Curriculum Vitae

MICHAEL E. BALDWIN

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Education

2003   Ph.D., Meteorology, University of Oklahoma, Norman, Oklahoma
       Dissertation: Automated Classification of Rainfall Systems Using Statistical
           Characterization
       Committee chair: Prof. Frederick H. Carr
       Principal advisor: Prof. S. Lakshmivarahan
1991   M.S., Meteorology, University of Oklahoma, Norman, Oklahoma
       Thesis: Incorporation of Precipitation Data into a Numerical Weather Prediction Data
           Assimilation System.
       Advisor: Prof. Frederick H. Carr
1988   B.S.E., Atmospheric Science, University of Michigan, Ann Arbor, Michigan

Appointments

2012-present   Associate Professor, Department of Earth, Atmospheric, and Planetary Sciences,
               Purdue University, West Lafayette, Indiana
2006-2012   Assistant Professor, Department of Earth and Atmospheric Sciences, Purdue
               University, West Lafayette, Indiana
1999-2006   Research Scientist, Cooperative Institute for Mesoscale Meteorological Studies,
               University of Oklahoma, Norman, Oklahoma
1991-1999   Support Scientist, General Sciences Corporation, National Centers for
               Environmental Prediction/Environmental Modeling Center, Camp Springs,
               Maryland

Teaching Experience

2021   Fall: Introductory Geofluid Dynamics (EAPS 52600)
2021   Fall: Atmospheric Dynamics II (EAPS 42300)
2021   Fall: Synoptic Lab I (EAPS 43100)
2021   Fall: Synoptic Lab III (EAPS 43300)
2021   Summer: Survey of Atmospheric Science (EAPS 22100)
2021   Spring: Atmospheric Dynamics I (EAPS 42200)
2021   Spring: Synoptic Lab II (EAPS 43200)
2021   Spring: Survey of Atmospheric Science (EAPS 22100/NRES 23000)
2021   Spring: Weather Analysis and Forecasting (EAPS 43400)
2020   Fall: Atmospheric Dynamics II (EAPS 42300)
2020   Fall: Synoptic Lab I (EAPS 43100)
2020   Fall: Synoptic Lab III (EAPS 43300)
2020   Summer: Survey of Atmospheric Science (online EAPS 22100)
2020   Spring: Atmospheric Dynamics I (EAPS 42200)
2020   Spring: Atmospheric Dynamics II (EAPS 42300)
2020   Spring: Synoptic Lab II (EAPS 43200)
2020   Spring: Synoptic Lab III (EAPS 43300)
2020   Spring: Laboratory in Atmospheric Science (EAPS 23000)
2019   Fall: Atmospheric Dynamics I (EAPS 42200)
2019   Fall: Synoptic Lab II (EAPS 43200)
2019   Fall: Synoptic Lab I (EAPS 43100)
2019   Fall: Weather Analysis and Forecasting (EAPS 43400)
2019   Summer: Survey of Atmospheric Science (online EAPS 22100)
2019   Spring: Survey of Atmospheric Science (EAPS 22100)
2019   Spring: Advanced Synoptic Meteorology (EAPS 59100)
2018   Fall: Intro to Observations and Measurements (EAPS 22700)
2018   Fall: Atmospheric Dynamics I (EAPS 42200)
2018   Fall: Synoptic Lab III (EAPS 43300)
2018   Spring: Synoptic Lab I (EAPS 43100)
2018   Spring: Synoptic Lab III (EAPS 43300)
2018   Spring: Weather Analysis and Forecasting (EAPS 43400)
2017   Fall: Forecast Verification (EAPS 59100)
2017   Fall: Synoptic Lab III (EAPS 43300)
2017   Spring: Atmospheric Physics (EAPS 53200)
2017   Spring: Advanced Synoptic Meteorology (EAPS 59100)
2017   Spring: Weather Analysis and Forecasting (EAPS 43400)
2016   Fall: Laboratory in Atmospheric Science (EAPS 23000)

