George H. Bryan

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Curriculum Vitae
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Education

Ph.D., Meteorology, The Pennsylvania State University, December 2002
- Thesis: *An Investigation of the Convective Region of Numerically Simulated Squall Lines*
- Thesis Adviser: J. Michael Fritsch

M.S., Meteorology, The Pennsylvania State University, May 1998
- Thesis: *Discrete Frontal Propagation Induced by Convection*
- Thesis Adviser: J. Michael Fritsch

B.S., Meteorology, The Pennsylvania State University, May 1996
- With High Distinction and With Honors in Meteorology
- Minor in Geography
- Honors Thesis: *Meteorological Analysis of the 17 April 1995 Oklahoma Severe Storms*
- Honors Thesis Adviser: Gregory S. Forbes

Professional Experience

National Center for Atmospheric Research
- Scientist III, 2011–present
- Scientist II, 2008–2011
- Scientist I, 2005–2008
- Postdoctoral Fellow, Advanced Study Program, 2003–2005

The Pennsylvania State University
- Graduate Research Assistant, 1996–2002
- Meteorological Observer, Department of Meteorology Weather Station, 1995–1998

University of Oklahoma and National Severe Storms Laboratory
- Research Experience for Undergraduates Program, Summer 1995

Community Service

Editorships
- Editor, *Monthly Weather Review* (American Meteorological Society), 2010–present
- Associate Editor, *Atmospheric Science Letters* (Royal Meteorological Society), 2010–present
- Associate Editor, *Monthly Weather Review* (American Meteorological Society), 2004–2010

Field Projects

- VORTEX2, 2009–2010: Co-coordinator, mobile rawinsondes
- BAMEX, 2003: Co-coordinator, dropsonde aircraft
- VORTEX, 1995: REU participant (mobile mesonets, mobile rawinsondes, and ELDORA)

American Meteorological Society

- STAC Committee on Mesoscale Processes: Member, 2005–2008
- 13th Conference on Mesoscale Processes: Member, Conference Committee, 2009
- 12th Conference on Mesoscale Processes: Member, Conference Committee, 2007

Colorado State University

- Affiliate Faculty member, 2006–2009

Numerical model development and support

- CM1:
  - Primary developer and supporter of a nonhydrostatic numerical cloud model (CM1)
  - CM1 has been used in >50 peer-reviewed journal articles
  - website: www.mmm.ucar.edu/people/bryan/cm1
- WRF:
  - Developed the tropical cyclone test case
  - Upgraded the subgrid turbulence parameterization
  - Developed and tested the sixth-order monotonic diffusion scheme
  - Developed and tested the upper-level Rayleigh damper
  - Contributed to the WRF Technical Note
- MM5:
  - Developed a software package to view MM5 output with GrADS (`MM5toGrADS`)

Honors and Awards

American Meteorological Society

- Clarence Leroy Meisinger Award, 2011
- Banner I. Miller Award, 2010
- Editor's Award, *Monthly Weather Review*, 2007
- Student Presentation Award, Honorable Mention, Conference on Severe Local Storms, 2000
- Graduate Fellowship, 1996–1998

The Pennsylvania State University

- Alumni Achievement Award, 2006
- Muan/Wilson Graduate Fellow Award, 2001
- Special Award for Teaching Support, 1999
- Robert O. Cole Award, 1996
- Outstanding Research Exhibit, Undergraduate Research Fair, 1996
- University Scholars Honors Degree, 1996

National Weather Service

- Special Service Award, Eastern Region, 1999

Peer-Reviewed Publications

27. **Bryan, G. H.,** 2012: Effects of surface exchange coefficients and turbulence length scales on the intensity and structure of numerically simulated hurricanes. *Mon. Wea. Rev.,* in press, doi:10.1175/MWR-D-11-00231.1.

26. **Bryan, G. H.**, and H. Morrison, 2012: Sensitivity of a simulated squall line to horizontal resolution and parameterization of microphysics. *Mon. Wea. Rev.,* **140,** 202–225, doi:10.1175/MWR-D-11-00046.1

25. Kang, S.-L., and **G. H. Bryan**, 2011: A large eddy simulation study of moist convection initiation over heterogeneous surface fluxes. *Mon. Wea. Rev,* **139,** 2901–2917, doi:10.1175/MWR-D-10-05037.1.

24. Rotunno, R., J. B. Klemp, **G. H. Bryan**, and D. J. Muraki, 2011: Models of non-Boussinesq lock-exchange flow. *J. Fluid Mech.,* **675,** 1–26, doi:10.1017/jfm.2010.648.

23. **Bryan, G. H.**, and M. D. Parker, 2010: Observations of a squall line and its near environment using high-frequency rawinsonde launches during VORTEX2. *Mon. Wea. Rev.,* **138,** 4076–4097, doi:10.1175/2010MWR3359.1.

