COREY K. POTVIN

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PRESENT POSITION

Research Meteorologist at the NOAA/OAR/National Severe Storms Laboratory (NSSL) since February 2019. Specializing in convective-scale analysis, prediction, and predictability.

EDUCATION

Ph.D.	**Meteorology**	University of Oklahoma	Aug 2010
M.S.	**Meteorology**	University of Oklahoma (OU)	Aug 2006
B.S.	**Meteorology**	Lyndon State College	May 2004
B.S.	**Mathematics**	Lyndon State College	May 2004
A.S.	**Computer Science**	Lyndon State College (LSC)	May 2004

POSITIONS HELD

Feb 2019 – present	Research Meteorologist, NSSL
Sept 2014 – present	Adjunct Assistant Professor, OU School of Meteorology
Oct 2012 – Feb 2019	Research Scientist, CIMMS/NSSL
Oct 2010 – Sept 2012	National Research Council Postdoctoral Research Associate, NSSL
Aug 2010 – Oct 2010	Postdoctoral Research Associate, CIMMS
Aug 2004 – Aug 2010	Graduate Research Assistant, OU School of Meteorology

REFEREED PUBLICATIONS (32)

*** = co-author is a student or postdoc that I mentored during the work**

Potvin, C. K., J. R. Carley, A. Clark, L. J. Wicker, P. S. Skinner, A. E. Reinhart, B. T. Gallo, J. S. Kain, G. Romine, E. Aligo, K. A. Brewster, D. C. Dowell, L. M. Harris, I. L. Jirak, F. Kong, T. A. Supinie, K. W. Thomas, X. Wang, Y. Wang, and M. Xue, 2019: Systematic comparison of convection-allowing models during the 2017 NOAA HWT Spring Forecasting Experiment. *Wea. Forecasting*, in press.

Dahl, N. A.*, A. Shapiro, C. K. Potvin, A. Theisen, J. G. Gebauer*, A. D. Schenkman, and M. Xue, 2019: High-resolution, rapid-scan dual-Doppler retrievals of vertical velocity in a simulated supercell. *J. Atmos. Oceanic Technol.*, **36**, 1477–1500.

Potvin, C. K., C. Broyles, P. S. Skinner, H. E. Brooks, and E. Rasmussen, 2019: A Bayesian hierarchical modeling framework for correcting reporting bias in the U.S. tornado database. *Wea. Forecasting*, **34**, 15-30.

Flora, M. L.*, **C. K. Potvin**, and L. J. Wicker, 2018: Supercell predictability: Exploring ensemble forecast sensitivity to initial condition spread. *Mon. Wea. Rev.*, **146**, 2361-2379.

Stratman, D. R.*, **C. K. Potvin**, and L. J. Wicker, 2018: Correcting storm displacement errors in ensembles using the Feature Alignment Technique (FAT). *Mon. Wea. Rev.*, **146**, 2125-2145.

Wienhoff, Z. B.*, H. B. Bluestein, L. J. Wicker, J. C. Snyder, A. Shapiro, **C. K. Potvin**, J. B. Houser, and D. W. Reif, 2018: Applications of a spatially variable advection correction technique for temporal correction of dual-Doppler analyses of tornadic supercells. *Mon. Wea. Rev.*, **146**, 2949-2971.

Belik, Pavel, B. Dahl*, D. Dokken, **C. K. Potvin**, K. Scholz, and Mikhail Shvartsman, 2018: Possible implications of self-similarity for tornadogenesis and maintenance. *AIMS Mathematics*, **3**, 365-390.

Potvin, C. K., E. M. Murillo*, M. L. Flora*, and D. M. Wheatley, 2017: Sensitivity of supercell simulations to initial-condition resolution. *J. Atmos. Sci.*, **74**, 5-26.

McGovern, A., **C. K. Potvin**, and R. A. Brown, 2017: Using large-scale machine learning to improve our understanding of the formation of tornadoes. *Large-scale Machine Learning in the Earth* Sciences, A. N. Srivastava, R. Nemani, K. Steinhaeuser, Eds., CRC Press, 95–112.

North, K. W.*, M. Oue, P. Kollias, S. E. Giangrande, S. M. Collis, and **C. K. Potvin**, 2017: Vertical air motion retrievals in deep convective clouds using the ARM scanning radar network in Oklahoma during MC3E. *Atmos. Meas. Tech.*, **10**, 2785-2806.

