

Robert M. Rauber Professor and Director, School of Earth, Society and Environment

Education:

Ph.D. (1985) Atmospheric Science, Colorado State University
M.S. (1981) Atmospheric Science, Colorado State University
B.S. (1978) Physics, Pennsylvania State University
B.A. (1973) English, Pennsylvania State University

Professional Experience:

Director, School of Earth, Society and Environment, Univ. of Illinois (2018-present)
Head, Department of Atmospheric Sciences, Univ. of Illinois (2008-2018)
Acting Head, Department of Atmospheric Sciences, Univ. of Illinois (2006-2008)
Professor, University of Illinois (2002-present);
Associate Professor, University of Illinois (1992-2002)
Assistant Professor, University of Illinois; (1987-1992)
Certified Consulting Meteorologist, American Meteorological Society (2001-present)
Scientist, Electronic Techniques Inc., Auburn CA (1985-87)
Research Associate, Colorado State University, (1981-85)
Graduate Research Assistant, Colorado State University (1978-1981)
Research Fellow, Arecibo Observatory, Puerto Rico (1978)

Editorships:

American Meteorological Society Publications Commissioner (2013-2018)
Chief Editor, Journal of Applied Meteorology and Climatology (2005-2011)
Chief Editor, Journal of Applied Meteorology (2003-2005)
Editor, Journal of Applied Meteorology (1998-2002)
Associate Editor, Weather and Forecasting (1998-2001)

Special awards, honors, appointments

Charles Franklin Brooks Award, American Meteorological Society (2019)
Campus Executive Officer Distinguished Leadership Award (2019)
Fellow, American Meteorological Society (2006-current)
Vice president-International Commission on Clouds and Precipitation (ICCP) (2012-15)
Colorado State University College of Engineering Dean's Advisory Board (2015-2018)
National Center for Atmospheric Research Advisory Board (2018)
National Center for Atmospheric Research, Environmental Research Laboratory Advisory Board (2017-2020)
National Center for Atmospheric Research, Research Applications Laboratory Advisory Board (2009-2017)
Campus Award for Excellence in Graduate and Professional Teaching, Univ. of Illinois (2006)
Delta Sigma Omicron Distinguished Teaching Award, University of Illinois (2002)
Alumni Discretionary Award (2003)
UI List of Teachers ranked excellent by their Students (S88, S91, S93, S95, S97, F97,S98, F02 (2 courses), S03, F03 (2 courses), S04, F04, S05, S06, F06 (2 courses), F07 (2 courses), F08, F09, F10 (2 courses), F11 (2 courses), F13, F14, F15, S19

Publications:

Books, published

1. Rauber, R. M., and S. Nesbitt, 2018: Radar Meteorology, A first Course. Wiley, Inc. 461 pp
2. Marshak, S., and R. M. Rauber, 2017: Earth Science. Norton, Inc. 847 pp.
3. Rauber, R. M., J. Walsh and D. Charlevoix, 2017: Severe and Hazardous Weather, an Introduction to High Impact Meteorology, 5th Edition, Kendall Hunt Publishing Company. 645 pp
4. Rauber, R. M., J. Walsh and D. Charlevoix, 2017: Active learning exercises for Severe and Hazardous Weather, an Introduction to High Impact Meteorology, 5th Edition, Kendall Hunt Publishing Company, 102 pp.
5. Rauber, R. M., J. Walsh and D. Charlevoix, 2012: Severe and Hazardous Weather, an Introduction to High Impact Meteorology, 4th Edition, Kendall Hunt Publishing Company, 550 pp.
6. Rauber, R. M., J. Walsh and D. Charlevoix, 2008: Severe and Hazardous Weather, an Introduction to High Impact Meteorology, 3rd Edition, Kendall Hunt Publishing Company, in press, 642 pp
7. Rauber, R. M., J. Walsh and D. Charlevoix, 2008: Active learning exercises for Severe and Hazardous Weather, an Introduction to High Impact Meteorology, 3rd Edition, Kendall Hunt Publishing Company, 211 pp.
8. Rauber, R. M., J. Walsh and D. Charlevoix, 2008: Instructor's manual for Severe and Hazardous Weather, an Introduction to High Impact Meteorology. 3rd Edition, Kendall Hunt Publishing Company. 215 pp
9. Rauber, R. M., J. Walsh and D. Charlevoix, 2005: Severe and Hazardous Weather, an Introduction to High Impact Meteorology, 2nd Edition, Kendall Hunt Publishing Company, 558 pp.
10. Rauber, R. M., J. Walsh and D. Charlevoix, 2005: Active learning exercises for Severe and Hazardous Weather, an Introduction to High Impact Meteorology 2nd Edition, Kendall Hunt Publishing Company, 103 pp.
11. Rauber, R. M., J. Walsh and D. Charlevoix, 2005: Instructor's manual for Severe and Hazardous Weather, an Introduction to High Impact Meteorology, 2nd Edition. Kendall Hunt Publishing Company, 284 pp.
12. Rauber, R. M., J. Walsh and D. Charlevoix, 2002: Severe and Hazardous Weather, Kendall Hunt Publishing Company, 616 pp.
13. Rauber, R. M., J. Walsh and D. Charlevoix, 2002: Active learning exercises for Severe and Hazardous Weather, Kendall Hunt Publishing Company, 102 pp.
14. Rauber, R. M., J. Walsh and D. Charlevoix, 2002: Instructor's manual for Severe and Hazardous Weather, Kendall Hunt Publishing Company, 273 pp.