22. **Bryan, G. H.**, and R. Rotunno, 2009: Evaluation of an analytical model for the maximum intensity of tropical cyclones. *J. Atmos. Sci.,* **66,** 3042–3060, doi:10.1175/2009JAS3038.1.

21. **Bryan, G. H.**, and R. Rotunno, 2009: The maximum intensity of tropical cyclones in axisymmetric numerical model simulations. *Mon. Wea. Rev.,* **137,** 1770–1789, doi:10.1175/2008MWR2709.1.

20. **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, doi:10.1175/2008JAS2707.1.

19. **Bryan, G. H.**, 2008: On the computation of pseudoadiabatic entropy and equivalent potential temperature. *Mon. Wea. Rev.,* **136,** 5239–5245, doi:10.1175/2008MWR2593.1.

18. **Bryan, G. H.**, and R. Rotunno, 2008: Gravity currents in a deep anelastic atmosphere. *J. Atmos. Sci.,* **65,** 536–556, doi:10.1175/2007JAS2443.1.

17. Kirshbaum, D. J., R. Rotunno, and **G. H. Bryan**, 2007: The spacing of orographic rainbands triggered by smallscale topography. *J. Atmos. Sci.,* **64,** 4222–4245, doi:10.1175/2007JAS2335.1.

16. Knievel, J. C., **G. H. Bryan**, and J. P. Hacker, 2007: Explicit numerical diffusion in the WRF Model. *Mon. Wea. Rev.,* **135,** 3808–3824, doi:10.1175/2007MWR2100.1.

15. 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, doi:10.1175/JAS3924.1.

14. **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, doi:10.1175/JAS3899.1.

13. Trier, S. B., C. A. Davis, D. A. Ahijevych, M. L. Weisman, and **G. H. Bryan**, 2006: Mechanisms supporting longlived episodes of propagating nocturnal convection within a 7-day WRF Model simulation. *J. Atmos. Sci.,* **63,** 2409–2435, doi:10.1175/JAS3768.1.

12. 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, doi:10.1175/JAS3758.1.

11. **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, doi: 10.1175/MWR3226.1.

10. **Bryan, G. H.**, 2005: Spurious convective organization in simulated squall lines owing to moist absolutely unstable layers. *Mon. Wea. Rev.,* **133,** 1978–1997, doi:10.1175/MWR2952.1.

9. **Bryan, G. H.**, and J. M. Fritsch, 2004: A reevaluation of ice-liquid water potential temperature. *Mon. Wea. Rev.,* **132,** 2421–2431, doi:10.1175/1520-0493(2004)132<2421:AROIWP> 2.0.CO;2.

8. 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, doi:10.1175/BAMS-85-8-1075.

7. **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, doi:10.1175/1520-0493(2003)131<2394:RRFTSO>2.0.CO;2.

6. **Bryan, G. H.**, and J. M. Fritsch, 2002: A benchmark simulation for moist nonhydrostatic numerical models. *Mon. Wea. Rev.,* **130,** 2917–2928, doi:10.1175/1520-0493(2002)130 <2917:ABSFMN>2.0.CO;2.

5. **Bryan, G. H.**, and J. M. Fritsch, 2000: Moist Absolute Instability: The sixth static stability state. *Bull. Amer. Meteor. Soc.,* **81,** 1207–1230, doi:10.1175/1520-0477(2000)081 <1287:MAITSS>2.3.CO;2.

4. **Bryan, G. H.**, and J. M. Fritsch, 2000: Diabatically driven discrete propagation of surface fronts: A numerical analysis. *J. Atmos. Sci.,* **57,** 2061–2079, doi:10.1175/1520-0469(2000)057 <2061:DDDPOS>2.0.CO;2.

3. **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, doi:10.1175/1520-0469(2000)057<2041:DPOSFI>2.0.CO;2 .

2. 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, doi:10.1175/1520-0434(1999)014 <0384:TMCVFF>2.0.CO;2.

1. 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, doi:10.1175/1520-0434(1999)014<0271:AFFFAL>2.0.CO;2.

Articles Under Review

2. Rotunno, R., and **G. H. Bryan**, 2011: Effects of parameterized diffusion on simulated hurricanes. *J. Atmos. Sci.,* submitted.

1. **Bryan, G. H.,** 2011: Comments on "Sensitivity of tropical-cyclone models to the surface drag coefficient." *Quart. J. Roy. Meteor. Soc.,* submitted.

BAMS Papers of Note

3. D. M. Schultz, K. M. Kanak, J. M. Straka, R. J. Trapp, B. Gordon, D. Zrnic, **G. H. Bryan**, A. Durant, T. J. Garrett, P. Klein, D. K. Lilly, 2007: What causes mammatus? *Bull. Amer. Meteor. Soc.,* **88,** 146–147.

2. **Bryan, G. H.**, and J. M. Fritsch, 2002: Moist absolute instability in squall lines *Bull. Amer. Meteor. Soc.,* **83,** 1121.

