

# Christopher K. Wikle

Department of Statistics  
University of Missouri  
146 Middlebush, Columbia, MO 65211  
Office Phone: (573) 882-9659  
E-mail: [wiklec@missouri.edu](mailto:wiklec@missouri.edu)  
Home Page: <http://www.stat.missouri.edu/~wikle/>

## Education

- Ph.D. 1996 *Statistics/Meteorology* (Co-major)  
Iowa State University, Ames, Iowa  
Dissertation: "Spatio-Temporal Statistical Models with Applications to Atmospheric Processes"  
Co-Advisors: Noel Cressie (Statistics); Tsing-Chang Chen (Meteorology)  
Honors: *Graduate Research Excellence Award* (8/96)
- M.S. 1994 *Statistics*  
Iowa State University, Ames, Iowa
- M.S. 1989 *Atmospheric Science*  
University of Kansas, Lawrence, KS  
Thesis: "A Statistical Analysis of Wintertime Precipitation Events in Northeast Kansas"  
Honors: Graduated with Honors
- B.S. 1986 *Atmospheric Science*  
University of Kansas, Lawrence, KS  
Honors: Graduated with Honors and Highest Distinction

## Employment Experience

- 9/16 - present *Curators' Distinguished Professor*, Department of Statistics, University of Missouri  
*Adjunct Professor*, Department of Soil, Environmental and Atmospheric Science, University of Missouri;  
*Professor*, Truman School of Public Affairs (since 10/12)
- 9/07 - 8/16 *Professor*, Department of Statistics, University of Missouri  
*Adjunct Professor*, Department of Soil, Environmental and Atmospheric Science, University of Missouri;  
*Professor*, Truman School of Public Affairs (since 10/12)
- 9/03 - 8/07 *Associate Professor*, Department of Statistics, University of Missouri  
*Adjunct Professor*, Department of Soil, Environmental and Atmospheric Science, University of Missouri
- 9/98 - 8/03 *Assistant Professor*, Department of Statistics, University of Missouri  
*Adjunct Professor*, Department of Soil, Environmental and Atmospheric Science, University of Missouri
- 6/96 - 8/98 *Visiting Scientist*, National Center for Atmospheric Research  
(Geophysical Statistics Project)
- 5/88 - 8/91 *Air Pollution Scientist*, Black and Veatch Consulting Engineers, Kansas City, MO  
Analysis and modeling of air pollution impacts in support of regulatory air permit activities.

## Honors and Awards

*Outstanding Undergraduate Research Mentor Award*, U. Missouri Office of Undergraduate Research, 2017

*Curators' Distinguished Professor*, University of Missouri System, 2016

*DeGroot Prize*, for *Statistics for Spatio-Temporal Data* from the International Society for Bayesian Analysis, 2013.

"*Science*" Inaugural Statistical Board of Reviewing Editors Nomination by American Statistical Association President, 2013.

Outstanding Graduate Faculty Award, University of Missouri Graduate School and Graduate Student Association, 2012.

*2011 PROSE Award*, For excellence in the Mathematics Category from the Association of American Publishers, for the 2011 Wiley book, *Statistics for Spatio-Temporal Data*

*Distinguished Alumni Award*, Iowa State University, College of Liberal Arts and Sciences, Department of Geological and Atmospheric Sciences/Department of Statistics, 2009.

*Chancellor's Award for Outstanding Research and Creative Activity in the Physical and Mathematical Sciences*, University of Missouri, 2006.

*Elected Fellow of the American Statistical Association*, August 2004.

*ENVR Distinguished Achievement Award*, ASA Section on Statistics and the Environment, presented at JSM 2003 in San Francisco, August, 2003.

*Winemiller Prize* for outstanding developments of new statistical methodology: for the paper, *Climatological Analysis of Tornado Report Counts using a Hierarchical Bayesian Spatio-Temporal Model*, University of Missouri Applied Statistics Symposium, Spring 2003.

*Winemiller Prize* for outstanding developments of new statistical methodology: for the paper, *Forecasting El Nino/La Nina with Bayesian Spatio-Temporal Dynamic Models*, University of Missouri Applied Statistics Symposium, Fall, 1999.

Competitive selection and stipend to participate in the special Young Researcher Poster Session at the Conference on Statistics for Correlated Data in Ames, IA, 16-18 Oct 1997.

*Graduate Research Excellence Award*, Iowa State University Graduate College, nominated by both the Department of Statistics and Department of Geological and Atmospheric Sciences (8/96)

*Graduate Fellowship for Global Change*, Department of Energy nationwide competition (1991-1996)

*Shell Fellowship*, Department of Statistics, Iowa State University (Spring 1995)

*Fellowship* to participate in the National Center for Atmospheric Research's summer colloquium on Application of Statistics to Modeling the Earth's Climate; (Summer 1994)

*Shell Scholar*, Department of Statistics, Iowa State University (Fall 1991)

*Graduated with Honors*, M.S., University of Kansas (1989)

*Graduated with Honors and Highest Distinction*, B.S., University of Kansas (1986)

## Research Support

- NCRN-MN: Improving the Interpretability and Usability of the American Community Survey Through Hierarchical Multiscale Spatio-Temporal Statistical Models: Supplemental Award, National Science Foundation;10/01/2017 – 09/30/2018; \$511,00, Wikle Co-PI (40%)
- Online/Distance Course Development Proposal: Statistics, University of Missouri, 12/2013; \$229,500; Wikle PI
- Modeling Chronic Wasting Disease Dynamics and Potential Impacts on White-tailed Deer Populations in Missouri, Missouri Department of Conservation; 7/1/2013 – 6/30/2015; \$155,183, Wikle Co-PI (33%).
- NCRN-MN: Improving the Interpretability and Usability of the American Community Survey Through Hierarchical Multiscale Spatio-Temporal Statistical Models: Supplemental Award, National Science Foundation;10/01/2012 – 09/30/2016; \$399,596, Wikle Co-PI (40%)
- NCRN-MN: Improving the Interpretability and Usability of the American Community Survey Through Hierarchical Multiscale Spatio-Temporal Statistical Models, National Science Foundation;10/01/2011 – 09/30/2016; \$2,854,170, Wikle Co-PI (40%)
- Bayesian Hierarchical Climate Prediction, National Science Foundation, 04/01/2011– 03/31/2014; \$244,339, Wikle PI (100%)
- Characterizing Uncertainty in the Impact of Global Climate Change on Large River Fishers: Missouri River Sturgeon Example, U.S. Geological Survey, 10/01/2009– 09/30/2012; \$242,393, Wikle PI (100%)
- Bayesian Hierarchical Model Characterization of Model Error in Ocean Data Assimilation and Forecasts, Office of Naval Research, 10/01/2009– 09/30/2013; \$374,169, Wikle PI (100%)
- Estimating Ecosystem Uncertainties in Pan-Regional Syntheses and Climate Change Impacts on Coastal Domains of the North Pacific Ocean, National Science Foundation, 09/01/2008– 08/31/2011; \$235,035, Wikle PI (100%).
- Bayesian Hierarchical Models to Augment the Mediterranean Ocean Forecast System, Office of Naval Research, 1/08/2007 – 9/30/2011; \$77,179, Wikle PI (100%).
- Identifying the environmental factors associated with physiological, behavioral, and population changes of Missouri river sturgeon. U.S. Geological Survey, 06/01/2007-05/31/2008; \$64,145, Wikle PI (100%).
- Spatial Prediction of *Orconectes williamsi* Crayfish. Missouri Department of Conservation, 09/01/2007 - 12/31/2008; \$25,600, Wikle PI (100%).
- Methodology for Scientifically-Defensible Population Goals for Lister Species, U. Illinois, Urbana-Champaign (through DoD), 02/01/2005 - 12/31/2007; \$107,337, Wikle PI (100%).
- Bayesian Hierarchical Models to Augment the Mediterranean Ocean Forecast System, Office of Naval Research, 2/21/2005 - 9/30/2008; \$91,695, Wikle PI (100%).
- NSF MSPA-CSE: Statistical Methods for Precipitation Nowcasting and Verification, National Science Foundation, 10/1/04 - 9/30/09; \$750,000, Wikle PI (33%).
- NSF Conference on New Development of Statistical Analysis in Wildlife, Fisheries, and Ecological Research, 9/01/04 - 8/31-05; \$20,000, Wikle Co-PI.
- Sampling designs and statistical models for estimating the occurrence, spread, and imperfect detection of an invasive species, USDI Geological Survey, 8/1/2004 - 4/30/2005; \$40,000, Wikle PI (100%).

- NSF FRG: Statistical Analysis of Uncertainty in Climate Change, National Science Foundation, 8/1/2002 - 7/31/2006; \$180,000, Wikle PI (100%).
- NSF CMG: Collaborative Research: Ocean Circulation Climatology and Dynamics Using Bayesian Hierarchical Methods, National Science Foundation, 9/1/2002 - 8/31/2006; \$134,520, Wikle PI (100%).
- GIS Interpolation & Spatial Inference of Witness Tree Records of Pre-European Settlement in Missouri, USDA Forest Service, 7/1/2002 - 12/31/2005; \$52,202, Wikle Co-I (10%).
- Vegetation Monitoring on Lower Hamburg Bend Conservation Area, Missouri Department of Conservation, 3/1/2002 - 6/30/2006; \$27,170, Wikle PI (100%).
- Surface Vector Winds in Models and Syntheses of Climate Processes: Bayesian Hierarchical Model Pilot Projects in OVWST Research, Northwest Research Associates, 7/9/2002 - 12/31/2002; \$11,781, Wikle PI (100%).
- Bayesian Hierarchical Air-Sea Interaction Modelling: Application to the Labrador Sea, NASA Physical Oceanography Program, 6/1/99 - 5/31/02; \$51,413, Wikle PI (100%).
- Hierarchical Statistical Analysis of Global and Regional Environmental Data, EPA STAR Grant/ Environmental Statistics, 1/1/99 - 12/31/2002; \$97,613, Wikle PI (100%).
- Dynamic Design of Environmental Monitoring Networks, MU Research Board, 6/1/99 - 8/31/00; \$25,216, Wikle PI (100%).

## Books

- Cressie, N. and **C.K. Wikle**, 2011: *Statistics for Spatio-Temporal Data*. John Wiley & Sons.

## Refereed Publications

### Journal Articles in Review:

- Lucchesi, L.R., and C.K. Wikle, 2017: Visualizing uncertainty in areal data estimates with bivariate choropleth maps, map pixelation, and glyph rotation. (Submitted)
- Katzfuss, M., Stroud, J.R., and **C.K. Wikle**, 2017: Extended ensemble Kalman filters for high-dimensional hierarchical state-space models. (Under Review)
- Wikle, C.K.**, 2017: Ecological impacts of climate change: the importance of temporal and spatial synchrony. (Under Review)
- Wikle, C.K.**, 2017: Statistics in oceanography. (Under Review)
- Nychka, D. and **C.K. Wikle**, 2017: Spatial analysis in climatology. (Under Review)
- McDermott, P.L., **Wikle, C.K.**, and J. Millsbaugh, 2017: Hierarchical nonlinear spatio-temporal agent-based models for collective animal movement. (Invited Revision)
- McDermott, P.L., **Wikle, C.K.**, and J. Millsbaugh, 2017: A hierarchical spatio-temporal analog forecasting model for count data. (Under Review)
- Bradley, J.R., **Wikle, C.K.**, and S.H. Holan, 2017. Hierarchical models for spatial data with errors that are correlated with the latent process. (Invited Revision)
- Bradley, J.R., Holan, S.H., and **C.K. Wikle**, 2017. Computationally efficient distribution theory for Bayesian inference of high-dimensional dependent count-valued data. (Under Review)

Bradley, J.R., Holan, S.H., and **Wikle, C.K.**, 2017. Bayesian hierarchical models with conjugate full-conditional distributions for dependent data from the natural exponential family. (Under Review)

Stroud, J.R., Katzfuss, M., and **C.K. Wikle**, 2017: A Bayesian adaptive ensemble Kalman filter for sequential state and parameter estimation. (Invited Revision)

### Journal Articles:

Simpson, M., **Wikle, C.K.** and S.H. Holan, 2017: Adaptively-tuned particle swarm optimization with application to spatial design. *STAT*, in press.

McDermott, P.L., and **C.K. Wikle**, 2016: A model-based approach for analog spatio-temporal dynamic forecasting. *Environmetrics*, 27: 70–82. doi: 10.1002/env.2374.

Crawford, W.J., Smith, P.J., Milliff, R.F., Fiechter, J., **Wikle, C.K.**, Edwards, C.A., and A.M. Moore, 2016: Weak constraint four-dimensional variational data assimilation in a model of the California Current System, *Advances in Statistical Climatology, Meteorology and Oceanography*, 2, 171–192.

Gladish, D.W., Kuhnert, P.M., Pagendam, D.E., **Wikle, C.K.**, Bartley, R., Searle, R.D., Ellis, R.J., Dougall, C., Turner, R.D.R., Lewis, S.E., Bainbridge, Z.T., and J.E. Brodie, 2016: Spatio-temporal assimilation of modelled catchment loads with monitoring data in the Great Barrier Reef, *The Annals of Applied Statistics*, 10, 1590–1618.

Bradley, J.R., **Wikle, C.K.**, and Holan, S.H., 2016: Regionalization of multiscale spatial processes using a criterion for spatial aggregation error. *Journal of the Royal Statistical Society, Series B*, doi:10.1111/rssb.12179.

Bradley, J.R., **Wikle, C.K.**, and Holan, S.H., 2016: Bayesian spatial change of support for count-valued survey data. *Journal of the American Statistical Association*, 111, 472–487.

Yang, W.H., Holan, S.H., and **Wikle, C.K.**, 2016: Bayesian lattice filters for time-varying autoregression and time-frequency analysis. *Bayesian Analysis*, 11, 977–1003.

**Wikle, C.K.**, Leeds, W.B., and M.B. Hooten, 2016: Models for ecological models: Ocean primary productivity. *CHANCE*, 29: 23–30.