Dokken, D., P. Belik, **C. K. Potvin**, K. Scholz, and M. Shvartsman, 2017: Applications of vortex gas models to tornadogenesis and maintenance. *Open Journal of Fluid Dynamics,* **7**, 596-622.

DiGangi, E. A.*, D. R. MacGorman, C. L. Ziegler, D. Betten*, M. Biggerstaff, M. Bowlan, and **C. K. Potvin**, 2016: An overview of the 29 May 2012 Kingfisher supercell during DC3: Observations of the 29 May 2012 DC3 case. *J. Geo. Res.*, **121**, 14316-14343.

Potvin, C. K., and M. L. Flora*, 2015: Sensitivity of idealized supercell simulations to horizontal grid spacing: Implications for Warn-On-Forecast. *Mon. Wea. Rev.*, **143,** 2998-3024.

Thompson, T. E.*, L. J. Wicker, X. Wang, and **C. K. Potvin**, 2015: A comparison between the local ensemble transform Kalman filter and the ensemble square root filter for the assimilation of radar data in convective-scale models. *Quart. J. Roy. Meteor. Soc.*, **141,** 1163-1176.

Skinner, P. S.*, C. C. Weiss, L. J. Wicker, **C. K. Potvin**, and D. C. Dowell, 2015: Forcing mechanisms for an internal rear-flank downdraft momentum surge in the 18 May 2010 Dumas, Texas supercell. *Mon. Wea. Rev.*, **143**, 4305-4330.

Shapiro, A., S. Rahimi*, **C. K. Potvin**, and L. Orf, 2015: On the use of advection correction in trajectory calculations. *J. Atmos. Sci.*, **72**, 4261-4280.

Potvin, C. K., 2013: A variational method for detecting and characterizing intense vortices in Cartesian wind fields. *Mon. Wea. Rev.*, **141**, 3102-3115.

Potvin, C. K., and L. J. Wicker, 2013a: Correcting fast-mode pressure errors in storm-scale ensemble Kalman filter analyses. *Advances in Meteorology*, **2013**, 1-14.

Potvin, C. K., and L. J. Wicker, 2013b: Assessing ensemble forecasts of low-level supercell rotation within an OSSE framework. *Wea. and Forecasting*, **28**, 940-960.

Potvin, C. K., L. J. Wicker, D. Betten*, M. I. Biggerstaff, and A. Shapiro, 2013: Comparison between dual-Doppler and EnKF storm-scale wind analyses: The 29-30 May 2004 Geary, Oklahoma, supercell thunderstorm. *Mon. Wea. Rev.*, **141**, 1612-1628.

Lakshmanan, V., K. Hondl, **C. K. Potvin**, and D. Preignitz, 2013: An improved method to compute radar echo top heights. *Wea. and Forecasting*, **28**, 481-488.

Stensrud, D. J., L. J. Wicker, M. Xue, D. T. Dawson II, N. Yussouf, D. M. Wheatley, T. E. Thompson, N. A. Snook, T. M. Smith, A. D. Schenkman, **C. K. Potvin**, E. R. Mansell, T. Lei, K. M. Kuhlman, Y. Jung, T. A. Jones, J. Gao, M. C. Coniglio, H. E. Brooks, and K. A. Brewster, 2013: Progress and challenges with Warn-on-Forecast. *Atmos. Res.*, **123**, 2-16.

Potvin, C. K., and L. J. Wicker, 2012: Comparison between dual-Doppler and EnKF storm-scale wind analyses: Observing system simulation experiments with a supercell thunderstorm. *Mon. Wea. Rev.*, **140**, 3972-3991.

Potvin, C. K., D. Betten*, L. J. Wicker, K. L. Elmore, and M. I. Biggerstaff, 2012a: 3DVAR vs. traditional dual-Doppler wind retrievals of a simulated supercell thunderstorm. *Mon. Wea. Rev.*, **140**, 3487-3494.

Potvin, C. K., L. J. Wicker, and A. Shapiro, 2012b: Assessing errors in variational dual-Doppler wind syntheses of supercell thunderstorms observed by storm-scale mobile radars. *J. Atmos. Oceanic Technol.*, **29**, 1009-1025.

Potvin, C. K., A. Shapiro, and M. Xue, 2012c: Impact of a vertical vorticity constraint in variational dual-Doppler wind analysis: Tests with real and simulated supercell data. *J. Atmos. Oceanic Technol.*, **29**, 32-49.

