George H. Bryan

National Center for Atmospheric Research
3450 Mitchell Lane
Boulder, CO 80301, USA

email: gbryan@ucar.edu
phone: (303) 497-8989
fax: (303) 497-8171
web: http://www.mmm.ucar.edu/people/bryan/

Curriculum Vitae
April 2009

PROFESSIONAL EMPLOYMENT

2008- Scientist II
Mesoscale and Microscale Meteorology Division
National Center for Atmospheric Research

2005-2008 Scientist I
Mesoscale and Microscale Meteorology Division
National Center for Atmospheric Research

2003-2004 Postdoctoral Fellow
Advanced Study Program / Mesoscale and Microscale Meteorology Division
National Center for Atmospheric Research

1996-2002 Graduate Research Assistant
Department of Meteorology
The Pennsylvania State University

1995-1996 Meteorological Observer
Department of Meteorology Weather Station
The Pennsylvania State University

EDUCATION

2002 Ph.D. Department of Meteorology, The Pennsylvania State University
Thesis Title: "An Investigation of the Convective Region of Numerically Simulated Squall Lines"
Thesis Advisor: J. Michael Fritsch

1998 M.S. Department of Meteorology, The Pennsylvania State University
Thesis Title: "Discrete Frontal Propagation Induced by Convection"
Thesis Advisor: J. Michael Fritsch

1996 B.S. Department of Meteorology, The Pennsylvania State University
with High Distinction and with Honors in Meteorology, and with a Minor in Geography
Honors Thesis Title: "Meteorological Analysis of the 17 April 1995 Oklahoma Severe Storms"
Honors Thesis Advisor: Gregory S. Forbes

REFEREED PUBLICATIONS

Bryan, G. H., and R. Rotunno, 2009: Evaluation of an analytical model for the maximum intensity of tropical cyclones. *J. Atmos. Sci,* in press.

Bryan, G. H., and R. Rotunno, 2009: The maximum intensity of tropical cyclones in axisymmetric numerical model simulations. *Mon. Wea. Rev.,* in press, doi:10.1175/2008MWR2709.1.

Bryan, G. H., and R. Rotunno, 2009: The influence of near-surface, high-entropy air in hurricane eyes on maximum hurricane intensity. *J. Atmos. Sci.,* **66,** 148-158.

Bryan, G. H., 2008: On the computation of pseudoadiabatic entropy and equivalent potential temperature. *Mon. Wea. Rev.,* **136,** 5239-5245.