Books, in development

1. Marshak, S., and R. M. Rauber, 2020: Natural Hazards and Disasters. Norton, Inc. (In development, publication date 2021).
2. Marshak, S., and R. M. Rauber, 2019: Earth Science, 2nd Edition. Norton, Inc. (In development, publication date 2020)

Invited Contributions to books:

1. Beard, K. V., and R. M. Rauber, 1989: Cloud Microphysics and Radar. Chapter 23B, Radar in Meteorology, Amer. Meteor. Soc., 341-347.
2. Rauber, R. M., 2000: Glossary of Meteorology, contributing author to section on radar meteorology.
3. Rauber, R. M., 2000: The Atmosphere. Encyclopedia of World Geography. Salem Press, Inc.
4. Rauber, R. M., 2001: Radar Meteorology. Encyclopedia of Science and Technology, 9th Ed., McGraw-Hill, Inc., 4 pp.

5. Rauber, R. M. and L. Di Girolamo, 2002: Imaging in Meteorology. Encyclopedia of Imaging Science and Technology, Wiley Inc. pp. 757-773.
6. Rauber R. M., 2002: Weather Radar. Encyclopedia of Imaging Science and Technology. Wiley Inc. 26 pp. pp. 1450-1474.
7. Rauber, R. M., 2003: Microphysical processes in the atmosphere. In Handbook of Weather, Climate and Water, John Wiley and Sons, Inc., Hoboken, NJ, pp. 255-299.
8. Rauber, R. M. and M. K. Ramamurthy, 2003: Cloud and Rain Bands. Encyclopedia of Atmospheric Sciences, Academic Press, Inc., pp. 1243-1250
9. Rauber, R.M., 2008: Monsoon. World Book Encyclopedia. World Book Publishing, Chicago, IL.
10. Rauber, R.M., 2008: Storm. World Book Encyclopedia. World Book Publishing, Chicago, IL.
11. Rauber, R.M., 2008: Thunderstorm. World Book Encyclopedia. World Book Publishing, Chicago, IL.
12. Rauber, R.M., 2008: Flash Flood. World Book Encyclopedia. World Book Publishing, Chicago, IL.
13. Rauber, R.M., 2011: Fahrenheit Scale. World Book Encyclopedia. World Book Publishing, Chicago
14. Rauber, R.M., 2011: Ice Storm. World Book Encyclopedia. World Book Publishing, Chicago, IL.
15. Rauber, R.M., 2011: Isobar. World Book Encyclopedia. World Book Publishing, Chicago, IL.
16. Rauber, R.M., 2011: Isotherm. World Book Encyclopedia. World Book Publishing, Chicago, IL.
17. Rauber, R. M. 2013: Cloud and Rain Bands. Encyclopedia of Atmospheric Sciences, Academic Press, Inc.. pp 323-330.

Peer reviewed Publications:

1. Rauber, R. M., D. Feng, L. O. Grant, and J. B. Snider, 1986: The characteristics and distribution of cloud water over the mountains of northern Colorado during wintertime storms. Part I: Temporal variations. *J. Climate Appl. Meteor.*, 25, 468–488.
2. Rauber, R. M., and L. O. Grant, 1986: The characteristics and distribution of cloud water over the mountains of northern Colorado during winter-time storms. Part II: Spatial distribution and microphysical characteristics. *J. Climate Appl. Meteor.*, 25, 489–504.
3. Sassen, K., R. M. Rauber, and J. B. Snider, 1986: Multiple remote sensor observations of supercooled liquid water in a winter storm at Beaver, Utah. *J. Climate Appl. Meteor.*, 25, 825–834.
4. Cotton, W. R., G. J. Tripoli, R. M. Rauber, and E. Mulvihill, 1986: Numerical simulation of the effects of varying ice crystal nucleation rates and aggregation processes on orographic snowfall. *J. Climate Appl. Meteor.*, 25, 1658–1680.
5. Rauber, R. M., and L. O. Grant, 1987: Supercooled liquid water structure of a shallow orographic cloud system in southern Utah. *J. Climate Appl. Meteor.*, 26, 208–215.
6. Rauber, R. M., 1987: Characteristics of cloud ice and precipitation during wintertime storms over the mountains of northern Colorado. *J. Climate Appl. Meteor.*, 26, 488–524.
7. Heggli, M. F., R. M. Rauber, and J. B. Snider, 1987: Field evaluation of the dual-channel microwave radiometer. *J. Atmos. Oceanic Tech.*, 4, 204–213.
8. Blumenstein, R. R., R. M. Rauber, L. O. Grant, and W. G. Finnegan, 1987: Application of ice nucleation kinetics in orographic clouds. *J. Climate Appl. Meteor.*, 26, 1363–1376.
9. Rauber, R. M., and M. F. Heggli, 1988: The influence of cloud droplets on the measurement of ice particle concentrations with a Particle Measuring System's 2DC optical array probe. *J. Atmos. Oceanic Tech.*, 5, 123–128.
10. Uttal, T., R. M. Rauber, and L. O. Grant, 1988: Distributions of liquid, vapor, and ice in an orographic cloud from field observations. *J. Atmos. Sci.*, 45, 1110–1122.
11. Rauber, R. M., R. D. Elliott, J. O. Rhea, A. W. Huggins, and D. W. Reynolds, 1988: A diagnostic technique for targeting during airborne seeding experiments in wintertime storms over the Sierra Nevada. *J. Appl. Meteor.*, 27, 811–828.
12. Grant, L. O., and R. M. Rauber, 1988: Radar observations of wintertime mountain clouds over Colorado and Utah. *J. Wea. Modif.*, 20, 37–43.

