Bart Geerts – publications

(before 2014 only)

A. Peer-reviewed Papers

1. Sienkiewicz J.M., J.D. Locatelli, P.V. Hobbs and B. Geerts, 1989: The organization and structure of clouds and precipitation on the Mid-Atlantic Coast of the USA. Part II: The mesoscale and microscale structure of a frontal system. *J. Atmos. Sci.*, **46**, 1349-1364. [pdf]

2. Geerts B. and P.V. Hobbs,1991: The organization and structure of clouds and precipitation on the Mid-Atlantic Coast of the USA. Part IV: Retrieval of thermodynamic and cloud microphysical structures of a frontal rainband from Doppler radar data. *J. Atmos. Sci.*, **48**, 1287-1305. [pdf]

3. Geerts B., 1992: The origin of banner clouds: a case of scientific amnesia? *Bull. Austr. Meteor. and Ocean. Soc.*, **5**, 6-9.

4. Speer M. and B. Geerts, 1994: A synoptic-meso-a scale climatology of flash floods in the Sydney metropolitan area. *Austr. Met. Mag.*, **43**, 87-103.

5. Speer M., B. Geerts, C. Matthews and A. Cearns, 1994: An investigation of the use of a high resolution version of the regional operational NWP model of the Bureau of Meteorology for the prediction of East Coast Lows. *Bull. Aust. Meteor. and Ocean. Soc.*, **7**, 116-122.

6. Matthews C. and B. Geerts, 1995: Characteristic thunderstorm occurence in the Sydney area. *Austr. Met. Mag.*, **44**, 127-138.

7. Geerts B. and M. Noke-Raico 1995: Tornadoes in Australia: Do we really know? *Bull. Austr. Meteor. and Ocean. Soc.*, **8**, 46-51.

8. Geerts B. and P.V. Hobbs, 1995: The thermodynamic and cloud structure of frontal deep convection, using Doppler radar data. *Atm. Res.*, **39**, 287-311. [pdf]

9. Geerts B., 1998: Mesoscale convective systems in the Southeast: A survey. *Wea. and Forecasting*, **13**, 860-869.[pdf]

10. Knupp K.R., B. Geerts and S. Goodman, 1998: Analysis of a small, vigorous mesoscale convective system in a low-shear environment. Part I: Formation, radar echo structure, and lightning behavior. *Mon. Wea. Rev.*, **126**,1812-1836. [pdf]

11. Knupp K.R., B. Geerts and J.D. Tuttle, 1998: Analysis of a small, vigorous mesoscale convective system in a low-shear environment. Part II: Evolution of the stratiform precipitation and mesoscale flows. *Mon. Wea. Rev.*, **126**,1837-1858. [pdf]

12. Geerts B., 1999: Trends in atmospheric science journals: a reader's perspective. *Bull. Amer. Meteor. Soc.*, **80**, 639-651. [pdf]

13. Geerts, B., G.M. Heymsfield, L. Tian, J.B. Halverson, A. Guillory, and M.I. Mejia, 2000: Hurricane Georges' landfall in the Dominican Republic: detailed airborne Doppler radar imagery. *Bull. Amer. Meteor. Soc.*, **81**, 999-1018. [pdf]

14. Heymsfield, G.M., B. Geerts and L. Tian, 2000: TRMM Precipitation radar reflectivity profiles compared to high-resolution airborne and ground-based measurements. *J. Appl. Meteor.*, 39, 2080–2102. [pdf]

15. Geerts, B., 2001: Estimating downburst-related maximum surface wind speeds by means of proximity soundings in New South Wales, Australia. *Wea and Forecasting*, **16**, 261-269. [pdf]

16. Linacre, E. and B. Geerts, 2002: Estimating the annual mean screen temperature empirically. *Theor. Appl. Climatol.*, **71**, 43-61. [pdf]

17. Geerts, B., 2002: On the effects of irrigation and urbanisation on the annual range of monthly-mean temperatures. *Theor. Appl. Climatol.*, **72**, 157-163. [pdf]

18. Geerts, B., 2002: Estimating the annual range of monthly-mean temperatures empirically. *Theor. Appl. Climatol.*, **73**, 107-132. [pdf]

19. Geerts, B., 2003: Estimating the daily range of temperatures empirically. *Theor. Appl. Climatol.*, **74**, 145-165. [pdf]

