

Gretchen L. Mullendore, Ph.D.
University of North Dakota/ Department of Atmospheric Sciences
4149 University Avenue, Stop 9006/ Grand Forks, ND 58202-9006 USA
(701) 777-4707, gretchen@atmos.und.edu

EDUCATIONAL BACKGROUND

University of California, Santa Barbara, Geophysics, B.S. 1998
University of Washington, Atmospheric Sciences, Ph.D. 2003
James R. Holton and Dale R. Durran, thesis advisors.

PROFESSIONAL EXPERIENCE

Aug 2013-present: Associate Professor, University of North Dakota, Grand Forks, ND
Aug 2007-Aug 2013: Assistant Professor, University of North Dakota, Grand Forks, ND
Jan 2004-Jul 2007: Postdoctoral Researcher and Lecturer, University of California, Los Angeles, CA; Robert Fovell and Alex Hall, postdoctoral advisors.
Jul 1998-Dec 2003: Graduate research asst., University of Washington, Seattle, WA

TEACHING

Regular Course Assignments

Professor, ATSC 270: Computer Concepts in Meteorology, UND, S08, S09, S10, S11, S12, S13, S14, S15
Professor, ATSC 405: Numerical Methods in Meteorology, UND, F07, F08, F09, F10, F11, F12, F13, F14, F15, F16
Professor, ATSC 494: Special Studies, "Forecasting/Verification Of Convective Regimes For The Deep Convective Clouds And Chemistry (DC3) Field Campaign", S11, S12
Professor, ATSC 530: Numerical Weather Prediction, UND, S09, S13, S15
Professor, ATSC 548: Advanced Mesoscale Dynamics, UND, S10, S12, S14, S16

Curriculum Development Activities

New Class Development (not previously offered at UND)
ATSC 494: Special Studies, "Forecasting/Verification Of Convective Regimes For The Deep Convective Clouds And Chemistry (DC3) Field Campaign"
ATSC 548: Advanced Mesoscale Dynamics
Substantial Class Revisions
ATSC 270: Computer Concepts in Meteorology
ATSC 405: Numerical Methods in Meteorology

Collaborator, "Communicating Climate Change" internship at University of Texas, San Antonio, Summer 2012
Director, "Communicating Climate Change" internship at UND, NASA-funded, 10 undergraduate participants, May-July, 2010

Undergraduate Advisees

Academic Advisees, 8 to 11 students per semester

Advisor, ATSC 497, Various Internships (e.g., NWS, EAPC Wind Energy)

Advisor, ATSC 492, Senior Project, served on 25 committees as chair or member

Mitchell Kern, chair, "A Case Study of Convectively Induced Turbulence"

Shawn Wagner, chair, "An Analysis of WRF Performance in Relation to a Hailstorm in Western North Dakota"

Emily Maddox, S15, committee chair, "Impact of Tropopause Structure on Supercell Transport"

Johnathan Metz, S15, committee chair, "Investigation of Gravity Wave Drag Parameters in the NOAA FIM Global Atmospheric Model"

Jacob Reed, SS14, committee chair, "Forested versus Plains Regions: The Effect of Albedo on Springtime Maximum Temperatures"

Kurtis Pinkney, F13, committee chair, "The Structure of Lightning in Convective Storms in Varying Pre-Convective Environments during the Deep Convective Clouds and Chemistry Field Campaign"

Mariusz Starzec, F12, committee chair, "Effects of Increased Horizontal Resolution on Resolving Convection and Convective Initiation"

Scott Rowe, S12, committee chair, "Discrete Propagation of Tropical Maritime Convection"

John Opatz, S12, committee chair, "Extrapolation of Lower-Level Wind Speeds For Wind Turbine Energy Estimates" (collaboration with EAPC Wind Energy Consultants, Grand Forks, ND)

Scott Jorgenson, S11, committee chair, "Comparison of the Parcel Theory Estimated Level of Neutral Buoyancy and Vertical Velocity Derived Level of Maximum Detrainment"

Karen Larson, S11, committee chair, "Comparison of Mass Transport in Idealized Isolated Midlatitude Convective Storms"

Shawn Palmquist, S11, committee chair, "Analysis of Historical Case and 2010 Lake-effect Snow Season for Lake of the Woods using NWS Forecasting Criteria"

Nichole Shotwell, S11, committee chair, "The Prediction of Convective Initiation for the June 17, 2010 Tornado Outbreak in West-Central Minnesota and Eastern North Dakota"

Kelsey Watkins, S10, committee chair, "Improving Numerical Modeling of Winter Storms: Investigation of the October 2009 Red Lake Snow Event"

Vanessa Pearce, F09, committee chair, "Tornado Watch & Warning Misunderstanding"

Employ undergraduate researchers (between 1 and 6 at all times)

Graduate Student Advising: Doctoral Dissertation Committee (6)

Katelyn Barber, committee chair, projected completion SS19

Mariusz Starzec, committee chair, projected completion F18

Feng Zhe, Member, completed F11

Jason Naylor, Member, completed F12

Andrea Neumann, Member

Ron Stenz, Member

Graduate Student Advising: Master's Thesis Committee (20)

Katelyn Barber, Chair, completed SS15

“Simulations of Convectively-Induced Turbulence based on a Radar-Based Climatology of Tropical Storm Types” (collaboration with Northrop Grumman Corp)

Mariusz Starzec, Chair, completed F14

“Forecast Bias Analysis of Object-based Verification of Regional WRF Summertime Convective Forecasts”

Daniel Burtch, Chair, completed S14

“Using Reanalysis Data For The Prediction Of Seasonal Wind Turbine Power Losses Due To Icing” (collaboration with EAPC Wind Energy Consultants, Grand Forks, ND)

Nicholas Carletta, Chair, completed F13

“Determining Best Method for Estimating Observed Level of Maximum Convective Detrainment based on Radar Reflectivity”

Brandon Bigelbach, Chair, completed SS13

“Exploring the Differences in Deep Convective Transport Characteristics Between Quasi-Isolated Strong Convection and Mesoscale Convective Systems Using Seasonal WRF Simulations”

Amanda Homann, Chair, completed F09

“Comparison of the Level of Neutral Buoyancy Observed from Soundings and Radar”

Daniel Adriaansen, Chair, completed F09

“Observations of Tropospheric, Convectively Generated Gravity Waves from Atmospheric Profiling Platforms”