Katzfuss, M., Stroud, J.R., and **C.K. Wikle**, 2016: Understanding the ensemble Kalman filter. *The American Statistician*, 70:4, 350–357, DOI:10.1080/00031305.2016.1141709.

Rota, C.R., **Wikle, C.K.**, Kays, R.W., Forrester, T.D., McShea, W.J., Parsons, A.W., and Millsbaugh, J.J., 2016: A two-species occupancy model accommodating simultaneous spatial and interspecific dependence. *Ecology*, 97, 48–53.

Bradley, J.R., Holan, S.H., and **Wikle, C.K.**, 2015: Multivariate spatio-temporal models for high-dimensional areal data with application to longitudinal employer-household dynamics. *Annals of Applied Statistics*, 9: 1761–1791.

Quick, H., Holan, S.H., **Wikle, C.K.**, and Reiter, J.P., 2015: Bayesian marked point process modeling for generating fully synthetic public use data with point-referenced geography. *Spatial Statistics*, 14: 439–451.

Bradley, J.R., **Wikle, C.K.**, and Holan, S.H., 2015: Spatio-temporal change of support with application to American Community Survey multi-year period estimates. *STAT*, 4: 255–270.

Quick, H., Holan, S.H., and **Wikle, C.K.**, 2015: Zeros and ones: A case for suppressing zeros in sensitive count data with an application to stroke mortality. *STAT*, 4: 227–234.

- Ryan, M., Bradley, J.R., Oswald, T., **Wikle, C.K.**, and Holan, S.H., 2015: An analysis of bullying and suicide in the United States using a non-Gaussian multivariate spatial model. *Proceedings of The National Conference On Undergraduate Research (NCUR)*, [Refereed Conference Proceedings], 155–161.
- Porter, A.T., Holan, S.H., and **Wikle, C.K.**, 2015: Bayesian Semiparametric Hierarchical Empirical Likelihood Spatial Models. *Journal of Statistical Planning and Inference*, 165: 78–90.
- Porter, A.T., **Wikle, C.K.**, and Holan, S.H., 2015: Small Area Estimation via Multivariate Fay-Herriot Models With Latent Spatial Dependence. *Australian & New Zealand Journal of Statistics*, 57: 15–29.
- Porter, A.T., Holan, S.H., and **Wikle, C.K.**, 2015: Multivariate Spatial Hierarchical Bayesian Empirical Likelihood Methods for Small Area Estimation. *STAT*, 4: 108–116.
- Wildhaber, M.L., **Wikle, C.K.**, Moran, E.H., Anderson, C.J., Franz, K.J., and R. Dey, 2015: Hierarchical, stochastic modelling of large river ecosystems and fish growth across spatio-temporal scales and climate models: Missouri River sturgeon example. *Geological Society, London, Special Publications*, 408, doi:10.1144/SP408.11.
- Wikle, C.K.**, 2015: Modern perspectives on statistics for spatio-temporal data. *WIREs Computational Statistics*, 7:86–98.
- Wildhaber, M.L., Dey, R., **Wikle, C.K.**, Anderson, C.J., Moran, E.H., and K.J. Franz, 2015: A stochastic bioenergetics model based approach to translating large river flow and temperature in to fish population responses: the pallid sturgeon example. *Geological Society, London, Special Publications*, 408, doi:10.1144/SP408.10.
- Wu, G., Holan, S.H., Nilon, C.H., and **Wikle, C.K.**, 2015: Bayesian Binomial Mixture Models for Estimating Abundance in Ecological Monitoring Studies. *Annals of Applied Statistics*, 9: 1–26.
- Yang, W.-H., **Wikle, C.K.**, Holan, S.H., Myers, D.B., and K.A. Sudduth, 2015: Bayesian analysis of spatially-dependent functional responses with spatially-dependent multi-dimensional functional predictors. *Statistica Sinica*, 25: 205–223.
- Porter, A.T., Holan, S.H., **Wikle, C.K.**, and Cressie, N., 2014: Spatial Fay-Herriot Models for Small Area Estimation With Functional Covariates. *Spatial Statistics*, 10: 27–42.
- Wikle, C.K.**, Holan, S.H., Sudduth, K.A., and D.B. Myers, 2014: Soil property estimation and design for agroecosystem management using hierarchical geospatial functional data models, *Journal of the Indian Society of Agricultural Statistics*, 68: 203–216.
- Gladish, D.L., **C.K. Wikle**, 2014: Physically-motivated parameter reduction in reduced rank quadratic nonlinear dynamic spatio-temporal models. *Environmetrics*, 25, 230–244.
- Gladish, D., **Wikle, C.K.**, and Holan, S., 2014. Covariate-based cepstral parameterizations for time-varying spatial error covariances. *Environmetrics*, 25, 69–83.
- Pagendam, D.E., Kuhnert, P.M., Leeds, W.B., **Wikle, C.K.**, Bartley, R., and E.E. Peterson, 2014: Assimilating catchment processes with monitoring data to estimate sediment loads to the Great Barrier Reef. *Environmetrics*, 25, 214–229.
- Song, Y., Li, Y., Bates, B., and **C.K. Wikle**, 2014. A Bayesian hierarchical downscaling model for south-west western Australia rainfall. *Journal of the Royal Statistical Society, Series C*, DOI: 10.1111/rssc.12055, 63, 715–736.

- Dobricic, S., **Wikle, C.K.**, Milliff, R.F., Pinardi, N. and L.M. Berliner, 2014: Assimilation of oceanographic observations with estimates of vertical background error covariances by a Bayesian hierarchical model. *Quarterly Journal of the Royal Meteorological Society*, DOI: 10.1002/qj.2348, 141, 182–194.
- Leeds, W.B., Wikle, C.K., and J. Fiechter, 2014: Emulator-assisted reduced-rank ecological data assimilation for multivariate dynamical spatio-temporal processes. *Statistical Methodology*, 17, 126-138. (online: 2013; doi:10.1016/j.statmet.2012.11.004).
- Milliff, R.F., Fiechter, J., Leeds, W.B., Herbei, R., **Wikle, C.K.**, Hooten, M.B., Moore, A.M., Powell, T.M., and J.L. Brown, 2013. Uncertainty management in coupled physical-biological lower-trophic level ocean ecosystem models. *Oceanography*, 26, 98–115.
- Wikle, C.K.**, Milliff, R.F., Herbei, R., and W.B. Leeds, 2013: Modern statistical methods in oceanography: A hierarchical perspective. *Statistical Science*, **28**, 466-486. DOI: 10.1214/13-STS436
- Yang, W.-H., **Wikle, C.K.**, Holan, S.H., and M.L. Wildhaber, 2013: Ecological prediction with nonlinear multivariate time-frequency functional data models. *Journal of Agricultural, Biological and Environmental Statistics*, 18,450-474.
- Wu, G., Holan, S.H., and **C.K. Wikle**, 2013: Hierarchical Bayesian spatio-temporal Conway-Maxwell Poisson models with dynamic dispersion. *Journal of Agricultural, Biological and Environmental Statistics*, 18, 335-356.
- Karpman, D., Ferreira, M.A.R., and **C.K. Wikle**, 2013: A point process model for tornado report climatology. *STAT*, 2, 1-8. DOI: 10.1002/sta4.14
- Leeds, W.B., **Wikle, C.K.**, Fiechter, J., Brown, J., and Milliff, R.F., 2013: Modeling 3-D spatio-temporal biogeochemical processes with a forest of 1-D computer model emulators. *Environmetrics*, 24, 1-12.
- Oleson, J.J. and **C.K. Wikle**, 2013: Predicting infectious disease outbreak risk via migratory waterfowl vectors. *Journal of Applied Statistics*, 40, 656-673.
- Fiechter, J., Herbei, R., Leeds, W.B., Brown, J., Milliff, R., **Wikle, C.K.**, Powell, T., and A. Moore, 2013: A Bayesian parameter estimation method applied to a marine ecosystem model for the coastal Gulf of Alaska. *Ecological Modeling*, 258, 122-133.
- Holan, S.H., Yang, W.-H., Matteson, D.S., and C.K. Wikle, 2012: An approach for identifying and predicting economic recessions in real-time using time-frequency functional models. Invited discussion paper in *Applied Stochastic Models in Business and Industry*, 28, 485-499. DOI: 10.1002/asmb.1954.
- Holan, S.H., Yang, W.-H., Matteson, D.S., and C.K. Wikle, 2012: Rejoinder - An approach for identifying and predicting economic recessions in real-time using time-frequency functional models. Invited discussion paper in *Applied Stochastic Models in Business and Industry*, 28, 504-505.
- Leeds, W.B. and C.K. Wikle, 2012: Science-based parameterizations for dynamical spatio-temporal models. *WIREs Computational Statistics*, 4, 554-560.
- Micheas, A.C., **Wikle, C.K.**, Larsen, D.R., 2012: Random set modelling of three-dimensional objects in a hierarchical Bayesian context. *Journal of Statistical Computation and Simulation*. DOI:10.1080/00949655.2012.696647
- Arab, A., Holan, S.H., **Wikle, C.K.**, and M.L. Wildhaber, 2012: Semiparametric bivariate zero-inflated Poisson models with application to studies of abundance for multiple species. *Environmetrics*, **23**, 183-196.
- Hooten, M.B., Leeds, W.B., Fiechter, J. and **C.K. Wikle**, 2011: Assessing first-order emulator inference for physical parameters in nonlinear mechanistic models. *Journal of Agricultural, Biological, and Ecological Statistics*, **16**, 475-494.

- Wikle, C.K.** and S.H. Holan, 2011: Polynomial nonlinear spatio-temporal integro-difference equation models. *Journal of Time Series Analysis*, **32**, 339–350; DOI: 10.1111/j.1467-9892.2011.00729.x.
- Wikle, C.K.**, 2011: A hierarchical Bayesian arms race model. *International Journal of Conflict and Reconciliation*, **1**, no. 1. (online: <http://conflictandreconciliationjournal.org/research-notes/>)
- Milliff, R.F., Bonazzi, A., **Wikle, C.K.**, Pinardi, N., and L.M. Berliner, 2011: Ocean ensemble forecasting, Part I: Ensemble Mediterranean winds from a Bayesian hierarchical model. *Quarterly Journal of the Royal Meteorological Society*, DOI:10.1002/qj.767, **137**, 858–878.
- Pinardi, N., Bonazzi, A., Dobricic, S., Milliff, R.F., **Wikle, C.K.**, and L.M. Berliner, 2011: Ocean ensemble forecasting, Part II: Mediterranean forecast system response. *Quarterly Journal of the Royal Meteorological Society*, DOI:10.1002/qj.816, **137**, 879–893.
- Wikle, C.K.** and M.B. Hooten, 2010: A general science-based framework for spatio-temporal dynamical models. Invited discussion paper for *Test*, **19**, 417–451.
- Wikle, C.K.** and M.B. Hooten, 2010: Rejoinder on: A general science-based framework for dynamical spatio-temporal models. *Test*, **19**, 466–468.
- Holan, S.H., **Wikle, C.K.**, Sullivan-Beckers, L.E., and R.B. Coccoft, 2010: Modeling complex phenotypes: generalized linear models using spectrogram predictors of animal communication signals. *Biometrics*, **66**, 914–924.
- Hooten, M.B. and **C.K. Wikle**, 2010: Statistical agent-based models for discrete spatio-temporal systems. *Journal of the American Statistical Association*, **105**, 236–248.
- Micheas, A., and **C.K. Wikle**, 2009: A Bayesian hierarchical non-overlapping random disc growth model. *Journal of the American Statistical Association*, **104**, 274–283.
- Sheng, Y., and **C.K. Wikle**, 2009: Bayesian IRT models incorporating general and specific abilities. *Behaviormetrika*, **36**, 27–48.
- Hooten, M.B., **Wikle, C.K.**, Sheriff, S., and J. Rushin, 2009: Optimal spatio-temporal hybrid sampling designs for monitoring ecological structure. *Journal of Vegetation Science*, **20**, 639–649.
- Cressie, N., Calder, K., Clark, J., VerHoef, J., and **C.K. Wikle**, 2009: Accounting for uncertainty in ecological analysis: the strengths and limitations of hierarchical statistical modeling. *Ecological Applications*, **19**, 553–570.
- Malmberg, A., Arellano, A., Edwards, D.P., Flyer, N., Nychka, D., and **C.K. Wikle**, 2008: Interpolating fields of carbon monoxide data using a hybrid statistical-physical model. *The Annals of Applied Statistics*, **2**, 1231–1248.
- Arab, A., Wildhaber, M., **Wikle, C.K.**, and C.N. Gentry, 2008: Zero-inflated modelling of fish catch per unit area resulting from multiple gears: Application to channel catfish and shovelnose sturgeon in the Missouri River. *North American Journal of Fisheries Management*, **28**, 1044–1058.
- Sheng, Y., and **C.K. Wikle**, 2008: Bayesian multidimensional IRT models with a hierarchical structure. *Educational and Psychological Measurement*, **68**, 413–430.
- Hooten, M. B. and **C.K. Wikle**, 2007: A Hierarchical Bayesian non-linear spatio-temporal model for the spread of invasive species with application to the Eurasian Collared-Dove. *Environmental and Ecological Statistics*, **15**, 59–70.
- Micheas, A.C., Fox, N.I., Lack, S.A., and **C.K. Wikle**, 2007: Cell identification and verification of QPF ensembles using shape analysis techniques, *Journal of Hydrology*, **343**, 105–116.



