

# Michael Buban, Ph.D.

## Conferences

Lee, T. R., C. B. Baker, T. P. Meyers, and M. S. Buban: **Leveraging observations from the Verification and Origins of Rotation in Tornadoes Experiment-Southeast (VORTEX-SE) to investigate the role of boundary layer heterogeneities on convection initiation.** *19th Symposium on Meteorological Observations and Instrumentation, 2017.*

Dumas, E., T. R. Lee, M. S. Buban, C. Bruce Baker, 2017: **Use of a small Unmanned Aerial System in VORTEX-SE 2016.** *19th Symposium on Meteorological Observations and Instrumentation, 2017.*

Buban, M. S., T. R. Lee, C. Bruce Baker, and T. P. Meyers, 2017: **The sensitivity of convection initiation to surface heterogeneities during VORTEX-SE.** *19th Symposium on Meteorological Observations and Instrumentation, 2017.*

Lee, T. R., T. P. Meyers, C. B. Baker, J. Kockendorfer, W. Pendergrass, M. S. Buban, M. W. Heuer, D. Senn, and R. White, 2016: **An observational study of convection initiation under quiescent conditions in the southeast United States.** *18th Symposium on meteorological observation and instrumentation, 2016.*

Buban, M. S., R. Eckman, T. P. Meyers, and C. B. Baker, 2016: **The simulated effect of surface flux heterogeneity on convection initiation in the southeast US.** *18th Symposium on meteorological observation and instrumentation, 2016.*

Buban, M. S. 2009: **The role of boundary layer circulations in convection initiation.** *3rd Severe weather symposium, Glen Ellyn, 2009.*

Buban, M. S., C. L. Ziegler, and Y. P. Richardson, 2008: **Numerical simulations of the dryline and surrounding boundary layer on 22 May 2002 during IHOP.** *24th conference on severe local storms, Savannah, 2008.*

Ziegler, C. L., E. N. Rasmussen, M. S. Buban, Y. P. Richardson, L. J. Miller, and R. M. Rabin, 2005: **The boundary layer cumulus formation process near a cold frontal-dryline intersection on 24 May 2002 during IHOP.** *11th conference on Radar meteorology, Albuquerque, 2005.*

Buban, M. S., C. L. Ziegler, E. N. Rasmussen, and Y. P. Richardson, 2005: **The structure and evolution of the dryline and surrounding boundary layer on 22 May 2002 during IHOP.** *11th conference on mesoscale processes, Albuquerque, 2005.*

Ziegler, C. L., E. N. Rasmussen, Y. P. Richardson, R. M. Rabin, and M. S. Buban, 2003: **Relation of Radar-derived kinematic features and in-situ moisture to cumulus development on 24 May 2002 during IHOP.** *31st conference on Radar meteorology, Seattle, 2003.*

Buban, M. S., C. L. Ziegler, and E. N. Rasmussen, 2003: **The kinematic and thermodynamic effects of vortices within a dryline.** *31st conference on Radar meteorology, Seattle, 2003.*

## Journals

Buban, M. S., T. R. Lee, E. J. Dumas, C. B. Baker, and M. Heuer, 2019: **Observations of the effects of a total solar eclipse on surface and atmospheric boundary layer evolution.** *Boundary-Layer Meteorology*, 2019, 1-14, doi:10.1007/s10546-018-00421-4.

Lee, T. R. M. Buban, E. Dumas, and C. B. Baker, 2019: **On the use of rotary-wing aircraft to sample near-surface thermodynamic fields: results from recent field campaigns.** *Sensors*, 19 (1), 10, doi:10.3390/s19010010.

Lee, T. R., M. Buban, M. A. Palecki, R. D. Leeper, H. J. Diamond, E. Dumas, T. P. Meyers, and C. B. Baker (2018), **Great American Eclipse data may fine-tune weather forecasts**, *Eos*, 99, <https://doi.org/10.1029/2018EO103931>. Published on 16 August 2018 <https://eos.org/project-updates/great-american-eclipse-data-may-fine-tune-weather-forecasts>

Lichiheb, N., L. Myles, E. Personne, M. Heuer, M. Buban, A. Nelson, S. Koloutsou-Vakakis, M. Rood, E. Joo, J. Miller, and C. Bernacchi, 2018: **Evaluation of ammonia bi-directional fluxes in a fertilized Zea mays field: Implementation of an operational parameterization of emission potentials and modeling of the urease inhibitor effect.** *Agri. Forest Meteor.* In review.

