A. BIOGRAPHICAL INFORMATION AND QUALIFICATIONS

1. Name (Include any former names or nicknames used): Kelvin Kay Droegemeier

2. Position to which nominated: Director, Office of Science and Technology Policy (OSTP)

3. Date of Nomination: August 1, 2018

4. Address (List current place of residence and office addresses):

   ███████████████████████████████████████

   Office: 201 Stephenson Parkway, Suite 3100, Norman, Oklahoma 73019

5. Date and Place of Birth: 23 September 1958; Ellsworth, Kansas USA

6. Provide the name, position, and place of employment for your spouse (if married) and the names and ages of your children (including stepchildren and children by a previous marriage).

   Spouse (Lisa Kim Droegemeier) is an uncompensated badged volunteer at Life.Church South Oklahoma City Campus in Oklahoma City, Oklahoma.

   No children.

7. List all college and graduate degrees. Provide year and school attended.

   B.S. in Meteorology, University of Oklahoma, 1980
   M.S. in Atmospheric Science, University of Illinois at Urbana-Champaign, 1982
   Ph.D. in Atmospheric Science, University of Illinois at Urbana-Champaign, 1985

List all post-undergraduate employment, and highlight all management-level jobs held and any non-managerial jobs that relate to the position for which you are nominated.

University of Oklahoma

Assistant Professor of Meteorology 1985-1991;
Co-Founder and Deputy Director for Research, NSF Science and
Technology Center for Analysis and Prediction of Storms 1989-1991;
Deputy Director, NSF Science and Technology Center for Analysis and
Prediction of Storms 1991- 1992;
Director of Model Development Program, NSF Science and
Technology Center For Analysis and Prediction of Storms 1989-1994;
Associate Professor of Meteorology 1991-1996;
Visiting Senior Fellow (Sabbatical), Army High Performance
    Computing Research Center, University of Minnesota (1992)
Director, NSF Science and Technology Center for Analysis and Prediction
    of Storms 1994-2006;
Director, Environmental Computing Applications System 1996-2001;
Professor of Meteorology 1996-Present;
OU Associates Foundation **Presidential Professor**, 1998-2002
Regents' Professor 2001-Present;
Deputy Director, NSF Science and Technology Center for Collaborative
Adaptive Sensing of the Atmosphere 2003-2008;
Roger and Sherry Teigen **Presidential Professor**, 2004-Present
Associate Vice President for Research 2005-2009;
Director, Sasaki Institute, 2005-2009;
Weathernews Chair in Applied Meteorology, 2005-2009;
Director Emeritus, NSF Science and Technology Center for Analysis and
    Prediction of Storms 2006-Present;
Vice President for Research 2009-Present;
Weathernews Chair Emeritus 2009-Present

National Science Board (Special Government Employee)

Member, 2004-2010; 2011-2016;
Vice Chairman 2012-2016

State of Oklahoma

Oklahoma Governor's **Cabinet Secretary of Science and Technology**
(Uncompensated Position), 2017-Present

Professional Consulting

Private Professional Consultant for Aviation Weather and Commercial
Aircraft Accidents (1989-Present)

8. Attach a copy of your resume.

9. List any advisory, consultative, honorary, or other part-time service or
   positions with Federal, State, or local governments, other than those
   listed above, within the last ten years.

- Member, Board of Directors, Norman, Oklahoma Chamber of Commerce
  (2003-2006; 2009-2012)
- Member, Board of Trustees, Riverside Church, Norman, Oklahoma (2007-
  2009)
- Elder, Riverside Church, Norman, Oklahoma (2009-2010)
- Board of Directors, National Weather Museum and Science Center (2009-
  2017)
- Council Member for American Meteorological Society (2004 – 2008)
- Member of Oklahoma EPSCoR (Established Program to Stimulate
  Competitive Research) Committee (2007-Present)
- Member of Search Committee for Director, National Center for Atmospheric
  Research (NCAR) (2008)
- Chair, University Corporation for Atmospheric Research (UCAR) Review
  Panel for the NOAA (National Oceanic and Atmospheric Administration)
  Aviation Weather Center, Storm Prediction Center, Environmental Modeling
  Center, NCEP (National Centers for Environmental Prediction) Central
  Operations (2008-2009)
- Member, Board of Directors, Council on Governmental Relations (COGR)
  (2009-2014)
- Member, Program Committee for e-Science 2009 Conference (2009)
- Member, Program Committee for the 10th IEEE/ACM (Institute of Electrical
  and Electronics Engineers/Association for Computing Machinery)
  International Symposium on Cluster, Cloud and Grid Computing (CCGrid
  2010; 2009-2010)
- Member, Board of Directors, Oak Ridge Associated Universities (ORAU)
  (2010-2013)

- Member, Board of Directors, Oak Ridge Associated Universities (ORAU) Foundation (2010-2013)
- Member, Advisory Committee, Computer Science and Mathematics Division, Oak Ridge National Laboratory (2010-2012)
- Member, AAU (Association of American Universities) Task Force on Strengthening the University-Government Research Partnership (2010-Present)
- Member, Board of Trustees, Southeastern Universities Research Association (SURA) (2011-Present)
- Member, Presidential Search Committee, University Corporation for Atmospheric Research (2011)
- Member, Oklahoma Governor's Science and Technology Council (2011-Present)
- Member, Petroleum Club, Oklahoma City (one year membership, date unknown)
- Vice Chairman, Board of Directors, Oak Ridge Associated Universities Foundation (2011-2013)
- Member, Executive Committee, Association of Public and Land Grant Universities Council on Research Policy and Graduate Education (2011-2014)
- Member, Board on Research Data and Information, National Research Council of the National Academies (2012-2015, 2016-2019)
- Member, Search Committee for the Director of the NOAA National Weather Service (2012)
- Chairman-Elect, Council on Research Policy and Graduate Education, Association of Public and Land Grant Universities (2013-2014)
- Member, National Research Council Panel on Information Science at the Army Research Laboratory (2013-2015)
- Chair, Development and Relations Committee, Southeastern Universities Research Association (SURA) Board of Directors (2013-2015)
- Member, Board of Directors, Association of Public and Land Grant Universities (APLU)
- (2013-2014)
- Member, NCAR Director Blue Ribbon Advisory Panel (2014)
- Member, OU (University of Oklahoma) University Club Board of Trustees (2013-2016)
- President, OU University Club Board of Trustees (2014-2015)
- Chairman, Council on Research Policy and Graduate Education, Association of Public and Land Grant Universities (2014-2015)

- Member, Board of Directors, The Alliance for Science and Technology Research in America (ASTRA) (2014-Present)
- Member Presidential Search Committee, University Corporation for Atmospheric Research (2015-2016)
- Past-Chairman, Council on Research (Formerly the Council on Research Policy and Graduate Education), Association of Public and Land Grant Universities (2015-2016)
- Member, NSF Search Committee for Director of Office of Integrative Activities (2015-2016)
- Vice-Chairman of the Board of Trustees, Southeastern Universities Research Association (SURA) (2016-2018)
- Member, NSF Assistant Director of Geosciences Search Committee (2016)
- Member, State of Oklahoma EPSCoR Executive Subcommittee
- Invited Participant, Future of OSTP Planning Meeting, Sponsored by the Baker Institute, Rice University (2016)
- Member, Council on Competitiveness Technology Leadership and Strategy Initiative (2016-Present)
- Chairman of the Board of Trustees, Southeastern Universities Research Association (SURA) (2018 – Present)
- Professional Consultant on airline accidents to Thompson and Knight, LLP (2006-2008, 2009-2013, 2010-2011)
- Member of Council on Competitiveness Technology Leadership & Strategy Initiative (2016 – Present)
- Chair, Oklahoma Governor's Science and Technology Council (2017-Present)
- Chair, Oklahoma Governor's Aerospace and Autonomous Systems Council (2017-Present)

10. List all positions held as an officer, director, trustee, partner, proprietor, agent, representative, or consultant of any corporation, company, firm, partnership, or other business, enterprise, educational, or other institution within the last ten years.

- Member, Board of Directors, Norman, Oklahoma Chamber of Commerce (2003-2006; 2009-2012)
- Member, Board of Trustees, Riverside Church, Norman, Oklahoma (2007-2009)
- Elder, Riverside Church, Norman, Oklahoma (2009-2010)
- Board of Directors, National Weather Museum and Science Center (2009-2017)

- Member National Science Board (2004-2010 and 2011-2016)
- Council Member for American Meteorological Society (2004 – 2008)
- Member of Oklahoma EPSCoR Committee (2007-Present)
- Member of Search Committee for Director, National Center for Atmospheric Research (2008)
- Chair, UCAR Review Panel for the NOAA Aviation Weather Center, Storm Prediction Center, Environmental Modeling Center, NCEP Central Operations (2008-Present)
- Member, Board of Directors, Council on Governmental Relations (2009-2014)
- Member, Program Committee for e-Science 2009 Conference (2009)
- Member, Program Committee for the 10th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2010; 2009-2010)
- Member, Board of Directors, Oak Ridge Associated Universities (ORAU) (2010-2013)
- Member, Board of Directors, Oak Ridge Associated Universities (ORAU) Foundation (2010-2013)
- Member, Advisory Committee, Computer Science and Mathematics Division, Oak Ridge National Laboratory (2010-2012)
- Member, AAU Task Force on Strengthening the University-Government Research Partnership (2010-Present)
- Member, Board of Trustees, Southeastern Universities Research Association (2011-Present)
- Member, Presidential Search Committee, University Corporation for Atmospheric Research (2011)
- Member, Oklahoma Governor's Science and Technology Council (2011-Present)
- Member, Petroleum Club, Oklahoma City (one year membership, date unknown)
- Vice Chairman, Board of Directors, Oak Ridge Associated Universities Foundation (2011-2013)
- Member, Executive Committee, Association of Public and Land Grant Universities Council on Research Policy and Graduate Education (2011-2014)
- Member, Board on Research Data and Information, National Research Council of the National Academies (2012-2015, 2016-2019)
- Member, Search Committee for the Director of the NOAA National Weather Service (2012)

- Chairman-Elect, Council on Research Policy and Graduate Education, Association of Public and Land Grant Universities (2013-2014)
- Member, National Research Council Panel on Information Science at the Army Research Laboratory (2013-2015)
- Chair, Development and Relations Committee, Southeastern Universities Research Association (SURA) Board of Directors (2013-2015)
- Member, Board of Directors, Association of Public and Land Grant Universities (APLU)
- (2013-2014)
- Member, NCAR Director Blue Ribbon Advisory Panel (2014)
- Member, OU University Club Board of Trustees (2013-2016)
- President, OU University Club Board of Trustees (2014-2015)
- Chairman, Council on Research Policy and Graduate Education, Association of Public and Land Grant Universities (2014-2015)
- Member, Board of Directors, The Alliance for Science and Technology Research in America (ASTRA) (2014-Present)
- Member Presidential Search Committee, University Corporation for Atmospheric Research (2015-2016)
- Past-Chairman, Council on Research (Formerly the Council on Research Policy and Graduate Education), Association of Public and Land Grant Universities (2015-2016)
- Member, NSF Search Committee for Director of Office of Integrative Activities (2015-2016)
- Vice-Chairman of the Board of Trustees, Southeastern Universities Research Association (SURA) (2016-2018)
- Member, NSF Assistant Director of Geosciences Search Committee (2016)
- Member, State of Oklahoma EPSCoR Executive Subcommittee
- Invited Participant, Future of OSTP Planning Meeting, Sponsored by the Baker Institute, Rice University (2016)
- Member, Council on Competitiveness Technology Leadership and Strategy Initiative (2016-Present)
- Chairman of the Board of Trustees, Southeastern Universities Research Association (SURA) (2018 – Present)
- Professional Consultant on airline accidents to Thompson and Knight, LLP (2006-2008, 2009-2013, 2010-2011)
- Member of Council on Competitiveness Technology Leadership & Strategy Initiative (2016 – Present)

- Oklahoma Governor's Cabinet Secretary of Science and Technology (2017-Present)
- Chair, Oklahoma Governor's Science and Technology Council (2017-Present)
- Chair, Oklahoma Governor's Aerospace and Autonomous Systems Council (2017-Present)

11. Please list each membership you have had during the past ten years or currently hold with any civic, social, charitable, educational, political, professional, fraternal, benevolent or religious organization, private club, or other membership organization. Include dates of membership and any positions you have held with any organization. Please note whether any such club or organization restricts membership on the basis of sex, race, color, religion, national origin, age, or handicap.

- Member, Board of Directors, Norman, Oklahoma Chamber of Commerce (2003-2006; 2009-2012)
- Member, Board of Trustees, Riverside Church, Norman, Oklahoma (2007-2009)
- Elder, Riverside Church, Norman, Oklahoma (2009-2010)
- Board of Directors, National Weather Museum and Science Center (2009-2017)
- Member, OU University Club Board of Trustees (2013-2016)
- President, OU University Club Board of Trustees (2014-2015)

12. Have you ever been a candidate for and/or held a public office (elected, non-elected, or appointed)? If so, indicate whether any campaign has any outstanding debt, the amount, and whether you are personally liable for that debt.

No

13. Itemize all political contributions to any individual, campaign organization, political party, political action committee, or similar entity of $500 or more for the past ten years. Also list all offices you have held with, and services rendered to, a state or national political party or election committee during the same period.

None

14. List all scholarships, fellowships, honorary degrees, honorary society memberships, military medals, and any other special recognition for outstanding service or achievements.

- George Lynn Cross Scholarship, University of Oklahoma (1978 – 1979)
- Dresser Engineering Scholarship, University of Oklahoma (1979 – 1980)
- OU Engineering Dean's Student Advisory Council (1979 – 1980)
- Tau Beta Pi Fellowship (1980)
- Phi Kappa Phi Honor Society (1981)
- University of Illinois Fellowship (1981 – 1982)
- Outstanding Young Men of American (1982)
- Outstanding First-time Presentation, 12th Conference on Severe Local Storms, San Antonio, TX, American Meteorological Society (1982)
- University of Illinois Fellowship (1982 – 1983)
- University of Illinois Fellowship (1983 – 1984)
- Sigma Xi Research Paper Award, University of Illinois (1985)
- Who's Who in Technology Today (1985)
- OU Associates Distinguished Lectureship Award (1986)
- Presidential Young Investigator, National Science Foundation (1987 – 1992)
- Oklahoma State Senate Citation (1987)
- Fellow of the NOAA Cooperative Institute for Mesoscale Meteorological Studies (1987-Present)
- OU Associates Distinguished Lectureship Award (1987)
- OU Associates Distinguished Lectureship Award (1988)
- OU Associates Distinguished Lectureship Award (1989)
- Professor of the Year, College of Geosciences (1991)
- Discover Magazine Award for Technology Innovation (computer software category) to CAPS (Center for Analysis and Prediction of Storms) (1997)
- Computerworld Smithsonian Award to CAPS (science category) (1997)
- OU Associates Presidential Professorship (1998)
- NSF Pioneer Award (2001)

- Regents' Professorship, University of Oklahoma (2001)
- Fellow of the American Meteorological Society (2002)
- NOAATech 2002 Award for Best Use of Advanced Networks: "WSR-88D Radar Data over the Internet/NGI" (co-recipient, 2002)
- Federal Aviation Administration Excellence in Aviation Award (2002)
- Roger and Sherry Teigen Presidential Professorship (2004)
- Invited Speaker for the Millennium Lecture Series, UTEP (2006)
- Fellow of the American Association for the Advancement of Science (2014)
- University of Illinois Department of Atmospheric Sciences Distinguished Alumni Speaker (2016)
- Rod Rose Award for best article in the *Journal of Research Administration* (2017)

15. Please list each book, article, column, or publication you have authored, individually or with others. Also list any speeches that you have given on topics relevant to the position for which you have been nominated. Do not attach copies of these publications unless otherwise instructed.

