Glen S. Romine

Contact

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Current Position

Graduate Research Assistant, 1999-Present

Doctoral candidate (ABD, anticipated May, 2008), dissertation titled: Improving storm-scale analyses of convection via data assimilation of polarimetric radar observations

My dissertation project seeks to improve understanding of the interrelations between severe storm kinematics and microphysical processes. This includes:

- Creation of a radar analysis package and development of a conceptual framework for polarimetric field structure and evolution for an observed tornadic supercell storm
- Use of a square root ensemble Kalman filter data assimilation system for reconstruction of atmospheric states for convective scale systems
- Assisted in porting, debugging and development of an advanced 2-moment microphysical package into the data assimilation system
- Developed a consistent set of forward operators allowing for the assimilation system to generate forecasts of polarimetric fields for comparison with observations as well as enabling assimilation of key polarimetric fields
- Defined sensitivity of assimilation system state retrieval to polarimetric field assimilation

Master's Thesis (completed Dec. 2002): A high resolution numerical simulation of Hurricane Opal (1995)

This project detailed deep boundary layer roll structures in a high-resolution hurricane simulation and compared them with observed roll structures. Further, the convective environment of outer hurricane rainband convection was detailed, with emphasis on the predictability of outer hurricane rainband tornadic storms.

Research and Work Experience

- Mesonet Operator, Oklahoma Climate Survey, 1996-1999
- SubVortex field crew member, May-June 1999
- COMET hydrometeorology faculty course, June 2000
- Substitute Instructor - Severe and Unusual Weather (120), Introduction to Meteorology (100), Illinois in the Changing Earth System (130), Weather Analysis and Forecasting (403), Radar Meteorology (410) and Numerical Methods in Fluid Dynamics (502)
- Teaching Assistant, Numerical Methods in Fluid Dynamics (502), 2001-2002
- AMS E-Theater co-developer, "Powers of Ten – From the Oceans & Atmosphere to Outer Space", 2002 Annual Meeting
- Instructor, Severe and Unusual Weather, Summer 2002
- BAMEX ground crew member, June 2003
- BAMEX ground crew field coordinator, June, July 2003
- ASP Summer Colloquia on Data Assimilation for Atmospheric and Climate System Prediction, July 2003
- Science and Visualization Consultant, *Hunt for the Supertwister*, 2004

Education

- Ph.D. Atmospheric Sciences, University of Illinois at Urbana-Champaign, 2008 (anticipated)
- M.S. Atmospheric Sciences, University of Illinois at Urbana-Champaign, 2002
- B.S. with special distinction, Meteorology, University of Oklahoma, 1999

Publications

Formal

Romine, G., D. W. Burgess and R. B. Wilhelmson, 2008: A dual-polarization radar based assessment of the 8 May 2003 Oklahoma City area tornadic supercell. *Mon. Wea. Rev.*, In Press.

Romine, G. and R. B. Wilhelmson, 2006: Fine-scale spiral band features within a numerical simulation of Hurricane Opal (1995). *Mon. Wea. Rev.*, **134**, p. 1121-1139.

G. K. Grice, R. J. Trapp, S. F. Corfidi, R. Davies-Jones, C. C. Buonanno, J. P. Craven, K. K. Droegemeier, C. Duchon, J. V. Houghton, R. A. Prentice, G. Romine, K. Schlachter, and K. K. Wagner, 1999: The Golden Anniversary Celebration of the First Tornado Forecast. *Bull. Amer. Meteor. Soc.*, **80**, pp. 1341–1348.

Theses

Romine, G. S., 2002: A high resolution numerical simulation of Hurricane Opal (1995). MS Thesis, University of Illinois Urbana-Champaign, Urbana, IL. 130 pp.

