Systems for Convective-Scale Probabilistic Forecasting," Sponsored by National Science Foundation, Federal, \$395,769. (March 15, 2011 - February 28, 2017).
- Kong, F., (PI, 60% credit), Brewster, K. A., (Co-PI, 10% credit), Hu, X., (Co-PI, 10% credit), Xue, M., (Co-PI, 20% credit), "Development of a Storm-Scale Ensemble Numerical Weather Prediction System for Chongqing Meteorological Service," Sponsored by Chongqing Inst of Green and Intelligent Tech, Chinese Academy of Sciences, Industry. (April 1, 2017 - March 31, 2018).
- Kong, F., (PI, 60% credit), Xue, M., (Co-PI, 20% credit), Jung, Y., (Co-PI, 20% credit), "Extended support to the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau," Sponsored by Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Industry, \$175,380. (January 1, 2017 - December 31, 2017).
- Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 30% credit), "Technical Support to the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau," Sponsored by Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Industry. (July 1, 2015 - June 30, 2017).

Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 15% credit), Brewster, K. A., (Co-PI, 15% credit), "Establishment of an Improved Numerical Weather Forecasting System for Chongqing Meteorological Service," Sponsored by Chongqing Inst of Green and Intelligent Tech, Chinese Academy of Sciences, Industry. (September 15, 2012 - April 30, 2017).

Moore, B., (PI, 3.33% credit), Mc Pherson, R. A., (Co-PI, 3.33% credit), Bamzai, A., (Co-PI, 3.34% credit), Xue, M., (Co-PI, 45% credit), "(Xue) Very High-Resolution Dynamic Downscaling of Regional Climate for Use in Long-term Hydrologic Planning along the Red River Valley System," Sponsored by U.S. Department of the Interior, U.S. Geological Survey, Federal. (September 26, 2015 - September 25, 2017).

Moore, B., (PI, 50% credit), Xue, M., (Co-PI, 10% credit), Hu, X., (Co-PI, 40% credit), "Atmospheric Carbon and Transport - America," Sponsored by NASA - Headquarters, Federal. (February 10, 2017 - February 9, 2020).

Neeman, H. J., (PI, 36% credit), Severini, H., (Co-PI, 2% credit), Skubic, P. L., (Co-PI, 2% credit), Strauss, M. G., (Co-PI, 2% credit), Xue, M., (Co-PI, 4% credit), Brewster, K. A., (Co-PI, 4% credit), Gray, Z., (Co-PI, 4% credit), Yu, T.-Y., (Co-PI, 7% credit), Radhakrishnan, S., (Co-PI, 39% credit), "Oklahoma Friction Free Network," Sponsored by National Science Foundation, Federal. (October 1, 2013 - September 30, 2017).

Active Grants in 2016

Xue, M., (PI, 45% credit), Jung, Y., (Co-PI, 15% credit), McGovern, A., (Co-PI, 15% credit), Snook, N. A., (Co-PI, 25% credit), "The Severe Hail Analysis, Representation, and Prediction (SHARP) Project," NSF, Federal. \$819K. (September 15, 2013 - August 31, 2016).

Xue, M., (PI, 30% credit), Snook, N. A., (Co-PI, 10% credit), Brewster, K. A., (Co-PI, 20% credit), Jung, Y., (Co-PI, 20% credit), Kong, F., (Co-PI, 20% credit), "A Partnership to Develop and Evaluate Optimized Realtime Convective-Scale Ensemble Data Assimilation and Prediction Systems for Hazardous Weather: Toward the Goals of a Weather-Ready Nation," NOAA, Federal. \$450,000. (May 1, 2016 - April 30, 2019).

Xue, M., (PI, 100% credit), "Contribution to Model Development and Enhancement Research Team by the Center for Analysis and Prediction of Storms," NOAA, Federal, \$95,000. (October 1, 2016 - September 30, 2017).

Xue, M., (PI, 30% credit), Dawson, D., (Co-PI, 10% credit), Brewster, K. A., (Co-PI, 30% credit), Kong, F., (Co-PI, 30% credit), "Storm-Scale Ensemble Prediction Optimized for Heavy Precipitation Forecasting in Support of the Hydrometeorology Testbed (HMT)," \$239,700. NOAA, Federal. (September 1, 2015 - August 31, 2017).

Xue, M., (PI, 30% credit), Snook, N. A., (Co-PI, 10% credit), Jung, Y., (Co-PI, 30% credit), Kong, F., (Co-PI, 30% credit), "Improving Initial Conditions and their Perturbations through Ensemble-Based Data Assimilation for Optimized Storm-Scale Ensemble Prediction in Support of HWT Severe Weather Forecasting," \$249,705. NOAA, Federal. (9/2015 – 8/2017).

Xue, M., (PI, 50% credit), Brewster, K. A., (Co-PI, 25% credit), Jung, Y., (Co-PI, 25% credit), "Advanced Data Assimilation and Prediction Research for Convective-Scale," NOAA, Federal. \$225K, (August 1, 2014 - July 31, 2016).

Xue, M., (PI, 60% credit), Jung, Y., (Co-PI, 40% credit), "Advanced Data Assimilation and Prediction Research for Convective-Scale Warn-on-Forecast," NOAA, Federal, \$200,000. (October 1, 2016 - September 30, 2017).

Xue, M., (PI, 35% credit), Brewster, K. A., (Co-PI, 20% credit), Jung, Y., (Co-PI, 20% credit), Kong, F., (Co-PI, 25% credit), "A Partnership to Develop, Conduct, and Evaluate Realtime Advanced Data Assimilation and High-Resolution Ensemble and Deterministic Forecasts for Convective-scale Hazardous Weather: Towards the Goals of Weather Ready Nation," NOAA, Federal. \$375K, (July 1, 2013 - June 30, 2016).

Xue, M., (PI, 50% credit), Brewster, K. A., (Co-PI, 20% credit), Kong, F., (Co-PI, 30% credit), "Development of a Short-Range Realtime Analysis and Forecasting System based on the ARPS for Taiwan Region," NOAA, Federal. \$110,250. (March 1, 2012 - September 30, 2017).

Xue, M., (PI, 60% credit), Brewster, K. A., (Co-PI, 15% credit), Kong, F., (Co-PI, 25% credit), "Establishment of Precision Weather Analysis and Forecasting Systems (PWAFS) for the Jiangsu Province Meteorological Bureau (JSMB)," Nanjing NRIET Industrial Co., Ltd., Industry. \$505.4K (February 1, 2013 - January 31, 2016).

Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 15% credit), Brewster, K. A., (Co-PI, 15% credit), "Establishment of an Improved Numerical Weather Forecasting System for Chongqing Meteorological Service," Chongqing Inst of Green and Intelligent Tech, Chinese Academy of Sciences, Industry. \$838,900. (April 15, 2012 - April 30, 2017).

Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 30% credit), "Further Development of the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau," Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Industry. \$173,339. (April 1, 2014 - March 31, 2016).