Emily Maddox, Chair, projected completion SS17

Timothy See, Chair, projected completion SS17

Brittany Peterson, Chair, projected completion F16

Timothy Kress, Member

Zachary Hargrove, Member

Garrett Bruce, Member

David Goines, Member

Matthew Eckhoff, Member

Akila Sampath, Member

Brianna Kump, Member

Jacob Coburn, Earth System Science and Policy, Member, completed SS15

Di Wu, Member, completed 10

Jason Naylor, Member, completed 08

Graduate Student Advising: Independent Study Advisor (Non-thesis Master’s) (2)

Joel Siegel, completed SS15

Brandon Austin, completed SS13

Graduate Student Fellowships/Awards:

Mariusz Starzec, DTC Visitor Program, F15-SS16

Timothy See, North Dakota Space Grant Consortium (NDSGC) Fellowship, \$4,500, S16

SERVICE

Department

Technology (IT) Committee, 2007-current
Graduate Committee, 2008-current
Evaluation Committee, 2013-current
Faculty Advisor, *Atmospheric Sciences Graduate Student Association*, Sept. 2007-current
Organizer, Mesoscale Processes Seminar Series, Apr. 2008-current
Faculty Search Committee, 2007-08, 2012-13
Lead Administrator, Atmospheric Sciences Student Beowulf Cluster, Fall 2009-2013
Organizer/Presenter, “Advanced Matlab Tips”, Aug. 18, 2011
Organizer, UND WIS/ ATSC Dept. “Meet the Scientist”, Jamie Wolff, NCAR, Oct. 14, 2011
Guest Lecturer, ATSC 100, ATSC 500, CSCI 130, GEOL 105
Prospective Student Tours

College

Committee Member, Undergraduate Program Review for Department of Aviation, Spring 2009

University

Member, Committee on Unmanned Aircraft Systems Research Ethics & Privacy (UASREP), May 2016-current
Founding Member, Faculty Adviser, Faculty Executive Board Chair of *UND Women in Science*, Apr. 2011-current
Member, *Student Relations Committee*, 2010-Feb. 2015
Science Facilitator, ND EPSCoR CRCS Cluster, Oct. 2013-Oct. 2015
Primary Organizer, UND WIS Graduate Panel, “The Graduate School Experience: Perspectives from Current UND Student Scientists”, Jan. 27, 2015
Affiliate Member Women and Gender Studies & WGS Academic Events Committee (through Mar. 2015)
Lead Organizer, UND Women Faculty Initiative Working Group, Oct. 2102-Apr. 2013
Young Investigator Representative for UND ND EPSCoR, 2013 Coalition of EPSCoR/IDeA States Annual Meeting, Washington DC, Mar. 11-12, 2013
Faculty Presenter, NSF ND EPSCoR NATURE Program, 2013
Faculty Mentor, *McNair Program*, 2010-2012
Invited Panelist, Women’s Center “Meet, Eat, and Learn” presentation series, "Celebrating Women in Leadership", Nov. 7, 2012
Invited Panelist, "Strategies for a Successful Career", Alice Clark Program, Feb. 9, 2012
Contributor, UND Graduate School Women in Science Blog, Aug. 31, 2011
Moderator, UND WIS Graduate Student Panel, “Graduate School Perspectives”, Oct. 19, 2011
Faculty Advisor, *Phi Eta Sigma*, UND chapter, Sept. 2007-Dec. 2011
Invited Panel Member, “Finding and Working with a Mentor: Advice from Past Program Participants”, *Alice T. Clark*, Spring 2009
Participant, UND Information Technology Forums, areas of “Core & Enabling Infrastructure” and “Research”, Nov. 2008

Professional Associations: Journal Reviewer
Journal of Geophysical Research, Atmospheres (AGU)

Atmospheric Chemistry and Physics (EGU)
Geophysical Research Letters (AGU)
Monthly Weather Review (AMS)
Journal of Meteorology (NWA)
Journal of Atmospheric Sciences (AMS)
Bulletin of American Meteorology Society (AMS)

Professional Associations: Proposal Reviewer
NASA Global Climate Change Education (GCCE)
NSF Physical and Dynamical Meteorology (PDM)
NSF Decadal and Regional Climate Prediction using Earth System Models (EaSM)
DOE Atmospheric System Research (ASR)

Professional Associations: Conferences/Workshops/Field Campaigns/Other
Member, AMS Mesoscale Processes Committee, Dec. 2015-current
Unidata Users Committee Member, Sep. 2014-current
Peer Reviewer, Tenure and Promotion packet, various institutions
Organizing Committee, Unidata Triennial Meeting, June 2015
NSF Committee of Visitors (COV) Member, June 2015; Reviewer NCAR and Facilities Section
Primary Student Presentations Judge, AMS 16th Conference on Mesoscale Processes, Boston, MA, 2-6 Aug 2015
Session Chair, AMS 16th Conference on Mesoscale Processes, Boston, MA, 2-6 Aug 2015
Co-Convener, “Workshop on overcoming barriers to distributed production, storage, and analysis of multi-model ensemble forecasts in support of weather prediction research and education in universities”, Jan. 9-10, 2014, NCAR, Boulder, CO (later called “Big Weather Workshop”)
Session convener, AGU, Dec. 2013, “Chemistry, Physics and Dynamics Associated with Deep Convection and its Effect on UTLS Transport”
Session chair, AGU, Dec. 2013
Invited Participant, NSF EarthCube Workshop, “Shaping the Development of EarthCube to Enable Advances in Data Assimilation and Ensemble Prediction”, Boulder, CO, 17-18 December 2012
Session chair, "Mesoscale precipitation systems III", *AMS 13th Conference on Mesoscale Processes*, Salt Lake City, UT, Aug 17-Aug 20, 2009
Rapporteur, *The Extra-tropical UTLS: observations, concepts and future directions*, Community workshop at NCAR, Boulder, CO, October 19-22, 2009
Invited contributor *Deep Convective Clouds and Chemistry (DC3) Planning Workshop*, Boulder, CO, August 12-13, 2008

Community

Board member, Dakota Science Center, 2008/2009 to current
Participant, ND EPSCoR Sunday Academy: “Climate Instrumentation” module development and presentation at tribal colleges (July 2015-Mar 2016)
Invited Challenge Project Judge, “Nature’s Fury”, First LEGO League, North Dakota Championship Tournament, Feb. 2014

Organizer/Presenter, "Communicating Climate Change" Teacher Workshop, Northeast Education Services -Cooperative (NESC) Winter In-Service, Lake Region State College, Jan. 16, 2012

Invited Speaker, "UND Women in Science", AAUW, Grand Forks Chapter, Jan. 21, 2012