13. Heggli, M. R., and R. M. Rauber, 1988: The characteristics and evolution of supercooled water in wintertime storms over the Sierra Nevada: A summary of microwave radiometric measurements taken during the Sierra Cooperative Pilot Project. *J. Appl. Meteor.*, 27, 989–1015.
14. Beard, K. V., and R. M. Rauber, 1989: Cloud Microphysics and Radar. Chapter 23B, *Radar in Meteorology*, Amer. Meteor. Soc., 341–347.
15. Ramamurthy, M. K., B. P. Collins, R. M. Rauber, and P. C. Kennedy, 1990: Evidence of very-large-amplitude solitary waves in the atmosphere. *Nature*, 348, (22 Nov.), 314–317.
16. Shields, M. T., R. M. Rauber, and M. K. Ramamurthy, 1991: Dynamical forcing and mesoscale organization of precipitation bands in a Midwest winter cyclonic storm. *Mon. Wea. Rev.*, 119, 936–964.
17. Rauber, R. M., and A. Tokay, 1991: An explanation for the existence of supercooled water at the top of cold clouds. *J. Atmos. Sci.*, 48, 1005–1023.
18. Rauber, R. M., 1991: Microphysical structure and evolution of a central Sierra Nevada orographic cloud system. *J. Appl. Meteor.*, 31, 3–24.
19. Rauber, R. M., K. V. Beard, and B. M. Andrews, 1991: A mechanism for giant raindrop formation in warm, shallow convective clouds. *J. Atmos. Sci.*, 48, 1791–1797.
20. Ramamurthy, M. K., R. M. Rauber, B. P. Collins, M. T. Shields, P. C. Kennedy, and W. L. Clark, 1991: UNIWIPP: A University of Illinois field experiment to investigate the structure of mesoscale precipitation in winter storms. *Bull. Amer. Meteor. Soc.*, 72, 764–776.
21. Martner, B. E., R. M. Rauber, R. M. Rasmussen, E. T. Prater, and M. K. Ramamurthy, 1992: Impacts of a destructive and well-observed cross country storm. *Bull. Amer. Meteor. Soc.*, 73, 169–172.
22. Ramamurthy, M. K., R. M. Rauber, B. P. Collins, and N. K. Malhotra, 1993: A comparative study of large amplitude gravity wave events. *Mon. Wea. Rev.*, 121, 2951–2974.
23. Rauber, R. M., M. K. Ramamurthy, and A. Tokay, 1994: Synoptic and mesoscale structure of a severe freezing rain event: The St. Valentine’s Day ice storm. *Wea. Forecasting*, 9, 183–208.
24. Laird, N. F., D. A. R. Kristovich, R. M. Rauber, H. T. Ochs III and L. J. Miller, 1995: The Cape Canaveral sea and river breezes: Kinematic structure and convective initiation. *Mon. Wea. Rev.*, 123, 2942–2956.
25. Austin, G. R., R. M. Rauber, H. T. Ochs III and L. J. Miller, 1996: Tradewind clouds and Hawaiian rainbands. *Mon. Wea. Rev.*, 124, 2126–2151.
26. Rauber, R. M., N. F. Laird and H. T. Ochs III, 1996: Precipitation efficiency of tradewind clouds over the north-central tropical Pacific Ocean. *J. Geophysical Res., Atmospheres*, 101, (D21), 26,247–26,253.
27. Szumowski, M. J., R. M. Rauber, H. T. Ochs III and L. J. Miller, 1997: The microphysical structure and evolution of Hawaiian rainband clouds. Part I: Radar observations of rainbands containing high reflectivity cores. *J. Atmos. Sci.*, 54, 369–385.
28. Szumowski, M. J., R. M. Rauber, H. T. Ochs III, and K. V. Beard, 1998: The microphysical structure and evolution of Hawaiian rainband clouds. Part II: Microphysical measurements in rainbands containing high reflectivity cores. *J. Atmos. Sci.*, 55, 208–226.
29. Szumowski, M. J., R. M. Rauber and H. T. Ochs III, 1999: The microphysical structure and evolution of Hawaiian rainband clouds. Part III: A test of the ultragiant nuclei hypothesis. *J. Atmos. Sci.*, 56, 1980–2003.
30. Kristovich, D. A. R., G. S. Young, J. Verlinde, P. J. Sousounis, P. Mourad, D. Lenschow, R. M. Rauber, M. K. Ramamurthy, B. J. Jewett, K. Beard, E. Cutrim, P. J. DeMott, E. W. Eloranta, M. R. Hjelmfelt, S. M. Kreidenweis, Jon Martin, J. Moore, H. T. Ochs, D. C. Rogers, J. Scala, G. Tripoli, and J. Young, 2000: The lake-induced convection experiment (Lake-ICE) and the Snowband Dynamics Project. *Bull. Amer. Meteor. Soc.*, 81, 519–542.
31. Wang, J.-J., R. M. Rauber, H. T. Ochs III, and R. E. Carbone, 2000: The effects of the Island of Hawaii on offshore rainband evolution. *Mon. Wea. Rev.*, 128, 1052–1069.
32. Rauber, R. M., L. S. Olthoff, M. K. Ramamurthy, and K. E. Kunkel, 2000: The relative importance of warm rain and melting processes in freezing precipitation events. *J. Appl. Meteor.*, 39, 1185–1195.