2016   Fall: Synoptic Lab III (EAPS 43300)
2016   Fall: Synoptic Lab I (EAPS 43100)
2016   Spring: Weather Analysis and Forecasting (EAPS 43400)
2015   Fall: Laboratory in Atmospheric Science (EAPS 23000)
2015   Fall: Nearly Operational Forecasting Experience and Reporting (EAPS 19100 & 39100)
2015   Fall: Synoptic Lab III (EAPS 43300)
2015   Spring: Broadcast Meteorology (EAPS 39100)
2015   Spring: Laboratory in Atmospheric Science (EAPS 23000)
2014   Fall: Forecast Verification (EAPS 59100)
2014   Spring: Weather Analysis and Forecasting (EAPS 43400)
2013   Fall: Advanced Scientific Computing (EAPS 59100)
2013   Fall: Introduction to Atmospheric Research (EAPS 22600)
2013   Spring: Purdue University, Scientific Computing (EAS 39100)
2013   Spring: Purdue University, Weather Analysis and Forecasting (EAS 43400)
2013   Spring: Purdue University, Mesoscale Forecasting (EAS 59100)
2012   Fall: Purdue University, Team Weather Forecasting (EAS 39100)
2012   Fall: Purdue University, Introduction to Atmospheric Research (EAS 22600)
2012   Fall: Purdue University, Forecast Verification (EAS 59100)
2012   Spring: Purdue University, Scientific Computing (EAS 39100)
2012   Spring: Purdue University, Weather Analysis and Forecasting (EAS 43400)
2011   Fall: Purdue University, High-Performance Computing in ATMS (EAS 59100)
2011   Fall: Purdue University, Team Weather Forecasting (EAS 39100)
2011   Spring: Purdue University, Weather Analysis and Forecasting (EAS 43400)
2010   Fall: Purdue University, Physical Processes in NWP and Climate Models (EAS 59100)
2010   Fall: Purdue University, Team Weather Forecasting (EAS 39100)
2010   Spring: Purdue University, Weather Analysis and Forecasting (EAS 43400)
2009   Fall: Purdue University, Team Weather Forecasting (EAS 39100)
2009   Spring: Purdue University, Weather Analysis and Forecasting (EAS 43400)
2009   Spring: Purdue University, Computer-Aided Analysis for Geosciences (EAS 30900)
2008   Fall: Purdue University, Forecast Verification (EAS 591V)
2008   Fall: Purdue University, Team Weather Forecasting (EAS 391F)
2008   Spring: Purdue University, Weather Analysis and Forecasting (EAS 434)
2007   Fall: Purdue University, Physical Parameterizations in NWP (EAS 591U)
2007   Spring: Purdue University, Weather Analysis and Forecasting (EAS 434)
2005   Spring: University of Oklahoma, Instructor, Advanced Synoptic Meteorology
1991   Summer: University of Oklahoma, Instructor, Atmospheric Dynamics I
1988   Fall: University of Oklahoma, Teaching Assistant, Introduction to Meteorology

Research Interests

Numerical weather prediction, forecast verification, data-driven atmospheric science, climate change, scientific computing

Research Grants

Principal investigator: Enhancing Verification Capacity for a Continuum of Probabilistic Hazard Forecasts at NSSL, OU subcontract $21552 (Jun-Sep 2021)

Principal investigator: Accelerating the UFS Evaluation Capability, NCAR subcontract $11995 (Feb-Sep 2020)

Principal investigator: Development of an Automated Winter Road Condition Analysis and Prediction System, INDOT/JTRP, $95600 (Oct 2016 - Sep 2018)

Co-principal investigator: Improved Understanding of Tornado Development and Risk using Models and Observations from VORTEX-SE 2017, NOAA, $43500 (Oct 2016 - Sep 2018)

