

Candace Berrett

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- Education**
- THE OHIO STATE UNIVERSITY Columbus, OH
Ph.D. in Statistics, September 2010
Advisor: Catherine A. Calder, Ph.D.
Dissertation: “Bayesian Probit Regression Models for Spatially-Dependent Categorical Data”
- M.S. in Statistics, December 2007
- BRIGHAM YOUNG UNIVERSITY Provo, UT
B.S. in Actuarial Science, *cum laude*, April 2005
Minor: Mathematics
- Experience**
- DEPARTMENT OF STATISTICS, BRIGHAM YOUNG UNIVERSITY Provo, UT
Associate Professor, September 2017 – present
Assistant Professor, August 2010 – August 2017
- DEPARTMENT OF STATISTICS, THE OHIO STATE UNIVERSITY Columbus, OH
Research Assistant, January 2007 – September 2009, January – August 2010
- STATISTICAL AND APPLIED MATHEMATICAL SCIENCES INSTITUTE Durham, NC
Graduate Fellow, Program on Space-time Analysis for Environmental Mapping, Epidemiology and Climate Change, September – December 2009
- DEPARTMENT OF STATISTICS, THE OHIO STATE UNIVERSITY Columbus, OH
Research Assistant, Fire-Land-Atmosphere Modeling and Evaluation for Southeast Asia (FLAMES) Project, January 2007 - September 2009
- CENTER FOR INSTRUCTIONAL DESIGN, BRIGHAM YOUNG UNIVERSITY Provo, UT
Research Assistant, Evaluation and Assessment, August 2001 - May 2005
- WATSON WYATT WORLDWIDE Boston, MA
Actuarial Analyst Intern, June - August 2004
- Teaching**
- DEPARTMENT OF STATISTICS, BRIGHAM YOUNG UNIVERSITY Provo, UT
Instructor, Stat 151: Introduction to Bayesian Statistics – Fall 2014, 2015, 2016
Instructor, Stat 240: Discrete Probability – Fall 2012, 2013, 2014, 2015, 2017
Instructor, Stat 301: Statistics and Probability for Educators – Fall 2010, 2011, 2012, 2013
Instructor, Stat 537/637: Generalized Linear Models – Winter 2011, 2012, 2013, 2014, 2015, 2016, Fall 2016, 2017
- DEPARTMENT OF STATISTICS, THE OHIO STATE UNIVERSITY Columbus, OH
Course Developer, Stat 494: Statistics in the Environmental Sciences – Winter 2010
Teaching Assistant, Stat 145: Intro to Statistics – Fall 2006, Winter 2007
Teaching Assistant, Stat 135: Elementary Statistics – Fall 2005
- MATHEMATICAL BIOSCIENCES INST., THE OHIO STATE UNIVERSITY Columbus, OH
Teaching Assistant & Mentor, Summer Program in Mathematical Biology for Undergrads – Summer 2007, 2009

Scholarship PUBLICATIONS¹

Augustine-Adams, K., **Berrett, C.**, and Rasband, J.R. (To Appear) “Speed Matters,” *Howard Law Journal*.

Sloan, C., Heaton, M.J., *Kang, S.*, **Berrett, C.**, Wu, P., Gebretsadik, T., Sicignano, N., Evans, A., Lee, R., and Hartert, T. (To Appear) “The impact of temperature and relative humidity on spatiotemporal patterns and spread of annual infant bronchiolitis epidemics in the contiguous United States,” *Health & Place*.

Christensen, W.F. and **Berrett, C.** (2016) “Optimally smoothed maps of pollution source potential via particle back-trajectories and filtered kriging,” *Chemometrics & Intelligent Laboratory Systems*, 153, 1–8. DOI:10.1016/j.chemolab.2016.02.002.