33. Laird, N. F., H. T. Ochs, R. M. Rauber and L. J. Miller, 2000: Initial precipitation formation in warm Florida cumulus. *J. Atmos. Sci.*, 57, 3740–3751.
34. Rauber, R. M., M. Yang, and M. K. Ramamurthy 2001: Origin, evolution, and finescale structure of the St. Valentine's Day mesoscale gravity wave observed during STORM-FEST. Part I: Origin and evolution. *Mon. Wea. Rev.*, 129, 198-217.
35. Yang, M., R. M. Rauber and M. K. Ramamurthy 2001: Origin, evolution, and finescale structure of the St. Valentine's Day mesoscale gravity wave observed during STORM-FEST. Part II: Finescale structure. *Mon. Wea. Rev.*, 129, 218-236.
36. Rauber, R. M., L. S. Olthoff, M. K. Ramamurthy, and K. E. Kunkel, 2001: Further investigation of a physically based, nondimensional parameter for discriminating between locations of freezing rain and ice pellets. *Wea. and Forecasting*, 16, 185-191.
37. Bluestein, H. B., B. A. Albrecht, M. Hardesty, D. Rust, D. Parsons, R. Wakimoto, and R. M. Rauber, 2001: Ground-based mobile instrument workshop summary, 23-24 February 2001, Boulder, Colorado. *Bull. Amer. Met. Soc.* 82, 681-694.
38. Rauber, R. M., L. S. Olthoff, M. K. Ramamurthy, K. E. Kunkel, and D. Miller, 2001: A synoptic weather pattern and sounding based climatology of freezing precipitation in the United States east of the Rocky Mountains. *J. Appl. Meteor.*, 40, 1724-1747..
39. Rauber, R. M., and R. W. Scott, 2001: Central Illinois cold air funnel outbreak. *Mon. Wea. Rev.*, 129, 2815-2821.
40. Laird, N. F., H. T. Ochs, R. M. Rauber and L. J. Miller, 2001: Corrigendum. *J. Atmos. Sci.*, 58, 2668-2669.
41. Jewett, B. J., M. K. Ramamurthy, and R. M. Rauber, 2003: Origin, evolution, and fine scale structure of the St. Valentine's Day gravity wave observed during STORM-FEST. Part III: Gravity wave genesis and the role of evaporation. *Mon. Wea. Rev.*, 131, No. 4, pp. 617–633
42. 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, J. Trapp, S. Trier, R. Wakimoto, M. Weisman, and C. Ziegler, 2004: The Bow-Echo And MCV Experiment (BAMEX): Observations and Opportunities. *Bull. Amer. Met. Soc.*, 85, 1075-1093..
43. Ralph, M., R. M. Rauber, B. F. Jewett, D. E. Kingsmill, P. Pisano, P. Pugner, R. M. Rasmussen, D. W. Reynolds, T. W. Schlatter, R. E. Stewart, J. S. Waldstricher, 2005: Improving Short Term (0-48 Hour) Cool Season Quantitative Precipitation Forecasting: Recommendations From A USWRP Workshop. *Bull. Amer. Met. Soc.*, 86, 1619-1632.
44. Cellitti, M., J. W. Walsh, R. M. Rauber, and D. Portis, 2006: Cold Air Outbreaks, the Polar Vortex, and the Large Scale Circulation. *J. Geophys. Res. Atmospheres*. 111, D02114: doi:10.1029/2005JD006273.
45. Colón-Robles, M., R. M. Rauber, and J. B. Jensen, 2006: Influence of low-level wind speed on droplet spectra near cloud base in trade wind cumulus, *Geophys. Res. Lett.*, 33, L20814, doi:10.1029/2006GL027487.
46. Grim, J. A., R. M. Rauber, M. K. Ramamurthy, B. F. Jewett and M. Han 2007: High resolution observations of the trowal/warm frontal region of two continental winter cyclones *Mon. Wea. Rev.*, 135, 1629–1646.
47. Han, M., R. M. Rauber, M. K. Ramamurthy, B. F. Jewett and J. A. Grim, 2007: Mesoscale dynamics of the trowal and warm frontal regions of two continental winter cyclones *Mon. Wea. Rev.*, 135, 1647–1670.
48. McFarquhar, G.M., M.S. Timlin, R.M. Rauber, B.F. Jewett, J.A. Grim and D.P. Jorgensen, 2007: Vertical variability of cloud hydrometeors in the stratiform region of mesoscale convective systems and bow echoes. *Mon. Wea. Rev.* 135, 3405-3428.
49. Cronic M., R. M. Rauber, K. R. Knupp, B. F. Jewett, J. T. Walters, and D. Phillips 2007: Vertical motions in precipitation bands in three winter cyclones, *J. Appl. Meteor. and Clim.*, 46, 1523-1543.
50. Rauber, R.M., B. Stevens, H. T. Ochs III, C. Knight, B. A. Albrecht, A.M. Blyth, C.W. Fairall, J. B. Jensen, S. G. Lasher-Trapp, O. L. Mayol-Bracero, G. Vali, J. R. Anderson, B. A. Baker, A. R. Bandy,