Principal investigator: Improved Understanding of Tornado Development and Risk using Models and Observations from VORTEX-SE, NOAA, $175000 (Oct 2015 - Sep 2017)

Principal investigator: Development of a geographic winter-weather severity index for the assessment of maintenance performance, INDOT/JTRP, $175000 (Jan 2014 - Mar 2015)

Principal investigator: Assessment and Recommendations for Using High-resolution Weather Information to Improve Winter Maintenance Operations, INDOT/JTRP, $147346 (Jul 2012 - Dec 2013)

Co-principal investigator: Collaborative Research: Improved understanding of convective-storm predictability and environment feedbacks from observations during the Mesoscale Predictability Experiment (MPEX), National Science Foundation, $440200 (Oct 2012 - Sep 2016)

Co-principal investigator: The Response of Convective Precipitating Storms to Anthropogenically Enhanced Global Radiative Forcing, National Science Foundation award number 0756624, $616,112 (Sep 2008 - Aug 2011)

Co-principal investigator: The Application of a Successful Research-based Laboratory Model to Atmospheric Science, National Science Foundation award number 0837272, $150,000 (Jan 2009 - Dec 2011)

Principal investigator: Incorporation of forcing characteristics into a prediction system for high-impact convective precipitation events. COMET Cooperative Research Project, UCAR Subaward number Z10-83406 (Sep 2010 - Aug 2011: $11,900).

Co-principal investigator: An experimental, real-time prediction system for high-impact convective weather events. COMET Cooperative Research Project, UCAR Subaward number S08-66813 (Jan 2008 - Dec 2009: $46,400).

Invited Presentations

2018 Purdue Road School: Automated Winter Road Condition Analysis and Prediction
2017 Asian Conference on Meteorology (ACM): Simulation and analysis of convective weather hazards, Busan, South Korea
2017 Korean Meteorological Society (KMS): High-impact weather systems, Busan, South Korea
2017 Purdue Road School: Winter Operations: Winter Storm After-Action Review Using Crowdsourced Probe Vehicle and Weather Data
2015 Purdue Road School: Winter Weather Services and Forecasting Options for Local Agencies
2013 Purdue Road School: Using High-resolution Weather Data to Improve Winter Weather Maintenance Operations
2012 Lafayette Rotary Club, West Lafayette, IN, presentation: Weather Forecasting
2011 Nation of Islam Saviours' Day Workshop on Disaster Preparedness, Chicago, IL, presentation: Extreme weather
2011 NWS/Aviation Weather Center, Kansas City, MO, seminar: Feature-specific analysis and prediction
2011 NWS/Aviation Weather Center, Kansas City, MO, seminar: Cloud physics in NWP
2011 NCAR/WRF DTC, Boulder, CO, seminar: Field significance for spatial forecast evaluation
2010 Department of Earth Sciences, IUPUI, seminar
2009 NWS forecast office Indianapolis, IN seminar: convective parameterizations in NWP
2008 UCAR/WRF DTC Verification Workshop, Boulder, CO
2008 NCEP/EMC seminar: Verification Testbed Development, Camp Springs, MD
2008 NWS forecast office Indianapolis, IN seminar: WRF prediction of high-impact convective weather

2007   NWS forecast office North Webster, IN seminar: NWP and winter precipitation type
2007   UCAR/COMET COMAP course: NWP and winter precipitation type, Boulder, CO
2007   UCAR/DTC WRF verification toolkit workshop, Boulder, CO
2006   Department of Geography, Western Michigan University, seminar
2006   THORPEX-SERA Workshop, Boulder, CO
2006   Unidata Users workshop, Boulder, CO
2004   AMS Short Course on Significance Testing, Model Evaluation, and Alternatives, Seattle
2003   UCAR/COMET COMAP course: convective parameterization, verification, Boulder, CO
2002   NCAR verification workshop: Making verification more meaningful, Boulder, CO
2002   NWS workshop on verification of gridded forecasts, Silver Spring, MD
2001   UCAR/COMAP Symposium on heavy precipitation and flash flooding, Boulder, CO
1999   NWS workshop on quantitative precipitation estimation, Boulder, CO

Professional Activities

2019-present   Co-chair, Unified Forecast System (UFS) verification and validation working group

2017   Judge and application provider, Student Cluster Competition, Supercomputing conference

2015   Co-convenor, Unidata Triennial Users Workshop "Data-driven Geoscience: Applications, Opportunities, Trends, and Challenges."