Bryan, G. H., and R. Rotunno, 2008: Gravity currents in a deep anelastic atmosphere. *J. Atmos. Sci.,* **65,** 536-556.
Kirshbaum, D. J., R. Rotunno, and **G. H. Bryan**, 2007: The spacing of orographic rainbands triggered by small-scale topography. *J. Atmos. Sci.*, **64,** 4222-4245.
Knievel, J. C., **G. H. Bryan**, and J. P. Hacker, 2007: Explicit numerical diffusion in the WRF Model. *Mon. Wea. Rev.,* **135,** 3808-3824.
Kirshbaum, D. J., **G. H. Bryan,** R. Rotunno, and D. R. Durran, 2007: The triggering of orographic rainbands by small-scale topography. *J. Atmos. Sci.*, **64,** 1530-1549.
Bryan, G. H., R. Rotunno, and J. M. Fritsch, 2007: Roll circulations in the convective region of a simulated squall line. *J. Atmos. Sci.,* **64,** 1249-1266.
Trier, S. B., C. A. Davis, D. A. Ahijevych, M. L. Weisman, and **G. H. Bryan**, 2006: Mechanisms supporting long-lived episodes of propagating nocturnal convection within a 7-day WRF Model simulation. *J. Atmos. Sci,* **63,** 2409–2435.
Schultz, D. M., K. M. Kanak, J. M. Straka, R. J. Trapp, B. A. Gordon, D. S. Zrnic, **G. H. Bryan**, A. J. Durant, T. J. Garratt, P. M. Klein, and D. K. Lilly, 2006: The mysteries of mammatus clouds: Observations and formation mechanisms. *J. Atmos. Sci.,* **63,** 2409–2435.
Bryan, G. H., J. C. Knievel, and M. D. Parker, 2006: A multimodel assessment of RKW Theory's relevance to squall-line characteristics. *Mon. Wea. Rev.,* **134,** 2772–2792.
Bryan, G. H., 2005: Spurious convective organization in simulated squall lines owing to moist absolutely unstable layers. *Mon. Wea. Rev.,* **133,** 1978–1997.
Bryan, G. H., and J. M. Fritsch, 2004: A reevaluation of ice-liquid water potential temperature. *Mon. Wea. Rev.,* **132,** 2421–2431.
Davis, C., N. Atkins, D. Bartels, L. Bosart, M. Coniglio, **G. Bryan**, W. Cotton, D. Dowell, B. Jewett, R. Johns, D. Jorgensen, J. Knievel, K. Knupp, W.-C. Lee, G. Mcfarquhar, J. Moore, R. Przybylinski, R. Rauber, B. Smull, R. Trapp, S. Trier, R. Wakimoto, M. Weisman, and C. Ziegler, 2004: The Bow Echo and MCV Experiment: Observations and opportunities. *Bull. Amer. Meteor. Soc.,* **85,** 1075–1093.
Bryan, G. H., J. C. Wyngaard, and J. M. Fritsch, 2003: Resolution requirements for the simulation of deep moist convection. *Mon. Wea. Rev.,* **131,** 2394–2416.
Bryan, G. H., and J. M. Fritsch, 2002: A benchmark simulation for moist nonhydrostatic numerical models. *Mon. Wea. Rev.,* **130,** 2917–2928.
Bryan, G. H., and J. M. Fritsch, 2000: Moist Absolute Instability: The sixth static stability state. *Bull. Amer. Meteor. Soc.,* **81,** 1207–1230.
Bryan, G. H., and J. M. Fritsch, 2000: Discrete propagation of surface fronts in a convective environment: Observations and theory. *J. Atmos. Sci.,* **57,** 2041–2060.
Bryan, G. H., and J. M. Fritsch, 2000: Diabatically driven discrete propagation of surface fronts: A numerical analysis. *J. Atmos. Sci.*, **57,** 2061–2079.
Pontrelli, M. D., **G. H. Bryan**, and J. M. Fritsch, 1999: The Madison County, Virginia, Flash Flood of 27 June 1995. *Wea. Forecasting,* **14,** 384–404.
Nicosia, D. J., E. J. Ostuno, N. Winstead, G. Klavun, C. Patterson, C. Gilbert, **G. Bryan**, J. H. E. Clark, and J. M. Fritsch, 1999: A flash flood from a lake-enhanced rainband. *Wea. Forecasting,* **14,** 271–288.

UNREFEREED PUBLICATIONS

Bryan, G. H., 2008: Evaluation of the theoretical speed and depth of gravity currents using three-dimensional numerical simulations. Preprints, *24th Conf. on Severe Local Storms,* Savannah, GA, Amer. Meteor. Soc, 10.1.
Morrison, H., **G. Bryan,** and G. Thompson, 2008: Impact of cloud microphysics on the development of trailing stratiform precipitation in squall lines. Preprints, *15th International Conference on Clouds and Precipitation,* Cancun, Mexico, IAMAS, P3.21.
Knievel, J. C., **G. H. Bryan,** J. H. Copeland, and J. P. Hacker, 2008: The WRF Model's new explicit numerical diffusion scheme and its effects on transport and dispersion in the planetary boundary layer. Preprints, *15th Conference on the Applications of Air Pollution Meteorology*, New Orleans, LA, Amer. Meteor. Soc., P2.1.
Ahijevych, D., **G. Bryan,** M. Weisman, S. Trier, C. Davis, and D. Dowell, 2006: Composite bow echo observed during BAMEX. Preprints, *23rd Conf. on Severe Local Storms,* St. Louis, MO, Amer. Meteor. Soc., CD-ROM, 7.3.
Bryan, G. H., and M. L. Weisman, 2006: Mechanisms for the production of severe surface winds in a simulation of an elevated convective system. Preprints, *23rd Conf. on Severe Local Storms,* St. Louis, MO, Amer.