Lead Investigator, daily North Dakota forecast simulations, used by ND Atmospheric Resources Board (NDARB) summer field operations and Grand Forks NWS

Session Lead, Young Scientists and Engineers Academy (YSEA), "Climate Science", grades 5-8, Aug. 1, 2012

Invited Judge, Red River Women's Studies Conference, Student Poster Session, Minnesota State Univ. Moorhead, Oct. 26, 2012

Online Mentor, MentorNet (www.mentornet.net), 2010-2011

Presenter, "Celebrate Earth Science Week" event for middle-school students, Oct. 16, 2011

Community Presentation: "Communicating Climate Change", July 13, 2010, UND

Presentation, Grand Forks NWS, "High resolution forecasts and models", Aug. 16, 2010

Invited Challenge Project Judge, "Climate Connections", First LEGO League, North Dakota Championship Tournament, Jan. 2009

Presenter/Facilitator, Lewis and Clark Science Night, "Atmospheric Composition", April 16, 2009

Instructor, "Weather", Young Science and Engineering Academy, Grand Forks, ND, Jul 27- July 30, 2009

Participant, Grand Forks NWS Open House, Sept. 2008

Dakota Science Center "Day of Science", regional middle school students, weather activities and self-designed module/game titled "The Human Weather Model", summer, 2008

PUBLICATIONS

(* indicates student in Mullendore research group)

Refereed

- *Barber, K. A., G. L. Mullendore, and M. J. Alexander, 2017: "Out-of-Cloud Convective Turbulence: Estimation Method and Impacts of Model Resolution", *J. Appl. Meteorol. Climatol.*, accepted.
- H. Xue, Q. Jin, B. Yi, G. L. Mullendore, X. Zheng, and H. Jin, 2017: "Modulation of Soil Initial State on WRF Model Performance over China", *J. Geophys. Res. Atmos.*, 122. <https://doi.org/10.1002/2017JD027023>.
- *Starzec, M., C. R. Homeyer, G. L. Mullendore, 2017: Storm Labeling in 3 Dimensions (SL3D): A Volumetric Radar Echo and Dual-Polarization Updraft Classification Algorithm. *Mon. Wea. Rev.*, **145**, 1127–1145, doi: 10.1175/MWR-D-16-0089.1.
- Hacker, J., J. Exby, D. Gill, I. Jimenez, C. Maltzahn, T. *See, G. Mullendore, K. Fossell: 2016: A containerized mesoscale model and analysis toolkit to accelerate classroom learning, collaborative research, and uncertainty quantification. *Bull. Amer. Meteor. Soc.*, **98**, 1129–1138, <https://doi.org/10.1175/BAMS-D-15-00255.1>.
- *Carletta, N. D., G. L. Mullendore, M. *Starzec, B. Xi, Z. Feng, and X. Dong, 2016: Determining the best method for estimating the observed level of maximum detrainment based on radar reflectivity. *Mon. Wea. Rev.*, **144**, 2915–2926, doi: 10.1175/MWR-D-15-0427.1.

- Furl, C., H. O. Sharif, A. El Hassan, N. Mazari, D. *Burtch, and G. L. Mullendore, 2015: Hydrometeorological Analysis of Tropical Storm Hermine and Central Texas Flash Flooding, September 2010. *J. Hydrometeor.*, **16**, 2311–2327.
- *Bigelbach, B. C., G. L. Mullendore, and M. *Starzec, 2014: Differences in deep convective transport characteristics between quasi-isolated strong convection and mesoscale convective systems using seasonal WRF simulations, *J. Geophys. Res. Atmos.*, 119, 1–11, doi:10.1002/2014JD021875.
- Mullendore, G. L., and J. S. Tilley, 2014: Integration of Undergraduate Education and Field Campaigns: A Case Study from Deep Convective Clouds and Chemistry. *Bull. Amer. Meteor. Soc.*, **95**, 1595–1601.
- Wu, D., X. Dong, B. Xi, Z. Feng, A. Kennedy, G. Mullendore, M. Gilmore, and W.-K. Tao, 2013: Impacts of microphysical scheme on convective and stratiform characteristics in two high precipitation squall line events, *J. Geophys. Res. Atmos.*, 118, 11,119–11,135, doi:10.1002/jgrd.50798.
- Mullendore, G. L., *Homann, A. J., *Jorgenson, S. T., Lang, T. J., and Tessendorf, S. A., 2013: Relationship between level of neutral buoyancy and dual-Doppler observed mass detrainment levels in deep convection, *Atmos. Chem. Phys.*, **13**, 181-190, doi:10.5194/acp-13-181-2013.
- Munski, L, A. Kirilenko, F. Remer, G. Mullendore, and M. Baker, 2011: A Report on an undergraduate educational initiative that uses multimedia to present how climate and land use are interrelated: an overview of the Communicating Climate Change program at the University of North Dakota, *Prairie Perspectives: Geographical Essays*, **14**, 10-16.
- Mullendore, G. L., A. J. *Homann, K. Bevers, and C. Schumacher, 2009: Radar reflectivity as a proxy for convective mass transport, *J. Geophys. Res.*, 114, D16103, doi:10.1029/2008JD011431.
- Fovell, R. G., G. L. Mullendore, and S-H. Kim, 2006: Discrete Propagation in Numerically Simulated Nocturnal Squall Lines, *Mon. Wea. Rev.*, **134**, 3735-3752
- Mullendore, G. L., D. R. Durran and J. R. Holton, 2005: Cross-tropopause tracer transport in midlatitude convection. *J. Geophys. Res.*, 110, D06113, doi:10.1029/2004JD005059
- Zhou, X-L., J. R. Holton, and G. L. Mullendore, 2002: Forcing of secondary waves by breaking of gravity waves in the mesosphere. *J. Geophys. Res.*, 107, 10.1029/2001JD001204

Non-refereed

- Mullendore, G. and *M. Starzec, 2016: Forecast Model Activities for North Dakota Cloud Modification Project. *J. Weather Modification*, **48**, 93-98.