2012-2015   Member, Unidata Users' Committee

2012-2014   Editor, *Weather and Forecasting*

2011   WRF DTC visitor program: Incorporating Spatial Analysis of Forecast Performance into the MET Package at the DTC

2011   Organized AMS 10th Conference on Artificial Intelligence Applications to Env. Science

2010   Co-convenor, NCAR/ASP Summer Colloquium: Forecast Verification in the Atmospheric Sciences and Beyond

2010-2016   Faculty Advisor, Supercomputing Conference Student Cluster Competition, Purdue Team

2010-2012   Member, WRF DTC Science Advisory Board

2009-2015   Member, AMS Committee on Artificial Intelligence Applications to Environmental Sci.

2008   WRF DTC visitor program: Establishment of a Verification Methods Testbed at the WRF Developmental Testbed Center

2008-2010   Member, WRF DTC Verification working group

2007-present   Faculty Advisor, Purdue University Meteorological Association (PUMA)

2006-present   Member, Purdue Climate Change Research Center (PCCRC)

2007-2011	Associate Editor, Weather and Forecasting
2004-2006	Associate Editor, Monthly Weather Review
2003	Lead author of National Weather Service Plan for Verification of Forecasts in the National Digital Forecast Database.
2001-2004	Research mentor, REU (Research Experience for Undergraduates) at the National Severe Storms Laboratory (2003, 2004), ORISE (Oak Ridge Institute for Science and Education) at the Storm Prediction Center (2001)
2000-2005	Co-principal investigator and participant, NSSL/SPC Spring Program (now NOAA Hazardous Weather Testbed).
2000-2009	Member, WRF model post-processing working group. Developed WRF post-processing software currently in use at NCEP, NCAR, NSSL, and CAPS.
1997-2003	Developed workstation version of Eta Model including Kain-Fritsch convection, routinely produced daily real-time runs and specialized output for forecasters at Storm Prediction Center and Hydrometeorological Prediction Center.

Professional Society Memberships

American Meteorological Society
American Geophysical Union

Awards

2017   Purdue University College of Science Undergraduate Advising Award
2012   Purdue University College of Science Undergraduate Advising Award
2012   Purdue University Teaching for Tomorrow Fellowship Award
2009   Purdue University College of Science Faculty Award for Outstanding Contributions to Undergraduate Teaching by an Assistant Professor
2003   American Meteorological Society Editor's Award for the journal Weather and Forecasting for "thoughtful, helpful, and detailed reviews that consistently assisted in improving submitted manuscripts."

Publications

REFEREED (*Google Scholar citation count:3810, h-index: 32*)

39. Salmon, O.E., Welp, L.R., Baldwin, M.E., Hajny, K.D., Stirm, B.H. and Shepson, P.B., 2019. Vertical profile observations of water vapor deuterium excess in the lower troposphere. *Atmospheric Chemistry and Physics*, **19**(17), 11525-11543.