Meteor. Soc., CD-ROM, 7.5.

Kirshbaum, D. J., **G. Bryan**, R. Rotunno, and D. Durran, 2005: The response of statically unstable orographic clouds to small-scale topographic features. Preprints, *11th Conf. on Mesoscale Processes*, Albuquerque, NM, Amer. Meteor. Soc., CD-ROM, 5M.1.

Bryan, G., D. Ahijevych, C. Davis, S. Trier, and M. Weisman, 2005: Observations of cold pool properties in mesoscale convective systems during BAMEX. Preprints, *11th Conf. on Mesoscale Processes*, Albuquerque, NM, Amer. Meteor. Soc., CD-ROM, JP5J.12.

Bryan, G. H., and R. Rotunno, 2005: Statistical convergence in simulated moist absolutely unstable layers. Preprints, *11th Conf. on Mesoscale Processes*, Albuquerque, NM, Amer. Meteor. Soc., CD-ROM, 1M.6.

Knievel, J. C., **G. H. Bryan**, and J. P. Hacker, 2005: The utility of 6th-order, monotonic, numerical diffusion in the Advanced Research WRF Model. Preprints, *6th WRF / 15th MM5 Users' Workshop*, Boulder, CO, National Center for Atmospheric Research, CD-ROM.

Bryan, G. H., and R. Rotunno, 2004: Cellular structures in simulated squall lines with moist absolutely unstable layers. Preprints, *22nd Conf. on Severe Local Storms,* Hyannis, MA, Amer. Meteor. Soc., CD-ROM, P4.5.

Bryan, G. H., J. C. Knievel, and M. D. Parker, 2004: An evaluation of "RKW Theory" using a model intercomparison. Preprints, *22nd Conf. on Severe Local Storms,* Hyannis, MA, Amer. Meteor. Soc., CD-ROM, P6.2.

Bryan, G., D. Ahijevych, C. Davis, M. Weisman, and R. Przybylinski, 2004: An assessment of convective system structure, cold pool properties, and environmental shear using observations from BAMEX. Preprints, *22nd Conf. on Severe Local Storms,* Hyannis, MA, Amer. Meteor. Soc., CD-ROM, 4.2.

Ahijevych, D., **G. Bryan**, C. Davis, J. Knievel, S. Trier, and M. Weisman, 2004: System-relative distribution of atmospheric soundings obtained during BAMEX. Preprints, *22nd Conf. on Severe Local Storms,* Hyannis, MA, Amer. Meteor. Soc., CD-ROM, 5.6.

Ross, J. D., R. James, C. Hosler, J. M. Fritsch, and **G. Bryan**, 2004: A numerical investigation of slabular convection and moist absolute instability in hurricane Isabel. Preprints, *Conference on Hurricanes and Tropical Meteorology,* Miami, FL, Amer. Meteor. Soc., CD-ROM, 6D.6.

Bryan, G. H., and J. C. Knievel, 2004: Recommendations for diffusion in idealized squall line simulations by the WRF Model. Preprints, *5th WRF / 14th MM5 Users' Workshop*, Boulder, CO, National Center for Atmospheric Research, 233-236.

Bryan, G. H., and J. M. Fritsch, 2003: On the existence of convective rolls in the convective region of squall lines. Preprints, *Tenth Conference on Mesoscale Processes*, Portland, OR, Amer. Meteor. Soc., CD-ROM, 4.2.

James, R. P., **G. H. Bryan**, and J. Michael Fritsch, 2002: The effect of turbulence-resolving grid spacing on convective precipitation. Abstracts, *International Conference on Quantitative Precipitation Forecasting,* Reading, England, World Weather Research Program, 65.