EDUCATIONAL PRODUCTS

Non-refereed

- Communicating Climate Change Science Lesson Plans, 4-week curriculum, North Dakota State Standards Compliant, 2012. Contributors: L. Munski, G. Mullendore, M. Baker, D. Clark, E. Harpster.
- Communicating Climate Change Webcasts, <http://www.youtube.com/user/GCCEUND/> (also see http://people.aero.und.edu/~gretchen/gcce_ccc/)

PROFESSIONAL PRESENTATIONS

(* indicates student in Mullendore research group, ** indicates undergraduate)

Invited Talks

- “Cloud-scale regional forecasts for the Northern Great Plains”, United Tribes Technical College, 21 Oct 2016
- “Being Open to Opportunities”, American Indian Science and Engineering Society (AISES) Conference Banquet, 5 Mar 2016
- “Impacts Of Tropopause Structure On Deep Convective Transport: Results From Modeling And Observations”, AMS 16th Conference on Mesoscale Processes, Boston, MA, 6 Aug 2015
- “YMC Overview of Planned Observations and Modeling: Possible Synergies with Strateole”, Strateole-2 UT/LS Mission Workshop, Paris, France, 8-19 March 2015
- “Using Radar Observations to Understand Detrainment and Entrainment Processes in Deep Convection”, AGU Joint Assembly, Montreal, Canada, 6 May 2015
- “Use of Observations to Evaluate Model Simulations of Convective Transport”, University of Maryland, College Park, MD, 19 Feb 2015
- “Understanding the Variability in Deep Convective Mass Transport Using Radar and Cloud-Resolving Models”, Chemistry Department, University of North Dakota, Grand Forks, ND, Jan. 31, 2014
- “Communicating Science”, Topical focus group discussion leader, ND EPSCoR/IDeA State Conference, Grand Forks, Apr. 29, 2014
- “Use Of Observations To Evaluate Model Simulations Of Convection”, JPL Atmospheric Composition and Convection Workshop, Pasadena, CA, 26-28 Aug 2014
- “Overview: Convective Transport”, Deep Convective Clouds and Chemistry (DC3) PI Meeting, Boulder, CO, 25 Feb-1 Mar 2013
- “Being Open to Opportunities”, UND Undergraduate Research Conference Banquet, Apr. 24, 2013
- “Mass Transport in Deep Convection: Simulations and Radar Observations”, Dept. of Atmospheric Science, Colorado State University, Ft. Collins, CO, July 1, 2013
- “Mass Transport in Deep Convection”, Department of Civil & Environmental Engineering, Washington State University, Pullman, WA, Sept. 16, 2013
- “Mass Transport in Deep Convection: Simulations and Radar Observations”, Pacific Northwest National Laboratory (PNNL), Richland, WA, Sept. 19, 2013
- “Understanding the Variability in Deep Convective Mass Transport Using Radar and Cloud-Resolving Models”, Department of Atmospheric Science, The University of Alabama in Huntsville, Oct. 9, 2013
- “Cloud-scale regional forecasts for the Northern Great Plains”, UND Biology Dept., Oct. 12, 2012
- “Best Practices for Creating Internship Programs at your University”, *31st Annual Student Conference, American Indian Higher Education Consortium*, Rapid City, SD, Mar. 26, 2012
- “Deep Convective Mass Transport”, UND Physics Department, Oct. 21, 2011
- “Mass Transport in Deep Convection”, University of Texas, San Antonio, TX, Mar. 25, 2011
- “Storm-Scale Deep Convective Transport”, Jet Propulsion Laboratory, Pasadena, CA, Mar. 10, 2011

"Communicating Climate Change", *NASA IGCCE Workshop*, Austin, TX, Dec. 3, 2010

National/International

- Hacker, J., J. Exby, D. Gill, I. Jimenez, C. Maltzahn, T. *See and G. Mullendore:
Collaborative WRF-based research and education with reproducible numerical weather prediction enabled by software containers. *17th WRF Users Workshop*, 27 June 27 - 1 July 2016, Boulder, CO
- *See, T. and G. Mullendore: Application of Docker Containerizing Software in undergraduate education to increase model understanding. *17th WRF Users Workshop*, 27 June 27 - 1 July 2016, Boulder, CO
- *Barber, K., C. Stephan, and G. Mullendore: Comparison of convectively-induced turbulence response using prescribed latent heating versus full model physics. *17th WRF Users Workshop*, 27 June 27 - 1 July 2016, Boulder, CO
- Hacker, J., J. Exby, N. Chartier, D. Gill, I. Jimenez, C. Maltzahn, and G. Mullendore:
Collaborative research and education with numerical weather prediction in a common environment enabled by software containers. *96th AMS Annual Meeting: 32nd Conference on Environmental Information Processing Technologies*, 10-14 Jan, 2016, New Orleans, LA
- Li, Y., K. Pickering, M. C. Barth, M. M. Bela, K. A. Cummings, D. J. Allen, L. Carey, R. M. Mecikalski, A. Fierro, and G. Mullendore: Deep Convective Transport in Convective Systems of Three Different Scales from the DC3 Field Campaign Using Results from WRF-Chem Simulations with Lightning Data Assimilation. *AMS Annual Meeting*, 10-14 Jan 2016, New Orleans, LA
- Burtch, D., G. L. Mullendore, A. D. Kennedy, M. Simms, A. Kirilenko, J. Coburn:
Dynamical Downscaling of Global Circulation Models With the Weather Research and Forecast Model in the Northern Great Plains. *AGU Fall Meeting*, 14-18 Dec 2015, San Francisco, CA
- Mullendore, G. L., C. Maltzahn, M. K. Ramamurthy, J. Hacker, K. Tyle, R. S. Schumacher:
Big Weather Web: Big Data Solutions in Support of Weather Prediction for University Research and Education. Town Hall Meeting, *AGU Fall Meeting*, 14-18 Dec 2015, San Francisco, CA.
- *Barber, K., G. Mullendore and M. Poellot, "Simulations of Convectively-Induced Turbulence based on a Radar-Based Climatology of Tropical Storm Types", *AMS 16th Conference on Mesoscale Processes*, Boston, MA, 2-6 Aug 2015
- *Starzec, M., G. L. Mullendore, C. R. Homeyer, A. L. Bain, B. Basarab, L. Carey, R. M. Mecikalski, and S. Rutledge, "Application of Radar-Based Estimation of the Level of Maximum Detrainment to DC3 Cases", *AMS 16th Conference on Mesoscale Processes*, Boston, MA, 2-6 Aug 2015
- Furl, C., H. Sharif, A. ElHassan, N. Mazari, D. *Burtch, and G. Mullendore,
"Hydrometeorological Analysis of Tropical Storm Hermine and Central Texas Flash Flooding", *EGU General Assembly 2015*, Vienna, Austria, 12-17 April 2015
- Kucera, P.A., D. Axisa, D. Delene, G. Mullendore, and D. Langerud, "Radar Evaluation POLarimetric Cloud Analysis and Seeding Test (POLCAST) Field Program in Eastern North Dakota", *Weather Modification Annual Meeting*, Fargo, ND, 22-24 April, 2015
- Mullendore, G. L., B. C. *Bigelbach, L. E. Christensen, J. J. **Metz, and K. **Pinkney,
"Observations from MACPEX of enhanced chemical plumes and perturbations in