PI Youngsun Jung, Ming Xue and Guifu Zhang "Development of a Polarimetric Radar Data Simulator for KLAPS".. IN-KMA. \$176,712 3/5/13 – 12/31/16 \$181,650 1/1/14 – 12/31/17 and \$187,926 3/5/2013 – 12/31/18.

Moore, B., (PI, 3.33% credit), Xue, M., (Co-PI, 90% credit), Mc Pherson, R. A., (Co-PI, 3.33% credit), Bamzai, A., (Co-PI, 3.34% credit), "Very High-Resolution Dynamic Downscaling of Regional Climate for Use in Long-term Hydrologic Planning along the

Red River Valley System," U.S. Department of the Interior, U.S. Geological Survey, Federal. \$62,698. (September 26, 2015 - September 25, 2017).

Neeman, H. J., (PI, 36% credit), ..., Xue, M., (Co-PI, 4% credit), ..., "Oklahoma Friction Free Network," NSF, Federal. (October 1, 2013 - September 30, 2017).

Neeman, H. J., (PI, 40% credit), ..., Xue, M., (Co-PI, 6% credit), ..., "CC*IIIE Engineer: A Model for Advanced Cyberinfrastructure Research and Education Facilitators," NSF, Federal. (September 15, 2014 - September 14, 2016).

Snook, N. A., (PI, 40% credit), Xue, M., (Co-PI, 20% credit), Jung, Y., (Co-PI, 20% credit), McGovern, A., (Co-PI, 20% credit), "Development and Implementation of Probabilistic Hail Forecast Products using Multi-moment Microphysics and Machine Learning Algorithms," NOAA, Federal, \$335,084. (October 1, 2016 - September 30, 2018).

Wang, X., (PI, 60% credit), Xue, M., (Co-PI, 20% credit), Kong, F., (Co-PI, 20% credit), "Optimal Design of Multi-scale Ensemble Systems for Convective-Scale Probabilistic Forecasting," NSF, Federal, \$395,769. (March 15, 2011 - February 28, 2017).

Active Grants in 2015

Xue, M., (PI, 45% credit), Jung, Y., (Co-PI, 15% credit), McGovern, A., (Co-PI, 15% credit), Snook, N., (Co-PI, 25% credit), "The Severe Hail Analysis, Representation, and Prediction (SHARP) Project," Sponsored by National Science Foundation, Federal, \$819K. (9/15/2013 – 8/31/2016).

Xue, M., (PI, 50% credit), Brewster, K., (Co-PI, 25% credit), Jung, Y., (Co-PI, 25% credit), "Advanced Data Assimilation and Prediction Research for Convective-Scale," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal, \$450,000. (8/2014-7/ 2016).

Xue, M., (PI, 35% credit), Brewster, K., (Co-PI, 20% credit), Jung, Y., (Co-PI, 20% credit), Kong, F., (Co-PI, 25% credit), "A Partnership to Develop, Conduct, and Evaluate Realtime Advanced Data Assimilation and High-Resolution Ensemble and Deterministic Forecasts for Convective-scale Hazardous Weather: Towards the Goals of Weather Ready Nation," Sponsored by U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Federal, \$375,000. (7/2013 – 6/2016).

Xue, M., (PI, 30% credit), Snook, N., (Co-PI, 10% credit), Jung, Y., (Co-PI, 30% credit), Kong, F., (Co-PI, 30% credit), "Improving Initial Conditions and their Perturbations through Ensemble-Based Data Assimilation for Optimized Storm-Scale Ensemble Prediction in Support of HWT Severe Weather Forecasting," NOAA, Federal, \$249,705. (9/2015 – 8/2017)

Xue, M., (PI, 40% credit), Brewster, K., (Co-PI, 30% credit), Kong, F., (Co-PI, 30% credit), "Storm-Scale Ensemble Prediction Optimized for Heavy Precipitation Forecasting in

- Support of the Hydrometeorology Testbed (HMT)," NOAA, Federal, \$239,700. (9/2015 – 8/2017).
- Xue, M., (PI, 100% credit), "Contribution to Model Development and Enhancement Research Team by the Center for Analysis and Prediction of Storms," NOAA, Federal, \$134,000. (12/2014 – 11/2015).
- Xue, M., (PI, 60% credit), Brewster, K., (Co-PI, 20% credit), Kong, F., (Co-PI, 20% credit), "Proxy Radiance Data Testbed: Ensemble Simulation of GOES-R Radiance from CONUS Storm-Scale Ensemble Forecasts, Product Demonstration and Assessment at the Hazardous Weather Testbed GOES-R Proving Ground," NOAA, Federal, \$29,195. (5/2014 – 4/2015).
- Xue, M. (PI, 60% credit), Brewster, K., (Co-PI, 20% credit), Kong, F., (Co-PI, 20% credit) "Establishment of Precision Weather Analysis and Forecasting Systems for the Jiangsu Province Meteorological Bureau (JSMB)" JSWB, China. \$505.4K (February 1, 2014 - January 31, 2015) NCE
- Xue, M., (PI, 50% credit), Brewster, K., (Co-PI, 20% credit), Kong, F., (Co-PI, 30% credit), "Development of a Short-Range Realtime Analysis and Forecasting System based on the ARPS for Taiwan Region," NOAA, Federal, \$110,250. (2/2014 – 1/2015). Under NCE
- Neeman, H., (PI, 40% credit), .., Xue, M., (Co-PI, 6% credit), others, "CC*IIIE Engineer: A Model for Advanced Cyberinfrastructure Research and Education Facilitators," NSF, \$400K (10/2014 – 9/2016).
- Moore, B., (PI, 3.33% credit), Xue, M., (Co-PI, 90% credit), McPherson, R. A., (Co-PI, 3.33% credit), Bamzai, A., (Co-PI, 3.34% credit), , "(Xue) Very High-Resolution Dynamic Downscaling of Regional Climate for Use in Long-term Hydrologic Planning along the Red River Valley System," Sponsored by U.S. Department of Interior, USGS, Federal, \$62,698. (9/2015 – 9/2016).
- Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 30% credit), "Technical Support to the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau," Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Industry, \$173,339. (7/2015 – 6/2016).
- Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 15% credit), Brewster, K., (Co-PI, 15% credit), "Establishment of an Improved Numerical Weather Forecasting System for Chongqing Meteorological Service," Sponsored by Chongqing Inst of Green and Intelligent Tech, Chinese Academy of Sciences, Industry, \$289,543. (9/2012 – 4/2016).
- Jung, Y., (PI, 60% credit), Xue, M., (Co-PI, 20% credit), Zhang, G., (Co-PI, 20% credit), "Development of a Polarimetric Radar Data Simulator for KLAPS," Sponsored by

Korean Meteorological Administration, Industry, \$187,944. (March 5, 2014 - December 31, 2015).

Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 15% credit), Brewster, K., (Co-PI, 15% credit), "Establishment of an Improved Numerical Weather Forecasting System for Chongqing Meteorological Service," Sponsored by Chongqing Inst of Green and Intelligent Tech, Chinese Academy of Sciences, Industry, \$296,682. (September 15, 2012 - September 30, 2015).

Kong, F., (PI, 70% credit), Xue, M., (Co-PI, 30% credit), "Further Development of the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau," Sponsored by Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Industry, \$193,038. (April 1, 2014 - March 31, 2015)

Active Grants in 2014

PI (with N. Snook, Y. Jung and Am McGovern as Co-PIs). "The Severe Hail Analysis, Representation, and Prediction (SHARP) Project". NSF, 9/2013 – 8/2016, \$299K+\$256.5K+\$263.6K. My credit for YR2 is \$120.5K.

PI (with Keith Brewster and Youngsun Jung as Co-PIs) "Advanced Data Assimilation and Prediction Research for Convective-Scale "Warn-on-Forecast". \$225K 8/2014 – 7/2015. My credit \$112.5K.

PI (with Keith Brewster and Fanyou Kong as Co-PIs) "Proxy radiance Data Testbed: Ensemble Simulation of Goes-R Radiance from CONUS Storm-Scale Ensemble Forecasts, Product Demonstration and Assessment at the Hazardous Weather Testbed GOES-R Proving Ground". \$29.2K 5/2014 – 4/2015. My credit is \$17.5K.

PI (with F. Kong, K. Brewster, and Y. Jung as co-PIs) "A Partnership to Develop, Conduct, and Evaluate Realtime Hi-Res Ensemble and Deterministic Forecasts for Convective-scale Hazardous Weather ". NOAA. 5/2013 – 4/2016. Y2 125K. My credit is \$43.75K.

PI (with Keith Brewster and Fanyou Kong as Co-PIs) "Development of a Short-Range Realtime Analysis and Forecasting System based on the ARPS for Taiwan Region" 2/2013 – 1/2016 DOC-NOA, 110.25K. Y2 My credit is \$55.1K.

PI "Contribution to Model Development and Enhancement Research Team by the Center for Analysis and Prediction of Storms". FAA \$110K for 12/2015 – 11/2015. My credit is \$110K

PI (with Keith Brewster and Fanyou Kong as Co-PIs) "Establishment of Precision Weather Analysis and Forecasting Systems for the Jiangsu Province Meteorological Bureau (JSMB)" \$505.4K for 2/2013-1/2015. JSWB, China. Y2 \$249.4K. My credit

is \$149.6K

- PI (with Keith Brewster and Fanyou Kong as Co-PIs) “Establishment of an Urban-Scale Weather Forecasting Systems for the Su Zhou Meteorological Bureau (SZMB)” 2/2013-1/2014. SZWB, China. \$126K. No cost extension. Not counted.
- Co-PI (with Fanyou Kong as PI and Keith Brewster as Co-PI) “Establishment of an Improved Numerical Weather Forecasting for Chongqing Meteorological Service” Chongqing, China, 9/2012 – 9/2015 \$852K. \$289.5K for Y3. My credit for YR3 is \$43.4K.
- Co-PI (with Fanyou Kong as PI). “Further Development of the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau”. Shenzhen Meteorological Bureau, China, 4/2014 – 3/2015 \$193K. My credit is \$57.9K.
- Co-PI (with Y. Jung as PI and G. Zhang as Co-PI)” Development of a Polarimetric Radar Data Simulator for KLAPS”. Korea Meteorological Administration, \$181.65K, 1/2014 – 12/31/14. My credit is \$36.3K.

Active Grants in 2014

- PI (with K. Brewster and Y. Jung as co-PIs). “Advanced Data Assimilation and Prediction Research for Convective-Scale Warn-on Forecast” NOAA \$230K , 7/2013 – 6/2014. My credit is \$115K.
- PI (with F. Kong, Y. Jung as co-PIs). “Ensemble Simulation of GOES-R Proxy Radiance Data from CONUS Storm-Scale Ensemble Forecasts, Product Demonstration and Assessment at the Hazardous Weather Testbed GOES-R Proving Ground”. NOAA. \$119K. (7/2013 – 5/2014). My credit is \$71.4K..
- PI (with F. Kong, K. Brewster, and Y. Jung as co-PI) “A Partnership to Develop, Conduct, and Evaluate Realtime High-Resolution Ensemble and Deterministic Forecasts for Convective-scale Hazardous Weather: Towards the Goals of a Weather Ready Nation". NOAA CSTAR Program. \$375K for 3 years (5/2013 – 4/2016). Year 1 budget is 125K. My credit is \$62.5K.
- PI (with Keith Brewster and Fanyou Kong as Co-PIs) “Development of a Short-Range Realtime Analysis and Forecasting System based on the ARPS for Taiwan Region” 6/2013 – 12/2014 DOC-NOA, \$105K. My credit is \$63K.
- PI (with J. Brotzge and other Co-PIs) "Engineering Research Centers: Center for Collaborative Adaptive Sensing of the Atmosphere (CASA)", NSF, OU budget was \$324K for 10/2012-12/2013. My credit is \$145K
- PI "Contribution to Model Development and Enhancement Research Team by the Center for Analysis and Prediction of Storms". FAA \$40K for 5/2013 – 9/2014. My

credit is \$40K

- PI (with Keith Brewster and Fanyou Kong as Co-PIs) “Establishment of an Urban-Scale Weather Forecasting Systems for the Su Zhou Meteorological Bureau (SZMB)” 2/2013-1/2014. SZWB, China. \$126K. My credit is 75.6K.
- PI (with Keith Brewster and Fanyou Kong as Co-PIs) “Establishment of Precision Weather Analysis and Forecasting Systems for the Jiangsu Province Meteorological Bureau (JSMB)” 2/2013-1/2014. JSWB, China. \$256K. My credit is 153.6K.
- PI. (with J. Brotzge, R. McPherson and B. Moore as co-PIs) “Very High-Resolution Dynamic Downscaling of Regional Climate and Hydrology” USGS 8/2013-7/2014, 24K, my credit is 6K.
- Co-PI (with J. Brotzge as PI, and N. Snook, Y. Jung and Am McGovern as Co-PIs). “The Severe Hail Analysis, Representation, and Prediction (SHARP) Project”. NSF, 9/2013 – 8/2016, \$299K+\$256.5K+\$263.6K. My credit for YR1 is \$45K.
- Co-PI (with G. Zhang as PI and two other co-PIs) "Advanced Study of Precipitation Microphysics with Multi-Frequency Polarimetric Radar Observations and Data Assimilation" NSF, 6/1/2011-5/30/2014, Year 3 budget is 202K of 3 year total of \$638K. My credit for year 1 is \$81K.
- Co-PI (with X. Wang as PI and Fanyou Kong as Co-PI) “Optimal Design of Multi-scale Ensemble Systems for Convective- Scale Probabilistic Forecasting” NSF, 3/11 – 3/2015. \$395.7K. Year 3 funding is \$136.4K. My credit for year 3 is \$27k.
- Co-PI (with X. Wang as PI) “Improving High-Resolution Tropical Cyclone Prediction Using a Unified GSI-based Hybrid Ensemble-Variational Data Assimilation System for HWRD”. NOAA 8/2011 – 12/2014. 25K Year 2. My credit is \$5k.
- Co-PI (with Fanyou Kong as PI). “Further Development of the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau”. Shenzhen Meteorological Bureau, China, 10/2012 – 9/30/2014, \$251K. My credit is \$75.3K
- Co-PI (with Fanyou Kong as PI and Keith Brewster as Co-PI) “Establishment of an Improved Numerical Weather Forecasting for Chongqing Meteorological Service” Chongqing, China, 9/2012 – 9/2015 \$852K. 283 K for year 2. My credit for YR2 is \$42K.
- Co-PI (with Y. Jung as PI and G. Zhang as Co-PI)” Development of a Polarimetric Radar Data Simulator for KLAPS”. Korea Meteorological Administration, \$177K, 3/2013 – 12/2013. My credit is \$35.4K.