Bryan, G. H., and J. M. Fritsch, 2002: The structure and dynamics of moist absolutely unstable layers in a simulated squall line. Preprints, *21st Conference on Severe Local Storms,* San Antonio, TX, Amer. Meteor. Soc., 54-57.

Bryan, G. H., and J. M. Fritsch, 2002: What is appropriate resolution for simulations of thunderstorms? An answer from a turbulence perspective. Preprints, *21st Conference on Severe Local Storms,* San Antonio, TX, Amer. Meteor. Soc., 255-258.

Bryan, G. H., and J. M. Fritsch, 2002: A benchmark simulation for testing moist nonhydrostatic numerical model formulations. Preprints, *19th Conference on Weather Analysis and Forecasting*, San Antonio, TX, Amer. Meteor. Soc., 218-221.

Kwon, Y. C., D. R. Stauffer, **G. H. Bryan**, and W. M. Frank, 2001: Numerical simulations of Hurricane Floyd using WRF and MM5. Preprints, *Second Weather Research and Forecast Model Workshop,* Boulder, CO, National Center for Atmospheric Research.

Bryan, G. H., and J. M. Fritsch, 2001: On adequate resolution for the simulation of deep moist convection: Theory and preliminary results. Preprints, *Ninth Conference on Mesoscale Processes,* Fort Lauderdale, FL, Amer. Meteor. Soc., 288-292.

Grumm, R. H., and **G. Bryan**, 2001: Impact of initial conditions on local modeling. Preprints, *18th Conference on Weather Analysis and Forecasting,* Fort Lauderdale, FL, Amer. Meteor. Soc., 55-58.

Bryan, G. H., and J. M. Fritsch, 2000: The vertical distribution of relative humidity: A crucial factor in the organization of convection. Preprints, *20th Conference on Severe Local Storms,* Orlando, FL, Amer. Meteor. Soc., 630-633.

Bryan, G. H., and J. M. Fritsch, 2000: Are the subgrid mixing schemes in MM5 adequate for cloud-scale simulations? Preprints, *Tenth PSU/NCAR Mesoscale Model User's Workshop,* Boulder, CO, National

Center for Atmospheric Research, 80-83.

Bryan, G. H., and J. M. Fritsch, 2000: Unphysical thermodynamic structures in explicitly simulated thunderstorms. Preprints, *Tenth PSU/NCAR Mesoscale Model User's Workshop,* Boulder, CO, National Center for Atmospheric Research, 165-168.

Bryan, G. H., and J. M. Fritsch, 1999: Slab convective overturning of moist absolutely unstable layers. Abstracts, *Session on Quantitative Precipitation Forecasting,* International Union of Geodesy and Geophysics, Birmingham, England, B255.

Fritsch, J. M., and **G. H. Bryan**, 1999: Slab convective overturning of moist absolutely unstable layers. Preprints, *Eighth Conference on Mesoscale Processes*, Boulder, CO, Amer. Meteor. Soc., 38-43.

Bryan, G. H., and J. M. Fritsch, 1999: Moist absolutely unstable layers. Abstracts*, Session on Mesoscale Processes*, The Hague, Netherlands, XXIV General Assembly, European Geophys. Soc., 421.

Bryan, G. H., R. F. Rogers, and J. M. Fritsch, 1998: Numerical simulations of moist absolutely unstable layers. Preprints, *Eighth PSU/NCAR Mesoscale Model User's Workshop*, Boulder, CO, National Center for Atmospheric Research, 59-62.

Bryan, G. H., J. J. Charney, and J. M. Fritsch, 1998: Discrete frontal propagation induced by convection. Abstracts*, Session on Cyclogenesis and Fronts: FASTEX,* Nice, France, XXIII General Assembly, European Geophys. Soc., C636.