- tropopause structure in regions with deep convection”, AMS 17th Conference on Atmospheric Chemistry, Phoenix, AZ, 04-08 January 2015
- Sharif, H., J. Joseph, and G. Mullendore, “Undergraduate Students As Effective Climate Change Communicators”, AGU Fall Meeting, San Francisco, CA, 15-19 Dec 2014
- *Burtch, D. G., G. L. Mullendore, D. J. Delene, and B. Storm: Using Reanalysis Data for the Prediction of Seasonal Wind Turbine Power Losses Due to Icing, AMS Fifth Conference on Weather, Climate, and the New Energy Economy, Atlanta, GA, Feb. 2-6, 2014
- **Pinkney, K., G. L. Mullendore, B. C. *Bigelbach, M. Scott, P. N. Gatlin, and L. D. Carey: The Structure of Lightning in Convective Storms in Varying Pre-Convective Environments during the Deep Convective Clouds and Chemistry Field Campaign, AMS 13th Annual Student Conference, Atlanta, GA, Feb. 2-6, 2014
- **Metz, J. J., G. L. Mullendore and L. E. Christensen: Effects of Model Physics Options on Simulated Storm Depth, AMS 13th Annual Student Conference, Atlanta, GA, Feb. 2-6, 2014
- *Carletta, N.D., G. L. Mullendore, B. Xi, Z. Feng, and X. Dong: Determining Best Method for Estimating Observed Level of Maximum Convective Detrainment based on Radar Reflectivity, AGU Fall Meeting, San Francisco, Calif., 9-13 Dec. 2013
- *Bigelbach, B. C., G. L. Mullendore, M. *Starzec, S. **Jorgenson: Exploring the Differences in Deep Convective Transport Characteristics Between Quasi-Isolated Strong Convection and Mesoscale Convective Systems Using Seasonal WRF Simulations, AGU Fall Meeting, San Francisco, Calif., 9-13 Dec. 2013
- *Burtch, D., G. L. Mullendore, D. J. Delene, B. Storm: Using Reanalysis Data for the Prediction of Seasonal Wind Turbine Power Losses Due to Icing, AGU Fall Meeting, San Francisco, Calif., 9-13 Dec. 2013
- *Carletta, N.D., G. L. Mullendore, B. Xi, Z. Feng, and X. Dong: Determining Best Method for Estimating Observed Level of Maximum Convective Detrainment based on Radar Reflectivity, AMS 15th Conference on Mesoscale Processes, Portland, OR, Aug. 2013
- *Bigelbach, B. C., G. L. Mullendore, M. **Starzec, and S. T. **Jorgenson: Exploring the Differences in Deep Convective Transport Characteristics amongst Thunderstorm Regimes Using Seasonal WRF Simulations, AMS 15th Conference on Mesoscale Processes, Portland, OR, Aug. 2013
- *Starzec, M., G. L. Mullendore, D. Delene, P. Kucera, D. Langerud: Object-based verification of regional WRF simulations of summertime convection. 14th Annual WRF User’s Workshop, Boulder, CO, 24-27, June 2013
- Mullendore, G. L., J. S. Tilley, and L. D. Carey: “Leveraging Field Campaign Resources to Provide Additional Undergraduate Forecasting and Research Experiences: A Case Study from Deep Convective Clouds and Chemistry (DC3)”, AMS 22nd Symposium on Education, Austin, TX, 6-10 Jan, 2013
- Kucera, P. A., C. Weeks, D. J. Delene, G. L. Mullendore, and D. Langerud: “Overview of the POLarimetric Cloud Analysis and Seeding Test (POLCAST) Field Program in Eastern North Dakota”, oral presentation, AMS 19th Conference on Planned and Inadvertent Weather Modification, Austin, TX, 6-10 Jan, 2013
- Tilley, J. S., and G. L. Mullendore: “Novel Approaches to Forecasting Internships for Credit: The Summer 2012 University of North Dakota Deep Convective Clouds and Chemistry (DC3) Forecasting Internship Class”, oral presentation, AMS 22nd Symposium on Education, Austin, TX, 6-10 Jan, 2013

- Carey, L., A. L. Bain, R. H. Rogers, D. Kozlowski, A. Sherrer, M. Saari, B. *Bigelbach, M. Scott, E. V. Schultz, C. J. Schultz, P. N. Gatlin, M. T. Wingo, D. W. Phillips, C. Phillips, H. Peterson, J. Bailey, T. Frederickson, J. M. Hall, R. Blakeslee, W. Koshak, N. **Bart, M. **Becker, K. **Pinkney, S. **Rowe, M. **Starzec, J. K. **Weber, and G. L. Mullendore: “Alabama Ground Operations during the Deep Convective Clouds and Chemistry Experiment”, oral presentation, AMS Sixth Conference on the Meteorological Applications of Lightning Data, Austin, TX, 6-10 Jan, 2013
- **Starzec, M., G. Mullendore, P. A. Kucera, D. Delene, and D. Langerud: “Effects of Increased Horizontal Resolution on Resolving Convection and Convective Initiation”, AMS 19th Conference on Planned and Inadvertent Weather Modification, Austin TX, 6-10 January, 2013
- **Bart, N., M. E. **Becker, K. **Pinkney, S. **Rowe, M. **Starzec, J. K. **Weber, G. L. Mullendore, B. *Bigelbach, J. S. Tilley, and L. Carey: From Classroom to Field Work: Bolstering Undergraduate Educational Experience during the Deep Convective Clouds and Chemistry Experiment, *AMS 12th Annual Student Conference*, Austin, TX, 6-10 January, 2013
- **Southerland, K., G. L. Mullendore, L. Munski, E. Harpster, and M. Baker, “Development of Middle School Lesson Plans on Climate Change and Global Climate Models”, *21st Symposium on Education*, New Orleans, LA, Jan. 23, 2012 (undergraduate student)
- Mullendore, G., L. Munski, A. Kirilenko, F. Remer, M. Baker, K. **Southerland, “Communicating Climate Change: Undergraduate Internship and Development of Middle School Lesson Plans”, Tri-Agency Climate Change Education Principal Investigators Meeting, Arlington, VA, Apr. 18, 2012
- Mullendore, G. L., A. J. *Homann, S. T. **Jorgenson, and T. J. Lang, 2012: “Variability In Deep Convective Mass Transport: The Relationship Between Level Of Neutral Buoyancy And Dual-Doppler Observed Mass Detrainment Levels”, AGU Fall Meeting, San Francisco, CA, 3-7 December 2012
- Mullendore, G. L., L. Munski, A. Kirilenko, F. Remer, and M. Baker: “Challenges of Communicating Climate Change in North Dakota: Undergraduate Internship and Collaboration with Middle School Educators”, poster presentation, AGU Fall Meeting, San Francisco, CA, 3-7 December, 2012
- Sharif, H. O., J. Joseph, and G. L. Mullendore: “Undergraduate Students as Climate Communicators”, poster presentation, AGU Fall Meeting, San Francisco, CA, 3-7 December, 2012
- *Bigelbach, B. C., G. L. Mullendore, M. **Starzec, S. T. **Jorgenson, and J. S. Tilley: “The importance of storm classification in studies of deep convective transport using seasonal WRF simulations”, AGU Fall Meeting, San Francisco, CA, 3-7 December, 2012
- **Southerland, K., D. Delene, G. Mullendore, P. A. Kucera, and D. Langerud (2011), “Report on the Polarimetric Cloud Analysis and Seeding Test 3 (POLCAST3) Field Project”, Third Symposium on Aerosol-Cloud-Climate Interactions, *18th Conference on Planned and Inadvertent Weather Modification*, Seattle, WA, Jan. 26, 2011
- Mullendore, G. L., A. J. *Homann, S. T. **Jorgenson, and T. J. Lang, “Case studies of variability in the depth of convective mass transport”, *AMS 14th Conf. on Mesoscale Processes*, Los Angeles, CA, Aug. 1, 2011
- Mullendore, G. L., L. Munski, A. Kirilenko, F. Remer, and M. Baker: “Undergraduates using multimedia to present climate research in their own words: An overview of the