- Song, Y., **Wikle, C.K.**, Anderson, C.J., and S.A. Lack, 2007: Bayesian estimation of stochastic parameterizations in a numerical weather forecasting model, *Journal of Climate*, **135**, 4045-4059.
- Hooten, M.B., **Wikle, C.K.**, Dorazio, R.M., and J.A. Royle, 2007: Hierarchical matrix models for characterizing invasions, *Biometrics*, **63**, 558-567.
- Anderson, C.J., **Wikle, C.K.**, Zhou, Q., and J.A. Royle, 2007: Population Influences on Tornado Reports in the United States. *Weather and Forecasting*, **22**, 571-579.
- Sheng, Y., and **C.K. Wikle**, 2007: Comparing multi-unidimensional and unidimensional item response theory models, *Educational and Psychological Measurement*, **67**, 899-919.
- He, H.S., Dey, D.C., Fan, X., Hooten, M.B., Kabrick, J.M., **Wikle, C.K.**, and Z. Fan, 2007: Mapping pre-European settlement vegetation using a hierarchical Bayesian model, *Plant Ecology*, **191**, 85-94.
- Wikle, C.K.**, and L. M. Berliner, 2007: A Bayesian tutorial for data assimilation, *Physica D*, **230**, 1-16.
- Berliner, L.M. and **C.K. Wikle**, 2007: Approximate importance sampling Monte Carlo for data assimilation, *Physica D*, **230**, 37-49.
- Hooten, M.B. and **C.K. Wikle**, 2007: Shifts in the spatio-temporal growth dynamics of shortleaf pine. *Environmental and Ecological Statistics*, **14**, 207-227.
- Xu, K., and **C.K. Wikle**, 2007: Estimation of parameterized spatio-temporal dynamic models *Journal of Statistical Planning and Inference*, **137**, 567-588.
- Xu, K., **Wikle, C.K.**, and N.I. Fox, 2005: A kernel-based spatio-temporal dynamical model for nowcasting radar reflectivities. *Journal of the American Statistical Association*, **100**, 1133-1144.
- Wikle, C.K.** and J.A. Royle, 2005: Dynamic design of ecological monitoring networks for non-Gaussian spatio-temporal data. *Environmetrics*, **16**, 507-522.
- Fox, N.I. and **C.K. Wikle**, 2005: A Bayesian quantitative precipitation nowcast scheme. *Weather and Forecasting*, **20**, 264-275.
- Fox, N.I. and **C.K. Wikle**, 2005: Providing distributed forecasts of precipitation using a Bayesian nowcast scheme. *Atmospheric Science Letters*, **6**, 59-65.
- Wikle, C.K.** and L.M. Berliner, 2005: Combining information across spatial scales. *Technometrics*, **47**, 80-91.
- Cripps, E., Nott, D., Dunsmuir, W.T.M., and **C.K. Wikle**, 2005: Space-time Modelling of Sydney Harbour Winds. *Australian and New Zealand Journal of Statistics*. **47**, 3-17.
- Royle, J.A., and **C.K. Wikle**, 2005: Efficient statistical mapping of avian count data. *Environmental and Ecological Statistics*, **12**, 225-243.
- Hoar, T.J., Milliff, R.F., Nychka, D., **Wikle, C.K.**, and L.M. Berliner, 2003: Winds from a Bayesian hierarchical model: Computation for atmosphere-ocean research. *Journal of Computational and Graphical Statistics*. **4**, 781-807.
- Wikle, C.K.**, 2003: Hierarchical models in environmental science. *International Statistical Review*, **71**, 181-199.
- Wikle, C.K.**, 2003: Hierarchical Bayesian models for predicting the spread of ecological processes. *Ecology*, **84**, 1382-1394.

- Wikle, C.K.**, 2003: Modern statistical methods and weather modification research. Appendix in *Critical Issues in Weather Modification Research*, A National Research Council (NRC) report. The National Academies Press, Washington, D.C., 107-113.
- Wikle, C.K.**, L.M. Berliner, and R.F. Milliff, 2003. Hierarchical Bayesian approach to boundary value problems with stochastic boundary conditions. *Monthly Weather Review*, **131**, 1051-1062.
- Wikle, C.K.** and C.J. Anderson, 2003: Climatological analysis of tornado report counts using a hierarchical Bayesian spatio-temporal Model. *Journal of Geophysical Research - Atmospheres*, **108**(D24), 9005, doi:10.1029/2002JD002806.
- Hooten, M. B., Larsen, D.R., and **C.K. Wikle**, 2003: Predicting the spatial distribution of ground flora on large domains using a hierarchical Bayesian model. *Landscape Ecology*, **18**, 487-502.
- Berliner, L.M., Milliff, R.F., and **C.K. Wikle**, 2003: Bayesian hierarchical modeling of air-sea interaction. *Journal of Geophysical Research - Oceans*, **108**(C4).
- Wikle, C.K.**, 2002: A kernel-based spectral model for non-Gaussian spatio-temporal processes. *Statistical Modelling: An International Journal*, **2**, 299-314.
- Nychka, D., **C.K. Wikle**, and J.A. Royle, 2002. Multiresolution models for nonstationary spatial covariance functions. *Statistical Modelling: An International Journal*, **2**, 315-331.
- Wikle, C.K.**, Milliff, R.F., Nychka, D., and L.M. Berliner, 2001: Spatiotemporal hierarchical Bayesian modeling: Tropical ocean surface winds, *Journal of the American Statistical Association*, **96**, 382-397.
- Royle, J.A., and **C.K. Wikle**, 2001: A spatio-temporal model for the state of wetland basins in the U.S. Prairie Pothole Region, *Bulletin of the International Statistical Institute*. Invited Papers Volume, 59, Book 1, 83-86.
- Berliner, L.M., **Wikle, C.K.**, and N. Cressie, 2000: Long-lead prediction of Pacific SSTs via Bayesian Dynamic Modeling. *Journal of Climate*, **13**, 3953-3968.
- Wikle, C.K.** and N. Cressie, 1999: A dimension-reduced approach to space-time Kalman filtering. *Biometrika*, **86**, 815-829.
- Wikle, C.K.** and J.A. Royle, 1999: Space-time models and dynamic design of environmental monitoring networks. *Journal of Agricultural, Biological, and Environmental Statistics*, **4**, 489-507.
- Wikle, C.K.**, Milliff, R.F., and W.G. Large, 1999: Surface wind variability on spatial scales from 1 to 1000 km observed during TOGA COARE. *Journal of Atmospheric Science*, **56**, 2222-2231.
- Royle, J.A., Berliner, L.M., **Wikle, C.K.**, and R.F. Milliff, 1999: A hierarchical spatial model for constructing wind fields from scatterometer data in the Labrador sea. *Case Studies in Bayesian Statistics IV*, C. Gatsonis, R.E. Kass, B. Carlin, A. Carriquiry, A. Gelman, I. Verdinelli, M. West (eds.). New York: Springer-Verlag, 367-382.
- Berliner, L.M., Royle, J.A., **Wikle, C.K.**, and R.F. Milliff, 1998: Bayesian Methods in the Atmospheric Sciences. *Bayesian Statistics 6*, Oxford University Press, 83-100.
- Brown, T.J. Berliner, L.M., Wilks, D.S., Richman, M.B., and **C.K. Wikle**, 1999: Statistics education in the atmospheric sciences, *Bulletin of the American Meteorological Society*, **80**, 2087-2097.
- Wikle, C.K.**, Berliner, L.M., and N. Cressie, 1998: Hierarchical Bayesian space-time models, *Environmental and Ecological Statistics*, **5**, 117-154.

- Cressie, N. and **C.K. Wikle**, 1998: Strategies for dynamic space-time statistical modeling: Discussion of “The Kriged Kalman Filter” by Mardia et al. *Test*, **7**, no. 2, 257-264.
- Cressie, N. and **C.K. Wikle**, 1998: The variance-based cross-variogram: You can add apples and oranges. *Mathematical Geology*, **30**, 789-799.
- Wikle, C.K.**, R.A. Madden and T.-C. Chen, 1997: Seasonal variation of upper tropospheric and lower stratospheric equatorial waves over the tropical Pacific. *Journal of Atmospheric Science*, **54**, 1895-1909.
- Wikle, C.K.** and T.-C. Chen, 1996: On the semiannual variation in the northern hemisphere extratropical height field. *Journal of Climate*, **9**, 2250-2258.
- Chen, T.-C., Pfaendtner, J., J.-M. Chen, and **C.K. Wikle**, 1996: Variability of the global precipitable water with a time scale of 90-150 days. *Journal of Geophysical Research*, **101**, 9323-9332.
- Chen, T.-C., J.-M. Chen, and **C.K. Wikle**, 1996: Interdecadal variation in U.S. Pacific coast precipitation over the past four decades. *Bulletin of the American Meteorological Society*, **77**, 1197-1205.
- Wikle, C.K.**, Sherman, P.J., and T.-C. Chen, 1995: Identifying periodic components in atmospheric data using a family of minimum variance spectral estimators. *Journal of Climate*, **8**, 2352-2363.

#### **Discussions, Book Chapters, Reviews and Encyclopedia Articles, etc.:**

- Wikle, C.K.**, Cressie, N., Zammit-Mangion, A., and C. Shumack, 2017: A common task framework for objective comparison of spatial prediction methodologies. *Statistics Views*, Wiley, Online.  
<http://www.statisticsviews.com/details/feature/10511089/A-Common-Task-Framework-CTF-for-Objective-Comparison-of-Spatial-Prediction-Metho.html>
- Arab, A., Hooten, M.B., and **C.K. Wikle**, 2017. Hierarchical Spatial Models. In: *Encyclopedia of Geographical Information Science*. Springer. To appear. (peer-reviewed)
- Wikle, C.K.**, 2016: Hierarchical models for uncertainty quantification: An overview. *Handbook of Uncertainty Quantification*. R. Ghanem, D. Higdon, and H. Owhadi (eds), Springer.
- McDermott, P. and **C.K. Wikle**, 2016: Analog Forecasting: A Flexible and Parsimonious Alternative for Nonlinear Prediction. *Statistics Views*, Wiley, Online. (peer reviewed)  
<http://www.statisticsviews.com/details/feature/9652191/Analog-Forecasting-a-Flexible-and-Parsimonious-Alternative-for-Nonlinear-Predict.html> (2 August, 2016: peer reviewed).
- Wikle, C.K.**, Stroud, J.R., and M. Katzfuss, 2015: Approximate Inference for High-Dimensional Spatio-Temporal Systems Using the Ensemble Kalman Filter. *Statistics Views*, Wiley, Online. (peer-reviewed)  
<http://www.statisticsviews.com/details/feature/8565461/Approximate-Inference-for-High-Dimensional-Spatio-Temporal-Systems-Using-the-Ens.html> (13-Nov, 2015: peer reviewed).
- Wikle, C.K.** and M.B. Hooten, 2015: Hierarchical Agent-Based Spatio-Temporal Dynamic Models for Discrete Valued Data. *Handbook of Discrete-Valued Time Series*. R. Davis, S. Holan, R. Lund, and N. Ravishanker (eds), Chapman and Hall, 349-366. (peer reviewed)
- Holan, S.H. and **C.K. Wikle**, 2015: Hierarchical Dynamic Generalized Linear Mixed Models for Discrete-Valued Spatio-Temporal Data *Handbook of Discrete-Valued Time Series*. R. Davis, S. Holan, R. Lund, and N. Ravishanker (eds), Chapman and Hall, 327-348. (peer reviewed)
- Wikle, C.K.**, and Holan, S.H., 2015: (To Appear: *Journal of the American Statistical Association*) Comment on “Semiparametric Bayesian Density Estimation with Disparate Data Sources: A Meta-Analysis of Global Childhood Undernutrition” by Finncane, M. M., Paciorek, C. J., Stevens, G. A., and Ezzati, M., 110: 901-903.

- Wikle, C.K.** and C.J. Anderson, 2015: Statistics, “big data,” and agricultural forecasting. *Statistics Views*, Wiley, Online. <http://www.statisticsviews.com/details/feature/8046071/Statistics-Big-Data-and-Agricultural-Forecasting.html> (peer-reviewed)
- Bradley, J.R., **Wikle, C.K.**, and Holan, S.H., 2015: Multiscale Analysis of Survey Data: Recent Developments and Exciting Prospects. *Statistics Views*, Wiley, Online. (peer-reviewed)  
<http://www.statisticsviews.com/details/feature/7657481/Multiscale-Analysis-of-Survey-Data-Recent-Developments-and-Exciting-Prospects.html>
- Wikle, C.K.**, 2014: Agent Based Models: Statistical Challenges and Opportunities. *Statistics Views*, Wiley, Online. <http://stats.cwslive.wiley.com/details/feature/6354691/Agent-Based-Models-Statistical-Challenges-and-Opportunities.html> (peer-reviewed)
- Cressie, N., Holan, S.H., and **Wikle, C.K.**, 2013: How can survey estimates of small areas be improved by leveraging social-media data? *The Survey Statistician*, 68: (<http://isi.cbs.nl/iass/N68.pdf>)
- Wikle, C.K.**, 2013: Environmental Statistics: Challenges for the Future. *Statistics Views*, Wiley.  
<http://www.statisticsviews.com/details/feature/5000481/> (peer-reviewed)
- Wikle, C.K.**, Holan, S., and Hooten, M., 2013: Guest Editors’ Introduction to the Special Issue on “Modern Dimension Reduction Methods for Big Data Problems in Ecology”. *Journal of Agricultural, Biological, and Environmental Statistics*, 18, 271-273.
- Cressie, N. and **C.K. Wikle**, 2013: “Spatio-Temporal Statistics as its own discipline: Noel Cressie and Christopher Wikle on their award-winning collaboration,” an interview with *Statistics Views*, John Wiley and Sons  
(<http://www.statisticsviews.com/details/feature/4277321/Spatio-Temporal-Statistics-as-its-own-discipline-Noel-Cressie-Christopher-Wikle.html>)
- Wikle, C.K.**, Holan, S., and Cressie, N. , 2013: Hierarchical Spatio-Temporal Models and Survey Research. *Statistics Views*, Wiley. <http://www.statisticsviews.com/details/feature/4730991/> (peer-reviewed)
- Wikle, C.K.**, 2013: Forward for *Bayesian Hierarchical Space-Time Models with Application to Significant Wave Height*, Erik Vanem, Springer Monograph.
- Holan, S. and **C.K. Wikle**, 2013: Semiparametric dynamic design of monitoring networks for non-Gaussian spatio-temporal data. In *Space-Time Sampling*, J. Mateu and W. Müller (Eds). Wiley, 269-284. (peer-reviewed)
- Guttorp, P., Sain, S.R., and **C.K. Wikle**, 2012: Advances in statistical methods for climate analysis. *Environmetrics*, editorial. 23, 363. DOI: 10.1002/env.2156.
- Hooten, M.B., B.E. Ross, and **C.K. Wikle**, 2012: Optimal spatio-temporal monitoring designs for characterizing population trends. Gitzen, R.A., J.J. Millsbaugh, A.B. Cooper, and D.S. Licht (eds). In: *Design and Analysis of Long-Term Ecological Monitoring Studies*. Cambridge University Press, 443-459. (peer-reviewed)
- C.K. Wikle** and M.B. Hooten, 2011: Invited Comment on “An explicit link between Gaussian fields and Gaussian Markov random fields: the stochastic partial differential equation approach,” by Lindgren, Rue, and Lindstrom. *J. Royal Statistical Society, Series B*, **73**, 489–490.
- C.K. Wikle**, 2010: Low rank representations for spatial processes. In: *Handbook of Spatial Statistics*. A.Gelfand, P. Diggle, M. Fuentes, P. Guttorp (eds), Chapman and Hall. 107-118. (peer-reviewed)