Fritsch, J. M., and **G. H. Bryan**, 1998: Mesoscale convective systems: slab convective overturning of moist absolutely unstable layers. Preprints, *16th Conf. on Weather Analysis and Forecasting,* Phoenix, AZ, Amer. Meteor. Soc., 196-198.

Bryan, G. H., and J. M. Fritsch, 1998: Discrete Frontal Propagation Induced by Convection. Preprints, *16th Conf. on Weather Analysis and Forecasting,* Phoenix, AZ, Amer. Meteor. Soc., 152-154.

Bryan, G. H., G. S. Forbes, M. Pearce, and S. Hoffert, 1996: Analysis of the 17 April 1995 Oklahoma Severe Storms. Preprints, *15th Conference on Weather Analysis and Forecasting,* Norfolk, VA, Amer. Meteor. Soc., 399-402.

HONORS AND AWARDS

2007	*Monthly Weather Review* Editor's Award	American Meteorological Society
2006	Alumni Achievement Award	The Pennsylvania State University
2001	Muan/Wilson Graduate Fellow Award	College of Earth and Mineral Sciences, PSU
2000	Student Oral Presentation Award	AMS Conference on Severe Local Storms
1999	Special Service Award	National Weather Service Eastern Region
1999	Special Award for Teaching Support	Department of Meteorology, PSU
1996-1997	AMS Graduate Fellowship	American Meteorological Society
1996	Robert O. Cole Award	Department of Meteorology, PSU
1996	Outstanding Research Exhibit	Undergraduate Research Fair, PSU
1996	University Scholars Honors Degree	The Pennsylvania State University

ADDITIONAL PROFESSIONAL ACTIVITIES

2007-	Second Verification of the Origins of Rotation in Tornadoes Experiment (VORTEX2) Contributor to design of mobile rawinsonde component Co-coordinator of mobile rawinsondes during operations (May-June in 2009 and 2010)
2006-	Affiliate Faculty member, Department of Atmospheric Science, Colorado State University
2006-	Member, Program Committee for professional conferences, including: 13th Conference on Mesoscale Processes 12th Conference on Mesoscale Processes
2005-2007	Member, UCAR Distinguished Achievement and Outstanding Accomplishments Awards Jury (chair in 2006)
2005-2008	Member, Committee on Mesoscale Processes, American Meteorological Society
2005-	Session chair at professional conferences, including: 12th Conference on Mesoscale Processes

24th Conference on Severe Local Storms
23rd Conference on Severe Local Storms
22nd Conference on Severe Local Storms
4th GRAPES-WRF Modeling Joint Workshop

2004- Associate Editor, *Monthly Weather Review*

2004- Co-coordinator, Dynamics Happy Hour (an informal seminar series in MMM Division at NCAR)

2000-2003 Bow Echo and Mesoscale Convective Vortex Experiment (BAMEX)
Coordinator of dropsonde aircraft during operations
Contributing author to Science Overview Document

1998- Reviewer for scientific journals, including:

Monthly Weather Review	*Journal of the Atmospheric Sciences*
Weather and Forecasting	*Quarterly Journal of the Royal Meteorological Society*
Journal of Hydrometeorology	*Atmospheric Science Letters*
Atmospheric Research	*Journal of Geophysical Research*
Tellus	*Geophysical Research Letters*

1997- Analysis and visualization of numerical model output
Developed a software package to view MM5 output with *GrADS* (*MM5toGrADS*)

1995 Verification of the Origins of Rotation in Tornadoes Experiment (VORTEX)
Participated in data collection with mobile rawinsondes, mobile mesonets, and ELDORA

1995 Research Experience for Undergraduates
University of Oklahoma and National Severe Storms Laboratory, Norman, OK
Research Mentor: Robert H. Johns, Science Operations Office, Storm Prediction Center

CONSULTING

2003- Developer of a cloud-scale numerical model (CM1)

- Code is currently being used for research at several universities, including: Central Michigan University, Colorado State University, Florida State University, North Carolina State University, Pennsylvania State University, University of Illinois, University of Munich, University of Reading, Yale University
- Peer-reviewed articles (not co-authored with Bryan) that use CM1:

Kirshbaum, D. J., and R. B. Smith, 2009: Orographic precipitation in the tropics: large-eddy simulations and theory. *J. Atmos. Sci.,* in press.

