

CURRICULUM VITAE

Ming Xue

Weathernews Chair Professor, School of Meteorology
Director, Center for Analysis and Prediction of Storms
University of Oklahoma
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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. 2011-2016.

Weathernews Chair 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

EXTERNALLY SPONSORED RESEARCH GRANTS AT OU (UPDATED APRIL 2013)

TOTAL NUMBER OF EXTERNALLY FUNDED GRANTS AS PI OR CO-PI:	77.
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 "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 NA080AR4320904. \$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 NA080AR4320904. \$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 Tornadoic 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 Several 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 Several 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 Several 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. Shaprio 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.

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

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

Total number of citations as of December 2014: 3410. H-index: 31

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.
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- N. A. Snook, T. M. Smith, A. D. Schenkman, C. K. Potvin, E. R. Mansell, T. Lei, K. M. Kuhlman, Y. Jung, T. A. Jones, J. Gao, M. C. Coniglio, H. E. Brooks, and K. A. Brewster, 2013: Progress and challenges with Warn-on-Forecast. *Atmos. Res.*, **123**, 2-16.
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148. Chen, X., K. Zhao, W.-C. Lee, B. J.-D. Jou, and M. **Xue**, P. R. Harasti, 2013: The improvement to the environment wind and tropical cyclone circulation retrievals with modified GBVTD (MGBVTD) technique. *J. App. Meteor. Clim.*, **52**, 2493-2508.
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154. Cintineo, R., J. A. Otkin, M. **Xue**, and F. Kong, 2014: Evaluating the performance of planetary boundary layer and cloud microphysical parameterization schemes in a convection-permitting ensemble using synthetic GOES-13 satellite observations. *Mon. Wea. Rev.*, **142**, 163-182.
155. Schenkman, A. D., M. **Xue**, and M. Hu, 2014: Tornadogenesis in a high-resolution simulation of the 8 May 2003 Oklahoma City Supercell. *J. Atmos. Sci.*, **71**, 130-154.
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158. Klein, P. M., X.-M. Hu, and M. **Xue**, 2014: Impacts of mixing processes in nocturnal atmospheric boundary layer on urban ozone concentrations. *Bound. Layer. Meteor.*, **150**, 107-130.
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164. Jiang, X., H. Yuan, M. **Xue**, X. Chen, and X. Tan, 2014: Analysis of a heavy rainfall event

over Beijing on July 21-22, 2012 based on high resolution model analysis and forecasts. *J. Meteor. Res.* 28, 199-212.

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169. Chen, X.-C., K. Zhao, and M. Xue, 2014: Spatial and temporal characteristics of warm season convection over Pearl River Delta region, China based on three years of operational radar data. *J. Geophys. Res.*, DOI: 10.1002/2014JD021965.
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171. *Xu, X., M. **Xue**, and Y. Wang, 2014: Mesovortices within the 8 May 2009 bow echo over central US: Analyses of the characteristics and evolution based on Doppler radar observations and a high-resolution model simulation. *Mon. Wea. Rev.*, Conditionally accepted.
172. *Xu, X., M. **Xue**, and Y. Wang, 2014: The genesis of mesovortices within a real data simulation of a bow echo system. *J. Atmos. Sci.*, Conditionally accepted.

PH.D. STUDENT DISSERTATIONS AS MAJOR ADVISOR

1. Nutter, P., 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. Ren, D., 2004: 4DVAR Retrieval of Prognostic Land Surface Model Variables, Ph. D. Dissertation, School of Meteorology, University of Oklahoma, 228 pp.
3. Hu, M., 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, 217 pp.

4. Tong, M., 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, 243 pp.
5. Liu, H., 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, 188 pp.
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. Snook, N., 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).

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
	METR 5980	M.S. Research	1
Year 2010	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
Fall 2011	METR 6980	Ph.D. Research	4
	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
Summer 2012	METR 6980	Ph.D. Research	1
	METR 5980	M.S. Research	3
	METR 5990	Independent Study	1
	METR 5950	Pre-General Research	1
Fall 2012	METR 6980	Ph.D. Research	3
	METR 5990	Independent Study	2
	METR 5980	M.S. Research	2
	METR 5950	Pre-General Research	4
Year 2012	METR 5303	Objective Analysis and Data Assimilation	11
	Undergraduate Advisees:		5-10

Graduate Student Advising

Ph.D. Degrees Completed (15): 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).

M.S. Degree Completed as Major Advisor (15): Hao Jin, Leilei Wang, Geoffery Stano, Dan Dawson, Nathan Snook, Bryan Putnam, Nicholas Gasperoni, Byan Putnam, Charlotte Wainwright, Jonty Hall, Nicholas Gasperoni, 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 (28): 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

PROFESSIONAL SERVICE

Service on External Committees

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.