20. Wang J.Y. and B. Geerts, 2003: Identifying drizzle within marine stratus with W-band radar reflectivity profiles. *Atmospheric Research*, **69**, 1-27. [pdf]

21. Weckwerth, Parsons, Koch, Moore, LeMone, Demoz, Flamant, Geerts, Wang, and Feltz, 2004: An overview of the International H2O Project (IHOP_2002) and some preliminary highlights. *Bull. Amer. Meteor. Soc.*, **85**, 253-277. [pdf]

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24. Geerts, B. and Q. Miao, 2005: The use of millimeter Doppler radar echoes to estimate vertical air velocities in the fair-weather convective boundary layer. *J. Atmos. Ocean. Tech.* , **22**, 225-246. [pdf]

25. Geerts, B. and Q. Miao, 2005: Airborne radar observations of the flight behavior of small insects in the atmospheric convective boundary layer. *Environ. Entomol.*, **34**, 361-377. [pdf]

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30. Geerts, B., R. Damiani, and S. Haimov, 2006: Fine-scale vertical structure of a cold front as revealed by airborne radar. *Mon. Wea. Rev.*, **134**, 251–272. [pdf]

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32. Yang, Q., and B. Geerts, 2006: Horizontal convective rolls in cold air over water: buoyancy characteristics of coherent plumes detected by an airborne radar. *Mon. Wea. Rev.*, **134**, 2373–2396.[pdf]

33. Geerts, B., S. Koch, P. Krehbiel, and D. Jorgensen, 2006: Are AMS conference practices changing for better or worse? *Bull. Amer. Meteor. Soc.*, **87**, 1105-1110. [pdf]

34. Sipprell, B., and B. Geerts, 2007: Fine-scale vertical structure and evolution of a pre-convective dryline on 19 June 2002. *Mon. Wea. Rev.*, **135**, 2111–2134. [pdf]

35. LeMone, M.A., F. Chen, J. Alfieri, B. Geerts, Q. Miao, R. Grossman and R. Coulter, 2007: Influence of land cover, soil moisture, and terrain on the horizontal distribution of sensible and latent heat fluxes and boundary-layer structure in south-central Kansas during IHOP_2002 and CASES-97. *J. Hydromet.*, **8**, 68-87. [pdf]

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41. Liu, Y., B. Geerts, M. Miller, P. Daum, and R. McGraw, 2008: Radar reflectivity threshold for separating non-precipitating from precipitating clouds and its dependence on cloud droplet concentration. *Geophys. Res. Letters*, **35**, L03807, doi:10.1029/2007GL031201. [pdf]

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47. Demko, J. C., B. Geerts, J. Zehnder, and Q. Miao, 2009: Boundary-layer energy transport and cumulus development over a heated mountain: an observational study. *Mon. Wea. Rev.* , **137**, 447–468. [pdf]

48. Wang, Y., B. Geerts, and J. French, 2009: Dynamics of the cumulus cloud margin: an observational study. *J. Atmos. Sci.*, **66**, 3660–3677. [pdf]

49. Geerts, B., T. Andretta, S. Luberda, J. Vogt, Y. Wang, and L.D. Oolman, 2009: A case study of a long-lived tornadic mesocyclone in a low-CAPE complex-terrain environment. *Electronic J. Severe Storms Meteor.* , **4**, 1-29. (link)

50. LeMone, M.A., F. Chen, M. Tewari, J. Dudhia, B. Geerts, Q. Miao, R. Coulter, and R. Grossman, 2010: Simulating the IHOP_2002 fair-weather convective boundary layer with the WRF-ARW-Noah Modeling System, Part 1: Surface fluxes and CBL structure and evolution along the eastern track. *Mon. Wea. Rev.* , **138**, 722–744. [pdf]

51. LeMone, M.A., F. Chen, M. Tewari, J. Dudhia, B. Geerts, Q. Miao, R. Coulter, and R. Grossman, 2010: Simulating the IHOP_2002 fair-weather convective boundary layer with the WRF-ARW-Noah Modeling System, Part 2: Structures from a few km to 100 km across. *Mon. Wea. Rev.* , **138**, 745-764. [pdf]

52. Geerts, B. and Q. Miao, 2010: Vertically-pointing airborne Doppler radar observations of Kelvin–Helmholtz billows. *Mon. Wea. Rev.* , **138**, 982–986. [pdf]