Wissmeier, U., and R. Goler, 2009: A comparison of tropical and mid-latitude thunderstorm evolution in response to wind shear. *J. Atmos. Sci.,* in press.

Miglietta, M. M., and R. Rotunno, 2009: Numerical simulations of conditionally unstable flows over a mountain ridge. *J. Atmos. Sci.,* in press.

Schumacher, R. S., 2008: Mechanisms for quasi-stationary behavior in simulated heavy-rain-producing convective systems. *J. Atmos. Sci.,* in press.

Smith, J. W., and P. R. Bannon, 2008:A comparison of compressible and anelastic models of deep dry convection. *Mon. Wea. Rev.,* **136,** 4555-4571.

Kang, S.-L., and K. J. Davis, 2008: The effects of mesoscale surface heterogeneity on the fair-weather convective atmospheric boundary layer. *J. Atmos. Sci.,* **65,** 3197-3213.

Schumacher, R. S., and R. H. Johnson, 2008: Mesoscale processes contributing to extreme rainfall in a midlatitude warm-season flash flood. *Mon. Wea. Rev.,* **136,** 3964-3986.

Wang, W., and K. J. Davis, 2008: A numerical study of the influence of a clearcut on eddy covariance fluxes of CO_2 measured above a forest. *Agricultural and Forest Meteor.,* **148,** 1488-1500.

Parker, M. D., 2008: Response of simulated squall lines to low-level cooling. *J. Atmos. Sci.,* **65,** 1323-1341.

Edson, A. R., and P. R. Bannon, 2008: Nonlinear atmospheric adjustment to momentum

forcing. *J. Atmos. Sci.,* **65,** 953-969.

Lin, W. E., L. G. Orf, E. Savory, and C. Novacco, 2007: Proposed large-scale modelling of the transient features of a downburst outflow. *Wind and Structures,* **10,** 315-346.

Bannon, P. R., J. M. Chagnon, and R. P. James, 2006: Mass Conservation and the Anelastic Approximation. *Mon. Wea. Rev.*, **134,** 2989–3005.

James, R. P., P. M. Markowski, and J. M. Fritsch, 2006: Bow echo sensitivity to ambient moisture and cold pool strength. *Mon. Wea. Rev.,* **134,** 950–964.

Fanelli, P. F., and P. R. Bannon, 2005: Nonlinear atmospheric adjustment to thermal forcing. *J. Atmos. Sci.,* **62,** 4253–4272.

James, R. P., J. M. Fritsch, and P. M. Markowski, 2005: Environmental distinctions between cellular and slabular convective lines. *Mon. Wea. Rev.,* **133,** 2669–2691.

2003- Contributor to Weather Research and Forecasting (WRF) Model
- Upgraded and improved subgrid turbulence parameterization (with J. Knievel, NCAR/RAL)
- Developed and tested upper-level Rayleigh damper (with J. Knievel, NCAR/RAL)
- Contributed to WRF Technical Note (with W. Skamarock and J. Dudhia, NCAR/MMM)
- Developed sixth-order monotonic diffusion scheme (with J. Knievel and J. Hacker, NCAR/RAL)

1999 Environmental Technologies Group, Reston VA
- Studied the spatial and temporal variability of meteorological observations using data from the Oklahoma mesonet, the ARM/CART program, and the VORTEX field experiment
- Evaluated MM5 initial conditions and forecasts against observed data

1999-2002 Center for High Resolution Atmospheric Regional Modeling, Pennsylvania State University
- Consultant for high-resolution real-time modeling of hurricanes (2000-2002)
- Designed a real-time hurricane forecast system using MM5 (1999)

1998-2002 National Weather Service, State College, PA
- Designed and managed a real-time MM5 forecast system