Communicating Climate Change program at the University of North Dakota”,
Communicating with Technology (Joint Themed Session), AMS Annual Meeting, Seattle,
WA, Jan. 24-Jan. 28, 2011

Mullendore, G. L., L. Munski: UND Project Overview, NASA/NOAA/NSF Tri-Agency PI
Meeting on Climate Change Education, 2/28-3/2, 2011, George Mason Univ.

Mullendore, G. L., A. Kirilenko, F. Remer, L. Munski, B. Tande: “Overview of
Communicating Climate Change Program”, *NASA Global Climate Change Education*
Webinar, July 29, 2010

Munski, L, A Kirilenko, F Remer, G Mullendore, and M Baker, "Undergraduates using
multimedia to present how climate and land use are interrelated: An overview of the
Communicating Climate Change program at the University of North Dakota", 34th
Annual Conference, Praire Division, Canadian Assoc. of Geographers, Sept. 24-26, 2010,
University of Saskatchewan

**Watkins, K., Mullendore, G. L., Bramer, B, 2010: “Numerical simulations of an
unexpected early season lake effect snow event in Northern Minnesota – 12 October
2009”, Change of Seasons Workshop, Prairie and Arctic Storm Prediction Center
(PASPC), Winnipeg, MB

Mullendore, G. L., A. J. *Homann, C. Schumacher, and K. Bevers, “Radar reflectivity as a
proxy for convective mass transport”, *AMS 13th Conference on Mesoscale Processes,*
Salt Lake City, UT, Aug 17-Aug 20, 2009

*Homann, A. J., G. Mullendore, J. S. Tilley, and **S. T. Jorgenson, “Comparison of the
level of neutral buoyancy observed from soundings and radar”, *AMS 13th Conference on*
Mesoscale Processes, Salt Lake City, UT, Aug 17-Aug 20, 2009

*Adriaansen, D. R., M. J. Alexander and G. L. Mullendore “Observations of tropospheric,
convectively generated gravity waves from atmospheric profiling platforms”, *AMS 13th*
Conference on Mesoscale Processes, Salt Lake City, UT, Aug 17-Aug 20, 2009

Mullendore, G. L. and A. J. *Homann, “Radar reflectivity as a proxy for convective
detrainment in the UT/LS”, *The Extra-tropical UTLS: observations, concepts and future*
directions, Community workshop at NCAR, Boulder, CO, October 19-22, 2009

Mullendore, G. L., A. Hall, X. Qu, and J. C. McWilliams, 2007: Low-level clouds in the
Southern California Bight: Sensitivity studies in mesoscale models, *Seventh Conference*
on Coastal Atmospheric and Oceanic Prediction and Processes, San Diego, CA, Sep 10-
Sep 13, 2007

Regional/State/Local

*Starzec, M., G. Mullendore, P. A. Kucera, D. Delene, and D. Langerud: Object-based
Verification of Regional Weather Research and Forecasting Simulations of Summertime
Convection, Northern Plains Convective Storm Symposium, Grand Forks, ND, May 19-
20, 2014

*Carletta, N., G. L. Mullendore, B. Xi, Z. Feng, and X. Dong: “Determining Best Method for
Estimating Observed Level of Maximum Convective Detrainment based on Radar
Reflectivity”, 17th Annual Severe Storms and Doppler Radar Conference, Ankeny, IA, 4-
6 April 2013

*Carletta, N., G. L. Mullendore, B. Xi, Z. Feng, and X. Dong: “Determining Best Method for
Estimating Observed Level of Maximum Convective Detrainment based on Radar

Reflectivity”, 17th Annual Severe Storms and Doppler Radar Conference, Grand Forks, ND, 13 May 2013