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62. Wang, Y. and B. **Geerts**, 2013: Composite vertical structure of vertical velocity in non-precipitating cumulus clouds. *Mon. Wea. Rev.*, **141**, 1673-1692. [pdf]

63. Zhou, X., and B. **Geerts**, 2013: The influence of soil moisture on the planetary boundary layer and on cumulus convection over an isolated mountain. Part I: Observations. *Mon. Wea. Rev.*, **141**, 1061-1078. [pdf]

64. **Geerts**, B. and co-authors, 2013: The AgI Seeding Cloud Impact Investigation (ASCII) campaign 2012: overview and preliminary results. *J. Wea. Mod.*, **45**, 24-43. [pdf] [journal cover]

65. Lazarus, S.M., J. M. Collins, M. A. Baxter, A. C. Hanks, T. Whittaker, K. R. Tyle, S. F. Cecelski, B. **Geerts**, and M. K. Ramamurthy: 2013: The 2012 Unidata Users Workshop: Navigating Earth System Science Data. *Bull. Amer. Meteor. Soc.* , **94**, DOI: 10.1175/BAMS-D-12-00214.1. [pdf]

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B. Conference presentations

- Geerts B. and P.V. Hobbs, 1990: Combined retrieval of thermodynamic and microphysical variables in a frontal rainband observed during GALE. Preprint Volume, **18th Cloud Physics Conference,** AMS, San Fransisco, 23-27 July 1990, 134-139.
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- Geerts B., 1992: The Origin of Banner Clouds: A Potential Vorticity Perspective. Preprint Volume, **Sixth Conference on Mountain Meteorology**, AMS, Portland, Oregon, Sept. 29 - Oct 2, 1992, 97-98.
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- Geerts B., 1994: Rainbands in Australian East Coast Lows: observation, simulation and explanation. Preprint Volume, **Sixth Conference on Mesoscale Processes**, AMS, Portland, Oregon, July 17-22, 1994, 231-233.
- Geerts B. and K.R. Knupp, 1995: Dynamical interpretation of a weakly sheared, small mesoscale convective system. Preprint Volume, **27th Conference on Radar Meteorology**, AMS, Vail, CO, October 9-13
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- Matthews C. and B. Geerts, 1996: The spatial characteristics of severe thunderstorms near Sydney, Australia, based on 25 years of radar reflectivity data. Preprint Volume, **18th Conference on Severe Local Storms**, AMS, San Francisco, CA, February 19-23, 313-316.
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- Geerts B., 1997: A radar-based survey of the characteristics of mesoscale convective systems in the Southeastern USA. Preprint Volume, **28th Conference on Radar Meteorology**, AMS, Austin, TX, 7-12 September, 485-486.

- Geerts B. and E. Linacre, 1997: *Climates and Weather Explained*: A fresh way of presenting climatology. Preprint Volume, **10th Conference on Applied Climatology**, AMS, Reno, NV, 20-23 October, 123-124.

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- Geerts, B., J. Wang, and G. Vali, 2002: Discriminating drizzle in marine stratus by means of 95 GHz radar reflectivity. **2nd European Radar Meteorology Conference**, EGS, Delft, Netherland, 18-22 November.

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- Geerts, B., and T. Dejene, 2003: The spatial and diurnal variability of African precipitation, and its vertical structure, based on TRMM Precipitation Radar data. **31th Conference on Radar Meteorology**, AMS, Seattle WA, 6-12 August. [extended abstract]

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- Koch, S., and co-authors, 2003: Structure and dynamics of a dual bore event during IHOP as revealed by remote sensing and numerical simulation. **6th International Symposium on Tropospheric Profiling**, Leipzig Germany, 14-20 Sept. [extended abstract]

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- Demko, J.C., B. Geerts and R. Damiani, 2006: Cumulus Photogrammetric, In-situ and Doppler Observations: The CuPIDO 2006 Experiment. **16th Conf. on Mountain Meteorology**, AMS , Santa Fe NM, 28 Aug-1 Sept. [poster]

- Geerts, B., and H. McIntyre, 2006: Detailed vertical structure of orographic precipitation development in cold clouds. **Fourth European Radar Meteorology Conference**, Barcelona, Spain, 18-22 Sept. [ppt for oral presentation]