38. Hamlet, A. H., K. Byun, S. Robeson, M. Widhalm, M. Baldwin, 2019: Impacts of Climate Change on the State of Indiana: Ensemble Future Projections Based on Statistical Downscaling. *Climatic Change.* https://doi.org/10.1007/s10584-018-2309-9

37. Dawson, L.C., G.S. Romine, R.J. Trapp, and M.E. Baldwin, 2017: Verifying Supercellular Rotation in a Convection-Permitting Ensemble Forecasting System with Radar-Derived Rotation Track Data. *Wea. Forecasting*, **32**, 781–795, https://doi.org/10.1175/WAF-D-16-0121.1

36. Hoogewind, K.A., M.E. Baldwin, and R.J. Trapp, 2017: The Impact of Climate Change on Hazardous Convective Weather in the United States: Insight from High-Resolution Dynamical Downscaling. *J. Climate*, **30**, 10081–10100, https://doi.org/10.1175/JCLI-D-16-0885.1

35. Trapp, R. J., D.J. Stensrud, M. C. Coniglio, R. S. Schumacher, M. E. Baldwin, S. Waugh, and D. T. Conlee, 2016: Mobile radiosonde deployments during the Mesoscale Predictability Experiment (MPEX): Rapid and adaptive sampling of upscale convective feedbacks. *Bull. Amer. Meteor. Soc.*, **97**, 329-336. doi: http://dx.doi.org/10.1175/BAMS-D-14-00258.1

34. Weisman, M.L., R. J. Trapp, G. S. Romine, C. Davis, R. Torn, M. Baldwin, L. Bosart, J. Brown, M. Coniglio, D. Dowell, A. C. Evans, T. J. Galarneau Jr., J. Haggerty, T. Hock, K. Manning, P. Roebber, P. Romashkin, R. Schumacher, C. S. Schwartz, R. Sobash, D. Stensrud, and S. B. Trier, 2015: The Mesoscale Predictability Experiment (MPEX). *Bull. Amer. Meteor. Soc.*, **96**, 2127–2149. doi: http://dx.doi.org/10.1175/BAMS-D-13-00281.1

33. Robinson, E. D., R. J. Trapp, M. E. Baldwin, 2013: The Geospatial and Temporal Distributions of Severe Thunderstorms from High-Resolution Dynamical Downscaling. *J. Appl. Meteor. Climatol.*, **52**, 2147–2161.

32. Hitchens, N. M., M.E. Baldwin, and R. J. Trapp, 2012: An object-oriented characterization of extreme precipitation-producing convective systems in the Midwestern United States. Mon. Wea. Rev., 140, 1356-1366.

31. Schwedler, B.R.J.* and M. E. Baldwin, 2011: Diagnosing the sensitivity of binary image measures to bias, location, and event frequency within a forecast verification framework. Wea. Forecasting, 26, 1032-1044.

30. Carley, J.*, B.R.J. Schwedler, M. E. Baldwin, J. Trapp, J. Kwiatkowski, J. Logsdon, and S. J. Weiss, 2011: A proposed model-based methodology for feature-specific prediction for high-impact weather. Wea. Forecasting, 26, 243-249.

29. Trapp, R. J., E. D. Robinson, M.E. Baldwin, N. S. Diffenbaugh, and B. R. J. Schwedler, 2010: Regional climate of hazardous convective weather through high-resolution dynamical downscaling, Climate Dynamics, 10.1007/s00382-010-0826-y.

28. Hitchens, N.M., R.J. Trapp, M.E. Baldwin, and A. Gluhovsky, 2010: Characterizing Subdiurnal Extreme Precipitation in the Midwestern United States. J. Hydrometeor., 11, 211–218.

27. Kain, J. S., S. J. Weiss, D. R. Bright, M. E. Baldwin, J. J. Levit, G. W. Carbin, C. S. Schwartz, M. Weisman, K. K. Droegemeier, D. Weber, K. W. Thomas, 2008: Some practical considerations regarding horizontal resolution in the first generation of operational convection-allowing NWP. Wea. Forecasting, 23, 931-952.

26. Trapp, R. J., N. S. Diffenbaugh, H. E. Brooks, M. E. Baldwin, E. D. Robinson, and J. S. Pal, 2007: Changes in severe thunderstorm environment frequency during the 21st century caused by anthropogenically enhanced global radiative forcing. Proc. Natl. Acad. Sci. USA, 104, 19,719-19,723.