Grants in 2013 and Prior Years

- PI “A Partnership to Develop, Conduct, and Evaluate Realtime Advanced Data Assimilation and High-Resolution Ensemble and Deterministic Forecasts for Convective-scale Hazardous Weather: Toward the Goals of a Weather-Ready Nation” (with Keith Brewster, Fanyou Kong and Youngsun Jung as co-PI). 5/1/2013 – 4/30/2016, NOAA CSTAR Program, \$375K, 35% credit.
- PI “Establishment of Precision Weather Analysis and Forecasting Systems (PWAFS) for the Jiangsu Province Meteorological Bureau (JSMB)”. (with Keith Brewster and Fanyou Kong as co-PI). IN-NRIET. \$505K. 2/1/2013 – 1/31/2015. 60% credit.
- PI “Establishment of an Urban-Scale Weather Forecasting System (USWFS) for the Su Zhou Meteorological Bureau (SZMB)”. (with Keith Brewster and Fanyou Kong as co-PI). \$127K. 2/1/2013 – 1/31/2014. 60% credit.
- PI "Advanced Data Assimilation and Prediction Research for Convective-Scale Warn-on-Forecast" DOC-NOAA. DOC-NOAA NA08OAR4320904. \$750K, 7/1/2011 - 6/30/2014. (with Keith Brewster, Youngsun Jung and Xuguang Wang as co-PI). 40% credit.
- PI "Contribution to Model Development and Enhancement Research Team by CAPS" FAA Aviation Weather Research Program. Sole PI. DOT-FAA NA08OAR4320904. \$160K, 1/2011 - 12/2011. 100% credit.
- PI “A Partnership to Develop, Conduct, and Evaluate Realtime High-Resolution Ensemble and Deterministic Forecasts for Convective-scale Hazardous Weather: Moving to the Next Level". NOAA CSTAR Program. \$375K (with F. Kong, K. Brewster, and X. Wang as co-PI), 5/2010 – 4/2013. 50% credit.
- PI. “Evaluating High-Resolution Ensemble Forecasting for Wind Energy” Zeus grant. \$120K (with F. Kong and K. Brewster as co-PI), 2010. 40% credit.
- PI “Refinement and Adaptation of Radar Data Assimilation Software” (with K. Brewster as co-PI), WSI-EEC Corporation, \$60K 2/2010-1/2011. 50% credit.
- PI “Ensemble Simulation of GOES-R Proxy Radiance Data from CONUS Storm-Scale Ensemble Forecasts, Product Demonstration and Assessment at the Hazardous Weather Testbed GOES-R Proving Ground” NOAA, 5/2011-4/2013. \$389K (with Keith Brewster and Fanyou Kong as co-PI). My credit is 70%.
- PI “Short-Term Data Assimilation and Forecast System for Taiwan Central Weather Bureau” Taiwan CWB via NOAA-CWB Agreement. \$200K. 1/2011 – 12/2011. (with Fanyou Kong and Keith Brewster as co-PI). 60% credit.
- PI “Probabilistic Forecasting for Aviation Decision Air Applications”. IMPACT Technology LLC (Subcontract for Amy SBIR). \$20K. 12/15/2010-4/20/2011 (With F. Kong as co-PI). 50% credit.

- PI "Contribution to Model Development and Enhancement Research Team by CAPS" FAA Aviation Weather Research Program. Ming Xue PI. DOT-FAA NA08OAR4320904. \$260K, 1/2010 - 12/2010. 100% credit.
- PI "Advanced Data Assimilation and Prediction Research for Convective-Scale Warn-on-Forecast" DOC-NOAA. Ming Xue PI with Keith Brewster, Jidong Gao and Xuguang Wang as co-PI. \$375K, 4/2010 - 9/2011. 40% credit.
- PI "Development of a Short-Range Realtime Analysis and Forecasting System based on the ARPS for Taiwan Region" American Institute in Taiwan via NOAA. Ming Xue PI, with Fanyou Kong and Keith Brewster as co-PI. \$710K, 5/2010-4/2014. 60% credit.
- PI "Advanced Multi-Moment Microphysics for Precipitation and Tropical Cyclone Forecast Improvement within COAMPS". Office of Naval Research. Ming Xue PI with Fanyou Kong as co-PI. \$592K. 5/2010 - 4/2013. 70% credit.
- PI "Collaborative Research: Enabling Petascale Ensemble-based Data Assimilation for the Numerical Analysis and Prediction of High-Impact Weather". PI (with Xuguang Wang, Ronald Barnes, and Henry Neeman as co-PI). National Science Foundation. \$902K (with X. Wang, H. Neeman and R. Barnes as co-PI), 10/2009 – 9/2013. 55% credit.
- PI "Collaborative Research: CDI-Type II: Integrated Weather and Wildfire Simulation and Optimization for Wildfire Management". National Science Foundation. \$483,634 (with Y. Hong as co-PI). 11/2009 – 10/2013. 55% credit.
- PI "Prediction and Predictability of Tropical Cyclones over Oceanic and Coastal Regions and Advanced Assimilation of Radar and Satellite Data for the Navy Coupled Ocean-Atmosphere Mesoscale Prediction System". Office of Naval Research, Defense EPSCOR Program. \$454K from ONR and \$100K from OKSRHE, (with G. Zhang, K. Brewster and F. Kong as co-PIs). 2009-2012. 60% credit.
- PI "Assimilation of NEXRAD radial winds in a regional mesoscale model" Department of Homeland Security, subcontract to Mississippi State University, \$79,340. 2009-2010. 100% credit.
- PI "A Study of Tornado and Tornadic Thunderstorm Dynamics through High-Resolution Simulation, Advanced Data Assimilation and Prediction". National Science Foundation, \$780K (with Keith Brewster and Jidong Gao as co-PI), 12/2008 – 12/2011). 60% credit.
- PI "Advancing Warn on Forecast - Storm-scale Analysis of VORTEX2 Thunderstorms." National Severe Storms Lab, NOAA, \$70K (with J. Gao as co-PI), 4/2009 – 3/2010, 60% credit.