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- Koch, S., M. Pagowski, B. Geerts, and K. M. Bedka, 2007: Model simulation and remote sensing of bore and solitary wave mixing processes **12th AMS Conf. on Mesoscale Processes in Waterville**, NH, 4-8 Aug. [extended abstract]

- Geerts, B., G. Vali, and J. French, 2008: Impact of surface interaction and cloud seeding on orographic snowfall: A downlooking airborne cloud radar view. **7th Conf. on Planned & Inadvertent Weather Modification,** AMS, Westminster, CO, 21-25 April. [ppt for oral presentation]

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- Geerts, and Q. Miao, 2009: A Numerical Study of the Evolving Convective Boundary Layer and Orographic Circulation around the Santa Catalina Mountains in Arizona. Part I: Circulation without Deep Convection. **13th Conference on Mesoscale Processes**, AMS, Salt Lake City UT, 17-20 August. [poster]

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- Geerts, B., T. Andretta, S. Luberda, J. Vogt, and Y. Wang, 2009: Orographically-generated potential vorticity banners as a source of mesocyclone vorticity: an observational and modlling case study. **5th European Conference on Severe Storms**, Landshut, Germany, 12-16 October.

- Geerts, B., Q. Miao, Y. Yang, R. Rasmussen, and D. Breed: An airborne profiling radar study of the impact of glaciogenic cloud seeding on snowfall from winter orographic clouds. **42th Annual Meeting of the American Weather Modification Association**, Santa Fe NM, 21-23 April. [ppt for oral presentation]

- Geerts, B., and Q. Miao, 2010: Orographic precipitation enhancement by boundary-layer turbulence: evidence from vertically pointing airborne cloud radar data. 19th AMS Conf. on Boundary Layer Processes and Turbulence, Keystone CO, 2-6 August. [recorded presentation]

- Andretta, T., and B. Geerts, 2010: A mechanism for orographically-generated PV banners to generate cloud and precipitation bands: a case study. P5-30: EMS2010-271. **10th Annual Meeting of the European Meteor. Soc.**, Zurich, Switzerland, 13-17 Sept. (poster)

- Geerts, B. and Q. Miao, 2010: Orographic precipitation enhancement by boundary-layer turbulence: evidence from vertically pointing airborne cloud radar data. Oral EMS2010-238. **10th Annual Meeting of the European Meteor. Soc.**, Zurich, Switzerland, 13-17 Sept. (oral)

- Zhou, X., and B. Geerts, 2010: A numerical study of the interaction of the convective boundary layer and orographic circulation with locally-triggered deep convection around the Santa Catalina Mountains in Arizona. P5-27: EMS2010-239. **10th Annual Meeting of the European Meteor. Soc.**, Zurich, Switzerland, 13-17 Sept. (poster)

- Geerts, B., 2011: New insights into hydrometeor response to ground-based glaciogenic seeding of orographic clouds from profiling radar data. **18th AMS Conference on Planned and Inadvertent Weather Modification**, Seattle, 23–27 January. [recorded presentation]

- Geerts, B. 2011: Airborne radar profiling. NCAR Thermodynamic Profiling Workshop, Boulder, 16-18 April

- Zhou, X. and B. Geerts, 2011: WRF simulations of the influence of soil moisture on the planetary boundary layer and cumulus convection in complex terrain. WRF User Workshop, Boulder, 20-24 June. (poster)

- Wang, Y., and B. Geerts, 2011: Observations of detrainment patterns from non-precipitating orographic cumulus clouds. **AMS 14th Conference on Mesoscale Processes**, Los Angeles, CA, 2-5 Aug. [recorded presentation]

- Miao, Q. and B. Geerts, 2012: Boundary layer turbulence and orographic precipitation. NCAR orographic precipitation workshop, Boulder CO, 13-15 March (oral)

- Geerts, B. and co-authors, 2012: Ground-based and Airborne In Situ and Remote Sensing Measurements of Glaciogenic Cloud Seeding in Wyoming: the 2012 ASCII Campaign (AgI Seeding Cloud Impact Investigation). **44th Annual Meeting of the American Weather Modification Association**, Las Vegas NV, 25-27 April. (oral)

- Yang Y., and B. Geerts, 2012: Detecting the Signature of Glaciogenic Cloud Seeding in Orographic Snowstorms in Wyoming Using the Wyoming Cloud Radar. **National Institutes for Water Resources** (NIWR) annual conference, Santa Fe NM on 17-19 July. (poster)