25. Gallus, W. A., M. E. Baldwin, and K. L. Elmore, 2007: Evaluation of probabilistic precipitation forecasts determined from Eta and AVN forecasted amounts. Wea. Forecasting, 22, 207-215.

24. Song, Y., J. Ye, N. Svakhine, S. Lasher-Trapp, M. Baldwin, and D. S. Ebert, 2006: An atmospheric visual analysis and exploration system. IEEE Transactions on Visualization and Computer Graphics, 12 (5), 1157-1164.

23. Elmore, K.L., D.M. Schultz, and M.E. Baldwin, 2006: The Behavior of Synoptic-Scale Errors in the Eta Model. Mon. Wea. Rev., 134, 3355–3366.

22. Lakshmivarahan, S., M. E. Baldwin, and T. Zheng, 2006: Further analysis of Lorenz's maximum simplification equations. J. Atmos. Sci., 63, 2673-2699.

21. Baldwin, M. E. and J. S. Kain, 2006: Sensitivity of several performance measures to displacement error, bias, and event frequency. Wea. Forecasting, 21, 636-648.

20. Bukovsky, M. S., J. S. Kain, and M. E. Baldwin, 2006: Bowing convective systems in a popular operational model: Are they for real? Wea. Forecasting, 21, 307-324.

19. Kain, J. S., S. J. Weiss, J. J. Levit, M. E. Baldwin, and D. R. Bright, 2006: Examination of convection-allowing configurations of the WRF Model for the prediction of severe convective weather: The SPC/NSSL Spring Program 2004. Wea. Forecasting, 21, 167-181.

18. Stensrud, D. J., N. Yussouf, M. E. Baldwin, J. T. McQueen, J. Du, B. Zhou, B. Ferrier, G. Manikin, M. F. Ralph, J. M. Wilczak, A. B. White, I. Djlalova, J. W. Bao, R. J. Zamora, S. G. Benjamin, P. A. Miller, T. L. Smith, T. Smirnova, and M. F. Barth, 2006: The New England High-Resolution Temperature Program. Bull. Amer. Meteor. Soc., 87, 491-498.

17. Elmore, K. L., D. M Schultz, and M. E. Baldwin, 2006: Field significance revisited: Spatial bias errors in forecasts as applied to the Eta Model. Mon. Wea. Rev., 134, 519-531.

16. Baldwin, M. E., J. S. Kain, and S. Lakshmivarahan, 2005: Development of an automated classification procedure for rainfall systems. Mon. Wea. Rev., 133, 844-862.

15. Wandishin, M. S., M. E. Baldwin, S. L. Mullen, and J. V. Cortinas, 2005: Short-Range ensemble forecasts of precipitation type. Wea. Forecasting, 20, 609-626.

14. Kurkowski, N. P., D. J. Stensrud, and M. E. Baldwin, 2003: Assessment of implementing satellite-derived land cover data in the Eta model. Wea. Forecasting, 18, 404-416.

13. Kain, J. S., M. E. Baldwin, P. R. Janish, S. J. Weiss, M. P. Kay, and G. W. Carbin, 2003: Subjective verification of numerical models as a component of a broader interaction between research and operations. Wea. Forecasting, 18, 847-860.

12. Kain, J. S., P. R. Janish, S. J. Weiss, M. E. Baldwin, R. S. Schneider, and H. E. Brooks, 2003: Collaboration between forecasters and research scientists at the NSSL and SPC: The Spring Program. Bull. Amer. Meteor. Soc., 84, 1797-1806.

11. Kain, J. S., M. E. Baldwin, and S. J. Weiss, 2003: Parameterized updraft mass flux as a predictor of convective intensity. Wea. Forecasting, 18, 106-116.

10. Ebert, E. E., U. Damrath, W. Wergen, and M. E. Baldwin, 2003: The WGNE assessment of short-term quantitative precipitation forecasts. Bull. Amer. Meteor. Soc., 84, 481-492.