- Holan, S. and **C.K. Wikle**, 2010: Comments on: “Bayesian Source Detection and Parameter Estimation of a Plume Model Based on Sensor Network Measurements.” by C. Huang et al. *Applied Stochastic Models in Business and Industry*, 26: 353-357.
- C.K. Wikle**, 2010: Hierarchical modeling with spatial data. In: *Handbook of Spatial Statistics*. A.Gelfand, P. Diggle, M. Fuentes, P. Guttorp (eds), Chapman and Hall. 89-106. (peer-reviewed)
- Hooten, M.B., **C.K. Wikle**, L.D. Carlile, R. Warner, and D. Pitts (2009). Hierarchical population models for the red-cockaded woodpecker. Rich, T.D., M. C. Arizmendi, D. Demarest and C. Thompson (eds). *Tundra to Tropics: Connecting Birds, Habitats and People*. Proceedings of the 4th International Partners in Flight Conference, 13-16 February 2008. McAllen, TX. University of Texas-Pan American Press. Edinburg, TX. pgs. 354-364. [**Peer reviewed proceedings**]
- C.K. Wikle** and R. F. Milliff, 2009: Invited discussion of “A spatio-temporal model for mean, anomaly and trend fields of North Atlantic sea surface temperature” by R.T. Lemos and B. Sansó, *Journal of the American Statistical Association*, **104**, 22.
- C.K. Wikle** and S.H. Holan, 2009: Invited discussion of “Approximate Bayesian inference for latent Gaussian models by using integrated nested Laplace approximations” by H. Rue, S. Martino and N. Chopin. *J. Royal Statistical Society: Series B*, **71**, 384.
- Arab, A., Hooten, M.B., and **C.K. Wikle**, 2007. Hierarchical Spatial Models. In: *Encyclopedia of Geographical Information Science*. Springer. (peer-reviewed)
- Wikle, C.K.**, 2006: Review of *Environmental Statistics: Methods and Applications*, by Vic Barnett, for *Journal of the American Statistical Association*, **101**, 1311.
- Wikle, C.K.** and M.B. Hooten, 2006: Hierarchical Bayesian Spatio-Temporal Models for Population Spread. Clark, J.S. and A. Gelfand (eds). In: *Applications of Computational Statistics in the Environmental Sciences: Hierarchical Bayes and MCMC Methods*. Oxford University Press, 145-169. (peer-reviewed)
- Hooten, M.B. and **C.K. Wikle**, 2006: Spatio-temporal processes in ecology: A gentle introduction. Review of *Transport Processes in Nature: Propagation of Ecological Influences Through Environmental Space*, *Journal of Biogeography*, **33**, 1150-1152. Cambridge University Press. (peer-reviewed)
- Wikle, C.K.**, 2005: Review of *Atmospheric modeling, Data Assimilation, and Predictability* by Eugenia Kalnay, for *Technometrics*, **47**, 521.
- Wikle, C.K.**, and J.A. Royle, 2004, Spatial statistical modeling in biology, in Modern Biometry, edited by Susan R. Wilson, in *Encyclopedia of Life Support Systems (EOLSS)*, Developed under the Auspices of the UNESCO, Eolss Publishers, Oxford ,UK, [<http://www.eolss.net>] (peer-reviewed)
- Wikle, C.K.**, 2003: Spatio-temporal models in climatology, Abdel H. El-Shaarawi and Jana Jureckova (eds), in *Encyclopedia of Life Support Systems (EOLSS)*, Developed under the Auspices of the UNESCO, Eolss Publishers, Oxford ,UK, [<http://www.eolss.net>] (peer-reviewed)
- Wikle, C.K.**, 2003: Bayesian statistics in the atmospheric sciences. *ISBA Bulletin*, **10**, 5-6. (peer-reviewed)
- Wikle, C.K.**, 2003: Review of *Modeling Hydrologic Change: Statistical Methods* by R.M. McCuen, for *Technometrics*, **45**, 366-367.
- Wikle, C.K.**, 2004: Review of *Computational Statistics Handbook with MATLAB* by W.L. Martinez and A.R. Martinez, for *Journal of the American Statistical Association*, **99**, 566.

- Wikle, C.K.**, 2002: Spatial modeling of count data: A case study in modelling breeding bird survey data on large spatial domains. In *Spatial Cluster Modelling*, A. Lawson and D. Denison, eds. Chapman and Hall, 199-209. (peer-reviewed)
- Cressie, N. and **C.K. Wikle**, 2002: Space-time Kalman filter. Entry in *Encyclopedia of Environmetrics*, vol.4, eds. A.H. El-Shaarawi and W.W. Piegorisch. Wiley, New York, pp. 2045-2049 (peer-reviewed)
- Wikle, C.K.**, 2000: Hierarchical Space-Time Dynamic Models. In *Case Studies in Statistics and the Atmospheric Sciences*, L.M Berliner, D. Nychka, T. Hoar, eds., Springer-Verlag, New York, 45-64. (peer-reviewed)
- Wikle, C.K.** and N. Cressie, 2000: Space-time statistical modeling of environmental data. *Quantifying Spatial Uncertainty in Natural Resources*, H.T. Mowrer, R.G. Congalton, eds. Ann Arbor Press, Chelsea, MI, 213-235. (peer-reviewed)
- Berliner, L.M., **Wikle, C.K.**, and R.F. Milliff, 1999: Multiresolution wavelet analyses in hierarchical Bayesian turbulence models. *Bayesian Inference in Wavelet Based Models*, a Springer Lecture-Notes volume, P. Mueller and B. Vidakovic, eds., 341-359. (peer-reviewed)

## Proceedings Publications and Technical Reports

### Proceedings:

- Holan, S., Cressie, N., **Wikle, C. K.**, **Bradley, J. R.**, and Simpson, M., 2016: Summary of “Workshop on Spatial and Spatio-Temporal Design and Analysis for Official Statistics,” to be archived at Cornell University Library (5 pp.)
- Ryan, M., Bradley, J.R., Oswald, T., **Wikle, C.K.**, and Holan, S.H., 2015: An analysis of bullying and suicide in the United States using a non-Gaussian multivariate spatial model. *Proceedings of The National Conference On Undergraduate Research (NCUR)*, [Refereed Conference Proceedings], in press.
- Hooten, M.B. and **C.K. Wikle**, 2007: Invasions, Epidemics, and Binary Data in a Cellular World. *2007 Proceedings of the American Statistical Association [CD-ROM]*, Alexandria, VA: American Statistical Association: pp. 3999-4010.
- Fox, N.I. and **C.K. Wikle**, 2004: Providing distributed forecasts of precipitation using a Bayesian nowcast scheme. *Preprints 6th Symposium on Hydrological Applications of Weather radar*. Melbourne, Australia, 2-4 February, 2004.
- Wikle, C.K.**, 2003: Efficient parameterization of multivariate space-time dynamic processes. Proceedings of the ISI International Conference on Environmental Statistics and Health, Santiago de Compostela, Spain, July 16-18, 2003, 141-143.
- Fox, N.I., **C.K. Wikle** and B. Xu, 2003: Statistical methods for nowcasting thunderstorm rainfall. Proceedings of the American Meteorological Society 17th Conference on Hydrology, Long Beach, CA, February 11, 2003.
- Fox, N.I., and **C.K. Wikle**, 2003: Applying distributional results of stochastic quantitative precipitation nowcasts. Proceedings of the American Meteorological Conference on Radar Meteorology, Seattle, WA, August 6-12, 2003.
- Anderson, C.J. and **C.K. Wikle**, 2002: Analysis of tornado counts with hierarchical Bayesian spatio-temporal models. *Proceedings of the 21st Conference on Severe Local Storms*, San Antonio, TX, American Meteorological Society.

- Wikle, C.K.**, 2001: A kernel-based spectral approach for spatio-temporal dynamic models. *Proceedings of the 1st Spanish Workshop on Spatio-Temporal Modelling of Environmental Processes (METMA)*, Benicassim, Castellon (Spain), 28-31 October 2001, pp. 167-180.
- Wikle, C.K.**, 2001: Spectral approaches in hierarchical spatiotemporal models. *Proceedings in Functional and Spatial Data Analysis*, Edited by K.V. Mardia and R.G. Aykroyd, Leeds University Press. From the 20th Leeds annual statistical research workshop, Leeds, U.K., 9-11 July, 2001.
- Wikle, C.K.**, Milliff, R.F., Nychka, D., and L.M. Berliner, 1997: Hierarchical Bayesian blending of analysis and NSCAT 10-m winds over the tropical Pacific ocean. *Proceedings, NSCAT Science Working Team Meeting*, Maui, HI, 10-14 Nov 1997.
- Wikle, C.K.**, R.F. Milliff, L. M. Berliner, and X. Wu, 1997: Statistical analysis of multiple scale surface winds during the TOGA COARE IOP. *Proceedings of the 22nd Conference on Hurricanes and Tropical Meteorology*, Fort Collins, CO, 19-23 May 1997.
- Royle, J.A., **Wikle, C.K.**, Milliff, R.F., and L.M. Berliner, 1997: A hierarchical spatial model for constructing surface wind and pressure fields from NSCAT data in the Labrador sea. *Proceedings, NSCAT Science Working Team Meeting*, Maui, HI, 10-14 Nov 1997.
- Chen, T.-C., van Loon, H., **Wikle, C.K.**, and M.-C. Yen, 1997: An observational study of the semiannual oscillation in the tropics and northern hemisphere. *Proceedings of the Harry van Loon Symposium: Studies in Climate II*, March 1997, Boulder, CO. NCAR Technical Note TN-433+Proc, 246-251.

#### Technical Reports:

- Wikle, C.K.**, Milliff, R.F., Nychka, D., and L.M. Berliner, 1998: Spatio-temporal hierarchical Bayesian blending of tropical ocean surface wind data. *Technical Report*, GSP98-01, Geophysical Statistics Project, National Center for Atmospheric Research, Boulder, CO.
- Wikle, C.K.** and N. Cressie, 1997: A dimension reduction approach to space-time Kalman filtering, *Preprint Number 97-24*, Statistical Laboratory, Iowa State University, Ames, Iowa.
- Wikle, C.K.**, Berliner, L.M., and N. Cressie, 1997: Hierarchical Bayesian space-time models, *Preprint Number 97-13*, Statistical Laboratory, Iowa State University, Ames, Iowa.
- Royle, J.A., Berliner, L.M., **Wikle, C.K.**, and R. Milliff, 1997: A hierarchical spatial model for constructing wind fields from scatterometer data in the labrador sea. *Technical Report Number 619*, Department of Statistics, Ohio State University, Columbus, Ohio.

## International Talks

- Interaction-based parameterizations for nonlinear dynamic spatio-temporal statistical models. *Keynote Lecture* International Society for Bayesian Analysis World Meeting, Cancun, Mexico, July 16, 2014.
- Ecological prediction with high-frequency “big data” covariates. *Plenary Lecture* International Statistical Ecology Conference, Montpellier, France, July 2, 2014.
- Feature space reduction via dimension expansion of high-dimensional functional covariates for prediction. *Invited seminar* The National Institute for Applied Statistics Research Australia, University of Wollongong, Australia, June 3, 2014.
- Prediction and design of spatially-dependent functional responses with spatially-dependent functional predictors for high-dimensional agricultural data. *Plenary lecture*, CSIRO “Looking in, Looking out: Agriculture and informatics, seeing and yielding the potential”, Cutting Edge Science Symposium, Adelaide, Australia, May 28-29, 2014.