Author of a 170-word, daily weather science column for the *Daily Oklahoman* newspaper (July, 1999-July 2001)

"Miracle Machine of US Innovation is in Danger," K. Droegemeier and Daniel Reed, in the Des Moines Register. 2017. https://www.desmoinesregister.com/story/opinion/columnists/iowa-view/2017/06/11/miracle-machine-u-s-innovation-danger/382432001/

"Advising the Government: Creating Sound Science Policy." Presented to the South Central Climate Science Center Early Career Workshop, 2014. Available at https://www.youtube.com/watch?v=ZPZbEBT5E7w&t=2520s

Refereed Book Chapters

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. Chapter 3 (p. 45-92) in *High Performance Computing*, G. Sabot (Ed.), Addison-Wesley, Reading, Massachusetts, 246pp.

Xue, M., K.K. Droegemeier, and D. Weber, 2007: *Numerical Prediction of High-Impact Local Weather: A driver for Petascale Computing.* Chapter 18 in *Petascale Computing: Algorithms and Applications,* Chapman and Hall/CRC Press.

Refereed Encyclopedia Contributions

Droegemeier, K.K., 1993: Weather forecasting and prediction. *McGraw-Hill Yearbook of Science and Technology,* McGraw Hill, 476-480.

Refereed Publications in Print

Sasamori, T., and K. Droegemeier, 1983: A linear analysis on the acceleration of zonal flow by baroclinic instability. Part I: Jovian atmosphere. *J. Atmos. Sci.,* **40,** 2323-2338.

Droegemeier, K., and T. Sasamori, 1983: A linear analysis on the acceleration of zonal flow by baroclinic instability. Part II: Terrestrial atmosphere. *J. Atmos. Sci.,* **40,** 2339-2348.

Droegemeier, K.K. and R.B. Wilhelmson, 1985: Three-dimensional numerical modeling of convection produced by interacting thunderstorm outflows. Part I: Control simulation and low-level moisture variations. *J. Atmos. Sci.,* **42,** 2381-2403.

Droegemeier, K.K. and R.B. Wilhelmson, 1985: Three-dimensional numerical modeling of convection produced by interacting thunderstorm outflows. Part II: Variations in vertical wind shear. *J. Atmos. Sci.,* **42,** 2404-2414.

Droegemeier, K.K., and R.B. Wilhelmson, 1986: Kelvin-Helmholtz instability in a numerically simulated thunderstorm outflow. *Bull. Amer. Meteor. Soc.,* **67,** 416-417.

Droegemeier, K.K. and R.B. Wilhelmson, 1987: Numerical simulation of thunderstorm outflow dynamics. Part I: Outflow sensitivity experiments and turbulence dynamics. *J. Atmos. Sci.,* **44,** 1180-1210.

Robertson, M., and K.K. Droegemeier, 1990: NEXRAD and the broadcast weather industry: Preparing to share the technology. *Bull. Amer. Meteor. Soc.,* **71,** 14-18.

Carpenter, R.L. Jr., K.K. Droegemeier, P.R. Woodward, and C.E. Hane, 1990: Application of the piecewise parabolic method (PPM) to meteorological modeling. *Mon. Wea. Rev.,* **118,** 586-612.

Dietachmayer, G. and K. Droegemeier, 1992: Application of continuous dynamic grid adaption techniques to meteorological modelling, Part I: Basic formulation and accuracy. *Mon. Wea. Rev.*, **120**, 1675-1706.

Droegemeier, K.K., S.M. Lazarus, and R.P. Davies-Jones, 1993: The influence of helicity on numerically simulated convective storms. *Mon. Wea. Rev*, **121**, 2005-2029.

Li, Y. and K.K. Droegemeier, 1993: The influence of diffusion on the adjoint data assimilation technique. *Tellus*, **45A**, 435-448.

Straka, J.M., R.B. Wilhelmson, L.J. Wicker, J.R. Anderson, and K.K. Droegemeier, 1993: Numerical solutions of a non-linear density current: A benchmark solution and comparisons. *Int. J. Num. Meth. in Fluids*, **17**, 1-22.

Johnson, J.T., M.D. Eilts, and K.K. Droegemeier, 1993: Investigation of outflow strength variability in Florida downburst producing storms. FAA Final Report DOT/FAA/NR-93/5/111 pp.

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.

Xu, Q., Xue, M., and K.K. Droegemeier, 1995: Numerical simulations of density currents in sheared environments within a vertically confined channel. *J. Atmos. Sci.*, **53**, 770-786.

Emanuel, K., D. Raymond, A. Betts, L. Bosart, C. Bretherton, K. Droegemeier, B. Farrell, J.M. Fritsch, R. Houze, M. LeMone, D. Lilly, R. Rotunno, M. Shapiro, R. Smith, and A. Thorpe, 1995: Report of the first Prospectus Development Team of the U.S. Weather Research Program to NOAA and the NSF. *Bull. Amer. Meteor. Soc.*, **76**, 1194-1208.

Park, S.K., K.K. Droegemeier, and C. Bischof, 1996: Automatic differentiation as a tool for sensitivity analysis of a convective storm in a 3-D cloud model. Chapter 18 in *Computational Differentation: Techniques, Applications, and Tools*, M. Berz, C. Bischof, and G. Corliss, Eds., SIAM, Philadelphia, PA, 205-214.

Sathye, A., G. Bassett, K. Droegemeier, M. Xue, and K. Brewster, 1996: Experiences using high performance computing for operational

storm scale weather prediction. *Concurrency: Practice and Experience*, **8**, 731-740.

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.

Droegemeier, K.K., 1997: The numerical prediction of thunderstorms: Challenges, potential benefits, and results from realtime operational tests. *WMO Bulletin*, **46**, 324-336.

Wang, Z., K.K. Droegemeier, L. White, and I.M. Navon, 1997: Application of a new adjoint Newton algorithm to the 3-D ARPS storm scale model using simulated data. *Mon. Wea. Rev.*, **125**, 1460-1478.

Sathye, A., M. Xue, G. Bassett, and K. Droegemeier, 1997: Parallel weather modeling with the advanced regional prediction system. *Parallel Computing*, **23**, 2243-2256.

Park, S.K. and K.K. Droegemeier, 1997: The validity of the tangent linear approximation in a moist convective cloud model. *Mon. Wea. Rev*, **125**, 3320-3340.

Wang, D.Z., K.K. Droegemeier, and L. White, 1998: The adjoint Newton algorithm for large-scale unconstrained optimization in meteorology applications. *Comput. Opt. and Appl.*, **10**, 281-318.

Lilly, D.K., G.M. Bassett, K.K. Droegemeier, and P. Bartello, 1998: Stratified turbulence in the atmospheric mesoscales. *Theoretical and Comp. Fluid Dyn*, **11**, 139-153.

Carpenter, R.L. Jr., K.K. Droegemeier, and A.M. Blyth, 1998a: Entrainment and detrainment in numerically simulated cumulus congestus clouds, Part I: General results and comparison with observations. *J. Atmos. Sci*, **55**, 3417-3432.

Carpenter, R.L. Jr., K.K. Droegemeier, and A.M. Blyth, 1998b: Entrainment and detrainment in numerically simulated cumulus congestus clouds, Part II: Cloud budgets. *J. Atmos. Sci*, **55**, 3433-3439.

Carpenter, R.L. Jr., K.K. Droegemeier, and A.M. Blyth, 1998c: Entrainment and detrainment in numerically simulated cumulus congestus clouds, Part III: Detailed parcel analyses and conceptual model. *J. Atmos. Sci*, **55**, 3440-3455.

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Lazarus, S., A. Shapiro, and K.K. Droegemeier, 1999: Analysis of the Gal-Chen/Zhang single-Doppler velocity retrieval. *J. Atmos. and Oceanic Tech.*, **16**, 5-18.

Adlerman, E.J., K.K. Droegemeier, and R-P. Davies-Jones 1999: Numerical simulation of cyclic mesocyclogenesis. *J. Atmos. Sci.*, **56**, 2045-2069.

Rao, P.A., H.E. Fuelberg, and K.K. Droegemeier, 1999: High resolution modeling of the Cape Canaveral area land/water circulations and associated features. *Mon. Wea. Rev.*, **56**, 1808-1821.

Park, S.K., and K.K. Droegemeier, 1999: Sensitivity analysis of a moist 1-D Eulerian cloud model using automatic differentiation. *Mon. Wea. Rev.*, **127**, 2128-2142.

Gao, J., M. Xue, A. Shapiro, and K. Droegemeier, 1999: A variational method for the analysis of three-dimensional wind fields from dual-Doppler radars. *Mon. Wea. Rev.*, **127**, 2180-2196.

Grice, G. K., R. J. Trapp, S. F. Corfidi, R. Davies-Jones, C. C. Buonanno, J. P. Craven, K. K. Droegemeier, C. Duchon, J. V. Houghton, R. A. Prentice, G. Romine, K. Schlachter, K. K. Wagner, 1999: The Golden Anniversary Celebration of the First Tornado Forecast. *Bull. Amer. Met Soc.*, **80**, 1341–1348.

Park, S.K. and K.K. Droegemeier, 2000: Sensitivity analysis of a 3-D convective storm: Implications for variational data assimilation and forecast error. *Mon. Wea. Rev.*, **128**, 140-159.

Ware, R.H., D.W. Fulker, S.A. Stein, D.N. Anderson, S.K. Avery, R.D. Clark, K.K. Droegemeier, J.P. Kuettner, J.B. Minster, and S. Sorooshian, 2000: SuomiNet: A real-time national GPS network for atmospheric research and education. *Bull. Amer. Meteor. Soc.*, **84**, 677-694.

Foufoula-Georgiou, E., J. Zepeda-Arce, and K.K. Droegemeier, 2000: Space-time rainfall organization and its role in validating quantitative precipitation forecasts. *J. Geophys Res.*, **105**, 10129-10146.

Droegemeier, K.K. and Co-Authors, 2000: Hydrological aspects of weather prediction and flood warnings: Report of the Ninth Prospectus Development Team of the U.S. Weather Research Program. *Bull. Amer. Meteor. Soc.*, **81**, 2665-2680.

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Xue, M., K. K. Droegemeier, and V. Wong, 2000: The Advanced
Regional Prediction System (ARPS) - A multiscale nonhydrostatic
atmospheric simulation and prediction model. Part I: Model
dynamics and verification. *Meteor. and Atmos. Physics.*, **75**, 161-
193.

Ware, R.H., D.W. Fulker, S.A. Stein, D.N. Anderson, S.K. Avery, R.D.
Clark, K.K. Droegemeier, J.P. Kuettner, J. Minster, and S.
Sorooshian, 2000: Real-time national GPS networks:
Opportunities for atmospheric sensing. *Earth Planets Space*, **52**,
901-905.

Gao, J., M. Xue, A. Shapiro, Qin Xu, and K. Droegemeier, 2001: Three-
dimensional simple adjoint velocity retrievals from single Doppler
radar data. *J. Atmos. and Oceanic Tech.*, **18**, 26-38.

Hou, D., E. Kalnay, and K.K. Droegemeier, 2001: Objective verification
of the SAMEX '98 ensemble forecasts. *Mon. Wea. Rev.*, **129**, 73-
91.

Lazarus, S., A. Shapiro, and K.K. Droegemeier, 2001: Application of the
Gal-Chen/Zhang velocity retrieval to a deep convective storm. *J.
Atmos. Sci.*, **58**, 998-1016.

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 multiscale nonhydrostatic
atmospheric simulation and prediction tool. Part II: Model physics
and applications. *Meteor. and Atmos. Physics*, **76**, 134-165.

Anthes, R., O. Brown, K. Droegemeier, and J. Fellows, 2001: UCAR and
NCAR at 40. *Bull. Amer. Meteor. Soc.*, **82**, 1139-1149.

Harris, D., E. Foufoula-Georgiou, K.K. Droegemeier, and J. Levit, 2001:
Multi-scale statistical properties of a high-resolution precipitation
forecast. *J. Hydromet.*, **4**, 406-418.

Ware, R.H., D.W. Fulker, S.A. Stein, D.N. Anderson, S.K. Avery, R.D.
Clark, K.K. Droegemeier, J.P. Kuettner, J.B. Minster, and S.
Sorooshian, 2001: Real time national GPS networks for
atmospheric sensing. *J. Atmos. and Solar-Terr. Phys.*, **63**, 1315-
1330.

Weygandt, S.S., A. Shapiro and K.K. Droegemeier, 2002: Retrieval of
initial forecast fields from single-Doppler observations of a

supercell thunderstorm. Part I: Single-Doppler velocity retrieval. *Mon. Wea. Rev,* **130,** 433-453.

Weygandt, S.S., A. Shapiro and K.K. Droegemeier, 2002: Retrieval of initial forecast fields from single-Doppler observations of a supercell thunderstorm. Part II: Thermodynamic retrieval and numerical prediction. *Mon. Wea. Rev,* **130,** 454-476.

Adlerman, E.J. and K.K. Droegemeier, 2002: The sensitivity of numerically-simulated cyclic mesocyclogenesis to variations in model physical and computational parameters. *Mon. Wea. Rev.,* **130,** 2671-2691.

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. and Atmos. Physics,* **82,** 139-170.

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16. Please identify each instance in which you have testified orally or in writing before Congress in a governmental or non-governmental capacity and specify the date and subject matter of each testimony.