- PI “Integration and testing of advanced radar QC algorithms for HWT spring forecast experiments” National Severe Storms Lab, NOAA, \$35K (with K. Brewster as co-PI), 4/2009 – 3/2010, 60% credit.
- PI “Ensemble-based Data Assimilation for Tropical Storms, and Realtime 3DVAR Analysis for Initial Proof of Warn-on-Forecast Concept: Collaborative Research between CAPS and NSSL” National Severe Storms Lab, NOAA, \$100K, (with K. Brewster and J. Gao as co-PI). 7/15/2009 – 7/14/2010. 50% credit.
- PI "Contribution to WRF Model Development – FY12-13". Federal Aviation Administration, \$52K, 10/1/2011-9/30/2013. 100% credit.
- PI "Contribution to WRF Model Development – FY09". Federal Aviation Administration, \$180K, 10/1/2009-9/30/2010. 100% credit.
- PI "Contribution to WRF Model Development – FY08". Federal Aviation Administration, \$180K, 5/2009-6/2010. 100% credit.
- PI "NSF Engineering Center for Collaborative Adaptive Sensing of the Atmosphere (CASA)" National Science Foundation. OU subcontract amount: \$1.5 million, 9/2009 – 8/2013, 40% credit.
- PI "NSF Engineering Center for Collaborative Adaptive Sensing of the Atmosphere (CASA)" National Science Foundation. OU subcontract amount: \$2.4 million, 9/2006 – 8/2009, 40% credit.
- PI “Technical Support for the WRF Ensemble Reforecast System”. ATSC, LLC. \$86.1K (with K. Droegemeier and F. Kong as co-PI), 11/15/2007-10/14/2009, 34% credit.
- PI “Refinement and Adaptation of Radar Data Assimilation Software” WSI-EEC Corporation, \$60K (with K. Brewster as co-PI), 6/2008-9/2009. 60% credit.
- PI “Ensemble-based Data Assimilation for Convective Storms and Hurricanes: Collaborative Research between CAPS and NSSL” National Severe Storms Lab/NOAA, \$100K (with K. Brewster as co-PI), 7/2008 – 10/2009. 80% credit.
- PI “Storm-Scale Quantitative Precipitation Forecasting Using Advanced Data Assimilation Techniques: Methods, Impacts and Sensitivities” National Science Foundation. \$835K (with K. Brewster, J. Gao, and A. Shapiro as Co-PIs), 12/2005-12/2009. 75% credit.
- PI. “Theory and Methods for Assimilating Doppler Radar Data for Severe Weather based-on Ensemble Kalman Filter” Major Overseas Collaboration Research. Natural Science Foundation of China, No. 40620120437. ~\$120K to be used inside China. 1/2007 – 12/2009. 50% credit.

- PI "Optimal Utilization and Impact of Water Vapor and Other High Resolution Observations in Storm-Scale QPF". National Science Foundation, \$830K (with F. Carr, K. Brewster, J. Gao, and A. Shaprio as Co-PIs), 1/2002-12/2005. 40% credit.
- PI "An Investigation on the Importance of Environmental Variability to Storm-scale Radar Data Assimilation". National Severe Storms Lab/NOAA. \$72.5K (with J. Gao as co-PI), 2/2008-1/2009, 70% credit.
- PI "CAPS-NSSL Collaboration for Spring 2007 Realtime Storm-scale Ensemble Prediction", NSSL, Xue PI. \$30,186. 1/2007 – 6/2007. 100% credit.
- PI "Overseas Collaborative Research Grant. Chinese Academy of Sciences". ~\$50K to be used inside China. 1/2005 – 12/2007. 100% credit.
- PI "CAPS Support for GOES-R Program", Atmospheric Environmental Research, \$37K (with K. Brewster and F. Kong as Co-PI), 2/2006 – 8/2006, 40% credit.
- PI. "Observing System Simulation Experiments for Airborne Weather Sensors", The Boeing Company, \$90K, (with F. Kong as Co-PI), 5/2006 – 12/2006, 60% credit.
- PI "A New Joint Weather Research and Prediction (WRF) Model". National Science Foundation. \$431K (with Fred. Carr), 1/15/2000-12/31/2003. 70% credit.
- PI "Contribution to WRF Model Development - Year 7". Federal Aviation Administration, \$115.7K, 6/2006-5/2007. 100% credit.
- PI "Contribution to WRF Model Development - Year 6". Federal Aviation Administration, \$160K, 6/2005-8/2006. 100% credit.
- PI "Contribution to WRF Model Development - Year 5". Federal Aviation Administration, \$150K, 6/2004-8/2005. 100% credit.
- PI "Contribution to WRF Model Development - Year 4". Federal Aviation Administration, \$126K, 6/2003-8/2004. 100% credit.
- PI "Contribution to WRF Model Development – Year 3". Federal Aviation Administration. \$100K, 6/2002-8/2003. 100% credit.
- PI "Contribution to WRF Model Development – Year 2". Federal Aviation Administration. \$100K, 4/2001-8/2002. 100% credit.
- PI "Contribution to WRF Model Development – Year 1". Federal Aviation Administration. \$25K, 7/1/2000-6/30/2001, 100% credit.