- *Burtch, D. and G. L. Mullendore, “Using Reanalysis Data for the Prediction of Seasonal Wind Turbine Power Losses Due to Icing”, Presentation to EAPC (local wind energy company), Nov. 29, 2012
- Mullendore, G. L., A. J. *Homann, C. Schumacher and K. Bevers, "Radar reflectivity as a proxy for convective mass transport", *14th Annual Northern Plains Convective Workshop*, Sioux Falls, SD, 2010
- **Watkins, K., G. L. Mullendore, and D. Kellenbenz, "Improving Numerical Modeling of Winter Storms: Investigation of the October 2009 Red Lake Snow Event", *14th Annual Northern Plains Convective Workshop*, Sioux Falls, SD, 2010
- *Siegel, J. M., and G. L. Mullendore, “Passive Tracer Transport within the 29 June, 2000, STEPS Supercell”, North Dakota EPSCoR State Conference, Grand Forks, ND, September 29, 2010
- Mullendore, G. L.: “Building Confidence: Student Success in Lower Division STEM Class”, *OID/VPAA Reflecting on Teaching Colloquium*, Grand Forks, ND, Oct. 16, 2009
- Mullendore, G. L., “On the development of a high resolution daily forecast system for Eastern North Dakota”, *13th Annual Northern Plains Weather Workshop*, Rapid City, SD, Apr 7-8, 2009
- *Homann, A. J. and G. L. Mullendore, “Comparison of the Level of Neutral Buoyancy Observed from Soundings and Radar”, *13th Annual Northern Plains Weather Workshop*, Rapid City, SD, Apr 7-8, 2009
- *Adriaansen, D. R. and G. L. Mullendore, “Observations from the forward storm environment: Implications for gravity wave activity and convective initiation”, *13th Annual Northern Plains Weather Workshop*, Rapid City, SD, Apr 7-8, 2009
- Homann, A. J. and G. L. Mullendore, “Comparison of the Level of Neutral Buoyancy Observed from Soundings and Radar”, *ND EPSCoR 2008 State Conference*, Grand Forks, ND, September 19th

GRANTS AND CONTRACTS

National/State Grants: *Funded*

Principal Investigator, NDARB, “Forecast Simulations for Western North Dakota, 2016/17”, \$ 24,627, 5/23/16-4/30/18

Principal Investigator, “UND Big Weather Web: Distributed Data Solutions”, \$12,582, 06/07/2016-05/31/2017

Principal Investigator, NSF XSEDE, “Updraft Dynamics of Deep Convective Storms: Impacts on Transport and Turbulence Generation”, \$4,118 (value of computer resources allocated), 7/1/16-6/30/17

Principal Investigator, NSF, “Collaborative Research: SI2-SSI: Big Weather Web”, \$168,182, 8/1/15-7/31/18

Principal Investigator, NSF, “Midlatitude Deep Convective Transport to the Upper-Troposphere and Lower-Stratosphere”, \$290,966, 2/1/15-1/31/18

Principal Investigator, Northrop Grumman Corporation, “Tropical Oceanic Thunderstorm Hazards for Global Hawk Operations-2015 Activities”, \$97,531, 5/1/15-4/30/16

Mullendore and Starzec, Developmental Testbed Center (DTC) Visitor Program, “Mesoscale Model Intercomparison at Convection-Allowing Resolution using MODE”, 8/1/15-8/1/16
Principal Investigator, NDARB, “Forecast Simulations for Western North Dakota”, \$25,585, 4/1/14-3/31/16

Co-Investigator, NDARB, “Polarimetric Cloud Analysis and Seeding Test 5: 2014 Field Season”, \$153,230, 4/1/14-3/31/16

Principal Investigator, Jet Propulsion Lab/NASA, “Atmospheric Model Simulations and Development in Support of PRCI”, \$33,360, 4/20/15-9/15/15

Principal Investigator, Jet Propulsion Lab/NASA, “Transport Estimates Using MACPEX/SEAC4RS Observations”, \$20,432, 10/13/14-10/12/15

Co-Investigator, NSF, “Center for Regional Climate Studies”, Mullendore budget only (no indirect charges): \$319,533, 8/1/14-7/31/19 (transferred grant to Asst. Prof. Aaron Kennedy Oct. 2015)

Principal Investigator, Northrop Grumman Corporation, “Tropical Oceanic Thunderstorm Hazards for Global Hawk Operations-2014 Activities”, \$75,000, 8/1/14-7/31/15

Principal Investigator, Jet Propulsion Lab/NASA, “PRCI Atmospheric Modeling”, \$23,998, 8/11/14-12/31/14

Principal Investigator, NDARB, “Forecast Simulations for Western North Dakota”, \$21,564, 5/1/2012-4/30/2014

Principal Investigator, Jet Propulsion Lab/NASA, “Transport Estimates Using MACPEX Observations”, \$13,906, 1/1/14-5/15/14

Co-Investigator, NDARB, “Polarimetric Cloud Analysis and Seeding Test 4 (POLCAST4): 2012 Field Season”, \$128,473, 5/1/12-5/31/14

Institutional Principal Investigator (Co-Investigator on primary proposal), NASA IGCCE, “Climate Change Communication: Engineering, Environmental Science, and Education (C3E3)”, primary institution: University of Texas, San Antonio, \$643,244; subcontract to UND: \$71,156, 9/1/2011-2/28/2014

Principal Investigator, NSF EAGER: Educational Contributions to the Deep Convective Clouds and Chemistry (DC3) Field Campaign, \$87,758, 1/15/12-12/31/13

Principal Investigator, NASA GCCE, “Communicating Climate Change”, \$171,245, 5/01/2010-7/31/2013

Principal Investigator, NSF GEO, “Deep convective transport to the upper-troposphere /lower-stratosphere”, \$355,155, 8/15/2009-8/14/2012

Co-Investigator, North Dakota Atmospheric Resource Board (NDARB), “Polarimetric Cloud Analysis and Seeding Test 3 (POLCAST3): 2010 Field Season”, \$129,059, 5/1/2010-1/31/2012

National Grants: *Submitted; Not funded or Pending*

Scientific Steering Committee Member, NSF Scientific Program Overview/Experiment Design Overview (SPO/EDO), “MJO and Diurnal Cycle Experiment (MODEX)”, \$9,042,000, submitted Jan. 2016

Co-Investigator, NSF ADVANCE, “Advancing Cultural Change in the STEM Fields at UND”, \$2,930,503, submitted Jan. 2016

Co-Investigator, NSF IUSE, “Exploring an Association between Emotional Labor and Science Identity”, \$292,825, submitted Oct. 2015

Co-Investigator, United Arab Emirates, “New Approaches in Rainfall Enhancement Science For Arid Regions”, \$1,500,00, submitted Sep. 2015

Co-Investigator, NSF REAL, “Exploring an Association between Emotional Labor and Science Identity”, \$477,691, submitted Jan. 2014

Principal Investigator, DOE Collaborative Research in Support of GOAmazon Campaign, “Impact of Aerosols on Forecast Skills for Accumulated Precipitation and Resolved Convective Cycle”, \$1,192,304, submitted June 2013

Co-Investigator, NSF ADVANCE, “Advancing Cultural Change in the STEM fields at UND”, \$2,890,500, submitted Nov. 2013