- F. Burnet, J-L. Brenguier, W. A. Brewer, P. R. A. Brown, P. Chuang, W. R. Cotton, L. Di Girolamo, B. Geert, H. Gerber, S. Göke, L. Gomes, B. G. Heikes, J. G. Hudson, P. Kollias, R. P. Lawson, P. Jonas, S. K. Krueger, D. H. Lenschow, L. Nuijens, D. W. O'Sullivan, R. A. Rilling, D. C. Rogers, A. P. Siebesma, E. Snodgrass, J. L. Stith, D.C. Thornton, S. Tucker, C. H. Twohy, P. Zuidema, 2007: Rain in (Shallow) Cumulus over the Ocean—The RICO Campaign, *Bull. Amer. Met. Soc.*, 88, 1912–1928.
51. Rauber, R.M., B. Stevens, J. Davison, S. Göke, O.L. Mayol-Bracero, D. Rogers, P. Zuidema, H.T. Ochs, C. Knight, J. Jensen, S. Bereznicki, S. Bordoni, H. Caro-Gautier, M. Colón-Robles, M. Deliz, S. Donaher, V. Ghate, E. Grzeszczak, C. Henry, A. Marie Hertel, I. Jo, M. Kruk, J. Lowenstein, J. Malley, B. Medeiros, Y. Méndez-Lopez, S. Mishra, F. Morales-García, L.A. Nuijens, D. O'Donnell, D.L. Ortiz-Montalvo, K. Rasmussen, E. Riepe, S. Scalia, E. Serpetzoglou, H. Shen, M. Siedsma, J. Small, E. Snodgrass, P. Trivej, and J. Zawislak, 2007: In the Driver's Seat: Rico and Education. *Bull. Amer. Meteor. Soc.*, 88, 1929–1937.
 52. Rauber, R.M., B. Stevens, H.T. Ochs, C. Knight, B.A. Albrecht, A.M. Blyth, C.W. Fairall, J.B. Jensen, S.G. Lasher-Trapp, O.L. Mayol-Bracero, G. Vali, J.R. Anderson, B.A. Baker, A.R. Bandy, E. Burnet, J.L. Brenguier, W.A. Brewer, P.R.A. Brown, P. Chuang, W.R. Cotton, L. Di Girolamo, B. Geerts, H. Gerber, S. Göke, L. Gomes, B.G. Heikes, J.G. Hudson, P. Kollias, R.P. Lawson, S.K. Krueger, D.H. Lenschow, L. Nuijens, D.W. O'Sullivan, R.A. Rilling, D.C. Rogers, A.P. Siebesma, E. Snodgrass, J.L. Stith, D.C. Thornton, S. Tucker, C.H. Twohy, and P. Zuidema, 2007: A Supplement to Rain in Shallow Cumulus Over the Ocean: The RICO Campaign. *Bull. Amer. Meteor. Soc.*, 88, S12–S18.
 53. Göke, S., H.T. Ochs, and R.M. Rauber, 2007: Radar Analysis of Precipitation Initiation in Maritime versus Continental Clouds near the Florida Coast: Inferences Concerning the Role of CCN and Giant Nuclei. *J. Atmos. Sci.*, 64, 3695–3707
 54. Smith, A., R. M. Rauber, G. M. McFarquhar, B.F. Jewett, M. S. Timlin, and J. A. Grim, 2009: Microphysical and Thermodynamic Structure and Evolution of the Trailing Stratiform Regions of Mesoscale Convective Systems during BAMEX: Part I: Observations. *Mon. Wea. Rev.*, 137, 1165-1185
 55. Grim, J.A., G. M. McFarquhar, R. M. Rauber, A. Smith, and B.F. Jewett, 2009: Microphysical and Thermodynamic Structure and Evolution of the Trailing Stratiform Regions of Mesoscale Convective Systems during BAMEX: Part II: Column Model Simulations. *Mon. Wea. Rev.*, 137, 1186-1205.
 56. Grim, J.A., R. M. Rauber, G. M. McFarquhar, A. Smith, and B.F. Jewett, 2009: Development and Forcing of the Rear Inflow Jet in a Rapidly Developing and Decaying Squall Line During BAMEX. *Mon. Wea. Rev.*, 137, 1206-1229.
 57. Snodgrass, E., L. Di Girolamo, and R. M. Rauber, 2009: Precipitation characteristics of Trade Winds Clouds during RICO Derived from Radar, Satellite and Aircraft Measurements. *J. Appl. Meteor. and Climatology*. 48, 464-483.
 58. McFarquhar, Greg M., Michael S. Timlin, Robert M. Rauber, Brian F. Jewett, Joseph A. Grim, David P. Jorgensen, 2009: Corrigendum. *Mon. Wea. Rev.*, 137, 1493–1493.
 59. Plummer, D.M., S. Goke, R.M. Rauber, and L. Di Girolamo, 2010: Discrimination of mixed- vs. ice-phase clouds using dual polarization radar with application to detection of aircraft icing regions. *J. Appl. Meteor. Climatol.*, 49, 920-936.
 60. Minor, Hilary A., Robert M. Rauber, Sabine Göke, Larry Di Girolamo, 2011: Trade Wind Cloud Evolution Observed by Polarization Radar: Relationship to Giant Condensation Nuclei Concentrations and Cloud Organization. *J. Atmos. Sci.*, 68, 1075–1096.
 61. Market, P.S., K. Crandall, and R. M. Rauber, 2012: High-resolution rawinsonde observations of the cold-sector precipitation regions in transient mid-latitude extratropical cyclones. *National Weather Digest*, 36, 3-8.
 62. Davison, Jennifer L., R. M. Rauber, L. Di Girolamo, and M. A. LeMone, 2013: A Revised Conceptual Model of the Tropical Marine Boundary Layer. Part I: Statistical Characterization of the Variability Inherent in the Wintertime Trade Wind Regime over the Western Tropical Atlantic. *J. Atmos. Sci.*, 70, 3005–3024.