- PI "The Sensitivity of Numerically-Simulated Deep Convective Storms to Imposed Large-Amplitude Perturbations". Air Force, Department of Defense, \$25K (with K. Droegemeier), 9/2002-9/2003. 70% credit.
- PI "Outstanding Overseas Yang Scientists Collaborative Research Award", Chinese Natural Science Foundation, \$50K, 1/1/2001 – 12/31/2003. 100% credit.
- Co-PI "Development of a Polarimetric Radar Data Simulator for KLAPS". PI Youngsun Jung as PI and Guifu Zhang as co-PI. IN-Korean Meteorological Administration. \$176,712. 3/1/2013 – 2/28/2014, 20% credit.
- Co-PI "Establishment of an Improved Numerical Weather Forecasting for Chongqing Meteorological Service" (with Fanyou Kong as PI and Keith Brewster as Co-PI), Chongqing, Meteorological Bureau, 9/2012 – 9/2015 \$852K. 15% credit.
- Co-PI "Further Development of the Storm-Scale Numerical Weather Prediction Capability for Shenzhen Meteorological Bureau". (with Fanyou Kong as PI). Shenzhen Meteorological Bureau, \$479K, 10/2012 – 9/30/2014, 35% credit.
- Co-PI "High Resolution Data Assimilation for Trajectory Improvement". DOD-Air Force. \$80K, 7/2012 – 7/2013. (with K. Brewster as PI), 20% credit.
- Co-PI "Improving High-Resolution Tropical Cyclone Prediction Using a Unified GSI-based Hybrid Ensemble-Variational Data Assimilation System for HWRD". NOAA \$150K, 8/2011 – 7/2013, 20% credit.
- Co-PI "Optimal Design of Multi-scale Ensemble Systems for Convective-Scale Probabilistic Forecasting" NSF AGS-1046081. \$395,976. Xuguang Wang (PI), Ming Xue and Fanyou Kong (co-PI). 3/15/2011-3/14/2013. 20% credit.
- Co-PI "Further Enhancement of the Hourly Assimilation and Prediction System (HAPS) for Shenzhen Meteorological Bureau" Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, \$228K. 3/2011-2/2012, (with Fanyou Kong as PI). 30% credit.
- Co-PI "High-Resolution Numerical Weather Prediction to Support Wind Power Production" AWSTruePower – DOE. \$211,478. 2010-2012, (With Keith Brewster as PI and Fanyou Kong as other co-PI). 30% credit.
- Co-PI "Advanced Study of Precipitation Microphysics with Multi-Frequency Polarimetric Radar Observations and Data Assimilation". NSF, \$638K 5/2011-4/2014. (with G. Zhang as PI and B. Cheong, and T. Schurr as other co-PIs). 40% credit.
- Co-PI "Acquisition of Extensive Petascale Storage for Data Intensive Research". NSF MRI Program. 2010 – 2012. Total funding is ~\$800K. (with Henry Neeman as PI and others as co-PI). 6% credit.

- Co-PI “Oklahoma Optical Initiative”. NSF MRI Program. 08/2010 – 7/2012. Total funding is \$1,176K. (with Henry Neeman as PI and others as co-PI) 10% credit.
- Co-PI “Establishment of an Experimental Real-Time Short-Term Storm Prediction System for Shenzhen Meteorological Bureau” Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, \$58K. 2010, (with Fanyou Kong as PI), 30% credit.
- Co-PI “Techniques for Assimilating Geostationary Lightning Mapper Data and Assessment of the Resulting Impact on Ensemble Forecasts” NOAA JCSDA/NESDIS, \$407.4K. 2010-2013. (with Don MacGorman as PI, with other co-PIs), 10% credit.
- Co-PI "Improving NOAA operational global numerical weather prediction using a hybrid variational-ensemble Kalman filter data assimilation and ensemble forecast system" NOAA THORPEX program. Xuguang Wang PI with Ming Xue as co-PI. \$312K, 7/2010- 6/2013. 10% credit.
- Co-PI “Improving Microphysics Parameterizations and Quantitative Precipitation Forecast through Optimal Use of Video Disdrometer, Profiler and Polarimetric Radar Observations”, National Science Foundation, \$464,614 (with G. Zhang as PI and two other co-PIs). 9/1/2006-8/31/2008. 30% credit.
- Co-PI “Meteorological Studies with the Phased Array Weather Radar and Data Assimilation using the Ensemble Kalman Filter”. Office of Naval Research Defense EPSCOR Program and Oklahoma State Regents. \$560,767 (with Tianyu Yu as PI and M. Xue and others as Co-PI). 7/2006 – 6/2009, under NCE. 12% credit.
- Co-PI “A Partnership to Develop, Conduct, and Evaluate Realtime High-Resolution Ensemble and Deterministic Forecasts for Convective-scale Hazardous Weather”. NOAA CSTAR Program. K. K. Droegemeier as PI with Xue and two other co-PIs. Funded for 5/2007 – 4/2010. \$375K. 30% credit.
- Co-PI “MRI: Development of a Multi-Channel Receiver for the Realization of of Multi-Mission Capabilities at the National Weather Radar Testbed”. National Science Foundation. Mark Yeary PI with Xue and 6 others as co-PI. \$699.4K. 9/2007- 8/2009, under NCE. 10% credit.
- Co-PI "Collaborative Research: ITR Linked Environments for Atmospheric Discovery (LEAD)", National Science Foundation, (with K.K. Droegemeier as PI and other Co-PIs), \$2,713K, 10/2003-9/2009, 5% credit.
- Co-PI "Engineering Research Centers: Center for Collaborative Adaptive Sensing of the Atmosphere (CASA)", National Science Foundation. (with K.K. Droegemeier as PI and other Co-PIs), \$5,478K, 10/2003-9/2008 (Re-competed in 2006 for 9/2006 – 8/2011). 10% credit.

- Co-PI "On the Optimal Use of WSR-88D Doppler Radar Data for Variational Storm-scale Data Assimilation", National Science Foundation, (with J.D. Gao as PI and others as Co-PIs), \$600K, 11/2003-11/2007. 10% credit.
- Co-PI "Observing System Simulation Experiments for Airborne Weather Sensors". HRL Laboratories, LLC (with Kelvin Droegemeier as PI). 2005-2006, \$33K. 15% credit.
- Co-PI "Assimilation of Doppler radar, surface mesonet and satellite data", Office of Naval Research, (PI Alan Shapiro), \$12K, 2003. 50% credit.
- Co-PI "Advanced Weather Analysis and Prediction for Energy". Williams Companies. (with PI K.K. Droegemeier and other Co-PIs). \$8 million for 5 years. Year 1 (2001) amount \$2,871K. 10% credit. Funding terminated in 2nd year due to financial hardship of the company.
- Co-PI "Assimilation of Doppler radar, surface mesonet and satellite data" Office of Naval Research, \$583K (with Alan Shapiro as PI and Wei Gu), 3/1/1998-2/28/2003. 30% credit.
- Co-PI "Center for Analysis and Prediction of Storms" National Science Foundation Science and Technology Center Program, \$4.8 million from 2/1/1997 to 1/31/2000 (with K. Droegemeier as PI and other Co-PIs). 10% credit.
- Co-PI "Project Hub-CAPS: A Prototype Storm-scale NWP System for Commercial Aviation". American Airlines, \$1 million, 7/2/1997- 6/30/1999 (with K. Droegemeier as PI and other Co-PIs). 10% credit.
- Co-PI "Doppler Radar Analysis for Climate Model Verification and Numeric Weather Prediction" Air Force Office for Scientific Research, \$100K (with Q. Xu and R. Doviak). 1995-1998, 30% credit.

INTERNALLY SPONSORED RESEARCH GRANTS

- PI "OU Office of Vice President for Research Match for CASA". OU VPR Office, \$1,138K, 9/2006 – 8/2009, 100% credit.
- PI "OU Office of Vice President for Research Match for CASA and CAPS". OU VPR Office, \$1,729K, 9/2009 – 8/2013, 100% credit.
- PI "Positioning the Center for Analysis and Prediction of Storms for a Science and Technology Center Proposal on Hurricane Prediction", Office of Vice President for Research, \$45K, 2008-2009, 100% credit.
- PI "Predictability of Storm-scale Weather and Scale Interaction", Junior Faculty Research Program, University of Oklahoma, \$6000, 2000. 100% Credit.