Scientific Steering Committee Member, NSF Scientific Program Overview/Experiment Design Overview (SPO/EDO), “Green Ocean Amazon 2014 (GOAmazon2014)”

- Institutional Principal Investigator, “Ensemble forecasts of convective variability during GOAmazon2014”, \$394,000, submitted Jan. 2012 (resubmitted Jan. 2013)

Co-Investigator, NIST, “Using Observations and Multiscale Modeling to Better Understand the Role of Anthropogenically-generated Sulfate in Convective Cloud and Precipitation Processes in the Northern Plains”, \$9,992,000, submitted Apr. 2011

Co-Investigator, ND EPSCoR State Research Initiative (RI and RII), “Discovering the Importance of Chemical Processes on Aerosol-Cloud-Climate Interactions: An integrative observational & modeling synthesis”, \$6,000,000, submitted Oct. 2011, Mar. 2012

Principal Investigator, NSF, “Education and Research Focused on Storm Dynamics and the DC3 Field Campaign”, \$467,125, submitted Aug. 2010

Co-Investigator, NSF 07-588, “Population dynamics of colonial nesting birds: Integrating the effects of latitude, climate, and density”, \$413,047, 5 years, submitted Jan. 2009

Co-Investigator, NASA EPSCOR, pre-proposal, “Regional impacts of climate change on the hydrological cycle in the Great Plains“, \$1,124,947, submitted Dec. 2009

National Grants: *Supercomputing Processing/Storage Units, Funded*

NSF XSEDE Resource Supplemental Proposal, "Regional simulations of deep convective transport and UTLS variability", 2011/2012, 120000 Service Units, 35 Terabytes

NSF XSEDE Resource Renewal Proposal, "Regional simulations of deep convective transport and UTLS variability", 2012/2013, 305000 Service Units, 25 Terabytes

University Grants: *Funded*

NASA ND EPSCoR Travel Grant, “Collaboration with JPL in Convective Transport Modeling and Observations”, \$1,905, JPL Visiting Scientist, Sept. 11-14, 2012

Co-I, UND Collaborate Seed Grant, “Recruitment, Retention, and Advancement of Women Faculty in the STEM fields at the University of North Dakota: Empirical Documentation of Areas for Improvement”, \$44,566, PI: Krista Lynn Minnotte, Sociology

ND NASA EPSCoR Travel Grant, "Collaboration with JPL in Convective Transport Research", \$2,807, JPL Visiting Scientist, 2010

UND College of Aerospace Student Technology Fee, “Compiler Upgrade for Atmospheric Sciences Student Cluster”, \$2,899

Co-Investigator, Sub-Award for "North Dakota Center of Excellence for Space Technology and Operations", “Further Exploration Of The Impacts Of Global Positioning System-Radio Occultation Data On Numerical Weather Forecasts At Medium Ranges (36-72

Hours Lead Time) For The Northern Great Plains And The Northeastern United States”, 2008/2009

Student Technology Fee Award, “Atmospheric Sciences Student Beowulf Cluster”, \$23,942, Spring 2008

University Grants: *Submitted*

AURA mentor proposal, “Resolving climate variability in atmospheric models of the Northern Great Plains”, submitted Feb. 2009 (accepted, but not selected by student)

Additional Grants: *Grant Management*

NSF ND EPSCoR New Faculty Startup, \$75,000, 9/1/07-8/30/09

Graduate Student Funding: *Graduate Advisees Funded by Listed Grants*

Emily Maddox, M.S.

Timothy See, M.S.

Mariusz Starzec, M.S./Ph.D.

Katelyn Barber, M.S./Ph.D.

Brittany (Konradi) Peterson, M.S.

Brandon Bigelbach, M.S.

Nicholas Carletta, M.S.

Joel Siegel, M.S.

Amanda Homann, M.S.

PROFESSIONAL DEVELOPMENT

Co-founder, Organizer and Member, Faculty Women’s Writing Group (FWWG), Fall 2008-current

Team Member, YMC Steering Committee Presentation, NSF, Aug. 2015

Invited Participant, Expert Witness Training Academy, William Mitchell College of Law, St. Paul, MN, Aug. 2014 (Improving Science Communication)

Leader, *UND OID Faculty Seminar Series*, “Good Mentoring”, Fall 2011

Sponsored Participant, UCAR Member Meeting, Oct. 5-6, 2010

Alice Clark Mentoring Program, Year Two Pilot Study, August 2008-May 2009

Selected Participant, *Atmospheric Science Collaborations and Enriching Networks (ASCENT)*, Steamboat Springs, CO, Jun 15-17, 2009

Alice T. Clark/ UND Foundation Mentoring Program, August 2007-May 2008

Research Proposal Writing Fellowship, UND, February-April 2008

Responsible Conduct in Research Workshop, UND, April 21, 2008

Oklahoma University’s *Supercomputing in Plain English*, hosted by UND CRC, September-November 2007

HONORS/AWARDS

Outstanding Professor-Freshman/Sophomore Level, Department of Atmospheric Sciences, (UND student chapter of the American Meteorological Society), UND, 2007-2008

Outstanding Professor-Freshman/Sophomore Level, Department of Atmospheric Sciences,
(UND student chapter of the American Meteorological Society), UND, 2008-2009

Outstanding Professor-Junior/Senior Level, Department of Atmospheric Sciences, (UND
student chapter of the American Meteorological Society), UND, 2009-2010

Outstanding Professor-Graduate Level, Department of Atmospheric Sciences, (UND student
chapter of the American Meteorological Society), UND, 2009-2010

North Dakota Spirit Faculty Achievement Award, 2010

Best Adviser Award, Department of Atmospheric Sciences, (UND student chapter of the
American Meteorological Society), UND, 2010-2011

Best Adviser Award, Department of Atmospheric Sciences, (UND student chapter of the
American Meteorological Society), UND, 2012-2013

Finalist, UND Outstanding Undergraduate Teaching Award

Most Available Professor, Department of Atmospheric Sciences, (UND student chapter of
the American Meteorological Society), UND, 2013-2014

Outstanding Professor-Freshman/Sophomore Level, Department of Atmospheric Sciences,
(UND student chapter of the American Meteorological Society), UND, 2013-2014

Most Available Professor, Department of Atmospheric Sciences, (UND student chapter of
the American Meteorological Society), UND, 2014-2015

Most Available Professor, Department of Atmospheric Sciences, (UND student chapter of
the American Meteorological Society), UND, 2015-2016

2017 UND Foundation/B.C. Gamble Faculty Award for Excellence in Teaching, Research
and Service