63. Davison, J. L., R. M. Rauber, and L. Di Girolamo, 2013: A Revised Conceptual Model of the Tropical Marine Boundary Layer. Part II: Detecting Relative Humidity Layers Using Bragg Scattering from S-Band Radar. *J. Atmos. Sci.*, 70, 3025–3046.
64. Davison, J. L., R. M. Rauber, L. Di Girolamo, and M. A. LeMone, 2013: A Revised Conceptual Model of the Tropical Marine Boundary Layer. Part III: Bragg Scattering Layer Statistical Properties. *J. Atmos. Sci.*, 70, 3047–3062.
65. Rauber, R. M., G. Zhao, L. Di Girolamo, and M. Colón-Robles, 2013: Aerosol Size Distribution, Particle Concentration, and Optical Property Variability near Caribbean Trade Cumulus Clouds: Isolating Effects of Vertical Transport and Cloud Processing from Humidification Using Aircraft Measurements. *J. Atmos. Sci.*, 70, 3063–3083.
66. Rauber, R.M., J. Wegman, D. M. Plummer, A. A. Rosenow, M. Petersen, G.M. McFarquhar, B.F. Jewett, D. Leon, P. S. Market, K. R. Knupp, J. M. Keeler, and S. M. Battaglia, 2014: Stability and charging characteristics of the comma-head region of continental winter cyclones. *J. Atmos. Sci.*, 71, 1559-1582.
67. Rosenow, A., R.M. Rauber, G.M. McFarquhar, B.F. Jewett, D. Plummer, D. Leon, 2014: Vertical velocity and physical structure of generating cells and elevated convection in the comma-head region of continental of winter cyclones. *J. Atmos. Sci.*, 71, 1538-1558.
68. Bluestein, H. B., R. M. Rauber, D. W. Burgess, B. Albrecht, S. M. Ellis, Y. P. Richardson, D. P. Jorgensen, S. J. Frasier, P. Chilson, R. D. Palmer, S. E. Yuter, W.-C. Lee, D. C. Dowell, P. L. Smith, P. M. Markowski, K. Friedrich and T. M. Weckwerth, 2014: Summary of the 2012 National Science Foundation Community Workshop On Radar Technologies. *Bull. Amer. Meteor. Soc.*, 95, 1850-1861.
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265. Blestrud, D., S. Parkinson, M. L. Kunkel, R. M. Rauber, B. Geerts, J. R. French, K. Friedrich, R. M. Rasmussen, L. Xue, and S. A. Tessendorf, 2018: Public/Private Research Opportunities, They Can Work. 18th AMS Conf. Wea. Modif., Austin, TX.
266. Rauber, R. M., B. Geerts, L. Xue, J. French, K. Friedrich, R. M. Rasmussen, S. A. Tessendorf, D. Blestrud, M. L. Kunkel, and S. Parkinson, 2018: Wintertime Glaciogenic Orographic Cloud Seeding—A Review. 18th AMS Conf. Wea. Modif., Austin, TX.
267. Tessendorf, S. A. J. French, K. Friedrich, B. Geerts, R. M. Rauber, R. M. Rasmussen, L. Xue, D. Blestrud, M. L. Kunkel, and S. Parkinson: An Overview of the SNOWIE Field Campaign. 18th AMS Conf. Wea. Modif., Austin, TX.
268. French, J. R. A. Majewski, B. Geerts, K. Friedrich, S. Tessendorf, R. M. Rauber, R. M. Rasmussen, L. Xue, D. Blestrud, and M. L. Kunkel, 2018: Microphysical Evolution of Seeded Wintertime Orographic Clouds. 18th AMS Conf. Wea. Modif., Austin, TX.
269. Stechman, D. R. M. Rauber, G. M. McFarquhar, M. M. Bell, B. F. Jewett, R. A. Black, D. P. Jorgensen, and T. J. Schuur, 2018 Analysis of PECAN 2015 MCSs Utilizing Airborne- and Ground-Based Doppler Observations and Airborne In Situ Microphysical Data. Special Symposium on Plains Elevated Convection At Night (PECAN), AMS annual meeting, Austin, TX
270. Bell, M., J. Martinez, D. M. Stechman, R. M. Rauber, G. M. McFarquhar, and A. Marchi, 2018: Structure and Dynamics of an Intense Rear-Inflow Jet Observed on 20 June 2015 during PECAN. Special Symposium on Plains Elevated Convection At Night (PECAN), AMS annual meeting, Austin, TX
271. Geresdi, I. L. Xue, R. M. Rasmussen, N. Sarkadi, W. Wu, S. Tessendorf, J. R. French, K. Friedrich, B. Geerts, D. Blestrud, R. M. Rauber, M. L. Kunkel, and S. Parkinson, 2018: Numerical Simulation of Seeding Effect Using a Bin Microphysics Scheme. 18th AMS Conf. Wea. Modif., Austin, TX.
272. Xue, L., W. Wu, R. Rasmussen, S. Tessendorf, J. French, K. Friedrich, B. Geerts, R. M. Rauber, D. Blestrud, M. Kunkel, N. Dawson, and S. Parkinson: 2018: Sensitivity simulations of ice production in a super-cooled orographic cloud during the SNOWIE field campaign. 15th AMS Conf. Cloud Physics, Vancouver, Canada
273. Wang, Y., G. M. McFarquhar, R. M. Rauber, C. Bretherton, D. Stechman, J. A. Finlon, J. Vivekanandan, and M. Dixon, 2018: Microphysical Properties of Generating Cells over the Southern Ocean: Results from SOCRATES 15th AMS Conf. Cloud Physics, Vancouver, Canada
274. French, J., M. Hatt, A. Majewski, S. Tessendorf, K. Friedrich, L., Xue, R. M. Rauber, R. Rasmussen, B. Geerts, D. Blestrud, and M. Kunkel, 2018: Microphysical impacts due to glaciogenic cloud seeding in wintertime orographic clouds. 15th AMS Conf. Cloud Physics, Vancouver, Canada
275. Tessendorf, S. A. J. French, K. Friedrich, B. Geerts, R. M. Rauber, R. M. Rasmussen, L. Xue, D. Blestrud, M. L. Kunkel, and S. Parkinson, 2018: Highlights from the SNOWIE Field Campaign. 18th Wea. Mod. Association Conf., April, Estes Park, CO.
276. Xue, L., I. Geresdi, W. Wu, N. Sarkadi, R. Rasmussen, S. Tessendorf, J. French, K. Friedrich, B. Geerts, R.M. Rauber, D. Blestrud, M. Kunkel, N. Dawson, and S. Parkinson, 2018: Simulations of the IOP9 cloud seeding event during the SNOWIE field campaign, 18th Wea. Mod. Association Conf., April, Estes Park, CO.
277. Cann, M.D., K. Friedrich, S. A. Tessendorf, J. R. French, and R. M. Rauber, 2018: Observations of natural cloud structure and snow growth processes in orographic clouds. 18th AMS Conf. on Mountain Met., Santa Fe, NM.