Berrett, C. and Calder, C.A. (2016) “Bayesian spatial binary classification,” *Spatial Statistics*, 16, 72–102. DOI:10.1016/j.spasta.2016.01.004

Berrett, C., Williams, G.P., Moon, T., and Gunther, J. (2014) “A Bayesian Nonparametric Model for Temperature-Emissivity Separation fo Long-wave Hyperspectral Images.” *Technometrics*, 56, 200-211.

Heaton, M.J., Katzfuss, M., **Berrett, C.**, and Nychka, D.W. (2014) “Constructing Valid Spatial Processes on the Sphere using Kernel Convolutions.” *Environmetrics*, 25(1), 2-15. *2014 Wiley-TIES Environmetrics Best Paper Award*

Berrett, C. and Calder, C.A. (2012) “Data augmentation strategies for the spatial probit regression model.” *Computational Statistics and Data Analysis*, 56, 478–490 DOI: 10.1016/j.csda.2011.08.020.

Calder, C. A., **Berrett, C.**, Shi, T., Xiao, N., and Munroe, D. (2011) “Modeling space-time dynamics of aerosols using satellite data and atmospheric transport model output.” *Journal of Agricultural, Biological, and Environmental Statistics*, 16, DOI: 10.1007/s13253-011-0068-4.

Xiao, N., Shi, T., Calder, C.A., Munroe, D.K., **Berrett, C.**, Wolfinbarger, S., and Li, D. (2008) “Spatial characteristics of the difference between MISR and MODIS aerosol optical depth retrievals over mainland Southeast Asia,” *Remote Sensing of Environment*, DOI: 10.1016/j.rse.2008.07.011.

Submitted

White, P., **Berrett, C.**, Tass, S. N., and Findley, M., “Modeling Efficiency of Foreign Aid Allocation in Malawi,” revision submitted to *The American Statistician*.

Risser, M.D., Berrocal, V., Calder, C.A., and **Berrett, C.** “Treed covariate segmentation models for soil carbon and other nonstationary spatial processes,” under revision, *Annals of Applied Statistics*.

Heaton, M.J., **Berrett, C.**, and Sloan, C. “Modeling bronchiolitis incidence rates in the presence of spatio-temporal uncertainty,” submitted to *Journal of the American Statistical Association*.

Williams, D.A., **Berrett, C.**, Williams, G.P., Moon, T., “A Comparison of Data Imputation Methods using Bayesian Compressive Sensing and Empirical Mode Decomposition for Environmental Temperature Data,” submitted to *Environmental Modelling and Software*.

¹Italicized name indicates a former student.

In Preparation

Pugh, S., Heaton, M.J., Hartman, B., **Berrett, C.**, and Sloan, C. “The impact of temperature and relative humidity on spatiotemporal patterns and spread of annual infant bronchiolitis epidemics in the contiguous United States,” Target journal: *Statistics in Medicine*. Expected submission: September 2017.

Alvey, J.S., *Williams, D.A.*, **Berrett, C.**, and Williams, G.P. “A Spatio-Temporal Model for Missing Environmental Data,” Target journal: *Journal of the American Water Works Association*. Expected submission: October 2017.

Berrett, C., Christensen, W.F., *Sandholtz, N.G.*, *Coats, D.W.*, Sain, S.R., and Tebaldi, C. “A Bayesian spatio-temporal factor analysis model for kriging, with application to US sea levels.” Expected submission: January 2018.

GRANTS AND CONTRACTS

PI, 2016-2017, “PARAKEET: Performance and Reliability Assessments for Knowledge of Electronic Emissions Technology,” Los Alamos National Laboratory (LANL).