- U.S. House of Representatives Subcommittee on Science in the Re-Competition of the NSF Supercomputing Centers (1996)
- U.S. House of Representatives Appropriations Subcommittee on VA, HUD and Independent Agencies, on the Budgets of the NSF and NASA (2004)
- U.S. House of Representatives Subcommittee on Energy and Environment, and Subcommittee on Research and Science Education, U.S. House of Representatives Committee on Science and Technology, Regarding the State of Hurricane Research and H.R. 2407, the National Hurricane Research Initiative Act of 2007 (2008)
- U.S. Senate Committee on Commerce, Science and Transportation for the hearing on *Weathering the Storm: The Need for National Hurricane Research Initiative* (2009)
- U.S. House of Representatives Subcommittee on Environment, in the U.S. House of Representatives Committee on Science, Space and Technology, hearing on *Restoring US Leadership in Weather Forecasting, Part 2.* (2013)

- U.S. Senate Committee on Commerce, Science, and Transportation hearing on *America COMPETES: Science and the U.S. Economy* (2013)
- U.S. Senate Committee on Commerce, Science, and Transportation hearing on *America COMPETES: Leveraging the U.S. Science and Technology Enterprise* (2016)
- U.S. House of Representatives Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies hearing on *The Role of Facilities and Administrative Costs in Supporting NIH-Funded Research* (2017)

17. Given the current mission, major programs, and major operational objectives of the department/agency to which you have been nominated, what in your background or employment experience do you believe affirmatively qualifies you for appointment to the position for which you have been nominated, and why do you wish to serve in that position?

To be most effective, the Director of OSTP needs to have the following qualifications and capabilities (in no particular order): experience and respect as an accomplished scientist; experience working on science, technology, and education policy issues, preferably with both the Executive and Legislative branches of the Federal Government as well as relevant agencies across Government, and at the international level as well; familiarity with the role, structure and function of OSTP; objectivity, devotion, dedication, confidence, and trustworthiness; respect for all disciplines; respect and appreciation for the importance and value of diversity and inclusion in all its dimensions, and a knowledge of how to enhance the participation of traditionally underrepresented groups in research and education; a tireless devotion to the position under consideration and to the Nation; an ability to communicate effectively with a wide range of audiences; solid values and an uncompromising ethical compass; a passion for progress; a strong background in and working knowledge of STEM (science, technology, engineering and mathematics) education at all levels; and the following leadership skills: (a) ability to understand and address complex issues, placing them in context and clarifying multiple points of view and possible solutions, including the ability to make decisions quickly if needed, (b) ability to steward a group of professionals and collaboratively define an agenda that reflects the President's priorities; (c) ability to actively seek and give value to all points of view, ensuring that all voices are heard and that all

relevant sources of input are utilized in everything OSTP does; and (d) an approachability and openness for building trust with colleagues and a comfortable, pleasant and safe working environment.

With that preface, my career has afforded me the opportunity to both develop those attributes which arise through experience, as well as nurture those which are more innate. Especially relevant in this context is my service on a wide array of important national boards and committees, often elected as chair by my peers, which both engage and help shape the direction of the Nation's science and engineering research and education enterprise. My 12 years on the National Science Board (last four as Vice Chairman), nominated by Presidents of both parties and twice confirmed by the Senate, gave me an opportunity to actively engage on a number of important science policy issues (see my curriculum vitae at the end of this document for details regarding my activities on the National Science Board), as has my testimony before Congress and my active involvement in professional policy organizations, such as the Council on Governmental Relations, for which I served as a board member for six years.

I have worked with OSTP in the past, principally during my tenure on the National Science Board, on issues related to STEM education as well as research funding priorities, structure, and peer review. At the request in 2016 of the Baker Institute at Rice University, I participated in the creation of a document about OSTP for the new President following the 2016 election, and I also worked with OSTP on nominations for the National Science Board classes of 2014 and 2016, for which I chaired the Nominations Committee. Having given lectures on research policy, which required study of OSTP and other relevant organizations and activities (e.g., President's Council of Advisors on Science and Technology, National Science and Technology Council), I am familiar with the role, structure and function of OSTP in the National policy framework.

As Vice President for Research at the University of Oklahoma, I have a multi-faceted view of research, including the importance of public-private partnerships and the manner in which multiple disciplines and organizations come together to solve some of the most intellectually challenging and societally relevant problems. I have been mentored by one of the Nation's most outstanding university presidents, former U.S.

Senator David L. Boren, and I have worked extensively with members of the Oklahoma congressional delegation on matters of research policy, as well as other Members of Congress on occasion. In starting a private company, I have a deep appreciation for the importance of job and wealth creation and the value of research in moving local, regional and national economies forward. As Oklahoma Secretary of Science and Technology, in the Cabinet of Governor Mary Fallin, I have obtained additional insight into state-level policy issues in both education and research, including economic development, policies that stimulate growth, linking the academic and corporate research enterprises, and STEM education.

As a university professor, I led several major research projects and centers involving numerous institutions and complex budgets, and thus understand the "front lines" view as well as the national view of research and related policy issues. I have mentored numerous students and faculty, and have given presentations on science to a vast array of audiences – from nursing homes and grade schools to civic organizations such as Rotary, Chambers of Commerce and alumni clubs. I have initiated and led several major research collaborations with private industry and have worked on numerous STEM education issues within my institution, and at the state and national levels. I also have, over my 33 years at the University of Oklahoma, helped develop the academic-Federal partnership within the National Weather Center, which involves several NOAA organizations as well as academic and research centers.

Finally, I believe, more than anything, that the OSTP Director must be an exceptional leader and have wisdom. I have learned about leadership by experiencing it firsthand among some exceptional mentors, which led me to give presentations on leadership and develop a unique Faculty Leadership Academy at my university. With humility, I can attest that the list of leadership characteristics, enumerated as items a-d in the first paragraph of my response in this section (18), reflects my approach to leading and indeed my approach to life. I place great value on people, I deeply appreciate the privilege of working with a broad and diverse array of viewpoints, and I love solving difficult problems by bringing to bear on them the best ideas and approaches.

Regarding my wish to serve, I have unending love for my Country and passion for its science, technology and education enterprises. I want more than anything for them to thrive and to serve as beacons of

leadership for the world. OSTP plays a pivotal collaborative role in achieving those objectives. Personally, my heart is one of serving, and throughout my life I have been blessed with opportunities to serve and to learn while doing so. Directing OSTP would be an extraordinary privilege and an opportunity for me to give back to a Nation which has given me so much.

18. What do you believe are your responsibilities, if confirmed, to ensure that the department/agency has proper management and accounting controls, and what experience do you have in managing a large organization?

As the Director of OSTP, I would have the ultimate responsibility of stewarding this important Federal agency, including ensuring that all management and financial controls are operating with efficiency, integrity, and in accordance with all established policies and procedures. I have experience doing so from a variety of circumstances. First, I have chaired the boards of non-profit organizations, such as the University Corporation for Atmospheric Research (UCAR), which operates a Federally Funded Research and Development Center (the National Center for Atmospheric Research) on behalf of the National Science Foundation. The UCAR Board, and of course the Chair, have ultimate fiduciary responsibility for accounting, budgeting, audits, personnel actions, and other aspects of this $173.1M (FY17 funding received) organization. In that capacity I worked with the UCAR General Counsel on a variety of issues related to audits, personnel matters, planning, and reporting. The same is true for an organization I now chair, the Southeastern Universities Research Association (SURA), though SURA is much smaller, in size and financially, than UCAR.

Second, as a Member of the National Science Board and its Vice Chair for four years, I was involved in strategic planning, budgeting, audits (financial and technological), various Inspector General reviews, and management issues relevant to the National Science Foundation, including those of especially large projects. I worked directly with the Inspector General on a variety of matters, and as Vice Chair was a member of the Audit and Oversight Committee.

As Vice President for Research at the University of Oklahoma, I steward a staff of some 80 individuals and developed an entirely new cost accounting and data/commitment tracking system that brought fiscal

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discipline to the organization, which is now a role model for the institution. When I became Vice President, one of the first actions I took was to initiate an internal audit to ensure that my organization was complying with all rules, policies and procedures. The audit determined that some controls needed strengthening (e.g., timely deposits of cash), and those actions were taken immediately.

Also in this capacity, units within my organization undergo both internal and external audits, with examples of the latter being White House Office of Management and Budget audits for compliance with 2 CFR 200 (Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards). During my tenure as Vice President, none of the units under my purview have had an OMB audit finding.

I am now working with the OU Dean of Libraries, and the OU Interim Chief Information Officer/Vice President for Information Technology, on the outcome of an audit of the University's research-related information technology. One written recommendation was issued, and it concerns the University's need to develop an interim approach for compliance of grants and contacts subject to a DFARS (Defense Federal Acquisition Regulations Supplement) 252.204-7012 clause for Controlled but Unclassified Information (CUI). That process is now underway with a target completion date of July 2018.

19. What do you believe to be the top three challenges facing the department/agency, and why?

As a preface to my answer, I wish to note that the roles of OSTP and its Director are clearly defined in Public Law 94-282. Consequently, it is within that context I describe the following three challenges.

The first challenge is to ensure that the President's priorities in science and technology, their alignment with his policy objectives, and views held by the President regarding the importance of science and technology in America's future are communicated effectively to all stakeholders (i.e., the research community, Congress, the private sector, and non-profit organizations) and used to shape the Nation's future research and policy roadmaps. It is important that the U.S. remain a global leader in science, technology, and innovation, and that stakeholders understand the value placed by this Administration on research. Additionally, it is vitally

important that research outcomes be translated efficiently and effectively to solve problems, create new companies and jobs, ensure the safety and security of America, prepare the workforce of the future; and ensure that the U.S. is seen as a trusted partner in important international research activities.

The second challenge involves OSTP working to ensure that the U.S. science and technology research and education enterprise (spanning the spectrum from basic or discovery research to applied research and development) is robust, efficient, operating with the highest levels of integrity and effectiveness, addressing the greatest challenges of today and preparing for challenges of the future, and is informing policies of the Executive Branch. This is especially important as China and other nations continue to exhibit rapid growth in important measures of research productivity and investment.

Finally, a secure, prosperous and healthy America depends upon the availability of a robust and diverse workforce that spans the spectrum from doctoral degree-holding researchers and practitioners in STEM fields to skilled trade and crafts persons trained and educated in career techs and two-year colleges. OSTP and PCAST (President's Council of Advisors on Science and Technology) have in the past opined on the STEM education and workforce issue, as has the National Science Board, principally in the context of post-secondary STEM degrees. And excellent work is happening today in STEM education policy led by OSTP. A comprehensive approach is essential for ensuring that the full ecosystem of jobs and skills, and the dynamic interaction among them, is understood and utilized as a way to most effectively create the workforce of the future. This is especially important because of the rapid pace of technology, which often requires, or affords an opportunity for, one to re-invent oneself multiple times during the course of a career. To ensure such capability exists, and that all areas of the country and all individuals are able to contribute to the workforce, the connective tissue across all institutions and levels of education and training needs to be strengthened.

B. POTENTIAL CONFLICTS OF INTEREST

1. Describe all financial arrangements, deferred compensation agreements, and other continuing dealings with business associates, clients, or customers. Please include information related to retirement accounts.

   As a faculty member and executive officer of the University of Oklahoma, I do not have any clients, customers, or business associates from a financial point of view. Below are shown my retirement accounts:

   - TIAA/CREF OU Defined Contribution Plan, current value of ███████
   - Fidelity Investments Defined Contribution Plan, current value of ███████
   - TIAA/CREF Brokerage Account, current value of ███████
   - Oklahoma Teacher's Retirement, current value unknown but likely approximately ███████
   - U.S. Social Security, current value unknown.
   - Weather Decision Technologies, Inc. Common Stock, current value ███████
   - Met Life IRA (candidate), current value of ███████
   - Met Life IRA (spouse), current value of ███████
   - Personal savings account, Republic Bank and Trust, current value of ███████

2. Do you have any commitments or agreements, formal or informal, to maintain employment, affiliation, or practice with any business, association or other organization during your appointment? If so, please explain.

   The only commitment I will maintain if confirmed is continued affiliation with the University of Oklahoma as a tenured professor, for which I am in the process of requesting a leave of absence without pay. I am eligible for such a leave; however, because such leaves must be approved by the University's Board of Regents, which conducts its business in a public forum, it is appropriate that I withhold submission of my request to the Regents, until directed by the White House, so as to avoid pre-empting

the White House regarding any formal public announcement of intent to nominate or to nominate.

3. Indicate any investments, obligations, liabilities, or other relationships which could involve potential conflicts of interest in the position to which you have been nominated.

   In connection with the nomination process, I have consulted with the U.S. Office of Government Ethics and OSTP's Designated Agency Ethics Official to identify potential conflicts of interest. If confirmed, any potential conflicts of interest will be resolved in accordance with the terms of the ethics agreement that I have entered into with OSTP's Designated Agency Ethics Official and that has been provided to this Committee. I am not aware of any other potential conflicts of interest.

4. Describe any business relationship, dealing, or financial transaction which you have had during the last ten years, whether for yourself, on behalf of a client, or acting as an agent, that could in any way constitute or result in a possible conflict of interest in the position to which you have been nominated.

   In connection with the nomination process, I have consulted with the U.S. Office of Government Ethics and OSTP's Designated Agency Ethics Official to identify potential conflicts of interest. If confirmed, any potential conflicts of interest will be resolved in accordance with the terms of the ethics agreement that I have entered into with OSTP's Designated Agency Ethics Official and that has been provided to this Committee. I am not aware of any other potential conflicts of interest.

5. Describe any activity during the past ten years in which you have been engaged for the purpose of directly or indirectly influencing the passage, defeat, or modification of any legislation or affecting the administration and execution of law or public policy.

   Apart from Congressional testimony noted in Section A17, which involved testifying on various bills, I have been asked by Members of my congressional delegation to assist them with bills by providing input and suggestions (the Grant Act by Senator Lankford, the Weather Forecast Improvement Act by Representatives Bridenstine and Lucas, and the FY17 Omnibus by Congressman Cole). As a member of the National

Science Board from 2004-2016, I interacted with Chairman Lamar Smith of the House Science Committee on policy affecting the National Science Foundation. In my role as Vice President for Research at the University of Oklahoma (OU), I work with the OU Vice President for Governmental Relations, and OU's consultants, to provide input on the content of various bills. I have attempted to influence legislation, in my role as Vice President for Research and through the individuals at my university mentioned in the previous sentence, in a bill and/or amendments offered from 2014-2016 which sought to eliminate the Established Program to Stimulate Competitive Research (EPSCoR). Additionally, I provided input on a draft bill, never submitted to my knowledge, which would have improved the ability of universities to negotiate intellectual property provisions with corporate sponsors.

6. Explain how you will resolve any potential conflict of interest, including any that may be disclosed by your responses to the above items.

In connection with the nomination process, I have consulted with the U.S. Office of Government Ethics and OSTP's Designated Agency Ethics Official to identify potential conflicts of interest. If confirmed, any potential conflicts of interest will be resolved in accordance with the terms of the ethics agreement that I have entered into with OSTP's Designated Agency Ethics Official and that has been provided to this Committee. I am not aware of any other potential conflicts of interest.