1. **Bryan, G. H.**, and J. M. Fritsch, 2002: What is appropriate resolution for thunderstorm simulation? *Bull. Amer. Meteor. Soc.,* **83,** 1127–1128.

Books

1. Cotton, W. R., **G. H. Bryan**, and S. C. van den Heever, 2011: *Storm and Cloud Dynamics*, 2nd Edition, Academic Press.

Non-Refereed Publications

39. Nowotarski, C. J., P. M. Markowski, Y. P. Richardson, and **G. H. Bryan**, 2011: Interactions between simulated supercell thunderstorms and dry boundary layer convection. Preprints, *14th Conf. Mesoscale Processes*, Los Angeles, CA, Amer. Meteor. Soc., 7.3.

38. Nowotarski, C. J., P. M. Markowski, Y. P. Richardson, and **G. H. Bryan**, 2010: Simulating supercell thunderstorms in a horizontally-heterogeneous convective boundary layer. Preprints, *25th Conference on Severe Local Storms*, Denver, CO, Amer. Meteor. Soc., 13A.3.

37. **Bryan, G. H.**, R. Rotunno, and Y. Chen, 2010: The effects of turbulence on hurricane intensity. Preprints, *29th Conference on Hurricanes and Tropical Meteorology*, Tucson, AZ, Amer. Meteor. Soc., 8C.7.

36. Parker, M. D., A. J. French, C. E. Letkewicz, M. J. Morin, K. Rojowsky, D. Stark, and **G. H. Bryan**, 2009: Mobile sounding measurements of the near-storm environment during VORTEX2. Preprints, *5th European Conference on Severe Storms*, Landshut, Germany, P09-07.

35. **Bryan, G. H.**, and R. Rotunno, 2009: The effects of small-scale turbulence on maximum hurricane intensity. Preprints, *13th Conference on Mesoscale Processes*, Salt Lake City, UT, Amer. Meteor. Soc., 14.2.

34. **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.

33. 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.

32. 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.

31. 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.

30. **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.

29. 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.

28. **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.

27. **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.

26. 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.

25. **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.

24. **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.

23. **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.

22. 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.

21. 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.

20. **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.

19. **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.

18. 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.

17. **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.

16. **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.

15. **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.

14. 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.

13. **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.

12. 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.

11. **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.

10. **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.

9. **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.

8. **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.

7. 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.

6. **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.

5. **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.

4. **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.

3. 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.

2. **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.

1. **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.

Recent Presentations

Seminar, Meteorology Program, Florida State University

- Tallahassee, FL: November 2011
- Title: Effects of uncertainties in numerical models of hurricanes

Seminar, Hurricane Research Division, NOAA/AOML

- Miami, FL: November 2011
- Title: How to make simulated hurricanes look like observed hurricanes

Seminar, University of Reading, Department of Meteorology

- Reading, England, UK: October 2011
- Title: Reconciling observations and numerical simulations of a mesoscale convective system

Oral presentation, 6th European Conference on Severe Storms

- Palma, Mallorca, Spain: October 2011
- Title: The effects of low-level shear on simulated supercells

Oral presentation, CSU Convection Workshop

- Fort Collins, Colorado: May 2011
- Title: Cold pools in mesoscale convective systems

Seminar, Texas A&M University

- College Station, TX: February 2011
- Title: The maximum intensity of numerically simulated hurricanes

Oral presentation, 25th Conference on Severe Local Storms

- Denver, CO: October 2010
- Title: Observations of a squall line using high-frequency rawinsonde launches during VORTEX2

Oral presentation, First International Workshop on Nonhydrostatic Numerical Models

- Kyoto, Japan: September 2010
- Title: Conservation of total energy in nonhydrostatic solvers

Invited presentation, National Centre for Atmospheric Science Annual Conference

- Manchester, England, UK: July 2010
- Title: Properties of cold pools in organized convective systems

Seminar, Institute for Climate and Atmospheric Science, University of Leeds

- Leeds, England, UK: July 2010
- Title: An overview of VORTEX2 and some preliminary results

Invited presentation, EMC/MMM/DTC Joint Hurricane Science Workshop

- Boulder, CO: February 2010
- Title: The importance of small-scale turbulence on maximum hurricane intensity

Oral presentation, 8th SRNWP Workshop on Nonhydrostatic Modelling

- Bad Orb, Germany: October 2009
- Title: Energy conservation and hurricane intensity

Oral presentation, Joint CSU/CIRA/NCAR Workshop on Tropical Cyclones

- Fort Collins, CO: August 2009
- Title: The effects of small-scale turbulence on hurricane intensity: an update

Oral presentation, 13th Conference on Mesoscale Processes

- Salt Lake City, UT: August 2009
- Title: The effects of small-scale turbulence on maximum hurricane intensity

Seminar, University of Miami, Rosenstiel School of Marine and Atmospheric Science

- Miami, FL: April 2009
- Title: The maximum intensity of numerically simulated tropical cyclones