Potvin, C. K., A. Shapiro, M. I. Biggerstaff, and Joshua M. Wurman, 2011: The VDAC technique: A variational method for detecting and characterizing convective vortices in multiple-Doppler radar data. *Mon. Wea. Rev.*, **139**, 2593–2613.

Shapiro, A., K. M. Willingham, and **C. K. Potvin**, 2010: Spatially variable advection correction of radar data. Part I: Theoretical considerations. *J. Atmos. Sci.*, **67**, 3445–3456.

Shapiro, A., K. M. Willingham, and **C. K. Potvin**, 2010: Spatially variable advection correction of radar data. Part II: Test results. *J. Atmos. Sci.*, **67**, 3457–3470.

Potvin, C. K., K. L. Elmore, and S. J. Weiss, 2010: Assessing the impacts of proximity sounding criteria on the climatology of significant tornado environments. *Wea. Forecasting.*, **25**, 921–930.

Shapiro, A., **C. K. Potvin**, and J. Gao, 2009: Use of a vertical vorticity equation in variational dual-Doppler wind analysis. *J. Atmos. Oceanic Technol.*, **26**, 2089–2106.

Potvin, C. K., A. Shapiro, T.-Y. Yu, J. Gao, and M. Xue, 2009: Using a low-order model to detect and characterize tornadoes in multiple-Doppler radar data. *Mon. Wea. Rev.*, **137**, 1230-1249.

SELECTED AWARDS AND HONORS

2014 Presidential Early Career Award for Scientists and Engineers (PECASE; awarded 2017)

National Research Council Postdoctoral Fellowship (2010-2012)

OU School of Meteorology Outstanding Performance as a Graduate Student Award (2010)

OU College of Atmospheric and Geographic Sciences David James Shellberg Memorial Scholarship (2010)

American Meteorological Society Industry/Government Graduate Fellowship (2004-2005)

LSC Department of Meteorology Gil Ford Award for outstanding scholarship, leadership, personal integrity, professional potential and community service (2004)

SELECTED PROFESSIONAL SERVICE

Team Leader, NSSL Forecast Research & Development Division (2018 – 2019)

Scientific Steering Committee, VORTEX-SE (2016-present)

Program Committee, 28th and 29th Severe Local Storms Conferences (2016, 2018)

Program Committee, Workshop on Uncertainty in Radar Retrievals, Model Parameterizations, Assimilated Data and In-Situ Observations: Implications for the Predictability of Weather (2018)

Associate Editor, *Mon. Wea. Rev.* (2018-present)

Associate Editor, *Wea. and Forecasting* (2016-present)

AMS STAC Committee on Severe Local Storms (2015-present)

National Weather Center (NWC) Research Experiences for Undergraduates (REU) Selection Committee (2014-2017)

Provide multiple-Doppler wind retrieval code and training to researchers (2013-present)

Coordinated NSSL 10-year science strategic plan contributions (2014)

Participant, NOAA Hazardous Weather Testbed Spring Experiments (2011-2013, 2016-2018)

Mobile radar scout vehicle driver, VORTEX-2 (field experiment, 2010)

Graduate Student Representative, AMS Board on Outreach and Pre-College Education (2006-10)

AMS Louis J. Battan Author's Award Committee (2007-10)

Graduate Student Representative, AMS Severe Local Storms Committee (2009)

President, Collaborative Adaptive Sensing of the Atmosphere (CASA) OU Student Leadership Council (2008-09); Social Activities Director and Treasurer (2006-07); Member (2005-10)

Chair, 29th Northeastern Storm Conference (> 300 attendees), Saratoga Springs, NY (2003-04)

FORMAL SUPERVISION

Ph.D. Research Advisor, Montgomery Flora, 2017 - present

Chair, M.S. Committee, Montgomery Flora, graduated 2017

Co-Chair, Ph.D Committee, Joshua Gebauer, 2018 - present

NRC Postdoctoral Supervisor, Derek Stratman, 2016-2017

Postdoctoral Supervisor, John Lawson, 2018 - present

Postdoctoral Co-supervisor, Nathan Dahl, 2017-2019

REU Mentor, Elisa Murillo, 2015

REU Mentor, Montgomery Flora, 2014

Graduate Committee member, Elisa Murillo, M.S., 2018 – present

Graduate Committee member, Thea Sandmael, M.S., graduated 2017

Graduate Committee member, Stefan Rahimi, M.S., graduated 2014