C. LEGAL MATTERS

1. Have you ever been disciplined or cited for a breach of ethics, professional misconduct, or retaliation by, or been the subject of a complaint to, any court, administrative agency, the Office of Special Counsel, professional association, disciplinary committee, or other professional group? If yes:
   a. Provide the name of agency, association, committee, or group;
   b. Provide the date the citation, disciplinary action, complaint, or personnel action was issued or initiated;
   c. Describe the citation, disciplinary action, complaint, or personnel action;
   d. Provide the results of the citation, disciplinary action, complaint, or personnel action.

   No.

2. Have you ever been investigated, arrested, charged, or held by any Federal, State, or other law enforcement authority of any Federal, State, county, or municipal entity, other than for a minor traffic offense? If so, please explain.

   No.

3. Have you or any business or nonprofit of which you are or were an officer ever been involved as a party in an administrative agency proceeding, criminal proceeding, or civil litigation? If so, please explain.

   No.

4. Have you ever been convicted (including pleas of guilty or *nolo contendere*) of any criminal violation other than a minor traffic offense? If so, please explain.

   No.

5. Have you ever been accused, formally or informally, of sexual harassment or discrimination on the basis of sex, race, religion, or any other basis? If so, please explain.

No.

6. Please advise the Committee of any additional information, favorable or unfavorable, which you feel should be disclosed in connection with your nomination.

   None.

D. RELATIONSHIP WITH COMMITTEE

1. Will you ensure that your department/agency complies with deadlines for information set by congressional committees?

   Yes.

2. Will you ensure that your department/agency does whatever it can to protect congressional witnesses and whistle blowers from reprisal for their testimony and disclosures?

   Yes.

3. Will you cooperate in providing the Committee with requested witnesses, including technical experts and career employees, with firsthand knowledge of matters of interest to the Committee?

   Yes.

4. Are you willing to appear and testify before any duly constituted committee of the Congress on such occasions as you may be reasonably requested to do so?

   Yes.

(Nominee is to include this signed affidavit along with answers to the above questions.)

F. Affidavit

Kelvin K. Droegemeier being duly sworn, hereby states that he/she has read and signed the foregoing Statement on Biographical and Financial Information and that the information provided therein is, to the best of his/her knowledge, current, accurate, and complete.

_____
Signature of Nominee

Subscribed and sworn before me this _3rd_ day of _Aug_, 20_18_.

Felicia Gipson
Notary Public

OFFICIAL SEAL
NOTARY PUBLIC OKLAHOMA
FELICIA GIPSON
Commission # 06007203
Expires July 25, 2022

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Curriculum Vitae
Kelvin K. Droegemeier

Personal Information

Born September 23, 1958 in Ellsworth, Kansas
Married Lisa K. Roevekamp on August 27, 1983
Children: None
Home address: ███████████████

Email address: ████████████████
Web page: http://kkd.ou.edu
Office phone: ███████████
Cell phone: ███████████

Education

B.S. in Meteorology with Special Distinction, University of Oklahoma, 1980
M.S. in Atmospheric Science, University of Illinois at Urbana-Champaign, 1982
Ph.D. in Atmospheric Science, University of Illinois at Urbana-Champaign, 1985
    Advisor: Professor Robert B. Wilhelmson
    Dissertation Title: *The Numerical Simulation of Thunderstorm Outflow Dynamics*

Professional Employment

Vice President for Research, University of Oklahoma, 2009-Present
Weathernews Chair Emeritus of Applied Meteorology, University of Oklahoma,
    2009-Present
Director Emeritus, Center for Analysis and Prediction of Storms, University of
    Oklahoma, 2006-Present
Associate Vice President for Research, University of Oklahoma, 2005-2009
Weathernews Chair in Applied Meteorology, University of Oklahoma, 2005-2009
Director, Sasaki Institute, University of Oklahoma, 2005-2009
Roger and Sherry Teigen Presidential Professor, University of Oklahoma, 2004 (life)
Co-Founder and Deputy Director, Center for Collaborative Adaptive Sensing of the
    Atmosphere (CASA) (NSF Engineering Research Center), University of Oklahoma
    (in partnership with University of Massachusetts at Amherst, Colorado State
    University, University of Puerto Rico at Mayaguez) 2003-2008
Regents' Professor, University of Oklahoma, November, 2001 (life)
Professor, School of Meteorology, University of Oklahoma, July 1998-Present
OU Associates Foundation Presidential Professor, University of Oklahoma, 1998-2002

Founder and Director, Environmental Computing Applications System (research and
educational supercomputing center), University of Oklahoma, 1996-2001
Co-Founder (1989) and Director (1994-2006), Center for Analysis and Prediction of
Storms (CAPS) (NSF Science and Technology Center), University of Oklahoma
Associate Professor, School of Meteorology, University of Oklahoma, 1991-1998
Director of Model Development Program, Center for Analysis and Prediction of Storms,
University of Oklahoma, 1989-1994
Visiting Senior Fellow, Army High Performance Computing Research Center, University
of Minnesota (Sabbatical) 1 January - 30 June 1992
Deputy Director, Center for Analysis and Prediction of Storms, University of Oklahoma
July 1991-February 1992
Assistant Professor, School of Meteorology, University of Oklahoma, 1985-1991
Deputy Director for Research, Center for Analysis and Prediction of Storms, University
of Oklahoma, 1989-1991
Graduate Research Assistant, University of Illinois, 1980-1985
Meteorological Technician, National Severe Storms Laboratory, 1978-1980
Meteorological Aide, National Severe Storms Laboratory, 1976-1978

Federal Government Appointments

Appointed by President George W. Bush to the National Science Board and confirmed by
the U.S. Senate (2004-2010)
Appointed by President Barack H. Obama to the National Science Board and confirmed
by the U.S. Senate (2011-2016) (Vice Chairman of the Board 2012-2016)

State Government Appointments

Appointed by Oklahoma Governor Mary Fallin to the Governor's Science and
Technology Council (2011-Present) and Chair of Sub-Committee on Research
Appointed by Oklahoma Governor Marry Fallin as Cabinet Secretary of Science and
Technology, (2017-Present)

Company Creation

Founder of Weather Decision Technologies, Inc. (1999)

Congressional Testimony

U.S. House of Representatives Subcommittee on Science in the Re-Competition of the
NSF Supercomputing Centers (1996)
U.S. House of Representatives Appropriations Subcommittee on VA, HUD and
Independent Agencies, on the Budgets of the NSF and NASA (2004)
U.S. House of Representatives Subcommittee on Energy and Environment, and
Subcommittee on Research and Science Education, U.S. House of Representatives

Committee on Science and Technology, Regarding the State of Hurricane Research and H.R. 2407, the National Hurricane Research Initiative Act of 2007 (2008)

U.S. Senate Committee on Commerce, Science and Transportation for the hearing on *Weathering the Storm: The Need for National Hurricane Research Initiative* (2009)

U.S. House of Representatives Subcommittee on Environment, in the U.S. House of Representatives Committee on Science, Space and Technology, hearing on *Restoring US Leadership in Weather Forecasting, Part 2.* (2013)

U.S. Senate Committee on Commerce, Science, and Transportation hearing on *America COMPETES: Science and the U.S. Economy* (2013)

U.S. Senate Committee on Commerce, Science, and Transportation hearing on *America COMPETES: Leveraging the U.S. Science and Technology Enterprise* (2016)

U.S. House of Representatives Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies hearing on *The Role of Facilities and Administrative Costs in Supporting NIH-Funded Research* (2017)

Professional Consulting

Sperry Commercial Flight Systems Group, Honeywell Corporation. (1989-1992)

Climatological Consulting Corporation (UAL Flight #585, Colorado Springs, Colorado, 1997)

American Airlines (AA Flight #242, Dickinson, North Dakota, 1997)

National Transportation Safety Board (NTSB) (AA Flight #903, Florida Peninsula, 1997-1998)

American Airlines (AA Flight #1420, Little Rock, Arkansas, 1999-2002)

American Airlines (AA Flight #587, New York, New York, 2002-2007)

Air France (AF Flight #358, Toronto, Canada, 2006-2008)

Continental Airlines (CAL Flight #1404, Denver, Colorado, 2009-2013)

Continental Airlines (CAL Flight #511, McAllen, Texas, 2010-2011)

Depositions Given as Expert Witness

American Airlines Flight #1420 accident deposition given 1 March 2001 in Dallas, Texas

Continental Airlines Flight #1404 accident deposition given 10 December 2010 in Dallas, Texas

Continental Airlines Flight #511 in-flight incident deposition given 31 May 2011 in Dallas, Texas

Continental Airlines Flight #1404 accident deposition given 21 June 2012 in Dallas, Texas

Continental Airlines Flight #1404 accident deposition given 13 September 2012 in Dallas, Texas

National Science Board Leadership Activities (2004-2016)

Member of Vannevar Bush Award Selection Committee, National Science Board (2006)

Co-Chair, Hurricane Science and Engineering Task Force, National Science Board
(2005- 2007)
 [Publication: "Hurricane Warning - The Critical Need for a National Hurricane
 Research Initiative, available at http://www.nsf.gov/nsb/committees/archive/
 hurricane/initiative.pdf]
Member, Task Force on Transformative Research, National Science Board (2006-2007)
 [Publication: "Enhancing Support of Transformative Research at the National
 Science Foundation," available at http://www.nsf.gov/nsb/documents/
 2007/tr_report.pdf]
Member, Vannevar Bush Award Selection Committee, National Science Board (2006-
2007)
Chair, Task Force on Cost Sharing, National Science Board (2007-2009)
 [Publication: "Investing in the Future: NSF Cost Sharing Policies for a Robust
 Federal Research Enterprise," available at http://www.nsf.gov/pubs
 /2009/nsb0920/nsb0920.pdf]
Chair, *ad hoc* Committee on Nominating for NSB Elections, National Science Board
(2008)
Chair, Committee on Programs and Plans, National Science Board (2008-2010)
Member, National Science Board Executive Committee (2011-2016)
Chair, National Science Board *ad hoc* Committee on Nominating for NSB Elections
(2011)
Member, National Science Board Sub-Committee on Facilities (2011-2014)
Co-Chair, National Science Board Task Force on Mid-Scale Research (2011-2012)
 [Publication: "The National Science Foundation Support of Unsolicited Mid-
 Scale Research," available at http://www.nsf.gov/nsb/publications
 /2012/nsb1222.pdf]
Vice Chairman, National Science Board (2012-2016)
Member, National Science Board Task Force on Administrative Burdens (2012-2013)
Chair, National Science Board *ad hoc* Committee on Nominating for NSB Elections
(2013)
Chair, National Science Board Committee on Science and Engineering Indicators (2014-
2016)
 [Publication: Multiple documents at http://www.nsf.gov/nsb/sei/index.jsp]
Chair, National Science Board *ad hoc* Task Force on NEON (2015-2016)
 [Report pending public release.]

Principal Accomplishments During Tenure as Vice President for Research

Achieved Carnegie R1 (Highest Research Activity) status (2011)
Led Aspire 2020 strategic planning process to create decadal roadmap for research and
 creative activity
Created new budgeting and commitment tracking/payment system in Office of the Vice
 President for Research (VPR)

Created the Center for Research Program Development and Enrichment in the VPR
Office (works individually with faculty to scaffold their scholarly programs for the
long term, build teams, identify funding, create opportunity)

Created the Broader Impacts in Research position in the VPR Office (diversity
enhancement, engagement, education and outreach)

Created the Research Statistics and Analysis Group in the VPR Office (data analytics
regarding all aspects of research enterprise)

Created the Office of Undergraduate Research reporting jointly to the VPR and Provost

Created the Defense/Security/Intelligence Research Initiative

Established Distinguished Faculty Fellow positions in the VPR Office

Created the VPR Advisory Committee

Created the Research Liaison Program (one faculty member in each academic department
to liaise with the VPR Office)

Created the Center for Applied Research and Development within the VPR Office
(assists faculty in working with companies and mission agencies on applied R&D
projects)

Established the University Strategic Organization Program (institutional investment in
centers and institutes that are foundational to the University's scholarship enterprise)

Restructured the Research Council internal funding portfolio (larger awards, less
prescription, funding of faculty release time)

Established the Faculty Challenge Grant Program

Created the VPR Awards Program

Created the Arts and Humanities Faculty Fellowship Program

Helped establish and fund the Humanities Forum

Established bi-weekly informal lunches with a dozen faculty across all disciplines

Created the Center for Autonomous Sensing and Sampling (reports to VPR)

Created the Recognition Program for Exceptional Achievements in Research and
Creative Activity (incentive and reward salary bonus program for highly prestigious
achievement)

Created the Faculty Leadership Academy

Created the monthly *President's R&D Highlights* publication

Oversee production of the yearly Red Book of Federal Research Priorities for engaging
the Oklahoma Congressional delegation

Supported creation of an electronic routing system (Cayuse) for grant proposals

Created Faculty and Staff Publication Support Program (subvention, open access)

Restructured Faculty Travel Assistance Program

Established Annual State of Norman Campus Research town hall meeting

Established the National Institute for Risk and Resilience (reports to VPR)

Created the Plains Institute for coordinating environmental portfolio (reports to VPR)

Chaired the Research Campus (research/industrial park) Planning and Governance
Committees

Assisted with the construction of Four Partners Place, Five Partners Place, and the Radar
Innovations Laboratory on the Research Campus

Oversaw construction and management of the Devon Energy Hall Clean Room

Chaired campus STEM Education Committee and organized a planning charrette

Created VPR Annual Report

Coordinated several cluster hiring initiatives (radar, social science, environment)

Created and now Chair the Regional VPR/VCR Group (approximately 26 institutions among 12 states in the Midwest)

Established Memorandum of Understanding with Tsinghua University, Beijing, China

Established research engagement with Brazil via the OU in Rio Program

Assisting with recruitment of private companies to the Research Campus

Fundraising and Development

Worked with President David L. Boren and CEO of American Airlines to establish the American Airlines Professorship in Meteorology

Worked with President David L. Boren and Dean John T. Snow to establish the Williams Chair in the School of Meteorology

Worked with President David L. Boren and VPR Lee Williams to raise $16M for the Stephenson Life Sciences Research Center

Worked with Dean John T. Snow to establish the Mark and Kandi McCasland Chair in the School of Meteorology

Led an initiative to obtain a $3M gift from a private family to create the National Alliance for Social-Behavioral Systems and Extreme Environmental Events

Presenter at various Office of Development fundraising events

Professional/Honorary Society Memberships and Service

Tau Beta Pi Engineering Society, University of Oklahoma (1978)

Mortar Board, University of Oklahoma (1979)

American Meteorological Society, Student Member (1976 – 1985)

Sigma Xi Scientific Research Society (1983)

American Meteorological Society, Full Member (1986)

American Association for the Advancement of Science (1985)

American Geophysical Union (1986)

American Association of University Professors (1985)

Vice-President, OU Chapter of Sigma Xi (1987)