- Nonlinear dynamic spatio-temporal statistical models. *Invited Keynote lecture*, Third Workshop on Bayesian Inference and Latent Gaussian Models with Applications, Reykjavik, Iceland, September 13, 2013.
- Short Course: Statistics for Spatio-Temporal Data. *International Invited*; Reykjavik, Iceland, September 12, 2013.
- Ecological prediction with nonlinear multivariate time-frequency functional data models. *Invited Talk*, Joint Statistics Meetings, Montreal, Canada, August 5, 2013.
- Statistics for spatio-temporal data: new challenges. *Invited Roundtable Discussion*, Joint Statistics Meetings, Montreal, Canada, August 5, 2013.
- Statistics and the environment: overview and challenges. *Invited introductory overview lecture*; 41st Annual Meeting of the Statistical Society of Canada, Edmonton, Alberta, Canada, May 26, 2013.
- Using statistical emulators to facilitate uncertainty quantification of pollutant loads. *Invited Talk*; 12th International Coral Reef Symposium, Cairns, Australia, July 13, 2012.
- Statistical methods for nonlinear dynamic spatio-temporal models. *International Invited speaker*; ASC 2012, Conference of the Statistical Society of Australia, Adelaide, Australia, July 9, 2012.
- Short Course: Statistics for Spatio-Temporal Data. *International Invited*; ASC 2012, Conference of the Statistical Society of Australia, Adelaide, Australia, July 8, 2012.
- Data assimilation, data fusion, and emulators: A gentle introduction. *International Invited*, CSIRO Great Barrier Reef Pollutant Load Workshop, Brisbane, Australia, July 3, 2012.
- Short Course: Statistics for Spatio-Temporal Data. *International Invited*; ArgoParisTech, Paris, France, May 28-30, 2012.
- Statistical methods for nonlinear dynamic spatio-temporal models. *International Invited plenary speaker*; French Statistical Society Meeting (JdS'2012), Brussels, Belgium, May 25, 2012.
- Multi-scale modeling of river ecosystems and responses of endangered fish populations to climate change. *International Invited plenary talk*; Department of Biostatistics, University of Oslo, Oslo, Norway, September 15, 2011.
- Nonlinear dynamic spatio-temporal statistical models. *International Invited talk*; Norwegian Computing Center, University of Oslo, Oslo, Norway, September 13, 2011.
- Providing distributed forecasts of precipitation using a Bayesian nowcast scheme. *Preprints 6th Symposium on Hydrological Applications of Weather radar*. Melbourne, Australia, 2-4 February, 2004. Presented by N.I. Fox.
- Efficient Parameterization of Multivariate Space-Time Dynamic Processes. *Invited talk* at The ISI International Conference on Environmental Statistics and Health. Santiago de Compostela, Spain, July 16-18, 2003.
- Spectral approaches in hierarchical spatiotemporal models. *International invited talk* at the 20th Leeds annual statistical research workshop, Leeds, U.K., 9-11 July, 2001.
- Spatiotemporal modeling of physical systems. *International invited speaker* at the RSS2001 Theme Conference of the Royal Statistical Society on Spatial Modelling, Glasgow, U.K., 4-6 July, 2001.
- Spatio-temporal modeling of physical systems. *International invited paper* at Research Symposium on Spatio-Temporal Data, Australian National University, Canberra, Australia, 11-14 September, 2000.



Hierarchical spatio-temporal modelling: Applications to atmospheric/oceanic processes. *International invited* talk, Sydney chapter of the Statistical Society of Australia, Sydney, Australia, June 16, 1999.

Hierarchical space-time modeling for geophysical phenomena. *International invited* lecture at Environmental Modelling and Signal Processing Workshop, Newton Institute, Cambridge University, Cambridge, U.K., 17 - 21 Aug 1998.

New directions in space-time modeling with applications to atmospheric science. *International invited* talk at the Seventh International Meeting on Statistical Climatology, Whistler, British Columbia, 25-29 May, 1998.

Space-time dynamic models with applications to climatology. *International invited* talk at Netherlands Society for Statistics Annual Meeting, Lunteren, Netherlands, 11 Nov 1996. (Presented by N. Cressie)

## Domestic Invited Talks

Science goals and statistical methodologies. *Invited speaker*, Workshop on Reducing Climate Model Uncertainty, Princeton University, Princeton, NJ, April 10, 2017.

Introduction to Statistics for Spatio-Temporal Data. *Invited Short-Course*, Harvard University, Boston, MA, April 8, 2017.

Introduction to Statistics for Spatio-Temporal Data. *Invited Short-Course*, University of Hawaii, Honolulu, HI, March 28, 2017.

Introduction to Statistics for Spatio-Temporal Data. *Invited Short-Course*, National Center for Atmospheric Research, Boulder, CO, March 3, 2017.

Recent advances in quantifying uncertainty in nonlinear dynamical spatio-temporal statistical models. National Center for Atmospheric Research, Boulder, CO, March 2, 2017.

Introduction to Statistics for Spatio-Temporal Data. *Invited Short-Course*, University of Missouri, February 25, 2017.

Discussion: Recent Developments in Bayesian Modeling to Analyze Large-Scale Spatial and Spatio-Temporal Data Sets. *Invited Discussant*, Joint Statistical Meetings, Chicago, IL, August 3, 2016.

Overview: Basis Functions in Dynamic Spatio-Temporal Models. *Invited speaker*, Joint Statistical Meetings, Chicago, IL, August 3, 2016.

An Introduction to Spatio-Temporal Statistics: There is No History Without Geography (and Vice Versa). *Invited Introductory Overview Lecture*, Joint Statistical Meetings, Chicago, IL, July 31, 2016.

Hierarchical spatio-temporal statistical methods for environmental, agricultural and federal statistics applications. ESRI Spatio-Temporal Statistics Summit. Redlands, CA, February 18, 2016.

Recent developments in nonlinear dynamic spatio-temporal models (an overview). *Invited speaker*, Department of Statistics, University of Georgia, Athens, GA, January 14, 2016.

Efficient parameterizations and optimal support for multiscale multivariate spatio-temporal data. *Invited speaker*, Colorado School of Mines, Golden, CO, October 2, 2015.

Recent advances in spatio-temporal statistical models for high-dimensional environmental data. *Plenary speaker*, Unlocking the mysteries of the physical world with data science workshop. Columbia University Data Science Institute. September 10, 2015.

- Efficient parameterizations and optimal support for multiscale multivariate spatio-temporal data. *Invited speaker*, Joint Statistical Meetings, Seattle, WA, August 10, 2015.
- An Introduction to Dynamical Spatio-Temporal Models (DSTMs). *Invited speaker*, Modern perspectives on statistics for spatio-temporal data. Spatially-varying stochastic differential equations, with application to the biological sciences, The Ohio State University, July 9, 2015.
- Short Course: Statistics for Spatio-Temporal Data, *Invited Lectures*, The Climate Corporation, San Francisco, CA, June 23-25, 2015.
- Environmental informatics: Discussion of the plenary presentation by Noel Cressie. *Invited discussant*, Southern Regional Council on Statistics Summer Research Conference, Carolina Beach, NC, June 9, 2015.
- Regionalization of multiscale spatial processes using a criterion for spatial aggregation error. NCRN Spring Meeting, National Academy of Science, Washington D.C., May 8, 2015.
- Using quadratic nonlinear statistical emulators to facilitate ocean biogeochemical data assimilation. *Invited speaker*, Midwest Mathematics and Climate Conference, University of Kansas, Lawrence, KS, April 30, 2015.
- Predictive modeling of environmental and agricultural characteristics utilizing spatio-temporal models. *Plenary Speaker*, The 27th annual Conference on Applied Statistics in Agriculture, Manhattan, KS, April 27, 2015.
- Hierarchical spatio-temporal statistical models for environmental and agricultural processes. Monsanto Fellows Meeting, *Invited Speaker*, St. Louis, MO, April 23, 2015.
- Facilitating ocean biogeochemical data assimilation with hierarchical nonlinear spatio-temporal statistical emulators. *Invited Webinar*, SAMSI Ecology Program, February 26, 2015.
- Regionalization of multiscale spatial processes using a criterion for spatial aggregation error. Spatial Statistics Workshop, Texas A&M University, College Station, TX, January 30, 2015.
- Feature space reduction via dimension expansion of “big data” time-series covariates. Quantitative Psychology Department, University of Missouri, Columbia, November 7, 2014.
- Feature space reduction via dimension expansion of “big data” time-series covariates. Department of Statistics, The Pennsylvania State University, State College, PA, October 22, 2014.
- Bayesian hierarchical spatio-temporal statistical models for atmospheric and oceanic processes. Meteorology Department, The Pennsylvania State University, State College, PA, October 21, 2014.
- Interaction-based parameterizations for nonlinear dynamic spatio-temporal models. *Invited Seminar*, Department of Statistics, Texas A&M, College Station, TX, October 10, 2014.
- Interaction-based parameterizations for nonlinear dynamic spatio-temporal models. *Invited Seminar*, Department of Statistics, The Ohio State University, Columbus, OH, October 1, 2014.
- Ecology of infectious disease. *Invited Discussion*, SAMSI Program on Mathematical and Statistical Ecology: Opening Workshop, August 19, 2014.
- Statistics for Spatio-Temporal Data Tutorial. *Invited Tutorial Lecture*, SAMSI Program on Mathematical and Statistical Ecology: Opening Workshop, August 18, 2014.
- Evaluating epidemic and invasive species response to forcing from multivariate spatio-temporal response operators. *Invited Talk*, Joint Statistical Meetings, Boston, MA, August, 5, 2014.

- Hierarchical agent-based statistical models for spatio-temporal processes. *Invited Talk*, CIRES Bayesian Confab, University of Colorado, Boulder, CO, July 23, 2014.
- Hierarchical Bayesian Spatio-Temporal Conway-Maxwell Poisson models dynamic dispersion. *Invited Talk*, 23rd Annual Conference of The International Environmetrics Society, Anchorage, Alaska, June 10, 2013.
- Nonlinear Dynamic Spatio-Temporal Statistical Models. *Invited Talk*, Southern Regional Council on Statistics Summer Research Conference, Montgomery Bell State Park, Tennessee, June 3, 2013.
- Using quadratic nonlinear statistical emulators to facilitate ocean biogeochemical data assimilation. *Invited Lecture*, IMA Annual Program Workshop on Stochastic Modeling of the Oceans and Atmosphere, Minneapolis, MN, March 12, 2013.
- Hierarchical general quadratic nonlinear models for spatio-temporal dynamics. *Invited Lecture*, Red Raider Conference, Texas Tech University, Lubbock, TX, October 26, 2012.
- Short Course: Statistics for spatio-temporal data. *Invited Lectures*, Army Conference on Applied Statistics, Monterey, CA, October 22-23, 2012.
- Spatio-Temporal Statistics at Mizzou. *Invited Talk*, Truman School of Public Affairs, University of Missouri, Columbia, October 10, 2012.
- Efficient time-frequency representations in high-dimensional spatial and spatio-temporal models. *Invited Talk*, ASA ENVR Workshop on Environmetrics, North Carolina State University, October 6, 2012.
- Hierarchical Bayesian approaches for modeling spatio-temporal dynamic processes in the presence of uncertainty. *Invited Talk*, Complexity Modeling Seminar, University of Missouri, September 25, 2012.
- Change-of-support in spatio-temporal dynamic models. *Invited Talk*, Joint Statistical Meetings, San Diego, CA, July 30, 2012.
- Short Course: Statistics for Spatio-Temporal Data, *Invited Lectures*, Joint Statistical Meetings, San Diego, CA, July 29, 2012.
- Nonlinear dynamic spatio-temporal statistical models. *Invited Talk*, University of Illinois, Department of Statistics, Champaign-Urbana, IL, November 29, 2011.
- Hierarchical statistical methods for evaluation of Missouri River pallid sturgeon. *Invited Talk*, University of California, Santa Cruz, Center for Stock Assessment Research, Santa Cruz, CA, October 18, 2011.
- Nonlinear dynamic spatio-temporal statistical models. *Invited Talk*, University of California, Santa Cruz, Department of Applied Mathematics and Statistics, Santa Cruz, CA, October 17, 2011.
- A hierarchical Bayesian statistical perspective on spatio-temporal dynamics. *Invited Talk*, Courant Institute of Mathematical Sciences, New York University, New York, NY, October 5, 2011.
- Approximate spatio-temporal models for coupled dynamical processes: Ocean Ecosystem. *Invited Talk*, Joint Statistical Meetings, Miami, FL, August 2, 2011.
- A hierarchical multiscale downscaling approach for evaluating uncertainty of ecological response to climate variability. The International Environmetrics Society (TIES) meeting, La Crosse, WI, July 20, 2011.
- Science-based nonlinear dynamical spatio-temporal statistical models. *Invited seminar*, Department of Biostatistics, University of Iowa, Iowa City, IA, April 11, 2011.
- Science based linear and nonlinear dynamic spatio-temporal statistical models. *Invited seminar*, Department of Statistics, Kansas State University, Manhattan, KS, September 30, 2010.

- A hierarchical approach to quantify uncertainty in multi-scale modeling of riverine ecosystems and responses of fish populations. USGS Modeling Conference. Broomfield, CO, June 9, 2010.
- A hierarchical approach to motivate spatio-temporal statistical models. Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, CA, May 25, 2010.
- A new method for ocean ensemble forecasting with quantification of wind uncertainties. 2010 Ocean Sciences Meeting. Portland, OR, February 22, 2010. (Presented by N. Pinardi)
- Bayesian hierarchical models to augment the Mediterranean forecast system. *Invited talk*. Iowa State University. Ames, IA, October 15, 2009.
- Don't forget the process! Using scientific process knowledge to motivate spatio-temporal models. *Invited talk*. SAMSI Program on Space-Time Analysis for Environmental Mapping, Epidemiology and Climate Change, Opening Workshop, RTP, North Carolina, September 14, 2009.
- Discussion of "A Spatio-Temporal Model for Mean, Anomaly, and Trend Fields of North Atlantic Sea Surface Temperature, *JASA Invited Discussion*, Joint Statistics Meetings, Washington, DC, August 5, 2009.
- A class of nonlinear spatio-temporal dynamic models. *Invited Talk*, Joint Statistics Meetings, Washington, DC, August 4, 2009.
- Incorporating scientific information in hierarchical Bayesian statistical models: Background, issues, examples. *Invited Talk*, University of Wyoming, Department of Statistics, Laramie, WY, April 24, 2009.
- Hierarchical models and uncertainty in ecological analysis. *Invited Roundtable Discussion Leader*, International Biometrical Society Eastern North American Region Annual Conference, March 16, 2009, San Antonio, TX.
- A Bayesian bioclimate model for the lower trophic ecosystem in the north Pacific ocean. *Invited Talk*, International Biometrical Society Eastern North American Region Annual Conference, March 16, 2009, San Antonio, TX.
- Statistical Modeling: Handling uncertainty in the real world. *Invited talk*: Mu Alpha Theta, Hickman High School, Columbia, MO, February 12, 2009.
- Data assimilation as a hierarchical statistical process: interacting dynamically with modeling. *Invited talk*: The National Academies Workshop on Uncertainty Management in Remote Sensing of Climate Data. Washington, DC. December 4, 2008.
- Hierarchical spatial and spatio-temporal statistical models: an introduction. *Invited talk*: The Wildlife Society annual meeting. Miami, FL. November 9, 2008.
- Statistics: Not as boring as you might think! *Invited talk* at Truman State University, Kirksville, MO. October 21, 2008.
- Bayesian hierarchical models for the lower trophic ecosystem in the North Pacific ocean. *Invited poster presentation* at the Joint Statistical Meetings, Denver, CO, August 6, 2008.
- Combining computer model output and observational data: forecasting climatic and weather-related processes. *Invited talk* at Joint Statistical Meetings, Denver, CO, August 3, 2008. (Presented for L.M. Berliner)
- Hierarchical signal regression: classification with application to phenotypic selection. *Invited talk* at the Classification Society of North America annual meeting. St. Louis, MO, June 6, 2008.