278. McFarquhar, G. M., C. Bretherton, R. T. Marchand, P. J. DeMott, S. P. Alexander, A. Protat, G. Roberts, C. H. Twohy, D. W. Toohey, S. Siems, Y. Huang, R. Wood, R. M. Rauber, S. Lasher-Trapp, J. B. Jensen, J. Stith, J. Mace, J. Um, E. Jaervinen, M. Schnaiter, A. Gettelman, K. J. Sanchez, C. S. McCluskey, I. L. McCoy, K. A. Moore, T. C. J. Hill, and B. Rainwater, 2018: New unique observations of clouds, aerosols and precipitation over the Southern Ocean: An overview of SOCRATES and MARCUS, 15th AMS Conf. Cloud Physics, Vancouver, Canada
279. French, J., M. Hatt, A. Majewski, S. Tessorf, K. Friedrich, L. Xue, R. M. Rauber, R. M. Rasmussen, B. Geerts, D. Blestrud, and M. L. Kunkel, 2018: Microphysical Impacts due to Glaciogenic Cloud Seeding in Wintertime Orographic Clouds. 15th AMS Conf. Cloud Physics, Vancouver, Canada.
280. Scott, E., S. Lasher-Trapp, G. M. McFarquhar, R. M. Rauber, Y. Huang, P. J. DeMott, C. McCluskey, T. C. J. Hill, M. Schnaiter, F. Waitz, and E. Järvinen, 2018: Investigating Secondary Ice Production in Summertime Southern Ocean Cumuli. 15th AMS Conf. Cloud Physics, Vancouver, Canada.
281. Yang, W., G.M. McFarquhar, R.M. Rauber, C. Bretherton, D.M. Stechman, J.A. Finlon, J. Vivekanandan, and M. Dixon, 2018: Microphysical properties of generating cells over the Southern Ocean: results from SOCRATES. *15th Amer. Meteor. Soc. Conf. on Cloud Physics*, Vancouver, BC, 9-13 July.
282. Xue, L, W. Wu, R. M. Rasmussen, S. A. Tessorf, J. R. French, K. Friedrich, B. Geerts, R. M. Rauber, D. Blestrud, M. L. Kunkel, N. Dawson, and S. Parkinson, 2018: Sensitivity simulations of ice production in a supercooled orographic cloud during the SNOWIE field campaign. 15th AMS Conf. Cloud Physics, Vancouver, Canada.
283. Wang, YU., G. M. McFarquhar, R. M. Rauber, C. Bretherton, D. M. Stechman, J. A. Finlon, J. Vivekanandan, and M. Dixon, 2018: Microphysical Properties of Generating Cells over the Southern Ocean: Results from SOCRATES. 15th AMS Conf. Cloud Physics, Vancouver, Canada.
284. Finlon, J., G. M. McFarquhar, R. M. Rauber, S. W. Nesbitt, W. Wu, H. Morrison, and M. R. Poellot, 2018: valuating the Variability of Mass-Dimension Parameters within Ice Clouds. 15th AMS Conf. Cloud Physics, Vancouver, Canada.
285. Stechman, D., G. M. McFarquhar, R. M. Rauber, M. M. Bell, B. F. Jewett, R. A. Black, D. P. Jorgensen, and T. J. Schuur, 2018: Analysis of Pecan 2015 MCSs Utilizing Airborne In-Situ Microphysical Data Together with Airborne- and Ground-Based Doppler Observations. 15th AMS Conf. Cloud Physics, Vancouver, Canada.
286. Rauber, R. M., 2018: Synergy: Observations + Models = a path to understanding. ASP Summer Colloquium, NCAR synthesis of observations and models in studies of shallow and deep clouds. (June 3-15), Boulder, CO
287. Rauber, R. M., 2018: Mesoscale Convective Systems. ASP Summer Colloquium, NCAR synthesis of observations and models in studies of shallow and deep clouds. (June 3-15), Boulder, CO
288. Rauber, R. M., 2018: Mesoscale and microscale structure of winter storms. ASP Summer Colloquium, NCAR synthesis of observations and models in studies of shallow and deep clouds. (June 3-15), Boulder, CO
289. Rauber, R.M., H. Hu, F. Dominguez, G. McFarquhar, T. Zaremba, J. Finlon, and D. Stechman, 2018: Tropical moisture over the Southern Ocean associated with an Atmospheric River. Southern Ocean Science Meeting, Boulder, CO.
290. McFarquhar, G.M., C.S. Bretherton, R. Marchand, A. Protat, P.J. DeMott, S.P. Alexander, S. Rintoul, G. Roberts, C. Twohy, D. Toohey, S. Siems, Y. Huang, R. Wood, R. Rauber, S. Lasher-Trapp, J. Jensen, J. Stith, J. Mace, J. Um, E. Jaervinen, M. Schnaiter, A. Gettelman, K. Sanchez, C. McCluskey, I.L. McCoy, K. Moore, T. Hill and B. Rainwater, 2018: Airborne, ship- and ground-based observations of clouds, aerosols and precipitation from recent field projects over the Southern Ocean. Amer. Geophys. Union Fall Meeting, Washington, DC.
291. McFarquhar, G.M., C.S. Bretherton, R. Marchand, A. Protat, P.J. DeMott, S.P. Alexander, S. Rintoul, G. Roberts, C. Twohy, D. Toohey, S. Siems, Y. Huang, R. Wood, R. Rauber, S. Lasher-