President, OU Chapter of Sigma Xi (1988)

Fellow of the Cooperative Institute for Mesoscale Meteorological Studies (1986 – Present)

Society of Industrial and Applied Mathematics (1989)

American Institute for Aeronautics and Astronautics (1989)

Vice President, Central Oklahoma Chapter of the AMS (1997 – 1998)

Vice President, Central Oklahoma Chapter of the NWA (1997 – 1998)

Councilor of the American Meteorological Society (2004 – 2008)

Member, Council on Competitiveness Technology Leadership & Strategy Initiative (TLSI) (2016 – Present)

Personal & Community Service and Leadership

Author of a 170-word, daily weather science column for the Daily Oklahoman newspaper
(July, 1999-July 2001)
Board of Directors, Norman, Oklahoma Chamber of Commerce (2003-2006; 2009-2012)
Chair, Weather and Climate Team, Oklahoma Economic Development Generating
Excellence (EDGE) Governor's Task Force (2003)
Member, Worship Team, Riverside Church, Norman, Oklahoma (1994-2009)
Deacon, Riverside Church, Norman, Oklahoma (2003-2005)
Co-Chair, Norman, Oklahoma Chamber of Commerce Weather Committee
Board of Advisors, Riverside Church, Norman, Oklahoma (2005-2007)
Board of Trustees, Riverside Church, Norman, Oklahoma (2007-2009)
Elder, Riverside Church, Norman, Oklahoma (2009-2010)
Head Usher, LifeChurch, Oklahoma City, Oklahoma (2013-Present)

Awards and Special Recognition

George Lynn Cross Scholarship, University of Oklahoma (1978 – 1979)
Dresser Engineering Scholarship, University of Oklahoma (1979 – 1980)
OU Engineering Dean's Student Advisory Council (1979 – 1980)
Tau Beta Pi Fellowship (1980)
Phi Kappa Phi Honor Society (1981)
University of Illinois Fellowship (1981 – 1982)
Outstanding Young Men of American (1982)
Outstanding First-time Presentation, 12th Conference on Severe Local Storms, San
Antonio, TX, American Meteorological Society (1982)
University of Illinois Fellowship (1982 – 1983)
University of Illinois Fellowship (1983 – 1984)
Sigma Xi Research Paper Award, University of Illinois (1985)
Who's Who in Technology Today (1985)
OU Associates Distinguished Lectureship Award (1986)
Presidential Young Investigator, National Science Foundation (1987 – 1992)
Oklahoma State Senate Citation (1987)
Fellow of the NOAA Cooperative Institute for Mesoscale Meteorological Studies (1987-
Present)
OU Associates Distinguished Lectureship Award (1987)
OU Associates Distinguished Lectureship Award (1988)
OU Associates Distinguished Lectureship Award (1989)
Professor of the Year, College of Geosciences (1991)
Discover Magazine Award for Technology Innovation to CAPS (computer software
category) (1997)
Computerworld Smithsonian Award to CAPS (science category) (1997)

OU Associates Presidential Professorship (1998)
NSF Pioneer Award (2001)
Regents' Professorship, University of Oklahoma (2001)
Fellow of the American Meteorological Society (2002)
NOAATech 2002 Award for Best Use of Advanced Networks: "WSR-88D Radar Data over the Internet/NGI" (co-recipient, 2002)
Federal Aviation Administration Excellence in Aviation Award (2002)
Roger and Sherry Teigen Presidential Professorship (2004)
Invited Speaker for the Millennium Lecture Series, UTEP (2006)
Fellow of the American Association for the Advancement of Science (2014)
University of Illinois Department of Atmospheric Sciences Distinguished Alumni Speaker (2016)
Rod Rose Award for best article in the *Journal of Research Administration* (2017)

Selected Departmental and University Service Activities

Undergraduate Advisor (1985-Present)
Member of Advisory Council, Cooperative Institute for Mesoscale Meteorological Studies (1987 - 1988)
Member, School of Meteorology Graduate Studies Committee (1988-1990)
Coordinator of Oklahoma Symposium on High-Performance Scientific Computing (1987)
Chairman, OU Campus Computing Advisory Committee (1987-1989)
Administrative Director, Geosciences Computing Network (1987-1989)
Member, EECS Faculty Search Committee (1989)
Member, Math Department Chair Search Committee (1989)
Chairman, School of Meteorology Graduate Studies Committee (1989-1990)
Facilitator for Course on Numerical Grid Generation, Televised from Mississippi State University (Spring 1990)
Member of the State of Oklahoma Supercomputer Advisory Committee (1990)
Coordinated purchase and installation of the CAPS computer system (1992)
Faculty Advisor to School of Meteorology Student Affairs Committee (1993)
Chairman, University of Oklahoma Task Force on Computer Networking (1994-1995)
Capstone Course Mentor (1994-1997)
Member, Engineering Dean Search Committee (1996-1998)
Member, Budget Council (1996-1998)
Member, School of Meteorology Committee A (executive committee) (1996-1998)
Chair of Environmental Computing Applications System Steering Committee and Director of ECAS (1996-1999)
Chair of School of Meteorology Budget Sub-Committee (1996-1997)
Member of OU Research Council (1997-2000)
Member, Faculty Senate Task Force on Intellectual Property (1998)
Vice Chair of OU Top 10 Scientists Group (1998)
OU Speakers Bureau (1997-1998)

Member, Search Committee for the Director of the Office of Research Administration (1998)

Member, Presidential Professorship Selection Committee (1998-2001)

Member, Conflict of Interest Advisory Committee (1998-2000)

Member, Technology Development Council Task Force on Computing (1998)

Chair of OU Research Council (1999-2000)

Initiated Effort to Create the American Airlines Endowed Professorship in Meteorology (1999)

Member, Graduate Studies Committee, OU School of Meteorology (1999-2001)

Member of Ad Hoc Undergraduate Committee, OU School of Meteorology (1999-2005)

Search Committee, Associate Vice President for Technology Development (2000)

Member of Lowry Chair Search Committee (1999-2001)

Member of Williams Chair Search Committee (2001-2002)

Chair of SoM Undergraduate Studies Committee (2001-2005)

Member, Board of Advisors, OU Supercomputing Center for Education & Research (2001-Present)

Member, OU Patent Advisory Committee (2003-2005)

Member, Two Faculty Search Committees in SoM (radar hires) (2003-2005)

Member, ECE Chair Search Committee (2004-2005)

Member, Search Committee for the Dean of the College of Earth and Energy (2005-2006)

Facilitator of Research Retreats for the College of Earth and Energy (2005)

Member, OU Renaissance Project Planning Committee (2006-2007)

Chair of Eddie Carol Smith Scholarship Selection Committee (2006)

Member, OU Research Cabinet (2006-2016)

Member, K20Center/Education College Faculty Search Committee (2006-2008)

Member, State of Oklahoma EPSCoR Committee (2007-Present)

Member, McCasland Chair Search Committee (2007-2008)

Member, Graduate College Outstanding Dissertation Award Selection Committee (2008)

Member, Task Force on Establishing a Doctoral Program, OU College of Architecture (2009)

Member, Selection Committee, Regents' Award for Superior Staff Performance (2010)

Member, OU University Club Board of Trustees (2013-2016)

President, OU University Club Board of Trustees (2014-2015)

Member, Search Committee, Director of the Oklahoma Geological Survey (2014)

Chair, State EPSCoR Subcommittee on Strategic Planning (2014-2015)

Co-Chair, Environmental Leadership Search Committee (2015-2016)

Member, OU Graduate Education Task Force (2015-2017)

Founding Director of OU Faculty Leadership Academy (2015-Present)

Convocation Address to Graduate College Graduating Class, OU Health Sciences Center (2016)

Selected Professional Development and Service Activities

Summer Faculty Fellow, Minnesota Supercomputer Institute (1986)

Member, Joint Peer Review Board, National Center for Supercomputing Applications and Pittsburgh Supercomputer Center (1987-1991)

Member, American Meteorological Society STAC Committee on Severe Local Storms (1987-1990)

Member, NCAR Supercomputer Upgrade Panel (1989)

Visiting Scientist, Minnesota Supercomputer Institute (1990)

Program Co-Chairman, 16th AMS Conference on Severe Local Storms (1990)

Member, AMS Committee on Severe Local Storms (1987 - 1990)

Associate Editor, *Monthly Weather Review* (1991-1999)

Member, Review Panel, NSF High Performance Computing and Communications Program (1992)

Visiting Senior Fellow, Army High Performance Computing Research Center, University of Minnesota (1992)

Member, AMS/EPA Steering Committee on Air Quality (1992-1994)

Co-Organizer, Workshop on High-Performance Computing in the Geosciences, Les Houches, France (1993)

Member, US Weather Research Program Prospectus Development Team #1 (1994)

Member, University Relations Committee, University Corporation for Atmospheric Research (1995 - 2001)

Co-Organizer, 1st Joint US-Korea Workshop on Storm- and Meso-Scale Weather Analysis and Prediction (1996)

Member, University Governance Examination Team, University Corporation for Atmospheric Research (1996)

Member, US Weather Research Program Proposal Review Panel (1996)

Member, US Weather Research Program Scientific Steering Committee (1997-2001)

Co-Organizer, 2nd Joint US-Korea Workshop on Storm- and Meso-Scale Weather Analysis and Prediction (1997)

Member, National Centers for Environmental Prediction Review Panel for Aviation Weather Center (1998)

Co-Chair, US Weather Research Program Pospectus Development Team #9 (1998)

Member, Geosciences-2000 Working Group, National Science Foundation (1998-1999)

Member, User Advisory Council, National Computational Science Alliance (1998-2000)

Member, Scientific Computing Division Advisory Panel, National Center for Atmospheric Research (1998-2003)

Chair, University Relations Committee, University Corporation for Atmospheric Research (1998-1999)

Member, Planning Committee of the World Weather Research Program Sydney Olympics 2000 Forecast Demonstration Project (1998-2000)

Co-Organizer of the First Study Conference on Aviation Weather Hazards (1998)

Member of the Oklahoma Secretary of Science and Technology Development's Terabit Testbed Network Advisory Panel

Founder and Manager of Project CRAFT: The Collaborative Radar Acquisition Field Test (CRAFT) (1998-2006)

Gave Congressional Briefing on the 3 May 1999 Oklahoma Tornado Outbreak (1999)

Organizer and Chair, National Symposium on the Great Plains Tornado Outbreak of 3 May 1999 (2000)

Member, Organizing Committee, US Weather Research Program Workshop on Research Needs of the Private Sector (2000)

Organizer, Special Issue of the American Meteorological Society Journal *Weather and Forecasting* Devoted to the May 3rd Tornado Outbreak (2000-2001)

Leader, Analysis and Verification Team, Weather Research and Forecast (WRF) Model Project (2000)

Participant in the Higher Education Academy of the Oklahoma Educator's Leadership Academy (2000-2001)

Member, Advisory Committee, NSF Geosciences (GEO) Directorate (2001- 2005)

Member, Blue Ribbon Panel on Cyber Infrastructure, National Science Foundation (2001-2002)

Member, National Science Foundation Proposal Review Panel, 4th Science and Technology Centers Competition (2001)

Member, Board of Trustees, University Corporation for Atmospheric Research (2001-2008)

Member, Organizing Committee, Workshop on Cyberinfrastructure for Environmental Research and Education (2002)

Member, National Research Council Committee on Weather Forecasting Accuracy for FAA Air Traffic Control (2002)

Attendee, American Meteorological Society Summer Colloquium on Science and Public Policy (2002)

Adjunct Member of the National Weather Service Science and Technology Integration Plan (STIP) Observing Integrated Planning Team (ObsIPT) (2002)

Member, Organizing Committee, EPSCoR Workshop on Cyberinfrastructure (2002-2003)

Member, National Science Foundation Steering Committee for Cyberinfrastructure Research and Development in the Atmospheric Sciences (CyRDAS) (2002-2003)

Vice Chairman, Board of Trustees, University Corporation for Atmospheric Research (2003-2004)

Chair, US Weather Research Program CONDUIT/CRAFT Steering Committee (2003-2007)

Member, Advisory Committee, NSF Directorate for Computing Information Science and Engineering (CISE) (2003-2004)

Member, Review Panel, NSF Extensible Terascale Facility (ETF) proposal solicitation (2003)

Member, ad hoc Search Committee for a Senior Scientist at Howard University (2003)

Chairman of the Board of Trustees, University Corporation for Atmospheric Research (2004-2008)

Member, Advisory Committee, NCAR Data Assimilation Strategic Initiative (2004-2006)
Member, Sasaki Applied Meteorology Research Institute (SAMRI) Council (2004-2006)
Member of Southeastern Research Universities Association (SURA) High Performance
    Computing/Grid Planning Group (2004-2005)
Appointed by President George W. Bush to the National Science Board (2004-2010)
Councilor, American Meteorological Society (2004-2008)
Member, Weather Research and Forecasting (WRF) Model Research Advisory Board
    (2005-2006)
Member, National LambdaRail (NLR) Science Research Council (NSRC) (2005-2007)
Member, Data Center Blue Ribbon Panel, National Center for Atmospheric Research
    (2005-2006)
Member, Advisory Committee, National Center for Computational Sciences and the
    Computer Science and Math Division, Oak Ridge National Laboratory (2006)
Member, Scientific Advisory Board, Microsoft Research Corporation (changed to
    Microsoft External Research Advisory Board in January, 2009) (2006-2008)
Member, National Advisory Council, Renaissance Computing Institute (2007-2010)
Member, Program Committee for e-Science 2007 Conference (2007)
Member, TeraGrid Requirements Analysis Team (2007-2008)
Member, Board of Directors, National Weather Museum and Science Center (2009-2017)
Member of Search Committee for Director, National Center for Atmospheric Research
    (2008)
Chair, UCAR Review Panel for the NOAA Aviation Weather Center, Storm Prediction
    Center, Environmental Modeling Center, NCEP Central Operations (2008-2009)
Member, Board of Directors, Council on Governmental Relations (2009-2014)
Member, Program Committee for e-Science 2009 Conference (2009)
Member, Program Committee for the 10th IEEE/ACM International Symposium on
    Cluster, Cloud and Grid Computing (CCGrid 2010; 2009-2010)
Member, Board of Directors, Oak Ridge Associated Universities (ORAU) (2010-2013)
Member, Board of Directors, Oak Ridge Associated Universities (ORAU) Foundation
    (2010-2013)
Member, Advisory Committee, Computer Science and Mathematics Division, Oak Ridge
    National Laboratory (2010-2012)
Member, AAU Task Force on Strengthening the University-Government Research
    Partnership (2010-Present)
Member, Board of Trustees, Southeastern Universities Research Association (2011-
    Present)
Member, Presidential Search Committee, University Corporation for Atmospheric
    Research (2011)
Member, Oklahoma Governor's Science and Technology Council (2011-Present)
Vice Chairman, Board of Directors, Oak Ridge Associated Universities Foundation
    (2011-2013)
Member, Executive Committee, Association of Public and Land Grant Universities
    Council on Research Policy and Graduate Education (2011-2014)
Member, Board on Research Data and Information, National Research Council of the
    National Academies (2011-2015, 2016-2019)