- A hierarchical Bayesian model for stochastic metapopulation viability in the presence of translocation. *Invited topic contributed* talk at Joint Statistical Meetings, Salt Lake City, UT, July 31, 2007.
- Hierarchical Bayesian models for invasive species. *Invited* lecture, MBI Summer Workshop, Truman State University, Kirksville, MO, June 7, 2007.
- Hierarchical physical/statistical models for retrospective data assimilation. *Invited* talk SIAM 2007 meeting, Showbird, UT, May 28, 2007.
- Bayesian hierarchical models for atmospheric and oceanic processes. *Invited* lecture Harvard University Climatea Lecture, Cambridge, MA, May 1, 2007.
- Dynamic spatio-temporal models. *Invited* lecture, Bayesian Reading Group, University of Missouri, Columbia, MO, April 24, 2007.
- Nonlinear dynamic spatio-temporal models. *Invited* lecture, Department of Statistics, Iowa State University, Ames, IA, April 16, 2007.
- Nonlinear spatio-temporal dynamic models, *Invited* talk at the 32nd Spring Lecture Series on Spatial and Spatio-Temporal Statistics, University of Arkansas, Fayetteville, AK, Apr 13, 2007.
- Stochastic parameterizations in numerical weather forecasting models, *Invited* talk at the Joint Statistical Meetings, Seattle, WA, Aug 10, 2006.
- Characterizing invasions by hierarchical rule-based systems, *Invited* talk at the Joint Statistical Meetings, Seattle, WA, Aug 8, 2006. (presented by M. Hooten).
- A general framework for spatio-temporal dynamics in hierarchical Bayesian models, *Invited* talk at the Ecological Society of America, annual meeting, Memphis, TN, Aug 8, 2006.
- Modeling population migration with hierarchical Bayes, *Invited* presentation at Uncertainty and Variability in Ecological Inference, Forecasting, and Decision Making An Introduction to Modern Statistical Computation at the Summer Institute at Duke University's Center on Global Change, Durham, NC, June 19, 2006.
- Hierarchical Bayesian spatio-temporal models for population spread. *Invited* talk at the PRIMES Workshop on Bayesian Methods in Wildlife Population Monitoring, Ft. Collins, CO, June 15, 2006.
- A General Framework for Spatio-Temporal Dynamic Models. *Invited* talk at the Uncertainty in Ecological Analysis workshop sponsored by the Mathematical Biosciences Institute, Ohio State University, Columbus, OH, April 5, 2006.
- Bayesian Hierarchical Parameterizations. *Invited* talk at the Workshop on Stochastic and Statistical Parameterization of Unresolved Features in the Atmosphere and Upper Ocean, Institute for Mathematics Applied to Geosciences, National Center for Atmospheric Research, Boulder, CO, Feb 28, 2006.
- Bayesian Hierarchical Models: A Brief Introduction. *Invited* talk at the Workshop on Stochastic and Statistical Parameterization of Unresolved Features in the Atmosphere and Upper Ocean, Institute for Mathematics Applied to Geosciences, National Center for Atmospheric Research, Boulder, CO, Feb 27, 2006.
- Statistical issues in the mathematical geosciences. *Invited* presentation at the NISS/SAMSI workshop on Collaborations in the Mathematical Geosciences, Research Triangle Park, NC, October 6, 2005.
- Bayesian modeling of spatial and spatiotemporal processes, *Invited* roundtable at the Joint Statistical Meetings, August 10, 2005, Minneapolis, MN.

- Hierarchical Bayesian matrix models for describing the spatio-temporal population dynamics of invasive species, *Invited* talk at the Joint Statistical Meetings, August 10, 2005, Minneapolis, MN. (presented by M.B. Hooten)
- Hierarchical Bayesian finite element parameterizations of spatio-temporal processes with application to ocean dynamics, *Invited* talk at the Joint Statistical Meetings, August 11, 2005, Minneapolis, MN. (presented by A. Arab)
- Forecasting migratory bird settling patterns with hierarchical Bayesian spatio-temporal models. *Invited* talk at WNAR of International Biometric Society annual meeting, Fairbanks, AK, June 22, 2005.
- Statistics for Model/Data Fusion. *Invited* lecture at the SAMSI/NCAR IMAGE Summer School on Fusing Geophysical Models and Data, Boulder, CO, June 13, 2005.
- A brief introduction to data assimilation: A Bayesian perspective. *Invited* lectures in the Department of Geological and Atmospheric Sciences, Iowa State University, Ames, IA, April 14-15, 2005.
- Hierarchical Bayesian modeling of invasive species. *Invited* talk at the International Biometrics Society Eastern North American Region (ENAR) Annual Meeting, Austin, TX, March 23, 2005.
- Brief introduction to Bayesian statistics and applications to data assimilation. *Invited* tutorial lecture at the SAMSI Workshop on Data Assimilation for Geophysical Systems, Research Triangle Park, NC, January, 23 2005.
- Climatological analysis of tornado reports using hierarchical Bayesian models. *Invited* seminar, Department of Statistics, Ohio State University, Columbus, Ohio, Dec 2, 2004.
- Predicting migratory bird settling patterns with hierarchical Bayesian spatio-temporal models. *Invited* talk at the 5th Annual Winemiller Symposium, Conference on New Developments of Statistical Analysis in Wildlife, Fisheries, and Ecological Research, Columbia, MO, Oct 16, 2004.
- Model Approximation in Complex Bayesian Analysis: Physical-Statistical Modeling. *Invited* talk at the Joint Statistical Meetings, August 10, 2004, Toronto, Canada. (note: replaced L. Mark Berliner as speaker due to emergency)
- Hierarchical Bayesian Models for Spatio-Temporal Processes in Ecology: Invasive Species. *Invited* talk at the Joint Statistical Meetings, August 8, 2004, Toronto, Canada.
- Hierarchical Bayesian Spatio-Temporal Models for Population Spread. *Invited* lectures at Summer Institute: Uncertainty and Variability in Ecological Interference, Forecasting, and Decision Making, An Introduction to Modern Statistical Computation, 6-19 June 2004 , Duke University, Durham, NC.
- A hierarchical integro-difference equation spatio-temporal dynamic model for nowcasting radar precipitation. *Invited* talk at Center for Integrating Statistics and the Environment, Department of Statistics, University of Chicago, May 6, 2004.
- Ecological applications of hierarchical Bayesian spatio-temporal models. *Invited* talk Department of Integrative Biology, University of Texas, Austin, TX, April 22, 2004.
- Brief introduction to hierarchical Bayesian methods. *Invited* talk at the Short Course on Significance Testing, Model Evaluation, and Alternatives, American Meteorological Society Annual Meeting, Seattle, WA, January 11, 2004.
- Hierarchical Bayesian spatio-temporal models for predicting the spread of ecological processes. *Invited* talk at The Wildlife Society Annual Conference, Burlington, VT, 6-10 September, 2003.

- Incorporating scientific priors in hierarchical spatio-temporal models: An invasive species case study, *Invited* talk at the International Workshop on Bayesian Data Analysis, Santa Cruz, CA, 7-10 August, 2003.
- Hierarchical Spatio-Temporal Models for Nowcasting Radar Precipitation. *Invited* talk at the Joint Statistical Meetings. San Francisco, CA, August 3, 2003.
- Incorporating Scientific Priors in Hierarchical Spatio-Temporal Models: An invasive species case study. *Invited* talk at SAMSI/GSP Workshop on Spatio-Temporal Modeling. Boulder, CO, June 1 - 6, 2003.
- A Hierarchical Bayesian spatio-temporal model for predicting the spread of invasive species given uncertain observations. *Invited* talk at SAMSI, Inverse Problems Final Workshop, Research Triangle Park, NC, May 14-15, 2003.
- Efficient parameterization of high-dimensional spatio-temporal models. *Invited* talk at ENAR Spring Meeting, Tampa, FL, March 31, 2003.
- Hierarchical Bayesian spatio-temporal models for predicting the spread of ecological processes. *Invited* talk at Ecology and Evolutionary Biology Department and Statistics Department, University of Connecticut, Storrs, CT, March 28, 2003.
- Integro-difference equation models for efficient parameterization of spatio-temporal dynamical processes. *Invited* talk at Department of Statistics, North Carolina State University, Raleigh, NC, March 26, 2003.
- Hierarchical Bayesian boundary value problems. *Invited* talk at SAMSI Workday for the Large-Scale Computer Models for Environmental Systems Program, Research Triangle Park, NC, March 25, 2003.
- Hierarchical modeling of advection-diffusion processes. *Invited* talk at SAMSI Workday for the Large-Scale Computer Models for Environmental Systems Program, Research Triangle Park, NC, March 25, 2003.
- Hierarchical Bayesian modeling of multiscale spatio-temporal processes. *Invited* talk at SAMSI Workshop on Multi-Scale Modeling, Research Triangle Park, NC, February 4, 2003.
- Forecasting migratory bird settling patterns with non-Gaussian hierarchical spatio-temporal dynamical models. *Invited* talk at the Joint Statistical Meetings, New York, NY, August 13, 2002.
- Hierarchical Bayesian spatio-temporal models for predicting ecological processes. *Invited* talk at the Symposium on uncertainty and information in ecological forecasting, Ecological Society of American annual meeting, Tucson, AZ, August 6, 2002.
- Bayesian Hierarchical Modeling of Air-Sea Interaction, *Invited* seminar at Los Alamos National Lab, Los Alamos, NM, May 20, 2002.
- Hierarchical models for atmospheric/oceanic processes and beyond, *Invited* seminar at National Center for Atmospheric Research, NSF Panel review of the Geophysical Statistics Project, Boulder, CO, May 13, 2002.
- Bayesian hierarchical modeling of air-sea interaction. *Invited* seminar at University of Colorado, Boulder, CO, April 17, 2002.
- Dynamic design of ecological monitoring networks. *Invited* talk at ENAR, 2002 Spring Meeting, Arlington, VA, March 19, 2002.
- Bayesian hierarchical modeling of air-sea interaction. *Invited* talk at the IMS Mini-Meeting “Statistical Approaches to the Ocean Circulation Inverse Problem”, November 13-14, 2001, Tallahassee, Florida.
- Hierarchical modeling of non-linear spatio-temporal systems. *Invited* talk at the Joint Statistical Meetings, Atlanta, GA, 5 August, 2001.

- A hierarchical kernel-based approach for spatio-temporal dynamical models. *Invited* talk at the Spatial Moving Average Workshop, Seattle, Washington, 20-22 May, 2001.
- Physically-based hierarchical models for spatio-temporal processes. *Invited* seminar speaker at University of Iowa, Department of Statistics, Iowa City, IA, 26 April, 2001.
- Incorporating physical priors in hierarchical Bayesian spatio-temporal models. *Invited* talk at ENAR, 2001 Spring Meeting, Charlotte, NC, 28 March, 2001.
- Spatio-temporal modeling of “large” physical systems. *Invited* seminar speaker at Duke University, Institute of Statistics and Decision Sciences, Durham, NC, 23 March, 2001.
- Spatio-temporal modeling: The hierarchical perspective. *Invited* seminar speaker, Harvard University, Department of Statistics, Cambridge, MA, January 19, 2001.
- Forecasting El Nino/La Nina with Bayesian spatio-temporal dynamic models. *Invited* seminar speaker Boston University, Department of Mathematics and Statistics, Applied Statistics Colloquium Series, Boston, MA, January 18, 2001.
- Hierarchical models for spatio-temporal processes. *Invited* talk at the conference on Monte Carlo in the New Millennium, University of Florida, Gainesville, FL, January 13, 2001.
- Conditional Modeling: Linking first principles with uncertainty. *Invited* presentation at Workshop on Hierarchical Modeling in Environmental Statistics, The Ohio State University, Columbus, OH, May 14-16, 2000.
- Hierarchical Bayesian models and long-lead prediction. *Invited* seminar speaker, Iowa State University, Department of Geological and Atmospheric Sciences, Ames, IA, April 20, 2000.
- Hierarchical Bayesian models in atmospheric science. *Invited* seminar speaker, University of Illinois, Department of Statistics and Department of Atmospheric Sciences, Urbana, IL, April 18, 2000.
- Multiple spatial scales in hierarchical Bayesian spatio-temporal models. *Invited* talk at ENAR, 2000 Spring Meeting, Chicago, IL, March 21, 2000.
- Statistical supercomputing for Gibbs sampling of massive spatio-temporal models. *Invited* talk at Interface 99 Conference, Chicago, IL, June 11, 1999.
- Hierarchical Bayesian space-time models: Tropical ocean surface wind fields. *Invited* seminar speaker, University of Chicago Statistics Department, Chicago, IL, November 1, 1999.
- Space-time dynamic modeling. *Invited* talk at the Geophysical Statistics Project Advisory Panel Meeting, Boulder, CO, 1 Mar 1999.
- Bayesian weather and climate prediction. *Invited* talk at Joint Statistical Meetings, Baltimore, MD, 8-12 August, 1999. (Presented by L.M. Berliner)
- Space-time models and dynamic design. *Invited* talk at the Joint Statistical Meetings, Dallas, TX, 9-13 August, 1998.
- Spatio-temporal modeling and design: Applications to environmental data. *Invited* lecture at Conference on Environmental Surveys Over Time, Seattle, WA, 20-22 April 1998.
- A hierarchical approach to space-time dynamical models. *Invited* talk at the International Conference on Combinatorics, Information Theory, and Statistics, Portland, ME, 18-20 July 1997.