9. Hane, C. E., R. M. Rabin, T. M. Crawford, H. B. Bluestein, and M. E. Baldwin, 2002: A case study of severe storm development along a dryline within a synoptically active environment. Part II: Multiple boundaries and convective initiation. Mon. Wea. Rev., 130, 900-920.

8. Baldwin, M. E., J. S. Kain, and M. P. Kay, 2002: Properties of the convection scheme in NCEP's Eta model that affect forecast sounding interpretation. Wea. Forecasting, 17, 1063-1079.

7. Hane, C. E., M. E. Baldwin, H. B. Bluestein, T. M. Crawford, and R. M. Rabin, 2001: A case study of severe storm development along a dryline within a synoptically active environment. Part I: Dryline motion and an Eta model forecast. Mon. Wea. Rev., 129, 2183-2204.

6. Zapotocny, T. H., S. J. Nieman, W. P. Menzel, J. P. I. Nelson, J. A. Jung, E. Rogers, D. F. Parrish, G. J. DiMego, M. Baldwin, and T. J. Schmit, 2000: A case study of the sensitivity of the Eta data assimilation system. Wea. Forecasting, 15, 603-621.

5. Kain, J. S., S. M. Goss, and M. E. Baldwin, 2000: The melting effect as a factor in precipitation-type forecasting. Wea. Forecasting, 15, 700-714.

4. Zhao, Q., T. L. Black, and M. E. Baldwin, 1997: Implementation of the cloud prediction scheme in the Eta Model at NCEP. Wea. Forecasting, 12, 697-712.

3. Hane, C. E., H. B. Bluestein, T. M. Crawford, M. E. Baldwin, and R. M. Rabin, 1997: Severe thunderstorm development in relation to along-dryline variability: A case study. Mon. Wea. Rev., 125, 231-251.

2. Mesinger, F., T. L. Black, and M. E. Baldwin, 1997: Impact of resolution and of the eta coordinate on skill of the Eta Model precipitation forecasts. Numerical Methods in Atmospheric and Oceanic Modelling, The André J. Robert Memorial Volume, C. Lin, R. Laprise, and H. Ritchie, Eds., Canadian Meteorological and Oceanographic Society/NRC Research Press, Ottawa, 399-423.

1. Rogers, E., T. L. Black, D. G. Deaven, G. J. DiMego, Q. Zhao, M. Baldwin, N. W. Junker, and Y. Lin, 1996: Changes to the operational "early" Eta analysis/forecast system at the National Centers for Environmental Prediction. Wea. Forecasting, 11, 391-413.

REFEREED CONFERENCE PROCEEDINGS

5. Baldwin, M., Zhu, X. Smith, P., Harrell, S., Skeel, R., Maji, A., 2016: Scholar: A campus HPC resource to enable computational literacy, EduHPC-16: Workshop on Education for High-Performance Computing, Salt Lake City, UT. November 14th, 2016 (http://grid.cs.gsu.edu/~tcpp/curriculum/sites/default/files/A5%20Scholar%20A%20Campus%20 HPC%20Resource.pdf)

4. Snyder, D.[G], K.A. Hoogewind, M.E. Baldwin, S.M. Remias, A.M. Hainen and D.M. Bullock, 2014: Dual Polarimetric Weather Radar and Crowd-Sourced Weather Observations for Managing Winter Operations Activities, TRB 93rd Annual Meeting Compendium of Papers, Paper No. 14-3229 (http://trid.trb.org/view.aspx?id=1288724)

3. Baldwin, M. E., 2009: Verification of the time evolution of precipitation systems in numerical weather forecasts. In: 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand and International Association for Mathematics and Computers in Simulation, Anderssen, R.S., R.D. Braddock and L.T.H. Newham (eds), July 2009, 4177-4183. ISBN: 978-0-9758400-7-8. http://www.mssanz.org.au/modsim09/J1/baldwin.pdf

2. Baldwin, M. E. and S. Lakshmivarahan, 2003: Spatial characterization of rainfall patterns for use in a classification system. Intelligent Engineering Systems Through Artificial Neural Networks, 13, C. H. Dagli, A. L Buczak, J. Ghosh, M. J. Embrechts, and O. Ersoy Eds, ASME Press, 683-688.