Wulfmeyer V., D. D. Turner, B. Baker, R. Banta, A. Behrendt, T. Bonin, W. A. Brewer, M. Buban, A. Choukulkar, E. Dumas, R. M. Hardesty, T. Heus, D. Lange, T. R. Lee, S. Metzendorf, T. Meyers, R. Newsom, M. Osman, S. Raasch, J. Santanello, C. Senff, F. Späth, T. Wagner, and T. Weckwerth, 2018: **A New Research Approach For Observing And Characterizing Land-Atmosphere Feedback.** *Bull. Amer. Meteor. Soc.* <https://doi.org/10.1175/BAMS-D-17-0009.1>

Lee, T. R., M. S. Buban, M. Palecki, R. Leeper, H. J. Diamond, E. Dumas, T. Meyers, and B. Baker, 2018: **NOAA scientists get a rare opportunity to study the effects of the Great American Eclipse.** *Earth Space Sci News*, In press.

Buban, M. S., T. R. Lee, E. J. Dumas, C. B. Baker, and M. Heuer, 2018: **Observations and numerical simulation of the effects of the 21 August 2017 North American total solar eclipse on surface and atmospheric boundary layer evolution.** *Boundary-Layer Meteor.*

Dumas, E. J., T. R. Lee, M. Buban, and B. Baker, 2017: **Small Unmanned Aircraft System (sUAS) measurements during the 2017 Land-Atmosphere Feedback Experiment (LAFE).** *NOAA Technical Memorandum OAR ARL-277.*

Dumas, E. J., T. R. Lee, M. Buban, and B. Baker, 2017: **Small Unmanned Aircraft System (sUAS) measurements during the 2017 Verifications of the Origins of Rotation in Tornadoes Experiment Southeast (VORTEX-SE).** *NOAA Technical Memorandum OAR ARL-274.*

Lee, T. R., M. Buban, E. Dumas, and C. B. Baker, 2017: **A new technique to estimate sensible heat fluxes around micrometeorological towers using small unmanned aircraft systems.** *J. Atmos. and Ocean. Tech.* 34, 2103–2112.

Buban, M. S. and C. L. Ziegler, 2016: **The Formation of Small-Scale Atmospheric vortices via baroclinic horizontal shearing instability.** *J. Atmos. Sci.*, 73, 2085–2104.

Buban, M. S. and C. L. Ziegler, 2016: **The Formation of Small-Scale Atmospheric vortices via horizontal shearing instability.** *J. Atmos. Sci.*, 73, 2061–2084.

Buban, M. S., C. L. Ziegler, E. R. Mansell, and Y. P. Richardson, 2012: **Simulation of dryline misovortex dynamics and cumulus formation.** *Mon. Wea. Rev.*, 140, 3525–3551.

Ziegler, C. L. M. S. Buban, and E. N. Rasmussen, 2007: **The “triple point” on 24 May 2002 during IHOP. Part II: Ground-Radar and in situ boundary layer analysis of cumulus development and convection initiation.** *Mon. Wea. Rev.* 135, 2443–2472.

Ziegler, C. L., M. S. Buban, and E. N. Rasmussen, 2007: **A Lagrangian objective analysis technique for assimilating in situ observations with multiple-radar-derived airflow.** *Mon. Wea. Rev.*, 135, 2417-2442.

Buban, M. S., C. L. Ziegler, E. N. Rasmussen, and Y. P. Richardson, 2007: **The dryline on 22 May 2002 during IHOP: Ground-radar and in situ data analyses of the dryline and boundary layer evolution.** *Mon. Wea. Rev.*, 135, 2473–2505.

Bently, M. L., M. S. Buban, and S. Cooper, 2001: **A Multiscale observational case study of the development of an isolated high plains tornadic supercell.** *Wea. Forecasting.* 17, 1268–1276.