Space-time modeling with applications to atmospheric processes. *Invited* lecture for Short Course on Time Series Analysis and Applications in the Atmospheric Sciences, 77th Annual Meeting of the American Meteorological Society, Long Beach, CA, 1-2 Feb 1997.

An observational study of the semiannual oscillation in the tropics and northern hemisphere. *Invited* talk at the Harry van Loon Symposium: Studies in Climate II, March 1997, Boulder, CO. (Presented by T.-C. Chen)

A spatio-temporal statistical model with applications to environmental processes. *Invited* lecture at a Forum for Integration Multidisciplinary Research to Advance the Science of Global Change, Oak Ridge, TN, 26-31 Oct 1996.

Spatially descriptive, temporally dynamic models for predicting meteorological and climatological processes. *Invited* talk at the Joint Statistical Meetings, Chicago, IL, 3-8 Aug 1996. (Presented by N. Cressie)

## Contributed Talks

Process model considerations for a surface wind Bayesian hierarchical model. 2010 Ocean Sciences Meeting, Portland, OR, February 22, 2010 (Poster; Presented by R. Milliff)

Estimating ecosystem model uncertainties and climate change impacts in the North Pacific Ocean. 2010 Ocean Sciences Meeting, Portland, OR, February 22, 2010. (Presented by J. Fiechter)

A hierarchical spatio-temporal zero-inflated model for correlated tornado reports in the United States. *Contributed talk*, Joint Statistics Meetings, Washington, DC, August 5, 2009. (Presented by A. Arab)

Semiparametric zero-inflated Poisson models for spatio-temporal environmental processes. *Contributed* talk at the Joint Statistical Meetings, Salt Lake City, UT, Aug 1, 2007. (Presented by A. Arab).

A spatial-temporal point process model for nowcasting radar reflectivities. *Contributed* talk at the Joint Statistical Meetings, Salt Lake City, UT, Aug 1, 2007. (Presented by Y. Song).

Multiresolution Hierarchical Dynamical Models for Spatio-Temporal Processes, *Contributed* talk at the Joint Statistical Meetings, Seattle, WA, Aug 6, 2006. (presented by A. Arab).

Hierarchical Bayesian Galerkin-based parameterizations of spatio-temporal dynamical models with application to ecological processes. *Contributed* talk at the International Biometrics Society Eastern North American Region (ENAR) Annual Meeting, Austin, TX, March 21, 2005. (Presented by A. Arab).

A Hierarchical Bayesian approach for describing the spatio-temporal dynamics of invasive species. *Contributed* talk at the International Biometrics Society Eastern North American Region (ENAR) Annual Meeting, Austin, TX, March 21, 2005. (Presented by M. Hooten).

Tests of jump premium and the extraction of implied latent option-pricing variables, *contributed* talk at the Southern Finance Associations annual meeting, November 19, 2004. (Presented by S. Beyer.)

Galerkin-based parameterizations of spatio-temporal processes with application to ocean dynamics, Poster presentation at Computational Environmetrics Workshop, Chicago, IL, October 21-23, 2004. (A. Arab and C.K. Wikle)

A hierarchical Bayesian non-linear spatio-temporal model for the spread of invasive species with application to the Eurasian collared-dove, Poster presentation at Computational Environmetrics Workshop, Chicago, IL, October 21-23, 2004. (M. Hooten and C.K. Wikle)

- A hierarchical Bayesian non-linear spatio-temporal model for the spread of invasive species with application to the Eurasian collared-dove, Poster presentation at the 5th Annual Winemiller Symposium, Conference on New Developments of Statistical Analysis in Wildlife, Fisheries, and Ecological Research, Columbia, MO, Oct 14-16, 2004. (M. Hooten and C.K. Wikle)
- Tests of jump premium and the extraction of implied latent option-pricing variables, *contributed* talk at the Financial Management Association Annual Meeting, October 8, 2004. (Presented by S. Beyer.)
- Physical linkages between ENSO and tornado frequency in the United States. 15th Symposium on Global Change and Climate Variations. Seattle, WA, January 11-15, 2004. (Presented by C. Anderson).
- Climatological analysis of tornado report counts using a hierarchical Bayesian spatio-temporal model. Presented at Fourth Winemiller Symposium on Applied Statistics, Columbia, MO, April 8, 2003.
- Importance sampling estimation of volatility and the volatility term structure, *contributed* presentation at Midwest Finance Association Annual Meeting, in St. Louis, MO, March 2003. (Presented by S. Beyer)
- Covariability of annual United States tornado report counts and climate indices, 12-16 August, 2002, San Antonio, TX. (Presented by C. Anderson).
- Bayesian hierarchical air-sea modeling for the Labrador Sea, NASA Oceanography Scientific Conference, 3-5 April, 2001, Miami Beach, Florida. (Presented by L.M. Berliner).
- MJO Propagation and Convergence Patterns in Blended Tropical Winds from QSCAT and NCEP, NASA Oceanography Scientific Conference, 3-5 April, 2001, Miami Beach, Florida. (Presented by T.J. Hoar).
- Hierarchical Bayesian models of turbulence in ocean wind measurements, Special contributed talk, American Statistical Association annual meeting, Indianapolis, IN, 13-17 August, 2000.
- Forecasting El Nino/La Nina with Bayesian Spatio-Temporal Dynamic Models, Contributed talk, University of Missouri Applied Statistics Symposium, Fall, 1999.
- Bayes meets big iron: Statistical supercomputing. *Special contributed* paper at Joint Statistical Meetings, Baltimore, MD, 8-12 August, 1999. (Presented by T. Hoar)
- Hierarchical Bayesian blending of analysis and scatterometer 10-m winds. Ninth Conference on Interaction of the Sea and Atmosphere, Phoenix, AZ, 13-16 Jan 1998.
- Multivariate hierarchical Bayesian space-time dynamic models with applications to long-range prediction. 14th Conference on Probability and Statistics in the Atmospheric Sciences, Phoenix, AZ, 12-15 Jan, 1998.
- Computational Efficiencies for Gibbs Sampling of High-Dimensional Spatial Models. The 30th Meeting of the Interface of Computer Science and Statistics, Minneapolis, MN, 14-16 May, 1998. (Presented by J.A. Royle)
- Spatio-temporal random effects models and an application to modeling precipitation trends. 14th Conference on Probability and Statistics in the Atmospheric Sciences, Phoenix, AZ, 12-15 Jan, 1998. (Presented by J.A. Royle)
- Hierarchical Bayesian blending of analysis and NSCAT 10-m winds over the tropical Pacific ocean. NSCAT Science Working Team Meeting, Maui, HI, 10-14 Nov 1997.
- Hierarchical Bayesian space-time dynamic models: with applications to environmental processes. Paper in competitive young researcher session at Statistics for Correlated Data Conference, Ames, IA, 16-18 Oct 1997.

Hierarchical Bayesian space-time models for atmospheric and oceanographic processes. *Special contributed paper* at the Joint Statistical Meetings, Anaheim, CA, 10-14 Aug 1997.

Statistical analysis of multiple scale surface winds during the TOGA COARE IOP. 22nd Conference on Hurricanes and Tropical Meteorology, Fort Collins, CO, 19-23 May 1997.

Hierarchical Bayesian space-time models for atmospheric and oceanographic processes. Symposium by faculty and postdoctoral fellows of the Geophysical Statistics Project of the National Center for Atmospheric Research, Fort Collins, CO, 12 Feb 1997.

A hierarchical spatial model for constructing surface wind and pressure fields from NSCAT data in the Labrador sea. NSCAT Science Working Team Meeting, Maui, HI, 10-14 Nov 1997.

Bayesian cokriging: bivariate spatial prediction of scatterometer wind fields. Case Studies in Bayesian Statistics Workshop 4, Carnegie Mellon University, Pittsburgh, Pennsylvania, 26-27 Sep 1997. (Presented by J.A. Royle)

Spatio-temporal prediction in the atmospheric sciences using the Kalman filter with spatial noise. 13th Conference on Probability and Statistics in the Atmospheric Sciences, San Francisco, CA, 21-23 Feb 1996.

Seasonal variation of mixed Rossby-gravity waves in the upper troposphere and lower stratosphere of the equatorial western Pacific. IAMAP-IAHS'93 Symposium; Yokohama, Japan, 1993. (Presented by R.A. Madden)

## Teaching Experience

*Assistant/Associate/Full Professor:* University of Missouri; Regression and Correlation Analysis, Time Series Analysis, Elementary Statistics (honors), Statistical Issues in Atmospheric Science, Data Analysis I, Data Analysis II; Spatio-Temporal Modeling and Analysis; Introduction to Spatial Statistics; Bayesian Statistics; Dynamical Systems; Senior Seminar (writing intensive); Applied Spatial Statistics; Advanced Spatial Statistics; Data Analysis III; Deep Learning

*Tutorial Lectures:* Brief introduction to Bayesian statistics and applications to data assimilation. *Invited* tutorial lecture at the SAMSI Workshop on Data Assimilation for Geophysical Systems, Research Triangle Park, NC, January, 23 2005. *Invited* tutorial lecture at the SAMSI Mathematical and Statistical Ecology opening workshop, RTP, NC, August 18, 2014.

*Short Course:* Statistics for Spatio-Temporal Data; Paris, France (5/2012); Adelaide, Australia (7/2012); San Diego, CA (7/2012); Monterey, CA (10/2012); Reykavik, Iceland (9/2013); Manhattan, KS (4/2015); San Francisco, CA (6/2015), Columbia, MO (2/2017), Boulder, CO (3/2017), Honolulu, HI (3/2017), Boston, MA (3/2017)

*Short Course:* Co-instructor for 1/2 day short course on Bayesian hierarchical statistics, May 14, 2000, Fawcett Center, Columbus, Ohio.

*Instructor;* Iowa State University; Responsible for teaching Advanced Dynamic Meteorology to graduate students and Dynamic Meteorology to undergraduates during extended absences of the course instructor [T.-C. Chen] (total of 5-6 weeks for each course during parts of Spring 1994, Fall 1994, Spring 1995, and Spring 1996 semesters).

*Graduate Teaching Assistant;* University of Kansas; Introductory meteorology laboratory, 2 courses per semester (1986-1988).

## Students and Postdocs

*Postdocs:* Aaron Porter [2012-2014]; Harrison Quick [2013-2014]; Jon Bradley [2013-2016]; Matthew Simpson [2015 - ];

*PhD Students:* Xe (Bill) Xu [Winter 2004; Dissertation: “Efficient Parameterization and Estimation of Spatio-Temporal Dynamic Models”]; Mevin Hooten [Summer 2006; “Hierarchical Spatio-Temporal Models for Ecological Processes”]; Ali Arab [Summer 2007; “Hierarchical Spatio-Temporal Models for Environmental Processes”]; Yong Song [Summer 2009; “Hierarchical Physical-Statistical Forecasting in the Atmospheric Sciences”]; Bill Leeds [Summer 2012; “Hierarchical Modeling of Nonlinear Multivariate Spatio-Temporal Dynamical Systems in the Presence of Uncertainty”]; Dan Gladish [December 2013; “Spatio-Temporal Models with Time-Varying Spatial Model Error for Environmental Processes”]; Wen-Hsi Yang [Summer 2013; co-advised with Prof. Scott Holan; “Hierarchical Nonlinear, Multivariate, and Spatially-Dependent Time-Frequency Functional Models“], Trevor Oswald [current]; Xiaomao Xia [current; co-advised with Sakis Micheas]; Justin Okenye [current; co-advised with Sakis Micheas]; Patrick McDermott [current]; Toryn Schafer [current]; Rebecca Willison [current]

*Masters Students:* Xe (Bill) Xu [2002]; Justin Hobart [2003]; Adam Jarvis [2004], Krishna Kadiyala [2004], Yanyan Sheng [2004], Qin Zhou [2004], Casey Stoner [2005], Aaron Bogan [2005], Isabella Zaniletti [2006], Yong Song [2006], Jack McCush [2006], Geraldine Meier [2006], Sam Bussmann [2007]; Bill Leeds [2009]; Kate Hercules [2009]; Ryan Ellebracht [2010]; Tetyana Beregovska [2010]; Chris Herzog [2011]; Jacob Orme [2012]; Xiaoyu Wang [2012]; Adam Gold [2012]; Michael Silger [2012]; Trevor Oswald [2013]; Christopher Leeds [2014]; Yanjun Jia [2014]; Richard Shepro [2014]; Marc Shamula [2014]; Christopher Rota [2015]; Patrick McDermott [2015]; Rebecca Ewing [2015]; Michaela Hoffman [2015]; Peiran Yu [2015]; Bradley Alberts [2016]; Bridget Whitehead [2016]; John Carney [2016]; Andrew Hilliard [2016]; Andrew Orf [2017]; Steven Stehnach [2017]

*Undergraduate Students:* Casey Stoner [RA,02], Kelci MacLaughlin [RA,02; Honors F03,W04], Mark Giganti [RA, 02; Honors W03], Julie Smith [RA, S05], Leticia Mayberry [RA, F05/W06]; Adam Saunders [Honors W08]; Abhi Sivasailam [Honors S12]; Patrick McDermott [RA, F11/12; co-advised w/ Scott Holan]; Amanda Strickland [RA, F11; co-advised w/ Scott Holan]; Nathan Berliner [RA, F12; co-advised w/ Scott Holan]; Gregory Zajac [RA, F12/13; co-advised w/ Scott Holan]; Ian Selinger [RA, F13/S14; co-advised w/Scott Holan]; Marielle Carlos [F14/S15, F16]; Gunnar Wilhelmy [S16]; Mary Ryan [S16]; Lydia Lucchesi [F16,S17]

