

Karen A. Kosiba

Center for Severe Weather Research

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Education

- Ph.D., Atmospheric Science, Purdue University, West Lafayette, Indiana, 2009
 - Dissertation: *A comparison of radar observations to real data simulations of axisymmetric tornadoes*
- M.A.T., Teacher Education, Miami University, Oxford, Ohio, 2003
 - Thesis: *A study on the effects of inquiry-based instruction on the attitudes of future science teachers*
- M.S., Physics, Miami University, Oxford, Ohio, 2002
 - Thesis: *A laboratory investigation of the vertical velocities in and the effects of surface roughness on tornado-like vortices*
- B.S., Physics, Loyola University, Chicago, Illinois, 1999

Appointments

- Postdoctoral Scientist, Center for Severe Weather Research, Boulder, CO (2008-Present)
- Visiting Scientist, National Center for Atmospheric Research, Boulder, CO (2009-Present)
- Visiting Scientist, University of Colorado, Boulder, CO (2009-2010)

Field Experience

- Verification of the Origins in Tornadoes Experiment (VORTEX2), 2009-10
 - Radar operator, in situ coordinator
- Radar Observations of Tornadoes and Thunderstorms (ROTATE), 2004-08
 - Navigator, driver, forecaster, radar operator, data manager
- Hurricanes at Landfall (HAL), 2004, 2008
 - Navigator
- Convective and Orographically-Induced Precipitation Study (COPS), 2007
 - Radar operator, driver, data manager

Grants and Funding

- Principle Investigator: *Modeling and analysis of the landfalling hurricane boundary layer*, NSF grant ATM-0910737.
- Co-Principle Investigator: *Collaborative research: VORTEX2--multi-scale and multi-platform study of tornadoes, supercell thunderstorms, and their environments*, NSF grant ATM-0801041.

Teaching Experience

- Teaching Assistant, Purdue University, Department of Earth and Atmospheric Sciences (2006-2008)
- Teaching Assistant, Miami University, Department of Physics (1999-2003)
- Laboratory Assistant, Loyola University, Department of Physics (1998-99)

Service on Graduate Committees

- Mallie Toth – Ph.D. (present)

Honors and Awards

- Recipient of the Purdue University Graduate Student Award for Outstanding Teaching (2007)
- Selected participant, NCAR colloquium (2006): “The Challenges of Convective Forecasting.”
- Best Poster Presentation, Student Research Expo (2006), Dept. of EAS, Purdue University
- Purdue Research Foundation (PRF) Research Grant (2005-2006)
- Best Oral Presentation, Student Research Expo (2004), Dept. of EAS, Purdue University
- Recipient of the Frederick N. Andrews Fellowship (2003-2005), Purdue University

- Recipient of the College of Arts and Sciences Graduate Student Teaching Award (2002-03), Miami University
- Recipient of the Outstanding Graduate Student Researcher Award (2001-02), Dept. of Physics, Miami University
- Recipient of the American Association of Physics Teachers Outstanding Graduate Assistant Award (2001-02)
- Recipient of the Outstanding Graduate Student Teacher Award (2000-01), Dept. of Physics, Miami University
- Sigma Pi Sigma (Physics Honors Society)
- Phi Kappa Phi

Activities

- USA Science and Engineering Festival, Washington DC (23-24 October 2010)
- Careers in Science, Chicago, IL (26-28 October 2010)
- Blogger, National Science Foundation VORTEX2 blog (2010)
- Super Science Saturday, Boulder, CO (2009)
- Session Chair
 - 25th Conference on Severe Local Storms (2010)
 - 6th European Conference on Radar Meteorology and Hydrology (2010)
 - 5th European Conference on Severe Local Storms (2009)
- Women in Science Program (WISP), Purdue University
- EAS Women in Science, Purdue University
- Judge, Lafayette Regional Science and Engineering Fair, Purdue University (2004-06)
- Member, Grade Appeals Committee, Purdue University (2004-05)
- Judge, Southwest Ohio Science Fair, Miami University (2001)
- Physics Tutor, Department of Physics, Miami University (2000-01)
- Calculus and Physics Tutor, Learning Assistance Center, Loyola University (1996-97)

Publications

- **Kosiba, K. A.** and J. Wurman, 2010: The three-dimensional axisymmetric wind field structure of the Spencer, South Dakota (1998) tornado. *J. Atmos. Sci.*, **67**, 3074-3083.
- Wurman, J., **K. A. Kosiba**, P. Markowski, Y. Richardson, D. Dowell, and P. Robinson, 2010: Fine-scale and dual-Doppler analysis of tornado intensification, maintenance, and dissipation in the Orleans, Nebraska, tornadic supercell., *Mon. Wea. Rev.*, in press.
- **Kosiba, K. A.**, R. J. Trapp, and J. Wurman, 2008: An analysis of the axisymmetric three-dimensional wind field in a tornado using mobile radar observations. *Geophys. Res. Lett.*, **35**, L05805, doi:10.1029/2007GL031851.