PI “ARPS Model Development”, Center for Analysis and Prediction of Storms, 1993 - 1999. \$3.2 million over 7 years. 100% credit.

TEACHING (Updated until 2012)

COURSES TAUGHT (AND ENROLLMENT)

Fall 1997	METR 5344	Computational Fluid Dynamics	13
Spring 2000	METR 5344	Computational Fluid Dynamics	7
	METR 6980	Ph.D. Research	1
Summer 2000	METR 6980	Ph.D. Research	1
Fall 2000	METR 2103	Physical Mechanics	43
	METR 6980	Ph.D. Research	1
Year 2000	Undergraduate Advisees		27
Spring 2001	METR 4433	Mesoscale Meteorology	31
	METR 6980	Ph.D. Research	1
Summer 2001	METR 5980	Master Research	1
	METR 6980	Ph.D. Research	1
Fall 2001	METR 5344	Computational Fluid Dynamics	6
	METR 4433	Mesoscale Meteorology	1
	METR 6980	Ph.D. Research	1
	METR 6990	Independent Study	1
Year 2001	Undergraduate Advisees		20
Spring 2002	METR 4433	Mesoscale Meteorology	32
	METR 6980	Ph.D. Research	3
Summer 2002	METR 6990	Special Problems	2
	METR 6980	Ph.D. Research	4
Fall 2002	METR 5303	Objective Analysis and Data Assimilation	21
	METR 6980	Ph.D. Research	5
Year 2002	Undergraduate Advisees		32
Spring 2003	METR 4433	Mesoscale Meteorology	34
	METR 6980	Ph.D. Research	4
	METR 5980	M.S. Research	1
Summer 2003	METR 5990	Independent Study	1

	METR 6980	Ph.D. Research	3
Fall 2003	METR 5344	Computational Fluid Dynamics	9
	METR 6990	Special Problems	1
	METR 5990	Independent Study	1
	METR 6980	Ph.D. Research	3
Year 2003	Undergraduate Advisees		35
Spring 2004	METR 4433	Mesoscale Meteorology	41
	METR 6980	Ph.D. Research	4
	METR 6990	Special Problems	1
	METR 5990	Independent Study	2
Summer 2004	METR 6980	Ph.D. Research	4
Fall 2004	METR 5303	Objective Analysis and Data Assimilation	13
	METR 6990	Special Problems	1
	METR 6980	Ph.D. Research	4
Year 2004	Undergraduate Advisees		35
Spring 2005	METR 4433	Mesoscale Meteorology	53
	METR 6980	Ph.D. Research	3
	METR 6990	Special Problems	1
	METR 5990	Independent Study	1
Summer 2005	METR 6980	Ph.D. Research	3
	METR 5990	Independent Study	3
Fall 2005	METR 5344	Computational Fluid Dynamics I	13
	METR 6980	Ph.D. Research	4
Year 2005	Undergraduate Advisees:		22
Spring 2006	METR 6980	Ph.D. Research	3
Summer 2006	METR 6980	Ph.D. Research	3
	METR 5990	Independent Study	3
Fall 2006	METR 5303	Objective Analysis and Data Assimilation	14
	METR 5990	Independent Study	3
	METR 5990	Special Independent Study for CFD	1
	METR 6980	Ph.D. Research	3
Year 2006	Undergraduate Advisees:		20
Spring 2007	METR 4433	Mesoscale Meteorology	43
	METR 6980	Ph.D. Research	3

Summer 2007	METR 5990	Independent Study	3
	METR 6980	Ph.D. Research	3
Fall 2007	METR 5990	Independent Study	x
	METR 6980	Ph.D. Research	5
	METR 5344	Computational Fluid Dynamics I	19
Year 2007	Undergraduate Advisees:		15
Spring 2008	METR 6980	Ph.D. Research	5
	METR 6990	Special Problem	1
Summer 2008	METR 6980	Ph.D. Research	2
	METR 5980	M.S. Research	1
	METR 5990	Independent Study	7
Fall 2008	METR 5303	Objective Analysis and Data Assimilation	7
	METR 6980	Ph.D. Research	5
	METR 5990	Independent Study	1
	METR 5980	M.S. Research	2
Year 2008	Undergraduate Advisees:		15-20
Spring 2009	METR 6980	Ph.D. Research	4
	METR 5990	Independent Study	4
	METR 5980	M.S. Research	3
Summer 2009	METR 6980	Ph.D. Research	4
	METR 5980	M.S. Research	1
	METR 5990	Independent Study	3
Fall 2009	METR 5303	Computational Fluid Dynamics	5
	METR 6980	Ph.D. Research	5
	METR 5990	Independent Study	1
	METR 5980	M.S. Research	1
Year 2009	Undergraduate Advisees:		~15
Spring 2010	METR 6980	Ph.D. Research	5
	METR 5990	Independent Study	1
	METR 5980	M.S. Research	2
Summer 2010	METR 6980	Ph.D. Research	4
	METR 5980	M.S. Research	1
	METR 5990	Independent Study	4
	METR 6990	Special Problem	1
Fall 2010	METR 5303	Objective Analysis/Data Assimilation	10
	METR 6980	Ph.D. Research	5
	METR 5990	Independent Study	1
Year 2010	METR 5980	M.S. Research	1
	Undergraduate Advisees:		10

Spring 2011	METR 6980	Ph.D. Research	4
	METR 5990	Independent Study	2
	METR 5980	M.S. Research	4
Summer 2011	METR 6980	Ph.D. Research	2
	METR 5980	M.S. Research	3
	METR 5990	Independent Study	2
	METR 6990	Special Problem	2
	METR 6980	Ph.D. Research	4
Fall 2011	METR 5990	Independent Study	3
	METR 5980	M.S. Research	3
	Year 2011 Undergraduate Advisees:		10
Spring 2012 (on sabbatical)	METR 6980	Ph.D. Research	3
	METR 5990	Independent Study	1
	METR 5980	M.S. Research	3
	METR 5950	Pre-General Research	1
	METR 6980	Ph.D. Research	1
Summer 2012	METR 5980	M.S. Research	3
	METR 5990	Independent Study	1
	METR 5950	Pre-General Research	1
	METR 6980	Ph.D. Research	3
Fall 2012	METR 5990	Independent Study	2
	METR 5980	M.S. Research	2
	METR 5950	Pre-General Research	4
	METR 5303	Objective Analysis and Data Assimilation	11
	Year 2012 Undergraduate Advisees:		5-10

Graduate Student Advising

Ph.D. Degrees Completed (20): Paul Nutter, Diandong Ren, Ming Hu, Mingjing Tong, Haixia Liu, Youngsun Jung, Daniel Dawson, Jili Dong, Chunyan Sheng, Kefeng Zhu, Nathan Snook, Alex Schenkman, Jing Cheng, Gang Zhao, Yongzuo Li (co-advising), Chong-Chi Tong, Nathan Dahl, Derek Stratman, Bryan Putnam, Brett Roberts

M.S. Degree Completed as Major Advisor (14): Hao Jin, Leilei Wang, Geoffery Stano, Dan Dawson, Nathan Snook, Bryan Putnam, Nicholas Gasperoni, Byan Putnam, Charlotte Wainwright, Jonty Hall, Tim Supinie, Jordan Schleif, David Gagne, Brett Roberts.