- Zhou, X. and B. Geerts, 2012: The influence of soil moisture on the planetary boundary layer and cumulus convection in complex terrain: observations and numerical simulations. **AMS 19th Conf. on Mountain Meteorology**, Steamboat Springs CO, 20-24 August. (oral)

- 2012: 5 more oral papers by my students (Binod Pokharel, Yang Yang, Xia Chu) and myself at the **AMS 19th Conf. on Mountain Meteorology**, Steamboat Springs CO, 20-24 August. All but one paper were in one session. Here is a copy of the session program:

3:45 PM-5:15 PM: Thursday, 23 August 2012

16 **Results from recent field campaigns: III**
Location: *Priest Creek C (The Steamboat Grand)*
Sponsor: ***15th Conference on Mountain Meteorology***

Papers:

3:45 PM 16.1 An overview of the ASCII 2012 (AgI Cloud Seeding Impact Investigation) campaign
***Bart Geerts**, University of Wyoming, Laramie, WY; and K. Friedrich, T. Deshler, D. A. R. Kristovich, J. Wurman, L. D. Oolman, S. J. Haimov, Q. Miao, D. W. Breed, R. Rasmussen, and B. A. Boe*

4:00 PM 16.2 Effects of atmospheric conditions and cloud seeding on orographic snowfall characteristics during the Silver Iodide (AgI) Seeding of Clouds Impact Investigation (ASCII) experiment
***Katja Friedrich**, University of Colorado at Boulder, Boulder, CO; and E. A. Kalina, B. Geerts, K. A. Kosiba, and J. M. Wurman*

4:15 PM 16.3 Using airborne vertical-plane dual-Doppler radar to analyze hydrometeor streamline patterns in orographic snow storms
***Yang Yang**, University of Wyoming, Laramie, WY; and B. Geerts*

4:30 PM 16.4 Airborne Cloud Radar and Lidar Observations of Blowing Snow during the ASCII Project: a Possible Natural Cloud Seeding Mechanism
***David A. R. Kristovich**, ISWS, Champaign, IL; and B. Geerts, Q. Miao, L. Stoecker, and J. M. Ritzman*

4:45 PM 16.5 Cold-season precipitation processes in shallow orographic clouds over a continental mountain range: impact of controlled ice nucleus injection
***Binod Pokharel**, University of Wyoming, Laramie, WY; and B. Geerts, Q. Miao, and K. Friedrich*

5:00 PM 16.6 Comparison of model and airborne measurement of AgI plumes from ground-based generators
*Lulin Xue, NCAR, Boulder, CO; and **X. Chu** and B. Geerts*

- Chu, X., L. Xue and B. Geerts, 2013: Validation of WRF and WRF LES Simulations of the Dispersal of Ground-generated AgI Nuclei. **19th AMS Conference on Planned and Inadvertent Weather Modification**, Austin TX, 14-16 January. (poster)

- Geerts, B. and co-authors, 2013: The ASCII 2012 campaign: overview and early results. **19th AMS Conference on Planned and Inadvertent Weather Modification**, Austin TX, 14-16 January. (oral)

- Pokharel, B., and B. Geerts, 2013: Impact of Glaciogenic Seeding on Orographic Clouds in Southeast Wyoming. **45th Annual Meeting of the American Weather Modification Association**, San Antonio TX, 10-12 April. (oral)

- Geerts, B. 2013: Detecting the impact of glaciogenic cloud seeding in orographic snowstorms. **National Institutes for Water Resources** (NIWR) annual conference in South Lake Tahoe CA on 11-14 June. (oral)

- Geerts, B. 2013: Overview of the Ontario Winter Lake-effect Systems campaign 2013-2014. **AMS 15th Conference on Mesoscale Processes**, Portland OR, 6-9 Aug (oral).

- Bergmaier, P., B. Geerts and P. Campbell, 2013: Drylines in SE Wyoming: case study and climatology. **AMS 15th Conference on Mesoscale Processes**, Portland OR, 6-9 Aug (poster).

C. Books

- Linacre E. and B. Geerts, 1997: Climates and Weather Explained, an Introduction from a Southern Perspective. Part I: summary. Textbook, 432 pp. Routledge Publ. Company.

- Geerts B. and E. Linacre, 1997: Climates and Weather Explained, an Introduction from a Southern Perspective. Part II: supplement. CD-ROM. Routledge Publ. Company.