Conference Presentations and Extended Abstracts

- **Kosiba, K. A.**, J. Wurman, Y. Richardson, P. Markowski, D. C. Dowell, P. Robinson, and J. Marquis, 2010: The Goshen County, Wyoming, supercell of 5 June 2009 intercepted by VORTEX2: Tornadogenesis phase. *25th Conference on Severe Local Storms*, Denver, CO.
- **Kosiba, K. A.**, J. Wurman, Y. Richardson, P. Markowski, D. C. Dowell, P. Robinson, and J. Marquis, 2010: The Goshen County, Wyoming, supercell of 5 June 2009 intercepted by VORTEX2: Tornado intensification phase. *25th Conference on Severe Local Storms*, Denver, CO.
- Richardson, Y., P. Markowski, J. Wurman, **K. Kosiba**, and J. Marquis, 2010: The Goshen County, Wyoming, supercell of 5 June 2009 intercepted by VORTEX2: Tornado dissipation phase. *25th Conference on Severe Local Storms*, Denver, CO.
- Marquis, J., Y. Richardson, P. Markowski, D. Dowell, J. M. Wurman, **K. Kosiba**, and P. Robinson, 2010: Preliminary analysis of the Goshen County tornadic supercell on 5 June 2009 during VORTEX2 using EnKF assimilation of mobile radar and mesonet data. *25th Conference on Severe Local Storms*, Denver, CO.

- **Kosiba, K. A.** and J. Wurman, 2010: Fine-scale radar observations of boundary layer structures in landfalling hurricanes. *25th Conference on Severe Local Storms*. Denver, CO.
- Wurman, J., **K. A. Kosiba**, P. Robinson, 2010: Rapid-scan radar observations of tornadoes in VORTEX2. *25th Conference on Severe Local Storms*. Denver, CO.
- **Kosiba, K. A.** and J. Wurman, 2010: Fine-scale radar observations of boundary layer structures in landfalling hurricanes. *6th European Conference on Radar Meteorology and Hydrology*. Sibiu, Romania.
- **Kosiba, K. A.**, J. Wurman, and P. Robinson, 2010: In situ and radar observations of low-level winds in tornadoes. *6th European Conference on Radar Meteorology and Hydrology*. Sibiu, Romania.
- Wurman, J., **K. A. Kosiba**, Y. Richardson, P. Markowski, and P. Robinson, 2010: Dual-Doppler and thermodynamic study of the genesis and intensification of the Goshen, County tornado. *6th European Conference on Radar Meteorology and Hydrology*. Sibiu, Romania.
- Wurman, J. and **K. A. Kosiba**, 2010: The DOW mobile radar network: Science and education. *6th European Conference on Radar Meteorology and Hydrology*. Sibiu, Romania.
- Wurman, J., **K. A. Kosiba**, P. Robinson, 2010: Rapid-scan radar observations of tornadoes in VORTEX2. *6th European Conference on Radar Meteorology and Hydrology*. Sibiu, Romania.
- Wurman, J., K. Friedrich, and **K. A. Kosiba**, 2010: Design and deployment of a quickly scanning dual-frequency, dual-polarization, dual-Doppler mobile radar network. *6th European Conference on Radar Meteorology and Hydrology*. Sibiu, Romania.
- **Kosiba, K. A.** and J. Trapp, 2009: A comparison of real data simulations to axisymmetric tornadoes. *5th European Conference on Severe Local Storms*. Landshut, Germany.
- Wurman, J. and **K. A. Kosiba**, 2009: Comparisons of low level radar winds, in situ 1-m winds, and damage in tornadoes. *5th European Conference on Severe Local Storms*. Landshut, Germany.
- **Kosiba, K. A.** and J. Wurman, 2009: High resolution and in situ observations in the hurricane boundary layer: Ike and Gustav. *34th Conference on Radar Meteorology*, Williamsburg, VA.
- Wurman, J., **Kosiba, K. A.**, Richardson, Y. and P. M. Markowski, 2009: Dual-Doppler windfields and in situ thermodynamic fields in and near tornadoes obtained during VORTEX2. *34th Conference on Radar Meteorology*, Williamsburg, VA.
- Wurman, J. and **K. A. Kosiba**, 2009: Comparisons of fine-scale radar observations and in situ tornado pod observations of low level tornadic winds. *34th Conference on Radar Meteorology*, Williamsburg, VA.
- **Kosiba, K. A.** and R. J. Trapp, 2008: The dependence of tornado corner flow dynamics on the outer core flow. *24th Conference on Severe Local Storms*, Savannah, GA.
- Wurman, J. and **K. A. Kosiba**, 2008: DOW observations of multiple vortex structure in several tornadoes. *Proc. 24th Conference on Severe Local Storms*, Savannah, GA.
- Marshall, T. P., D. McCarthy, J. G. LaDue, J. Wurman, C. R. Alexander, P. Robinson, and **K. A. Kosiba**, 2008: Damage survey and deduction of vortex structure of the Greensburg, KS tornado. *Proc. 24th Conference on Severe Local Storms*, Savannah, GA.
- Wurman, J., P. Robinson, W. Lee, C. R. Alexander, and **K. A. Kosiba**, 2008: Rapid-Scan Mobile Radar 3D GBVTD and traditional analysis of tornadogenesis. *Proc. 24th Conference on Severe Local Storms*, Savannah, GA.
- **Kosiba, K. A.**, and R. J. Trapp, 2006: Quantifying the near-surface winds in tornadoes: A combined DOW-LES approach. *Proc. 23rd Conference on Severe Local Storms*, St. Louis, MO.
- **Kosiba, K. A.**, R. J. Trapp, and J. Wurman, 2005: The 12 May 2004 Harper, KS tornado: Analysis of the axisymmetric low-level wind field using DOW radar observations. *Proc. 32nd Conference on Radar Meteorology*, Albuquerque, NM.
- Church, C.R., **K. A. Kosiba**, and J. D. Cleland, 2004: The formation and intensification of supercritical tornado-like vortices—A laboratory study. *Proc. 22nd Conference on Severe Local Storms*, Hyannis, MA.
- **Kosiba, K. A.** and J. E. Poth, 2004: A study on the effects of inquiry-based instruction on the attitudes of future science teachers. *American Association of Physics Teachers*, Miami, FL.