Co-PI, 2014-2017, “Spatial Uncertainty: Data, Modeling, and Communication,” National Institutes of Health (NIH). (\$125k)

Co-PI, 2014, “Annual Burden of Infant Bronchiolitis Epidemics in the United States,” National Institutes of Health (NIH). (Not Funded)

Co-PI, 2013-2016, “Validation and Uncertainty Quantification for Large Spatio-Temporal Datasets using Parallelizable Computation,” National Science Foundation (NSF). (\$201k; BYU Portion: \$47k)

Co-PI, 2012, “FRG: Collaborative Research: Tools and analysis for complex geophysical computer models,” National Science Foundation (NSF). (Not Funded)

Investigator, 2014-2017, “RF Sensing and signal processing for monitoring proliferation activity,” U.S. Department of Energy. (BYU Portion: \$280k)

Investigator, 2015, “Nuclear science and engineering nonproliferation research consortium,” U.S. Department of Energy. (Not Funded)

Investigator, 2012, “Characterization and Separation of Non-linear Spectra from Optically Thin Materials,” U.S. Department of Energy. (Not Funded)

Investigator, 2012, “RF Sensing and signal processing for monitoring proliferation activity,” U.S. Department of Energy. (Not Funded)

Consultant, 2011-2013, “Solids Identification Using Hyperspectral Imagery: Extracting Reliable Signatures from a Sea of Variability,” U.S. Department of Energy.

Presentations INVITED TALKS*Bayesian Spatio-Temporal Factor Analysis for Prediction*

ISBIS 2017, IBM T.J. Watson Research Center, Yorktown Heights, NY, June 2017

A Bayesian Spatio-Temporal Factor Analysis Model for Predicting Coastal Sea Levels

10th ICSA International Conference, Shanghai, China, December 2016

Modeling Environmental Impacts on Bronchiolitis in the Presence of Spatial Uncertainty
 Joint Statistics Meeting, Chicago, IL, August 2016
 ISBA World Meeting, Sardinia, Italy, June 2016

Constructing Valid Spatial Processes on the Sphere using Kernel Convolutions
 26th Annual Conference of TIES, Edinburgh, Scotland, July 2016

Bayesian Spatial Classification
 Statistical Science Group, Los Alamos National Laboratory, October 2015
 Department of Mathematics and Statistics, Colorado School of Mines, February 2016
 Department of Mathematics and Statistics, University of New Mexico, March 2016

Spatio-Temporal Modeling of Infant Respiratory Syncytial Virus in the Presence of Spatial Uncertainty
 WNAR Annual Meeting, Boise, ID, June 2015

Bayesian Probit Model for Spatially-Dependent Categorical Data
 Department of Statistics, Pennsylvania State University, February 2014

Modeling Space-Time Dynamics of Aerosols Using Satellite Data and Atmospheric Transport Model Output
 IBS ENAR Spring Meeting, Orlando, FL, March 2013

Bayesian Models for Multicategory Spatial Data
 ISI World Statistics Congress, Dublin, Ireland, August 2011

Data Augmentation for the Bayesian Spatial Probit Regression Model
 WNAR Annual Meeting, San Luis Obispo, CA, June 2011
 Fourth International IMS/ISBA Joint Meeting, Park City, UT, January 2011

Bayesian Probit Regression Models and Kernel-Based Space-Time Models: Two Statistical Applications for Analyzing Land-Atmosphere Interactions for Southeast Asia
 Institute for Mathematics Applied to Geosciences (IMAGE), National Center for Atmospheric Research, Boulder, CO, March 2010

Bayesian Probit Regression Models for Spatially-Dependent Categorical Data
 Department of Statistics, Brigham Young University, Provo, UT, February 2010

Learning to Teach Statistics: A TA's Perspective
 Joint Statistical Meetings, Denver, CO, August 2008

CONTRIBUTED TALKS

Modeling U.S. Infant Bronchiolitis Rates in the Presence of Spatial Uncertainty
 Joint Statistical Meetings, Seattle, WA, August 2015

Constructing Valid Spatial Processes on the Sphere using Kernel Convolutions
 Joint Statistical Meetings, Boston, MA, August 2014

Bayesian Nonparametric Methods for Material Identification from Large Remotely-Sensed Hyperspectral Space-Time Datasets
 Joint Statistical Meetings, San Diego, CA, August 2012

Bayesian Modeling of Sea-Level Rise Along the US Coast
 IMS Young Researchers Meeting, San Diego, CA, July 2012