Member, Search Committee for the Director of the NOAA National Weather Service (2012)

Chairman-Elect, Council on Research Policy and Graduate Education, Association of Public and Land Grant Universities (2012-2013)

Member, National Research Council Panel on Information Science at the Army Research Laboratory (2013-2015)

Chair, Development and Relations Committee, Southeastern Universities Research Association (SURA) Board of Directors (2013-2015)

Member, Board of Directors, Association of Public and Land Grant Universities (APLU) (2013-2014)

Member, NCAR Director Blue Ribbon Advisory Panel (2014)

Chairman, Council on Research (formerly Council on Research Policy and Graduate Education), Association of Public and Land Grant Universities (2013-2014)

Keynote Speaker, Governor Mary Fallin's Annual STEM Summit (2015)

Creator of and Host for the Inaugural Meeting of Central and Southern Plains Vice Presidents and Vice Chancellors for Research, University of Oklahoma

Member, Board of Directors, The Alliance for Science and Technology Research in America (ASTRA) (2014-Present)

Member Presidential Search Committee, University Corporation for Atmospheric Research (2015-2016)

Past-Chairman, Council on Research (Formerly the Council on Research Policy and Graduate Education), Association of Public and Land Grant Universities (2014-2016)

Member, NSF Search Committee for Director of Office of Integrative Activities (2015-2016)

Vice-Chairman of the Board of Trustees, Southeastern Universities Research Association (SURA) (2016-2018)

Member, NSF Assistant Director of Geosciences Search Committee (2016)

Leader of the Central and Southern Plains Vice Presidents and Vice Chancellors for Research Group and Chair of the Executive Committee (2014-Present)

Member, State of Oklahoma EPSCoR Executive Subcommittee

Invited Participant, Future of OSTP Planning Meeting, Sponsored by the Baker Institute, Rice University (2016)

Member, Council on Competitiveness Technology Leadership and Strategy Initiative (2016-Present)

Chairman of the Board of Trustees, Southeastern Universities Research Association (SURA) (2018 – Present)

Courses Taught at the University of Oklahoma (* indicates developed new)

Introduction to Meteorology (Undergraduate)
Atmospheric Dynamics I (Undergraduate)
Atmospheric Dynamics II (Undergraduate)
Mesoscale Meteorology (Undergraduate)
*Computational Fluid Dynamics I (Graduate)

*Computational Fluid Dynamics II (Graduate)
Convective Dynamics and Modeling (Graduate)
Numerical Weather Prediction (Graduate)
*Variational Data Assimilation (Graduate)
Physical Mechanics for Meteorology (Undergraduate)
*Severe and Unusual Weather (Undergraduate)
Advanced Synoptic Meteorology (Graduate)
Synoptic-Dynamic Meteorology (Undergraduate)
*Hazardous Weather Detection and Prediction (Senior Undergraduate/Graduate)
*Demystifying the Academic Research Enterprise – DARE (Online, All Disciplines, All
Levels Undergraduate and Graduate)

Previous Externally-Sponsored Research Grants

NOAA
"Central Oklahoma Mesoscale Modeling and Analysis Project". Principal
Investigator, $8,199. (6/15/86 to 8/15/86).

NSF
"Numerical Simulation and Observational Analysis of Thunderstorms and
Subcloud Phenomena". Principal Investigator, $125,920. (7/15/86 to
7/14/88).

NOAA
"Central Oklahoma Mesoscale Modeling and Analysis Project". Principal
Investigator, $12,891. (12/1/86 to 5/31/88).

Keck
Research Foundation - Proposal to Upgrade the Digital Image Processing
Facilities of the Geosciences Computing Network. Co-Principal
Investigator (with T.H.L. Williams), $350,000. (December, 1988)

OCAST
Oklahoma Center for the Advancement of Science and Technology,
Computer System for Digital Image Processing and Graphic Visualization.
Principal Investigator, $100,000 (November, 1989).

Honeywell
Sperry Commercial Flight Systems Group, Air Transport Systems
Division - "Development of an Expert System for the Honeywell
Windshear Computer Using Data from a Numerical Thunderstorm Model.
Part I. Computations Support". Principal Investigator, $8,095. Yr 1.

Honeywell
Sperry Commercial Flight Systems Group, Air Transport Systems
Division - "Development of an Expert System for the Honeywell
Windshear Computer Using Data from a Numerical Thunderstorm Model.
Part I. Computations Support". Principal Investigator, $8,900. Yr 2.

NSF
"Convective Modeling and Predictability Studies". Principal Investigator,
$177,606. (2/15/89 to 7/1/91).

NSF	"Simulation of Meso- and Convective-Scale Dynamics". Presidential Young Investigator Award. Principal Investigator. (Funded 1987-1992)

- 1st year funding, including NSF and industrial match: $247,040 (1987-1988)
- 2nd year funding, including NSF and industrial match: $137,984 (1988-1989)
- 3rd year funding, including NSF and industrial match: $142,500 (1989-1990)
- 4th year funding, including NSF and industrial match: $ 99,500 (1990-1991)
- 5th year funding, including NSF and industrial match: $100,000 (1991-1992)

NSF	"Center for Analysis and Prediction of Storms (CAPS)". Science and Technology Research Center. Co-Principal Investigator (with D. Lilly) and Deputy Director for Research, $4,900,000. (1988 - 1993, first 5 of 11 years).
NSF	"Center for Analysis and Prediction of Storms (CAPS)". Science and Technology Research Center. Co-Principal Investigator (with D. Lilly, F. Carr, and T. Gal-Chen) and Deputy Director, $8,617,076. (1992 - 1997).
FAA	"Parameter Retrieval from Doppler Radar Observations and Development of Related Mesoscale Prediction Models". Co-Principal Investigator (with D. Lilly and T. Gal-Chen), $295,092. (1991-1993).
NSF	"Further Development of the CAPS Advanced Regional Prediction System". Principal Investigator (supplement to CAPS grant from Army Atmospheric Sciences Laboratory), $17,529. (1992).
EDR	"Numerical Simulation of Fog Formation in Complex Terrain Using the ARPS Model". Principal Investigator, $63,633, (Nov 1993 - Oct 1994). Year 1 of 3 Years.
NSF	"Dynamics and Predictability of Convective Storms". Principal Investigator, $118,100 (1 Jul 1993 - 30 Jun 1994)
EDR	"Numerical Simulation of Fog Formation in Complex Terrain Using the ARPS Model". Principal Investigator, $78,869 (Nov 1994 - Oct 1995). Year 2 of 3 years.
FAA	"Supplement to the Center for Analysis and Prediction of Storms (CAPS)" Principal Investigator (with J.T. Lee), $292,262.

NSF	"Center for Analysis and Prediction of Storms (CAPS)". Principal Investigator (with D. Lilly, F. Carr, J. Straka, and Q. Xu), $1,586,383.
AMR Corp	"Project Hub-CAPS: Developing a Prototype Storm-Scale NWP System for Commercial Aviation. Principal Investigator, $342,630, year-1 of 3 years (1 July 1996 - 31 June 1997).
NSF	"Dynamics and Predictability of Convective Storms". Principal Investigator, $118,791 (year 3 of 3 years: 31 December 1995 - 30 Jun 1997).
EDR	"Numerical Simulation of Fog Formation in Complex Terrain Using the ARPS Model". Principal Investigator, $55,490 (Nov 1994 - Oct 1996). Year 3 of 3 years.
NSF	"Center for Environmental Applications of the Oklahoma Mesonet". Co-Principal Investigator. $1,010,000 (EPSCoR Program).
NSF	"Joint US-Korea Workshop on Storm- and Meso-Scale Weather Analysis and Prediction." PI, $44,394, 1 year.
Rome Labs	"Mesoscale Modeling of Lake Effect Snow." PI (with D. Jahn as Co-PI), $33,897, 1.5 years.
NSF	"Center for Analysis and Prediction of Storms (CAPS)". Principal Investigator (with F. Carr, J. Straka, A. Shapiro, K. Brewster, M. Xue), $1,592,810. (year 9 of 11)
NSF	"Research Experiences for Undergraduates at the Oklahoma Weather Center". Co- Principal Investigator, $72,695 (Fall 1997 - Spring 1998).
NSF	"Center for Analysis and Prediction of Storms (CAPS)". Principal Investigator (with F. Carr, J. Straka, A. Shapiro, K. Brewster, M. Xue), $1,582,616. (year 10 of 11)
Various	"A Proposal to Upgrade the Cray J90 Supercomputer at the OU Environmental Computing Applications System (ECAS)." Principal Investigator, $233,000, 1 year (1 July 1997-31 June 1998). Funded by University of Oklahoma, AMR Corporation/American Airlines, Oklahoma State Regents for Higher Education.
NSF	"Acquisition of Equipment to Create the Environmental Computing Applications System". Principal Investigator, $580,000 (1 September 1995 - 31 August 1998).

AMR Corp   "Project Hub-CAPS: Developing a Prototype Storm-Scale NWP System
            for Commercial Aviation. Principal Investigator, $327,600, year-3 of 3
            years (1 July 1996 - 31 June 1999).

NSF   "Center for Analysis and Prediction of Storms (CAPS)". Principal
            Investigator (with F. Carr, J. Straka, A. Shapiro, K. Brewster, M. Xue),
            $1,379,226. (year 11 of 11).

OSRHE   "Enhancement of the CAPS Storm-Scale Numerical Weather Prediction System
            and Real Time Access to Level II NEXRAD Radar Data." Principal Investigator,
            $256,000, 2 years. Funded by Oklahoma State Regents for Higher Education

FAA   "Explicit Modeling of Convection in the Terminal Area." Principal
            Investigator, $25,000, 1 year (Oct 1998 - Oct 1999).

NSF   "The Oasis Project: Oklahoma Atmospheric and Surface-Layer
            Instrumentation System." Co-Principal Investigator, $1,509,729, 3-years.

NSF   "Center for Environmental Applications of the Oklahoma Mesonet". Co-
            Principal Investigator. $23,469 (EPSCoR Program).

NSF   "Research Experiences for Undergraduates at the Oklahoma Weather
            Center". Co-Principal Investigator, $150,000, 2 years.

FAA   "Comparison of Deterministic Thunderstorm Prediction with the
            Statistical Growth and Decay Tracker. Principal Investigator, 1 year,
            $60,000. Funded.

NSF   "National Symposium on the Great Plains Tornado Outbreak of 3 May
            1999." Principal Investigator, 1 year, $15,255.

NSF   "National Symposium on the Great Plains Tornado Outbreak of 3 May
            1999." Principal Investigator, 1 year, $5,000. Funded by the Oklahoma
            EPSCoR Program.

KMA   "Continued Development of the Advanced Regional Prediction System for
            the Korean Meteorological Administration." Co-Principal Investigator, 1
            year, $60,000.

AMR Corp   "Continued Enhancement of the Hub-CAPS Forecast System." Principal
            Investigator, 1 year, $25,000.

Williams   "Advanced Weather Forecasting for Energy." Principal Investigator, 5
            years, $8,090,518. Funded by Williams Energy Marketing and Trading
            Company. Project was terminated due to the Enron scandal and associated

disruption of energy marketing and trading industry; approximately $4.5M of the planned $8.1M were expended.

WDT   "Enhancement of the Advanced Regional Prediction System (ARPS) for Commercial Application." Principal Investigator, 1 year, $135,243. Funded by Weather Decision Technologies, Inc.

NOAA   "A Prototype Regional Fine-Scale Numerical Weather Analysis and Prediction System Using NEXRAD Radar Data." Principal Investigator, $474,200, 1-year.

NSF   "A Probabilistic Framework for Assessment and Interpretation of Quantitative Precipitation Forecasts from Storm-Scale Models." (USWRP Program). Co-Principal Investigator (with E. Foufoula-Georgiou, University of Minnesota), $334,171, 3 years.

NOAA   "Moving Realtime WSR-88D Base Data Over The NGI." Co-Principal Investigator, 1 year, $198,000.

METRI   "Assimilation of X-Band and WSR-88D Doppler Radar Data into a Mesoscale Forecast System." Principal Investigator, 1 year, $22,500.

NOAA   " A Real-time, NGI-Based, Direct Digital Ingest and Archive of WSR-88D Base Data as a Prototype for a National System." Co-principal investigator, 3 years, $540,000.

HRL   "Observing System Simulation Experiments for Airborne Weather Sensors." Principal Investigator (4/15/05-6/14-05), $33,560.

NSF   "Research Experiences for Undergraduates at the Oklahoma Weather Center." Co-Principal Investigator, 2 years, $163,467.

ATSC   "Preparation of SBIR Proposal on the Calibration of Ensemble Forecasts of Atmospheric Dispersion." Co-Principal Investigator, 3 months, $4,677.

NSF   "MRI: Acquisition of an Itanium Cluster for Grid Computing." Co-Principal Investigator, 3-years, $340,000.

NSF   "On the Optimal Use of WSR-88D Doppler Radar Data for Variational Storm-Scale Data Assimilation." Co-Principal Investigator, 3-years, $599,846.

ATSC   "Calibration of Fine-Scale Ensemble Forecasts for On-Demand Probabilistic Dispersion Modeling." Principal-Investigator, 6 months, $6,468.