Informal

Romine, G. S., D. W. Burgess and R. B. Wilhelmson, 2006: A conceptual dual-polarization framework for the 8 May 2003 Oklahoma City tornadic supercell. *23rd Conference on Severe Local Storms*, *St. Louis, MO, Amer. Meteor. Soc.*

Romine, G. S., L. Wicker, M. Gilmore, L. Cronce, R. B. Wilhelmson, 2004: Analysis of simulated supercell tornadogenesis. *22nd Conference on Severe Local Storms, Hyannis MA, Amer. Meteor. Soc.*

Gilmore, M. S., G. S. Romine, and Coauthors, 2004f: Behind the "supertwister": Experiences in science education at NCSA. Preprints, 22nd Conf. on Severe Local Storms, Hyannis, MA, Amer. Meteor. Soc.

Houston, A. L., G. S. Romine, L. M. Cronce, M. S. Gilmore, B. F. Jewett, and R. B. Wilhelmson, 2004: Idealized simulations of the 20 April 2004 Utica, IL supercell. Preprints, 22nd Conf. on Severe Local Storms, Hyannis, MA, Amer. Meteor. Soc.

Romine G., D. Porter and R. B. Wilhelmson. 2003: A volume rendering tool for the atmospheric sciences. *19th International Conference on Interactive Information and Processing Systems for Meteorology, Oceanography and Hydrology, Long Beach, CA, Amer. Meteor. Soc.*

Romine, G., and R. B. Wilhelmson, 2002a: A high resolution numerical simulation of the landfall of Hurricane Opal (1995). *19th Conference on Weather Analysis and Forecasting and 15th Conference on Numerical Weather Prediction, San Antonio, Texas, Amer. Meteor. Soc.*, 357-360.

_____, and _____, 2002b: Numerical investigation of the role of mid-level dryness on tropical mini-supercell behavior. *21st Conference on Severe Local Storms, San Antonio, Texas, Amer. Meteor. Soc.*, 631-634.

_____, and _____, 2002c: Investigating convective elements in a high resolution simulation of Hurricane Opal (1995). *25th Conference on Hurricanes and Tropical Meteorology, San Diego, California, Amer. Meteor. Soc.,* 375-376.

_____, and _____, 2001: Parameterization impacts on a simulation of Hurricane Opal (1995). Preprints, 11th PSU/NCAR Mesoscale Model User's Workshop, Boulder, CO, 86–89.

Awards, Presentations, and Service

- Seminar, Dept. of Atmos. Sciences, Univ. of Ill. Urbana-Champaign: A storm-scale assimilation system for polarimetric radar observations, Oct. 2007
- Invited seminar, National Weather Center (NSSL), Norman, OK: Assessment and assimilation of polarimetric radar observations: Improving convective storm analyses, Sept. 2007
- Invited seminar, NCAR-MMM, Boulder, CO: Assessment and assimilation of real polarimetric radar observations for improved convective storm analyses, Aug. 2007
- Seminar, Dept. of Atmos. Sciences, Univ. of Ill. Urbana-Champaign: Polarimetric Radar Observations of the 8 May 2003 OKC Tornadic Supercell, Feb. 2007
- Inaugural Ogura Student Research Award, Apr. 2006
- Invited guest, Severe Weather Central radio program, Feb. 2006
- Volunteer, 2005 National Science Olympiad, May 2005
- Invited talk, Kiwanis club of Champaign, Aug. 2004
- Invited guest, Focus 580 radio program, 'Stormy Weather', Aug. 2004
- Reviewer for Monthly Weather Review, Weather and Forecasting, and Journal of Applied Meteorology and Climatology (2004-present)
- Invited talk, South Side Elementary School Science Fair, Jun. 2002
- Seminar, Dept. of Atmos. Sciences, Univ. of Ill. Urbana-Champaign: High resolution simulation of Hurricane Opal, Nov. 2001
- President, Department of Atmospheric Sciences (DAS) Student Organization, 2001-2002
- Member, DAS Student Organization, 1999-present
- Member, American Meteorological Society, 1996-Present

Graduate Advisor

Robert Wilhelmson (MS, PhD)

References

Available upon request.