Bayesian Probit Regression for Multicategory Spatial Data
Joint Statistical Meetings, Miami, FL, August 2011

Data Augmentation Strategies for the Bayesian Spatial Probit Regression Model
Joint Statistical Meetings, Vancouver, BC, August 2010

Data Augmentation Methods for Bayesian Modeling of Spatially-Dependent Categorical Data
Joint Statistical Meetings, Washington, DC, August 2009

Characterizing the Dependence Structure of Space-Time Processes using Computer-Model Output and Sparse Observations
Joint Statistical Meetings, Salt Lake City, UT, August 2007

TALKS AT SPONSORING INSTITUTION

Bayesian Spatial Classification
Department of Statistics, Provo, UT, October 2014

A Bayesian Nonparametric Model for Temperature-Emissivity Separation of Long-wave Hyperspectral Images
Department of Statistics, Provo, UT, October 2012

Kernel-Based Spatio-Temporal Dynamical Modeling: Methods from Xu, Wikle, & Fox
“Kernel-Based Spatio-Temporal Dynamical Model for Nowcasting Weather Radar Reflectivities”
Discussion Group on Space-Time Data and Modeling, Columbus, OH, May 2009

The FLAMES Project: An Example of Statistics Research at Ohio State
Graduate Information Day, Columbus, OH, January 2009

Discussion of “Bayesian Modeling of Uncertainty in Ensembles of Climate Models’ by R.L. Smith, C. Tebaldi, D. Nychka, and L. Mearns”
Quarter on Statistics and Climate Change Discussion Group, Columbus, OH, May 2008

CONTRIBUTED POSTERS

Bayesian Model-Based Spatial Classification
ISBA World Meeting, Cancun, Mexico, June 2014

Space-Time Modeling of Sea Level Rise Along the United States Coast
23rd Annual Conference of TIES, Anchorage, Alaska, June 2013

Bayesian Models for Multicategory Spatial Data
ISBA World Meeting, Kyoto, Japan, June 2012

Bayesian Nonparametric Methods for Solids Analysis of Long-wave Hyperspectral Image Data
Conference on Data Analysis, Santa Fe, New Mexico, February 2012

GLM-Based Spatial Classification
ENVR Workshop on Environmetrics, Boulder, Colorado, October 2010

Bayesian Probit Regression Models for Spatially-Dependent Categorical Data
ISBA World Meeting, Benidorm, Spain, June 2010

Data Augmentation Algorithms for the Bayesian Spatial Probit Regression Model
SAMSI Program on Space-time Analysis for Environmental Mapping, Epidemiology and
Climate Change Opening Workshop, Research Triangle Park, NC, September 2009

Kernel-Based Space-Time Modeling of Computer Simulated Aerosol Optical Depth Data
Midwest Statistics Research Colloquium, Chicago, IL, March 2009

*Spatial Characteristics of the Difference between MISR and MODIS Aerosol Optical Depth
Retrievals over Mainland Southeast Asia*
ENVR Workshop on Environmetrics, Boulder, CO, October 2008

A Statistical Framework for Synthesizing MISR AOD Data and MOZART Output
MISR Data Users Science Symposium, Pasadena, CA, December 2007

Students Supervised

GRADUATE ADVISOR

David Arthur (Current)
Stephen McKechnie (2017)
Nathan Sandholtz (2016), Co-Advisor
Alexis Cottam (2015), Advisor
Jessica Seeger Alvey (2015), Advisor
David Coats (2015), Co-Advisor

GRADUATE COMMITTEE MEMBER

Matthew Goodwin (2017)
Kristina Murri (2017)
Keaton Baughan (2016)
Cameron Faerber (2016)
Sorah Kang (2015)
Andrew Brock (2014)
Matthew Heiner (2014)
Paul Sabin (2014)
Megan Denison (2013)
Devin Francom (2013)
Ariana Hedges (2013)
Noel Ellison (2012)
Jessica Olsen Langford (2012)
Brent Shepherd (2012)
Andrew Olsen (2011)