LEADERHIP ROLES IN STUDENT ORGANIZATIONS AT PENN STATE

1999 Graduate Student Representative to the Graduate Academic Committee (Meteorology Dept.)
1998 Graduate Student Representative to the Faculty (Meteorology Department)
1997-1998 President, Chi Epsilon Pi, Meteorology Honor Society
1995-1996 Secretary-Historian, Chi Epsilon Pi, Meteorology Honor Society
1995-1996 President, Pennsylvania State University Chapter of American Meteorological Society
1994-2000 Local Manager, National Collegiate Weather Forecasting Contest

RECENT PRESENTATIONS

April 2009 Seminar, RSMAS, University of Miami, Miami, FL
Title: The maximum intensity of numerically simulated tropical cyclones

March 2009 Seminar, Atmospheric Science, Massachusetts Institute of Technology, Cambridge, MA
Title: The maximum intensity of numerically simulated tropical cyclones
(**invited**)

February 2009 Oral presentation, Joint CSU/CIRA/NCAR Workshop on Tropical Cyclones, Boulder, CO
Title: The effects of turbulence on hurricane intensity

December 2008 Oral presentation, AGU Fall Meeting
Title: A conceptual framework for the resolution dependence of updraft properties in cloud system resolving models
(**invited**)

October 2008 Oral presentation, 24th Conference on Severe Local Storms, Savannah, GA

Title: Evaluation of the theoretical speed and depth of gravity currents using three-dimensional numerical simulations

October 2008 Poster presentation, 24th Conference on Severe Local Storms, Savannah, GA
Title: Persistent low-level mesocyclones in simulated supercell thunderstorms

September 2008 Oral presentation, Global Atmospheric Core Workshop, Boulder, CO
Title: Energy conservation in compressible nonhydrostatic solvers
(**invited**)

August 2008 Oral presentation, Joint CSU/CIRA/NCAR Workshop on Tropical Cyclones, Fort Collins, CO
Title: Evaluation and improvement of a theoretical model for the maximum intensity of tropical cyclones

May 2008 Oral presentation, 28th Conference on Hurricanes and Tropical Meteorology, Orlando, FL
Title: The maximum intensity of hurricanes in axisymmetric numerical models

March 2008 Colloquium, Department of Atmospheric Science, Colorado State University, Fort Collins, CO
Title: Gravity currents in a deep anelastic atmosphere
(**invited**)

February 2008 Colloquium, Department of Meteorology, Pennsylvania State University, State College, PA
Title: Gravity currents in a deep anelastic atmosphere
(**invited**)

November 2007 Seminar, Meteorological Institute, University of Munich, Munich, Germany
Title: An evaluation of maximum hurricane intensity in numerical simulations
(**invited**)

November 2007 Oral presentation, 7th SRNWP Workshop on Nonhydrostatic Modeling, Bad Orb, Germany
Title: Conservation of Total Energy and Total Momentum in Nonhydrostatic Numerical Models

August 2007 Research Seminar, 2007 Summer Course on Mesoscale Meteorology and Predictability, University of Helsinki and Finnish Meteorological Institute, Hyytiälä, Finland
Title: Recent work on resolution sensitivity of squall lines
(**invited**)

August 2007 Oral presentation, 12th Conference on Mesoscale Processes, Waterville Valley, New Hampshire
Title: The propagation speed of gravity currents in a deep anelastic atmosphere

May 2007 Seminar, National Severe Storms Laboratory, Norman, Oklahoma
Title: A comparison of convection-resolving simulations with convection-permitting simulations

December 2006 Seminar, MMM Division, NCAR, Boulder, Colorado
Title: The dynamics of the trailing stratiform region of squall lines

November 2006 Oral presentation, 23rd Conference on Severe Local Storms, St. Louis, Missouri
Title: Mechanisms for the production of severe surface winds in a simulation of an elevated convective system

November 2006 Poster presentation, 23rd Conference on Severe Local Storms, St. Louis, Missouri
Title: The relative importance of lower-level and upper-level shear on the intensity of squall lines