M.S. Degree Completed as Co-Advisor (5): Amy Harless, Graig Schwartz, Ryan Sobash, Sean Luchs, Derek Stratman.

Post-doctoral Scientists Supervised/Supervising (29): Donghai Wang, Dinghcn Hou, Jinzhong Min, Zhuwen Hu, S. R. H. Rizvi, William Martin, Mingjing Tong, Ming Hu, Ting Lei, Shun Liu, Aimei Shao, Yi Yang, Qiwei Wang, Kun Zhao, Dan Dawson, Robin Tanamachi, Youngsun Jung,

Xiaoming Hu, Yujie Pan, Kefeng Zhu, Lingkun Ran, Yu Zhao, Jili Dong, Nathan Snook, Guoqing Ge, R. Tanamachi, Alex Schenkman, Chengshi Liu, Bryan Putnam

PROFESSIONAL SERVICE

Service on External Committees

Member, International Affairs Committee, American Meteorological Society, 2016 –

Co-Editor-in-Chief, *Advances in Atmospheric Sciences*, 2012 -

Principal Investigator of a 5-Year National Fundamental Research Project for Severe Weather Research in China, 2013-

Member, Scientific Advisory Committee, Laboratory for Regional Numerical Weather Prediction, Chinese Meteorological Administration, China, 2012-

WMO World Weather Research Program TIGGE-LAM North American Working Group. 9/2010-

Member, WMO World Weather Research Program TIGGE-LAM North American Working Group. 9/2010-

Member, Editorial Board, *Acta Meteorologica Sinica*. 2011-

Scientific Fellow, National Severe Storms Laboratory, NOAA, 2010-

Member, Science Advisory Board of National Warn-on-Forecast Project. 2010-

Member, Advisory Committee, National Ensemble Testbed/Developmental Testbed (DTC). 2010-

Member, Advisory Committee of the National eXtreme Science and Engineering Discovery Environment Project. 2010 -2011.

Member, National WRF Model Research Application Board, 2006 -

Member, Advisory Board of the National WRF Developmental Testbed Center (DTC). 2006-2009.

Member, five working groups (model dynamics, physics, architecture, 4DVAR, ensemble forecasting) of the WRF model development. 2000-now

Member, External Review Panel, NCAR Data Assimilation Strategic Initiative, 2004.

Member, Weather Research and Forecast (WRF) Model Science Board, 2002-2011.

Elected member, World Meteorological Organization (WMO)/WGNE COMPARE (International Comparison of Mesoscale Prediction and Research Experiment) Scientific Steering Committee. 1997 - 1999.

Invited and keynote speaker activities

Invited Speaker: Second Symposium on Multi-scale Atmospheric Predictability, American Meteorological Society, January 2017.

Invited presentation: Geophysical Fluid Dynamics Laboratory Colloquium Series, NOAA, September 2016.

Invited Speaker, “International Workshop on Severe and Convective Weather” Beijing, China. 2011.

Invited Keynote Speaker, 19th American Meteorological Society “Conference on Numerical Weather Prediction”, 2009.

Invited Keynote Speaker, “European Mesoscale Ensemble Workshop”, 2009.

Invited Seminar Speaker, GFDL, 2010.

Invited participant, National Academy of Sciences Summer Workshop on Progress and Priorities of US Weather Research and Research-to-Operations Activities, 2009.

Invited Speaker at “Symposium on Mesoscale Numerical Weather Prediction and its Applications”. Japan Meteorological Agency, Nov. 1999, on “Storm-Scale NWP: Challenges and Opportunities for the Next Decade”.

Invited speaker at 14th NWP Conference on the Future of Mesoscale Observation and Data Assimilation (with contributions from Fred Carr), 2001.

Invited sole lecturer for “A Short Course on Nonhydrostatic Modelling” at Hong Kong Observatory, 2002.

Invited speaker, International Conference on High-impact Weather and Climate, The 40th Anniversary of the Korean Meteorological Society, Seoul, Korea, Korea Meteor. Soc., 2004.

Invited speaker, 3rd International Ocean-Atmosphere Conf., Beijing, China, Chinese-American Oceanic Atmospheric Association, 2004.

Invited speaker, International Conference on Mesoscale Convective Systems and Heavy Rainfall in East Asia, Beijing, China, 2004.

Invited speaker and session chair of the 2nd Annual Meeting of Asia Oceania Geosciences Society, Singapore, July 2005.

Invited speaker, 1st International Weathernews Inc. Symposium, Norman, OK. 2005.

Invited speaker, 4th US-Korea Workshop on Mesoscale Observation, Data Assimilation and Modeling for Severe Weather, Seoul, Korea, February, 13-17, 2006.

Special Speaker, American Association for Advancement of Science Annual Assembly, St. Louis, February 2006.

Keynote Speaker, 2nd Ensemble Data Assimilation Workshop, April 12, 2006.

Meeting/Conference Organizations

Member, International Scientific Organizing Committee, 3rd WMO/WWRP International Symposium on Nowcasting and Very Short Range Forecasting, Brazil, 2012.

Co-organizer, 4th International EnKF Workshop, 2012.

Co-organizer, First Storm-Scale Radar Data Assimilation Workshop, October 2011.

Session Chair, 22nd Conf. Wea. Anal. Forecasting/18th Conf. Num. Wea. Pred., Salt Lake City, Utah, 2007

Session Chair, 22nd Conf. Wea. Anal. Forecasting/18th Conf. Num. Wea. Pred., Salt Lake City, Utah, 2007

Panel Discussion Chair, Workshop on NEXRAD in Space, 2007.

Session Chair, 7th WRF User's Workshop, 19-22 June, 2006, Boulder, CO.

Session Chair, Severe Local Storms Conference, 2004.

Session Chair, First WRF model Users' Workshop.

Paper/Proposal/Promotion Reviews

Member of a Review Panel for a Chair Professorship of McGill University

Reviewer of tenure dossiers.

Reviewer of several dozen papers for J. Atmos. Sci., Mon. Wea. Rev., J. Atmos. Ocean Tech., J. Applied Meteor., Weather Analysis Forecasting, Quart. J. Roy. Meteor. Soc., J. Comp. Physics, Annales Geophysica, Adv. Atmos. Sci., Atmos. Res., J. Env. Fluid Mech, J. Geo. Res., Geo. Res. Letters, Adv. Water Resources, Atmosfera, etc.

Reviewer of ~ 30 proposals of NSF, NOAA, UK NERC, etc.

NASA Earth Venture Proposal Review Panel