UNDERGRADUATE RESEARCH MENTOR

Erin Marshall (Current)
Dean Sobczak (2017–Current)

Alex Williams (2016–Current)
 David Arthur (2016)
 Wyatt Clegg (2016)
 Yunwoo Jang (2016)
 Nathan Osbourne (2016)
 Nate Garrett (2015)
 Maddie Phan (2015)
 Jessica Seeger Alvey (2014)
 William Baumann (2012)

Service

TO SPONSORING INSTITUTION

Member, Rank and Status Committee, Department of Statistics, BYU, September 2017 – Current
 Faculty Advisor, Mu Sigma Rho Student Honors Association, Summer 2014 – Current
 Organizer, Seminar Series Winter 2013, Department of Statistics, BYU, June 2012 – April 2013
 Member, Scholarship Committee, Department of Statistics, BYU, January 2013 – May 2015
 Member, Graduate Program & Actuarial Program Unit Review Subcommittees, Department of Statistics, BYU, March 2012 – December 2012
 Member, Teaching & Learning Subcommittee on the Actuarial Program, Department of Statistics, BYU, July 2011 – December 2012
 Co-President, Department of Statistics Graduate Student Organization, OSU, September 2007 – June 2008
 Graduate Student, Program in Spatial Statistics and Environmental Statistics, OSU, April 2007 – August 2010
 Member, Graduate Recruitment Committee, OSU, September 2006 – June 2007

TO PROFESSION

Organizing Committee Member, ENVR/EnviBayes Workshop on Bayesian Environmetrics, 2015 - 2016
 Publications Chair, Section on the Environment, American Statistical Association, 2015 - 2016
 Judge, WNAR Student Paper Competition, June 2015
 Program Chair, Environmental Sciences Section, International Society of Bayesian Analysis, 2014 – 2015
 Treasurer, Utah Chapter, American Statistical Association, 2014 - 2015
 Publications Chair-elect, Section on the Environment, American Statistical Association, 2014
 Judge, SBSS Student Paper Competition, January 2013
 Presenter, Expanding Your Horizons Workshop, March 2012
 Volunteer, United States Conference On Teaching Statistics, OSU, May 2007
 Refereed papers for the following journals:
The American Statistician; Annals of Applied Statistics; Bayesian Analysis; Biostatistics; Computational Statistics and Data Analysis; Ecological Applications; Environmetrics;

Journal of Agricultural, Biological, and Environmental Statistics; Journal of the American Statistical Association; Spatial Statistics; Statistical Analysis and Data Mining; Technometrics

Awards and Honors

Faculty Heritage Fellowship in Statistical Science, BYU Department of Statistics, August 2016

2014 *Environmetrics* Wiley-TIES Best Paper Award, with a travel award of \$750 to present work at TIES 26th Annual Conference in Edinburgh, Scotland, 2016

Excellence in Teaching, BYU Department of Statistics Student-Voted Award, 2014

Early Career Researchers Travel Grant to attend ISBA2012 in Japan, 2012 (\$500)

ASA Travel Grant to attend ISI 2011 in Dublin, Ireland, 2011 (\$3000)

MCMSki Young Investigator Travel Award to attend MCMski III in Park City, UT (\$500)

Craig Cooley Graduate Student Alumni Award for Outstanding Statistics Graduate Student, Department of Statistics, The Ohio State University, 2010

Whitney Award for Best Research Associate, Department of Statistics, The Ohio State University, 2009

University Fellowship, The Ohio State University, 2005–2006

Battelle Fellowship, Department of Statistics, The Ohio State University, 2005

Heritage Scholarship, Brigham Young University, 2001–2005

Organizations

American Statistical Association

- Joint Statistical Computing & Graphics Section
- Section on Statistical Education
- Section on Statistics and the Environment
- Section on Bayesian Statistical Science
- Utah Chapter

International Society for Bayesian Analysis

Institute of Mathematical Statistics

The International Environmetrics Society