NSF	"Collaborative Research: ITR Linked Environments for Atmospheric Discovery (LEAD)." Principal Investigator (OU portion of 9-institutional collaborative proposal is $1,875,709. Total grant is $11,250,000.
NSF	"Collaborative Research: ITR Linked Environments for Atmospheric Discovery (LEAD) – Supplement" Co-Principal Investigator, $119,346.
NSF	"Advancing Biotechnology and Climatology (ABC): Educating for Economic Growth in Oklahoma." Co-Principal Investigator, 3-years, $598,559.
ATSC	"Technical Support for the WRF Ensemble Reforecast System." Co-Principal Investigator (funded from DTRA), 2-years, $56,290.
NSF	"Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere (CASA)." Co-Principal Investigator and Deputy Director (OU portion of total budget for first 5 years is $5,478,109). (Total budget to date is $23,160,030.)
NOAA	"Life and Death Decisions: "An Integrative Approach to Understanding and Mitigating the Impacts of Extreme Weather." Principal Investigator, 1 year, $50,000. Funded (2014-2015)
NOAA	"A Partnership to Develop, Conduct and Evaluate Realtime High-Resolution Ensemble and Deterministic Forecasts for Convective-Scale Hazardous Weather." Principal Investigator, 3 years, $374,825. (2007-2010)
NSF	"Assimilation of Doppler Radar Data for Storm-Scale Numerical Prediction Using an Ensemble-based Variational Method." Co-Principal Investigator, 3 years, $199,990. (2008-2011)
FAA	"Weather Processors Support Task: Rightsizing NextGen Weather Observation Network." Principal Investigator, 2 years, $186,667. (2009-2011)

Previous Internally-Sponsored Research Grants

OU	Associates Research and Creative Activity Fund - "Central Oklahoma Mesoscale Modeling and Analysis (COMMA) Project, Phase II". Principal Investigator, $22,110. (1988)

CAPS	"Initialization of a Convective Cloud Model From Observations". Principal Investigator (with C. Hane and C. Ziegler), $42,020 (2/1/90 to 2/1/91).
CAPS	"Initialization of a Convective Cloud Model From Observations". Principal Investigator (with C. Hane and C. Ziegler), $59,762 (2/1/91 to 1/31/92).
OU	"Instructional and Advising Improvement". Co-Principal Investigator (with F. Carr), $28,771.
CAPS	"Initialization of a Convective Cloud Model From Observations". Principal Investigator (with C. Hane and C. Ziegler), $35,994 (2/1/92 to 1/31/93).
OU	"Meteorological Classroom Visualization". Co-Principal Investigator (with K. Crawford), $13,375. (Funded for $9,125 on 13 April 1994).
VPR	"Support for CAPS' P/R and Marketing Specialist", $10,000 (1998-2000)

Current Externally-Sponsored Research Grants

NOAA	"Development of a Digital Collaboration for the Alliance for Integrative Approaches to Extreme Environmental Events." Principal Investigator, 1 year, $48,544. (2017-2018)
NOAA/NSSL	"Development of a Digital Collaboration for the Alliance for Integrative Approaches to Extreme Environmental Events, Phase I: Scoping and Functional Requirements Development." Principal Investigator, 1 year, $35,482. (2017-2018)

Philanthropic Support for Research

ImpactWx	"The Alliance for Integrative Approaches to Extreme Environmental Events." Account Sponsor, $3,000,000. (2018-2020).

Pending Proposals

NSF	"Atmospheric Science Gateway for Accelerating Research and Discovery (ASGARD)." Senior Personnel, 5-years, $861,213 (OU is a sub-contractor to Indiana University, the lead institution).

Service as Chair of Graduate Student Committees (Degrees Completed)

Richard Carpenter (M.S., 1988) *Application of the Piecewise Parabolic Method to Meteorological Modeling* (with C.E. Hane)

Kimberly Carver (M.S., 1990) *The Origin of Rotation in Numerically Simulated Dry Convection*

Steven Lazarus (M.S., 1990) *The Influence of Helicity on the Stability and Morphology of Numerically Simulated Storms*

Kriste Lyon Paine (M.S., 1991) *A Comparison of Two Methods for Dynamic Grid Adaption in Two-Dimensional Scalar Transport*

William McPherson (M.S., 1991) *Sensitivity of Numerically Simulated Downbursts to the Horizontal Radius of the Initial Rain Disturbance*

Renee McPherson (M.S., 1991) *Predictability Experiments of a Numerically Modeled Supercell Storm*

James T. Johnson (M.S., 1992) *Investigation of Outflow Strength Variability in Florida Downburst-Producing Storms.*

Michael Babcock (M.S., 1992) *Aircraft Trajectory Analyses Through Simulated Microbursts*

Yong Li (Ph.D., 1994) *On the Topological Complexity of the Cost Function in Variational Data Assimilation*

Hao Jin (M.S., 1994) *Numerical Study of Cold-Air Damming* (with Q. Xu)

Richard Carpenter (Ph.D., 1994) *Entrainment and Detrainment in Numerically Simulated Cumulus Congestus Clouds* [Dissertation won the OU Outstanding Dissertation Prize in the Science and Engineering Category.]

David Jahn (M.S., 1995) *Simulation of Convective Storms in Environments with Independently-Varying Bulk Richardson Number Shear and Storm-Relative Helicity*

Seon-Ki Park (Ph.D., 1996) *Sensitivity Analysis of Deep Convective Storms*

Steven Lazarus (Ph.D., 1996) *Assimilation and Prediction of a Florida Multicell Storm Using Observed Single-Doppler Data*

Edwin Adlerman (M.S., 1997) *Numerical Simulation of Cyclic Mesocyclogenesis*

DeWayne Mitchell (M.S., 1997) Observations of Convection Initiation During CaPE 1991: A Case Study (Co-Chair with M. Eilts)

Stephen Weygandt (Ph.D., 1998) *Retrieval of Initial Forecast Fields from Single Doppler Observations of a Supercell Thunderstorm* (Co-Chair with Alan Shapiro)

Jason Levit (M.S., 1998) *A Simple Diabatic Initialization Technique for Storm-Resolving Models*

Xuechao Yu (M.S., 1999) *On Quantitative Precipitation Forecasting Using High Resolution Non-Hydrostatic Models*

Yvette Richardson (Ph.D., 1999) *The Influence of Horizontal Variations in Vertical Shear and Low-Level Moisture on Numerically Simulated Convective Storms*

Matthew W. Miller (M.S., 2000) *The Determination of Usefulness of Precipitation Forecasts and Probabilistic Precipitation Verification Using SAMEX 1998 Ensemble Data* (E. Kalnay principal supervisor)

Ernani de Lima Nascimento (Ph.D., 2002) *Dynamic Adjustment in an Idealized Numerically Simulated Bow echo.*

Hee-Dong Yoo (Ph.D., 2003) *The Impact of Radar Data Assimilation on the Chorwon Yonchon 1996 Heavy Rainfall Event.*

Janelle Janish (M.S., 2003) *Relationships Between Baroclinically-Generated Horizontal Vorticity and Mesocyclone Intensity as Revealed by Single-Doppler Velocity Retrievals Using WSR-88D Data*

Edwin Adlerman (Ph.D., 2003) *Numerical Simulations of Cyclic Storm Behavior: Mesocyclogenesis and Tornadogenesis*

Nicki Levit (M.S., 2004) *High-Resolution Storm-Scale Ensemble Forecasts of the 28 March 2000 Fort Worth Tornadic Storms*

Adam Lopes (M.S.P.M., 2004) *Forecasting Aircraft Turbulence: A Historical Perspective and New Approaches for Forecasting Aircraft Turbulence through Mesoscale Numerical Weather Prediction.*

Melissa Bukovsky (M.S., 2004) *Initiation and Propagation of Convection in Forecast Models Using Convective Parameterizations* (co-chair with J. Kain)

Jessica Proud (M.S., 2006) *Optimal Sampling Strategies for Tornado and Mesocyclone Detection Using Dynamically Adaptive Doppler Radars*

Ashton Robinson (M.S., 2007) *Impact of Low-Altitude Radar Data on Storm-Scale Numerical Weather Prediction*

Derek Rosendahl (M.S., 2008) *Identifying Precursors to Strong Low-Level Rotation Within Numerically Simulated Supercell Storms: A Data Mining Approach* (co-chair with Amy McGovern)

Bob Fritchie (M.S., 2009) *Detection of Hazardous Weather Phenomena Using Data Assimilation Techniques.*

Guoqing Ge (Ph.D., 2011) *On the Further Studies of Suitable Storm-Scale 3DVAR Data Assimilation for the Prediction of Tornadic Thunderstorms* (Co-advisor with Jidong Gao)

Service on M.S. Committees (Degrees Completed, Excluding Own Students)

Chuan-Lau Hwang, M.S. in Meteorology, 1987
A Comparison of Sigma-Coordinate and Pressure-Coordinate Primitive Equation Systems in a Regional Model

Stephen Allen, M.S. in Meteorology, 1988
An Investigation into the Gravity Current Aspects of a Cold-Air Outbreak using Variational Analysis Technique

Guang Ping Lo, M.S. in Meteorology, 1989

Observing Systems Experiments using FGGE/MONEX Data: Impact on numerical prediction of cyclones

Yu-Chieng Liou, M.S. in Meteorology, 1989
Retrieval of Three-dimensional Wind and Temperature Fields from One Component Wind Data by using the Four-dimensional Data Assimilation Technique

Daniel Zacharias, M.S. in Meteorology, 1989
A Case Study of the 10 Day 1985 Tornado Outbreak in Northern Kansas

Yvette Richardson, M.S. in Meteorology, 1993
Verification of NMC Short-Range Models Using Wind Profiler Data

David Dowell, M.S. in Meteorology, 1993
A Comparative Study of Two Supercells: Airborne Doppler Analyses

Gordana Sindic-Rancic, M.S. in Meteorology, 1994
Test of an Advanced Passive Scalar Advection Scheme for Numerical Weather Prediction

Yiping Wang, M.S. in Meteorology, 1994
The Effects of Sampling Error on Satellite IR and Microwave Rainfall Estimates Over the Open Ocean

Daniel Bickford, M.S. in Meteorology, 1994
Effects of Wind Filling in the Near-Environment of a Numerical Storm Simulation

Yunyun Lu, M.S. in Meteorology, 1994
Large-Scale Wind Field Retrieval Using Kinematic Models and a Reflectivity Conservation Equation

Travis M. Smith, M.S. in Meteorology, 1994
Three Dimensional Visualization of WSR-88D Data

John Krause, M.S. in Meteorology, 1995
Application of the Bratseth Technique to Mesoscale Objective Analysis

Robert D. Duncomb, Jr., M.S. in Meteorology, 1996
Verification of VORTEX '94 Forecasts

David S. Andrus, M.S. in Meteorology, 1996
An Observational and Modeling Study of Two EMVER-93 Gulf of California Surge Events

Andrew C. Wood, M.S. in Meteorology, 1997
   Analysis of Supercell Storms on 8-9 June, 1994 in Northeastern Colorado

John J. Mewes, M.S. in Meteorology, 1997
   Quantitative Verification of Non-Hydrostatic Model Forecasts of Convective Phenomena

Scott Ellis, M.S. in Meteorology, 1997
   Hole-Filling Data Voids in Meteorological Fields

Jeffrey B. Basara, M.S. in Meteorology, 1998
   The Relationship Between Soil Moisture Variation Across Oklahoma and the Physical State of the Near-Surface Atmosphere During the Spring of 1997

Christopher M. Stock, M.S. in Meteorology, 1998
   Intercomparison of Icing Aviation Impact Variable Forecasts Produced During Realtime Mesoscale Numerical Weather Prediction

Dan Bikos, M.S. in Meteorology, 1998
   Simulation of a Great Lakes Lake-Effect Snow Event

Eric Kemp, M.S. in Meteorology, 1999
   Comparative Assessments of Mesoscale Aircraft Icing and Turbulence Forecasts from the Advanced Regional Prediction System

Justin Lane, M.S. in Meteorology, 2000
   A Climatology of Heat Bursts as Detected by the Oklahoma Mesonet: October 1993 Through September 1998

Derek Arndt, M.S. in Meteorology, 2001
   The Lasting Effects of Mesoscale Convective Systems Over Eastern Oklahoma during August 1994

Nicole P. Kurkowski, M.S. in Meteorology, 2002
   Assessment of Implementing Satellite-Derived Land Cover Data in the Eta Model

Thomas A. Jones, M.S. in Meteorology, 2002
   Verification of the NSSL Mesocyclone Detection Algorithm: A Climatological Perspective

Kevin McGrath, M.S. in Meteorology, 2003
   Mesocyclone Climatology of The Southern Great Plains of The United States Using the National Severe Storms Laboratory's Mesocyclone Detection Algorithm

Geoffrey Stano, M.S. in Meteorology, 2003
A Case Study of Convective Initiation on 24 May 2002 during the IHOP Field Experiment

Kodi Nemunaitis, M.S. in Meteorology, 2003
Validation of the North American Land Data Assimilation System (NLDAS) Using Data from Oklahoma Mesonet Sites

Andrew A. Taylor, M.S. in Meteorology, 2003
Adjusting Model Output Statistics (MOS) Temperature Forecasts Using Linear Regression of Observations Against Past Errors

Elaine Godfrey, M.S. in Meteorology, 2003
A Study of the Environment and Intensity of Tornadoes from Quasi-Linear Convective Systems.

Christy Carlson, M.S. in Professional Meteorology, 2004
A 1% Temperatures Climatology for the Continental United States

Robert Weinzapfel, M.S. in Professional Meteorology, 2004
High-Resolution Numerical Simulations of a Flooding Rainfall Event in Houston, Texas Associated with Tropical Storm Allison, June 2001

Suresh Marru, M.S. In Electrical Engineering, 2004
A Grid-Enabled Scientific Workbench for Integrated Predictive Earth System Simulation

Nathan Snook, M.S. In Meteorology, 2006
Sensitivity of Tornadic Thunderstorm and Tornadogenesis in Very High Resolution Numerical Simulations to Variations In Model Microphysical Parameters

Patrick Marsh, M.S. In Meteorology, 2007
Assessment of the Severe Weather Environment in North America Simulated by a Global Climate Model

Brittany Dahl, M.S. In Meteorology, 2014
Sensitivity of Vortex Production to Small Environmental Perturbations in High-Resolution Supercell Simulations

Service on Ph.D. Committees (Degrees Completed, Excluding Own Students)

Eugene McCaul, Ph.D. in Meteorology, 1988
The Dynamics of Simulated Convective Storms in Hurricane Environments

Jose Rodriguez Azara, Ph.D. in Aerospace Engineering, 1988
Substitution Theory for Compressible Flows

Rodger Brown, Ph.D. in Meteorology, 1989
Initiation and Propagation of Thunderstorm Mesocyclones

Bok Yoon, Ph.D. in Aerospace Engineering, 1990
Computational Analysis on Hypersonic Flow Past Elliptic Cone Waveriders

Carlyle Macedo, Ph.D. in Computer Science, 1990
*Parallel and Vector Algorithms for Numerical Modeling Using Adaptive Grid
Techniques*

Wan-Shu Wu, Ph.D. in Meteorology, 1990
Helical Buoyant Convection

Juanzhen (Jenny) Sun, Ph.D. in Meteorology, 1992
*Convective-Scale 4-D Data Assimilation Using Simulated Single-Doppler Radar
Observations*

Jiyu Zhan, Ph.D. in Physics, 1993
Several Investigations and Applications of Light Scattering by Small Particles

Litao Deng, Ph.D.in Meteorology, 1993
Dynamics of Tornado-Like Vortices

R. Jeffrey Trapp, Ph.D. in Meteorology, 1994
Numerical Simulation of the Genesis of Tornado-Like Vortices

Scott Richardson, Ph.D. in Meteorology, 1995
Multiplate Radiation Shields: Investigating Radiational Heating Errors

Yu-Chieng Liou, Ph.D. in Meteorology, 1995
Numerical Investigation of a Heated, Sheared Planetary Boundary-Layer

Chia-Rong Chen, Ph.D. in Meteorology, 1996
*Improved Treatment of Surface Evapotranspiration in a Mesoscale Numerical
Model*