1. Baldwin, M. E. and S. Lakshmivarahan, 2002: Rainfall classification using histogram analysis: An example of data mining in meteorology. Intelligent Engineering Systems Through Artificial Neural Networks, 12, C. H. Dagli, A. L. Buczak, J. Ghosh, M. J. Embrechts, O. Ersoy, S. W. Kercel, Eds., ASME Press, 429-434.

PROJECT REPORTS

6. Baldwin, M. E., Burris, K. D., & Elmore, K. L. (2018). Automated estimation of winter driving conditions (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2018/22). West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284316867

5. Widhalm, M., Hamlet, A. Byun, K., Robeson, S., Baldwin, M., Staten, P., Chiu, C., Coleman, J., Hall, E., Hoogewind, K., Huber, M., Kieu, C., Yoo, J., Dukes, J.S. 2018. Indiana's Past & Future Climate: A Report from the Indiana Climate Change Impacts Assessment. Purdue Climate Change Research Center, Purdue University. West Lafayette, Indiana. DOI: 10.5703/1288284316634

4. Baldwin, M. E., Snyder, D., Miller, C., & Hoogewind, K. (2015). Road weather severity based on environmental energy (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2015/13). West Lafayette, IN: Purdue University. http://dx.doi.org/10.5703/1288284315710

3. Baldwin, M., K. Hoogewind, D. Snyder, M. Price, and R. J. Trapp. Assessment and Recommendations for Using High-Resolution Weather Information to Improve Winter Maintenance Operations. Publication FHWA/IN/JTRP-2013/22. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana, 2013. doi: 10.5703/1288284315224.

2. Baldwin, M., and K. Elmore (2011). Incorporating Spatial Analysis of Forecast Performance into the MET Package at the DTC. WRF Developmental Testbed Center visitor project final report, available at:
https://dtcenter.org/sites/default/files/visitor-projects/Baldwin-Elmore-final_report.pdf

1. Baldwin, M., (2008). Establishment of a Verification Methods Testbed at the WRF Developmental Testbed Center. WRF Developmental Testbed Center visitor project final report, available at:
https://dtcenter.org/sites/default/files/visitor-projects/Baldwin_DTC_testbed_report.pdf

RESEARCH/CONFERENCE PRESENTATIONS

Baldwin, M.E., and co-authors, 2017: Data-driven Geoscience: Key Issues and Recommendations from the 2015 Unidata Users Workshop, http://n2t.net/ark:/85065/d7bv7j3g

McNamara, Margaret L., R. Sakhare, H. Li, M. Baldwin, and D.M. Bullock, "Integrating Connected Vehicle Traffic Speeds into Winter Operations Performance Measures," Transportation Research Board, August 1, 2016, Paper No. 17-00161

Baldwin, M.E., B. Fehnel, K. L. Elmore, 2016: Feature-relative forecast evaluation. Presentation for 23rd Conference on Probability and Statistics in the Atmospheric Sciences, AMS, New Orleans, LA, January 11-14, 2016 13.4.

Quardokus, K., D. G. Burgin, J. A. Crespo, E. R. Fernandes, A. D. Hendricks, S. M. Hinkle, K. A. Hudson, R. T. Knutson, Z. L. Muchow, M. C. Sholty, E. L. Waterman, Z. T. Zobel, and M. E. Baldwin, 2011: Evaluating numerical predictions of meteorological features. , Poster for 10th Annual Student Conference AMS Annual Meeting, Seattle, WA, January 23-27, 2011, S75.

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