Director of Undergraduate Studies, Department of Statistics, Aug 2007 - May 2016; academic advisor to all Statistics Department undergraduate majors and minors (approximately 60-80 per year)

*Masters Committees (non-advisor):* Kristen Hedberg, Statistics, 1998; Shiori Yanagishima, Ag. Econ, 1999; Jason Tardy, Mech and Aerospace Eng., 2000; Simon Davies, Statistics, 2000; Kurt Richter, Ag. Econ, 2001; Mevin Hooten, Forestry, 2001; Yi Jiang, Statistics, 2002; Jing Wang, Statistics, 2002; Junfeng Shang, Statistics, 2003; John Burkhardt, Atmospheric Science, 2003; Rosie Zackula, Statistics, 2003; Steve Hulse, Fisheries and Wildlife, 2004; Gerwyn Green, Statistics, 2004; Steve Lack, Atmospheric Science, 2004; Sabini Zuki, Atmospheric Science, 2004; Carrie Peiter, Agriculture Economics, 2004; Steve Hulse, Fisheries and Wildlife, 2005; Majin Saebe, Statistics, 2005; Dustin Sweet, Economics, 2005; Yong Li, Statistics, 2005; Joel Miller, Statistics, 2005; Bun-Liong Saw, Atmospheric Science, 2005; Emily Tracy, Fisheries and Wildlife, 2006; Rachel Redburn, Atmospheric Science, 2007; Jose Miranda, Atmospheric Science, 2008; Daniel Sommerhauser, Statistics, 2009; Corrie Hutchinson, Statistics, 2009; Dan Gladish, Statistics, 2009; Ting Wang, Quantitative Psychology, 2013; Nicholas Brown, Quantitative Psychology, 2013; Michaela Hoffman, Quantitative Psychology [2014]; Jon Zimmerman, Statistics, 2014; Hui Wang, Statistics/Econ, 2014; Peter Speck, Atmospheric Science, 2015; Jacob Schwoerer, Fisheries and Wildlife, 2016; Mary Jost, Statistics, 2016; Ryan Difani, Atmospheric Science, 2016; Sang Hyuk Park, Quantitative Psychology, 2016; Rory Mott, Fisheries and Wildlife,

2017; Elisa Baebler, Fisheries and Wildlife, [current]; Julia Guyton, Fisheries and Wildlife, [current]; Kayla Key, Fisheries and Wildlife, [current]; Stephanie Cunningham, Fisheries and Wildlife, [current]

*PhD Committees (non-advisor):* Thomas Bengtsson, Statistics, 2000; Simon Davies, Statistics, 2002; Scott Beyer, Finance, 2003; Hongbok Lee, Finance, 2003; Wade Davis, Statistics, 2003; Ravi Jain, Finance, 2004; Jun Lu, Statistics, 2004; Kane Nashimoto, Statistics, 2004; Shaorong Zhang, Finance, 2004; Do-Hwan Park, Statistics, 2005; Jing Cao, Statistics, 2005; Junfeng Shang, Statistics, 2005; Song Zhang, Statistics, 2005; Yanyan Sheng, Ed. Psych., 2005; Matteo Arena, Finance, 2006; Jason Garrett, Marketing, 2006; Gentry White, Statistics, 2006; W.D. Allen, Finance, 2006; Antonello Loddo, Statistics, 2006; Xiaoqian Sun, Statistics, 2006; Brett Olsen, Finance, 2007; Steve Lack, Atmospheric Science, 2007; Chris Mellick, Atmospheric Science, 2008; Yu Yue, Statistics, 2008; Dustin Sweet, Economics, 2011; Christopher Rota, Fisheries and Wildlife, 2013; Yong He, Ed. Psych., 2013; Rima Dey, Statistics, 2013; Guohui Wu, Statistics, 2014; Wenchi Jin, Forestry, 2016; Christine Rega, Fisheries and Wildlife, 2016; Ping Yang, Educational Psychology, 2016; Michaela Hoffman, Quantitative Psychology, 2016; Pam Kelrick, Truman School of Public Affairs, 2016; Evan Kutta, Atmospheric Science, 2017; Yuelei Sui, Statistics, current; Chris Hassett, Statistics, current; Malcolm Itter, Michigan State University, Forestry Department, current; Jordan Stevens, Quantitative Psychology, current; Quinn Pallardy, Atmospheric Science, current; Corey Dunn, Fisheries and Wildlife, current; Emily Sinnott, Fisheries and Wildlife, current; Michael Moore, Fisheries and Wildlife, current; Joe Chilton, Fisheries and Wildlife, current

## Professional Affiliations/Service

### Affiliations:

American Statistical Association, Institute of Mathematical Statistics, American Meteorological Society, American Association for the Advancement of Science; Ecological Society of America

### Editorial Appointments/Special Issues:

Co-Guest Editor: *Journal of Time Series Analysis*, "Recent Advances in Spatio-Temporal Methodology," 2017–2018.

Co-Guest Editor: *Statistica Sinica*, "Big Data in Environmental Studies," 2017–2018.

Statistical Board of Reviewing Editors (SBoRE), *Science*, May 2014 - present.

Co-Guest Editor: *Journal of Agricultural, Biological, and Environmental Statistics*, "Modern Dimension Reduction Methods for Big Data Problems in Ecology," 2012–2013.

Guest Editor: *Advances in Statistical Climatology, Meteorology and Oceanography*, Special Issue on "Hierarchical and exploratory statistical methods for ocean science", October 2015 – December 2016.

Co-Guest Editor: *Environmetrics*, "Statistics and Climate", 2011–2012

Associate Editor, *Statistica Sinica*, August 2014 - present.

Associate Editor, *STAT*, August 2012 - present.

Associate Editor, *Spatial Statistics*, September 2011 - present.

Associate Editor, *Environmetrics*, Nov 2008 - present.

Series Editor, Chapman and Hall/CRC Interdisciplinary Statistics Series, Aug 2007 - present.

Associate Editor, *Weather & Forecasting*, Jan 2011 – Dec 2014; Jan 2016 – present

Associate Editor, *Journal of the American Statistical Association: Theory and Methods*, Feb 2008 - August 2011.

Associate Editor, *Journal of the American Statistical Association: Applications and Case Studies*, Feb 2000 - Jan 2007.

**Offices:**

President Elect, ENVR Section of the American Statistical Association, 2017

**Panels and External Reviews:**

University of Missouri, Curators' Professor Award Committee, 2017

ENVR Section of the ASA Awards Committee, 2015-2018

NIH, BMRD Review Panel, February 23-24, 2017

ENVR/ISBA EnviBayes Workshop (Spring 2016) Organizing Committee, 2014-2016

Climate Benchmarking and Assessment Working Group, December 2010 - 2016.

P&T outside reviews: 2007 (4, 2 P&T and 2 Full Prof.); 2008 (2 P&T); 2010 (1 P&T); 2011 (3P&T); 2012 (4P&T); 2013 (2P&T); 2014 (3P&T); 2015 (4P&T); 2016 (5P&T)

Outside grant reviewer, France National Research council (ANR), December 2011; Canada NSERC 2014; Canada NSERC 2015; Chile 2016; NOAA 2016; Canada NSERC 2017

NSF grant reviewer: 2014 (2), 2015 (3), 2016 (3)

Gulf Research Program, Synthesis Grants, NAS Panel, Fall 2016

University of Missouri, Chancellor's Award for Outstanding Research & Creative Activity committee member, 2013-2014

External PhD examiner; Agro Paris Tech, Paris, France, Fall 2013

Statistical Advisory Board, QUEST (Quantifying Uncertainty in Ecosystem Studies), 2012 - present.

Scientific Advisory Board, Spatial Statistics 2013 Conference, Columbus, Ohio, 2012.

Scientific Advisory Board, Spatial Statistics 2011 Conference, Netherlands, March 23-25, 2011.

NIH, BMRD Review Panel, teleconference, November 7, 2006.

NIH, IRAP study section, BMRD Member Conflict panel, teleconference, March 9, 2006.

NIH Social Sciences, Nursing, Epidemiology, and Methods 5 (SNEM-5) Study Section meeting, Washington, D.C., June 20, 2003; external reviewer June 2004.

Outside Advisory Panel, Geophysical Statistics Project, National Center for Atmospheric Research, 2004-present.

NSF CMG Pre-panel reviewer, May 2003.

Review for National Academies, NRC Report on Reducing the Uncertainties in the Science of Weather Modification, 2003.

NSF/EPA Environmental Statistics Panel, Washington, D.C., June 1-2, 2000.

Outside Advisor, Spatial Statistics and Environmental Science Program, Ohio State University, 2000 - 2014.

**Organization:**

Organizing Committee: Workshop on Statistics for Large Data Sets, Boulder, CO, 24-26 July, 2000

Session Chair: Spatio-Temporal Modeling, at RSS2001 Theme Conference on Spatial Modelling, Glasgow, U.K., 6 July, 2001.

Organized Session for ENAR 2003: Spatio-temporal Modeling of Environmental Processes, ENAR, Tampa, FL, Spring, 2003.

Scientific Committee, SAMSI program on multiscale analysis, to be held Spring 2004.

Session Chair and Discussion Leader, SAMSI Program on Multiscale Model Development and Control Design, Opening Workshop, RTP North Carolina, January 17-20, 2004.

Organizing Committee, 5th Annual Winemiller Symposium, Conference on New Developments of Statistical Analysis in Wildlife, Fisheries, and Ecological Research, Columbia, MO, Oct 14-16, 2004.

Organizing Committee, ENVR section of the American Statistical Association, Computational Environmentrics Workshop, Chicago, IL, October 21-23, 2004.

Organizing Committee, MBI Workshop: Uncertainty in Ecological Analysis, Ohio State University, April 3-7, 2006.

Invited Session organizer and chair, Joint Statistical Meetings, Denver, CO, August 3, 2008

Invited Roundtable Discussion Leader, "Hierarchical models and uncertainty in ecological analysis." International Biometrical Society Eastern North American Region Annual Conference, March 16, 2009, San Antonio, TX.

Organizer for Session at 2010 Ocean Sciences Meeting, Portland, OR; February 2010.

Organizer for Session on Spatial Capture Recapture, EURING meeting, April 2013

Session Chair, JSM 2014, Boston, MA.

Program Co-Chair, 2015 Summer Research Conference (SRC) sponsored by the Southern Regional Council on Statistics (SRCOS) and the American Statistical Association; Wilmington, NC, June 2015.

Organizing Committee, 2016 ENVR/EnviBayes Workshop, Columbus, OH

Session Chair, JSM 2016

Organizing Committee, 2016, Workshop on "Spatial and Spatio-Temporal Design and Analysis for Official Statistics," University of Missouri, May 20-21, 2016.

Scientific Organizing Committee, 2017-2018: Uncertainty Quantification 2018 Conference

**National/International Committees:**

American Statistical Association Advisory Committee on Climate Change, Sep 2016 - present

*Probability and Statistics Committee, American Meteorological Society* from January, 2000 - January, 2003.

Surface Temperature Benchmarking and Assessment Working Group (International Panel), Jan 2011 - present

American Meteorological Society committee on statistics education in the atmospheric, oceanic, and hydrologic sciences (T. Brown, chair), Feb 1996.

**Referee/Reviewer for:**

*Advances in Statistical Climatology, Meteorology and Oceanography, Agricultural and Resource Economics Review, Annals of Applied Statistics, Atmospheric Environment, Bayesian Analysis, Biometrika, Biometrics, Bulletin of the American Meteorological Society, Chilean National Science and Technology Commission, Proposal Review, Climate Change, Computational Statistics and Data Analysis, Communications in Statistics, Conservation Biology, Canada, NSERC proposal, Dynamics and Statistics of the Climate System, Ecography, Ecological Applications, Ecological Economics, Ecological Modelling, Ecological Monographs, Ecology, Ecology Letters, Electronic Journal of Statistics, Environmental and Ecological Statistics, Environmetrics, Geographical Analysis, Geophysical Research Letters, Hong Kong Research Grants Council, Hydrology and Earth System Science Discussions, ICES Journal of Marine Science, IEEE Proc. Vision, Image & Signal Processing, IEEE Transactions on Geoscience & Remote Sensing, IEEE Transactions on Signal Processing, International Journal of Climatology, Journal of the American Statistical Association, Journal of Agricultural, Biological, and Environmental Statistics, Journal of Applied Ecology, Journal of Applied Meteorology, Journal of Atmospheric and Oceanic Technology, Journal of Classification, Journal of Climate, Journal of Geophysical Research, Journal of the Indian Society of Agricultural Statistics, Journal of Multivariate Analysis, Journal of the Royal Statistical Society: Series A, Journal of the Royal Statistical Society: Series B, Journal of the Royal Statistical Society: Series C, Journal of Statistical Planning and Inference, Journal of Statistical Software, Journal of Time Series Analysis, Landscape Ecology, Mathematical Geology, Meteorology and Atmospheric Physics, Methods in Ecology and Evolution, Metron, Monthly Weather Review, Nature, National Environment Research Council Consortium Grant, UK, National Academies, NRC Report, NIH grant applications, Nonlinearity, NOAA grant applications, NSF DMS, NSF Hydrology, NSF ATM, NSF Bio grant applications, Ocean Dynamics, Oecologia, Pure and Applied Geophysics, Physica D, PLOS ONE, Proceedings of the Royal Society, Biological Science, Quarterly Journal of the Royal Meteorological Society, Science, Signal Processing, Spatial Statistics, Statistical Science, Statistical Modelling: An International Journal, Statistica Sinica, STAT, Technometrics, Transactions on Geoscience and Remote Sensing, Transactions Missouri Academy of Science, Trends in Ecology and Evolution, Tellus, TEST, Water Resources Research, Weather and Forecasting, Dissertation Outside Examiner: UBC*