Pengfei Zhang, Ph.D. in Meteorology, 1997
Numerical Simulation of Nonlinear Buoyancy Waves in the Lower Atmosphere

Anil Rao, Ph.D. in Meteorology, 1998 (Florida State University)

A Numerical Modeling Investigation of the Cape Canaveral Land-Water Circulations

Xiaoguang Song, Ph.D. in Aerospace and Mechanical Engineering, 1998
Error Estimation and Structural Shape Optimization

Jian Zhang, Ph.D. in Meteorology, 1999
Moisture and Diabatic Initialization Based on Radar and Satellite Observations

Keith Brewster, Ph.D. in Meteorology, 1999
Phase-Correcting Data Assimilation and Application to Storm-Scale Numerical Weather Prediction

Katharine M. Kanak, Ph.D. in Meteorology, 1999
On the Formation of Vertical Vortices in the Atmosphere

Susan Stanislav Alguindigue, Ph.D. in Chemistry, 2000
Investigation of Ligand Misdirection Using the Kinetic Element Effect and the Kinetic Enthalpy Effect

Kazuhito Hatano, Ph.D. in Physics, 2000
The Direct Analysis of Spectra of Type 1A Supernovae

Renee A. McPherson, Ph.D. in Meteorology, 2003
The Impact of Oklahoma's Winter Wheat Belt on the Mesoscale Environment

Michael E. Baldwin, Ph.D. in Meteorology, 2003
Automated Classification of Rainfall Systems Using Statistical Characterization

Mostafa el Hamly, Ph.D. in Meteorology, 2004
North Atlantic Winter Surface Extratropical Cyclone Track Variability on Interannual-To-Decadal Time-Scales

Diandong Ren, Ph.D. in Meteorology, 2004
4DVAR Retrieval of Prognostic Land Surface Model Variables

David L. Montroy, Ph.D. in Meteorology, 2006
Characteristics of Wintertime U.S. Weather Systems During El Nino Events and their Physical Associations with Tropical Pacific Sea Surface Temperatures

Yong Sun Jung, Ph.D. in Meteorology, 2008
State and Parameter Estimation Using Polarimetric Radar Data and Ensemble Kalman Filter

Andrew Edward Mercer, Ph.D. in Meteorology, 2008

Discrimination of Tornadic and Non-Tornadic Severe Weather Outbreaks

Daniel Thomas Dawson II, Ph.D. in Meteorology, 2009
The Impact of Single- and Multi-Moment Microphysics on Numerical Simulations of Supercells and Tornadoes of the 3 May 1999 Oklahoma Tornado Outbreak

Andrew Taylor, Ph.D. in Meteorology, 2010
Ensemble Kalman Filter Data Assimilation in the Presence of Large Model Error

Jili Dong, Ph.D. in Meteorology, 2010
Applications of Ensemble Kalman Filter Assimilation from Convective Thunderstorms to Hurricanes

Guoqing Ge, Ph.D. in Meteorology, 2011
On the Further Studies of Suitable Storm-Scale 3DVAR Data Assimilation for the Prediction of Tornadic Thunderstorms

Elaina Burns, DMA in Piano Pedagogy, 2011
The Contributions of Jane Smisor Bastien to Piano Teaching

Gang Zhao, Ph.D. in Meteorology, 2013
Development of ARPS-LETKF with 4D-Extension and Inter-Comparison with ARPS-ENSRF

Kodi Lynn Nemunaitis, Ph.D. in Meteorology, 2014
Observational and Model Analysis of The Oklahoma City Urban Heat Island

Refereed Book Chapters

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. Chapter 3 (p. 45-92) in *High Performance Computing*, G. Sabot (Ed.), Addison-Wesley, Reading, Massachusetts, 246pp.

Xue, M., K.K. Droegemeier, and D. Weber, 2007: *Numerical Prediction of High-Impact Local Weather: A driver for Petascale Computing.* Chapter 18 in *Petascale Computing: Algorithms and Applications*, Chapman and Hall/CRC Press. In Press.

Refereed Encyclopedia Contributions

Droegemeier, K.K., 1993: Weather forecasting and prediction. *McGraw-Hill Yearbook of Science and Technology*, McGraw Hill, 476-480.

Refereed Publications in Print

Sasamori, T., and K. Droegemeier, 1983: A linear analysis on the acceleration of zonal flow by baroclinic instability. Part I: Jovian atmosphere. *J. Atmos. Sci.*, **40**, 2323-2338.

Droegemeier, K., and T. Sasamori, 1983: A linear analysis on the acceleration of zonal flow by baroclinic instability. Part II: Terrestrial atmosphere. *J. Atmos. Sci.*, **40**, 2339-2348.

Droegemeier, K.K. and R.B. Wilhelmson, 1985: Three-dimensional numerical modeling of convection produced by interacting thunderstorm outflows. Part I: Control simulation and low-level moisture variations. *J. Atmos. Sci.*, **42**, 2381-2403.

Droegemeier, K.K. and R.B. Wilhelmson, 1985: Three-dimensional numerical modeling of convection produced by interacting thunderstorm outflows. Part II: Variations in vertical wind shear. *J. Atmos. Sci.*, **42**, 2404-2414.

Droegemeier, K.K., and R.B. Wilhelmson, 1986: Kelvin-Helmholtz instability in a numerically simulated thunderstorm outflow. *Bull. Amer. Meteor. Soc.*, **67**, 416-417.

Droegemeier, K.K. and R.B. Wilhelmson, 1987: Numerical simulation of thunderstorm outflow dynamics. Part I: Outflow sensitivity experiments and turbulence dynamics. *J. Atmos. Sci.*, **44**, 1180-1210.

Robertson, M., and K.K. Droegemeier, 1990: NEXRAD and the broadcast weather industry: Preparing to share the technology. *Bull. Amer. Meteor. Soc.*, **71**, 14-18.

Carpenter, R.L. Jr., K.K. Droegemeier, P.R. Woodward, and C.E. Hane, 1990: Application of the piecewise parabolic method (PPM) to meteorological modeling. *Mon. Wea. Rev.*, **118**, 586-612.

Dietachmayer, G. and K. Droegemeier, 1992: Application of continuous dynamic grid adaption techniques to meteorological modelling, Part I: Basic formulation and accuracy. *Mon. Wea. Rev.*, **120**, 1675-1706.

Droegemeier, K.K., S.M. Lazarus, and R.P. Davies-Jones, 1993: The influence of helicity on numerically simulated convective storms. *Mon. Wea. Rev*, **121**, 2005-2029.

Li, Y. and K.K. Droegemeier, 1993: The influence of diffusion on the adjoint data assimilation technique. *Tellus*, **45A**, 435-448.

Straka, J.M., R.B. Wilhelmson, L.J. Wicker, J.R. Anderson, and K.K. Droegemeier, 1993: Numerical solutions of a non-linear density current: A benchmark solution and comparisons. *Int. J. Num. Meth. in Fluids*, **17**, 1-22.

Johnson, J.T., M.D. Eilts, and K.K. Droegemeier, 1993: Investigation of outflow strength variability in Florida downburst producing storms. FAA Final Report DOT/FAA/NR-93/5/111 pp.

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.

Xu, Q., Xue, M., and K.K. Droegemeier, 1995: Numerical simulations of density currents in sheared environments within a vertically confined channel. *J. Atmos. Sci.*, **53**, 770-786.

Emanuel, K., D. Raymond, A. Betts, L. Bosart, C. Bretherton, K. Droegemeier, B. Farrell, J.M. Fritsch, R. Houze, M. LeMone, D. Lilly, R. Rotunno, M. Shapiro, R. Smith, and A. Thorpe, 1995: Report of the first Prospectus Development Team of the U.S. Weather Research Program to NOAA and the NSF. *Bull. Amer. Meteor. Soc.*, **76**, 1194-1208.

Park, S.K., K.K. Droegemeier, and C. Bischof, 1996: Automatic differentiation as a tool for sensitivity analysis of a convective storm in a 3-D cloud model. Chapter 18 in *Computational Differentiation: Techniques, Applications, and Tools*, M. Berz, C. Bischof, and G. Corliss, Eds., SIAM, Philadelphia, PA, 205-214.

Sathye, A., G. Bassett, K. Droegemeier, M. Xue, and K. Brewster, 1996: Experiences using high performance computing for operational storm scale weather prediction. *Concurrency: Practice and Experience*, **8**, 731-740.

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.

Droegemeier, K.K., 1997: The numerical prediction of thunderstorms: Challenges, potential benefits, and results from realtime operational tests. *WMO Bulletin*, **46**, 324-336.

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Sathye, A., M. Xue, G. Bassett, and K. Droegemeier, 1997: Parallel weather modeling with the advanced regional prediction system. *Parallel Computing*, **23**, 2243-2256.

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Wang, D.Z., K.K. Droegemeier, and L. White, 1998: The adjoint Newton algorithm for large-scale unconstrained optimization in meteorology applications. *Comput. Opt. and Appl.*, **10**, 281-318.

Lilly, D.K., G.M. Bassett, K.K. Droegemeier, and P. Bartello, 1998: Stratified turbulence in the atmospheric mesoscales. *Theoretical and Comp. Fluid Dyn*, **11**, 139-153.

Carpenter, R.L. Jr., K.K. Droegemeier, and A.M. Blyth, 1998a: Entrainment and detrainment in numerically simulated cumulus congestus clouds, Part I: General results and comparison with observations. *J. Atmos. Sci*, **55**, 3417-3432.

Carpenter, R.L. Jr., K.K. Droegemeier, and A.M. Blyth, 1998b: Entrainment and detrainment in numerically simulated cumulus congestus clouds, Part II: Cloud budgets. *J. Atmos. Sci*, **55**, 3433-3439.

Carpenter, R.L. Jr., K.K. Droegemeier, and A.M. Blyth, 1998c: Entrainment and detrainment in numerically simulated cumulus congestus clouds, Part III: Detailed parcel analyses and conceptual model. *J. Atmos. Sci*, **55**, 3440-3455.

Lazarus, S., A. Shapiro, and K.K. Droegemeier, 1999: Analysis of the Gal-Chen/Zhang single-Doppler velocity retrieval. *J. Atmos. and Oceanic Tech.*, **16**, 5-18.

Adlerman, E.J., K.K. Droegemeier, and R-P. Davies-Jones 1999: Numerical simulation of cyclic mesocyclogenesis. *J. Atmos. Sci.*, **56**, 2045-2069.

Rao, P.A., H.E. Fuelberg, and K.K. Droegemeier, 1999: High resolution modeling of the Cape Canaveral area land/water circulations and associated features. *Mon. Wea. Rev.*, **56**, 1808-1821.

Park, S.K., and K.K. Droegemeier, 1999: Sensitivity analysis of a moist 1-D Eulerian cloud model using automatic differentiation. *Mon. Wea. Rev.*, **127**, 2128-2142.

Gao, J., M. Xue, A. Shapiro, and K. Droegemeier, 1999: A variational method for the analysis of three-dimensional wind fields from dual-Doppler radars. *Mon. Wea. Rev.*, **127**, 2180-2196.

Grice, G. K., R. J. Trapp, S. F. Corfidi, R. Davies-Jones, C. C. Buonanno, J. P. Craven, K. K. Droegemeier, C. Duchon, J. V. Houghton, R. A. Prentice, G. Romine, K. Schlachter, K. K. Wagner, 1999: The Golden Anniversary Celebration of the First Tornado Forecast. *Bull. Amer. Met Soc.*, **80**, 1341–1348.

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Ware, R.H., D.W. Fulker, S.A. Stein, D.N. Anderson, S.K. Avery, R.D. Clark, K.K. Droegemeier, J.P. Kuettner, J.B. Minster, and S. Sorooshian, 2000: SuomiNet: A real-time national GPS network for atmospheric research and education. *Bull. Amer. Meteor. Soc.*, **84**, 677-694.

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Droegemeier, K.K. and Co-Authors, 2000: Hydrological aspects of weather prediction and flood warnings: Report of the Ninth Prospectus Development Team of the U.S. Weather Research Program. *Bull. Amer. Meteor. Soc.*, **81**, 2665-2680.

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Ware, R.H., D.W. Fulker, S.A. Stein, D.N. Anderson, S.K. Avery, R.D. Clark, K.K. Droegemeier, J.P. Kuettner, J. Minster, and S. Sorooshian, 2000: Real-time national GPS networks: Opportunities for atmospheric sensing. *Earth Planets Space*, **52**, 901-905.

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Hou, D., E. Kalnay, and K.K. Droegemeier, 2001: Objective verification of the SAMEX '98 ensemble forecasts. *Mon. Wea. Rev.*, **129**, 73-91.

Lazarus, S., A. Shapiro, and K.K. Droegemeier, 2001: Application of the Gal-Chen/Zhang velocity retrieval to a deep convective storm. *J. Atmos. Sci.*, **58**, 998-1016.

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 multiscale nonhydrostatic atmospheric simulation and prediction tool. Part II: Model physics and applications. *Meteor. and Atmos. Physics*, **76**, 134-165.

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Ware, R.H., D.W. Fulker, S.A. Stein, D.N. Anderson, S.K. Avery, R.D. Clark, K.K. Droegemeier, J.P. Kuettner, J.B. Minster, and S. Sorooshian, 2001: Real time national GPS networks for atmospheric sensing. *J. Atmos. and Solar-Terr. Phys.*, **63**, 1315-1330.

Weygandt, S.S., A. Shapiro and K.K. Droegemeier, 2002: Retrieval of initial forecast fields from single-Doppler observations of a supercell thunderstorm. Part I: Single-Doppler velocity retrieval. *Mon. Wea. Rev*, **130**, 433-453.

Weygandt, S.S., A. Shapiro and K.K. Droegemeier, 2002: Retrieval of initial forecast fields from single-Doppler observations of a supercell thunderstorm. Part II: Thermodynamic retrieval and numerical prediction. *Mon. Wea. Rev*, **130**, 454-476.

Adlerman, E.J. and K.K. Droegemeier, 2002: The sensitivity of numerically-simulated cyclic mesocyclogenesis to variations in model physical and computational parameters. *Mon. Wea. Rev.*, **130**, 2671-2691.

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. and Atmos. Physics*, **82**, 139-170.

Pielke, R.A. Jr. and Co-Authors, 2003: The USWRP workshop on the weather research needs of the private sector. *Bull. Amer. Meteor. Soc.*, **84**, ES53-ES67.

Gao, J., M. Xue, K. Brewster, and K.K. Droegemeier, 2004: A three-dimensional variational data analysis method with recursive filter for Doppler radars. *J. Atmos. and Oceanic Tech.*, **21**, 457-469.

Gao, J. and K.K. Droegemeier, 2004: A variational technique for dealiasing Doppler radaial velocity data. *J. Appl. Meteor.*, **43**, 934-940.

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