November 2006 Poster presentation, 23rd Conference on Severe Local Storms, St. Louis, Missouri
Title: The relative importance of lower-level and upper-level shear on the lifting of environmental air by gravity currents

October 2006 Seminar, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, North Carolina
Title: The dynamics of the trailing stratiform region of squall lines
(**invited**)

October 2006 Colloquium, National Severe Storms Laboratory, Norman, Oklahoma

Title: Preliminary conclusions about the relative importance of lower-level and upper-level shear on the intensity of convective systems
(**invited**)

October 2006 Colloquium, National Severe Storms Laboratory, Norman, Oklahoma
Title: The dynamics of the trailing stratiform region of squall lines
(**invited**)

September 2006 Fourth GRAPES-WRF Modeling Joint Workshop, Hangzhou, China
Title: Statistically converged solutions in simulations of moist convection

September 2006 Fourth GRAPES-WRF Modeling Joint Workshop, Hangzhou, China
Title: The resolution dependence of squall-line intensity

July 2006 ASP Colloquium, The Challenge of Convective Forecasting, Boulder, Colorado
Title: The representation of convective processes in NWP Models. Part I: Numerical Models
(**invited**)

July 2006 ASP Colloquium, The Challenge of Convective Forecasting, Boulder, Colorado
Title: The representation of convective processes in NWP Models. Part II: Resolution
(**invited**)

April 2006 Colloquium, Department of Meteorology, Pennsylvania State University, State College, Pennsylvania
Title: Roll circulations in the convective region of squall lines

March 2006 Seminar, Frontier Research Center for Global Change, Yokohama, Japan
Title: Experiences at NCAR with very high resolution simulations of convection
(**invited**)

March 2006 Seminar, Tsukuba University, Tsukuba, Japan
Title: Statistical convergence in very high resolution simulations of convection
(**invited**)

March 2006 Seminar, Meteorological Research Institute, Tsukuba, Japan
Title: Experiences at NCAR with very high resolution simulations of convection
(**invited**)

November 2005 Seminar, UK Met Office, Exeter, United Kingdom
Title: Systematic biases in simulations of convection that use 1-4 km grid spacing

November 2005 Oral presentation, 6th SRNWP Workshop on Nonhydrostatic Modeling, Bad Orb, Germany
Title: Systematic biases in simulations of convection that use 1-4 km grid spacing

October 2005 Oral presentation, 11th Conference on Mesoscale Processes, Albuquerque, New Mexico
Title: Statistical convergence in simulated moist absolutely unstable layers

October 2005 Poster presentation, 11th Conference on Mesoscale Processes, Albuquerque, New Mexico
Title: Effects of explicit numerical diffusion in simulations of mesoscale circulations by the Advanced Research WRF Model

October 2005 Poster presentation, 11th Conference on Mesoscale Processes, Albuquerque, New Mexico
Title: Observations of cold pools in mesoscale convective systems during BAMEX

RECENT TEACHING EXPERIENCE

2008 AT712, Cloud Dynamics
Department of Atmospheric Science, Colorado State University
Fort Collins, Colorado
6 Lectures, Spring Semester

2007 Summer Course on Mesoscale Meteorology and Predictability

University of Helsinki and Finnish Meteorological Institute
Hyytiälä, Finland
3 Lectures

2006 ASP Colloquium, The Challenge of Convective Forecasting
NCAR (ASP and MMM Division)
Boulder, Colorado
2 Lectures

2006 Meteo 529, Mesoscale Dynamics
Department of Meteorology, Pennsylvania State University
State College, Pennsylvania
1 Lecture, Spring Semester

2005 AT735, Mesoscale Dynamics
Department of Atmospheric Science, Colorado State University
Fort Collins, Colorado
2 Lectures, Fall Semester

2005 AT712, Cloud Dynamics
Department of Atmospheric Science, Colorado State University
Fort Collins, Colorado
6 Lectures, Spring Semester