- Trapp, J. Jensen, J. Stith, J. Mace, J. Um, E. Jaervinen, M. Schnaiter, A. Gettelman, K. Sanchez, C. McCluskey, I.L. McCoy, K. Moore, T. Hill and B. Rainwater, 2019: Airborne, ship- and ground-based observations of clouds, aerosols and precipitation from recent field projects over the Southern Ocean. 11th Amer. Meteor. Soc. Symposium on Cloud-Aerosol-Climate Interactions, Amer. Meteor. Soc. Annual Meeting, Phoenix, AZ.
292. French, J., M. Hatt, S. Tessendorf, K. Friedrich, R. M. Rauber, R. M. Rasmussen, B. Geerts, L. Xue, A. Majewski, D. Blestrud, M. L. Kunkel, and S. Parkinson: 2019: Observations Pertaining to Ice Production in Natural and Seeded Wintertime Orographic Clouds (Invited Presentation), 11th Symposium on Aerosol-Cloud-Climate Interactions, Phoenix, AZ
293. Friedrich, K., M. D. Cann, J. French, S. Tessendorf, R. M. Rauber, B. Geerts, R. Rasmussen, L. Xue, D. Blestrud, M. L. Kunkel, and S. Parkinson, 2019: Observational Study on the Impact of Silver Iodide on Cloud Formation and Evolution in Orographic Winter Storms, 11th Symposium on Aerosol-Cloud-Climate Interactions, Phoenix, AZ
294. Adams, A., R.M. Rauber, B. F. Jewett, G.M. McFarquhar, D. Stechman, and A. Marchi, 2019: High Resolution Simulation of a Nocturnal Mesoscale Convective System: Comparison with PECAN Observations. AMS Mesoscale Conf, Savannah, GA
295. Stechman, D.M., G. M. McFarquhar, R. M. Rauber, B. F. Jewett, and R. A. Black, 2019: Variability of vertical structure of microphysical and thermodynamic properties within nocturnal mesoscale convective systems during PECAN. AMS Mesoscale Conf, Savannah, GA
296. McFarquhar, G.M., J. Finlon, W. Wu, H.H. Morrison, S. Ding, M. Stanford, A. Varble, R. M. Rauber and S Nesbitt, 2019: Stochastic Approach for Representing Uncertainty and Variability in Cloud Microphysical Parameters for use in Process-Oriented Studies. Amer. Geophys. Union Conf, 2019, San Francisco. CA.
297. Rauber, R. M., T. Zaremba, G.M. McFarquhar, S.L. Trapp, J. Finlon, and D. Stechman, 2019: Phase Characterization of Southern Ocean Clouds using HIAPER Cloud Radar (HCR) and High Spectral Resolution Lidar (HSRL) Observations: results from SOCRATES. Amer. Geophys. Union Conf, 2019, San Francisco. CA.
298. Friedrich, K., Kyoko Ikeda, Sarah A. Tessendorf, Jeffrey French, Robert M. Rauber, Bart Geerts, Lulin Xue, Roy M. Rasmussen, Derek R. Blestrud, Melvin L. Kunkel, Nick Dawson, and Shaun Parkinson, 2020: Quantifying snowfall from orographic cloud seeding. 22nd Conference on Planned and Inadvertent Weather Modification, 12–16 January 2020, Boston, Massachusetts
299. Heimes, K, R. M. Rauber and B. Geerts, 2020: Sources of Updrafts in Orographic Cloud Systems Over the Payette Mountains of Idaho-Results From The SNOWIE Project, 22nd Conference on Planned and Inadvertent Weather Modification, 12–16 January 2020, Boston, Massachusetts
300. Grasmick, C., B. Geerts, and R. M. Rauber, 2020: How do small-scale updrafts such as KH waves affect the seedability of clouds near complex terrain? , 22nd Conference on Planned and Inadvertent Weather Modification, 12–16 January 2020, Boston, Massachusetts
301. French, J., Melinda Hatt, Katja Friedrich, Sarah Tessendorf, Lulin Xue, Robert M. Rauber, Bart Geerts, Roy M. Rasmussen, Derek Blestrud, and Melvin L. Kunkel, 2019: Under what conditions can we detect a microphysical response in clouds seeded with AgI? Lessons from SNOWIE. 22nd Conference on Planned and Inadvertent Weather Modification, 12–16 January 2020, Boston, Massachusetts
302. French, J., M. Hatt, S. Tessendorf, K. Friedrich, R. M. Rauber, R. M. Rasmussen, B. Geerts, L. Xue, A. Majewski, D. Blestrud, M. L. Kunkel, and S. Parkinson: 2019: Observations Pertaining to Ice Production in Natural and Seeded Wintertime Orographic Clouds (Invited Presentation), 11th Symposium on Aerosol-Cloud-Climate Interactions, Phoenix, AZ
303. Friedrich, K., M. D. Cann, J. French, S. Tessendorf, R. M. Rauber, B. Geerts, R. Rasmussen, L. Xue, D. Blestrud, M. L. Kunkel, and S. Parkinson, 2019: Observational Study on the Impact of Silver Iodide on Cloud Formation and Evolution in Orographic Winter Storms, 11th Symposium on Aerosol-Cloud-Climate Interactions, Phoenix, AZ

304. S. Tessendorf, J. French, K. Friedrich, K. Ikeda, C. Weeks, L. Xue, R. Rasmussen, M. Hatt, A. Majewski, D. Blestrud, M. Kunkel, S. Parkinson, 2019: Research updates and highlights from the SNOWIE project. Weather Modification Association annual meeting, Chandler, Arizona.
305. French, J.R., M. Hatt, A. Majewski, D. Behringer, K. Friedrich, S. Tessendorf, L. Xue, R. M. Rauber, B. Geerts, R. M. Rasmussen, D. Blestrud, and M. L. Kunkel, 2020: Microphysical Impact of Glaciogenic Seeding in Mixed Phase Orographic Clouds. 3rd Atmospheric Ice Nucleation Conference, Boston, MA
306. Xue, L., R. M. Rauber, B. Geerts, J. French, K. Friedrich, R. Rasmussen, S. Tessendorf, K. Ikeda, C. Weeks, D. Blestrud, M. Kunkel, N. Dawson, and S. Parkinson Overview of the research on glaciogenic seeding of wintertime orographic clouds 3rd Atmospheric Ice Nucleation Conference, Boston, MA
307. Tessendorf, S., K. Ikeda, R. M. Rasmussen, J. French, L. Xue, and R.M. Rauber, 2020: Ice production in generating cells in wintertime orographic clouds. 3rd Atmospheric Ice Nucleation Conference, Boston, MA

Research grants and contracts

Title: Hydrometeor Phase, Shape and Size Discrimination Using Radar Differential Polarization
 Sponsor: Campus Research Board, Beckman Award for Research
 Period: January–May 1988
 Amount: \$4,253
 Capacity: Principal Investigator

Title: The Visualization of Meteorological Data
 Sponsor: AT&T Affiliates Program
 Period: April 1, 1988–June 30, 1990
 Amount: \$161,417
 Capacity: Principal Investigator (with H. Ochs)

Title: Investigations of Warm-Cloud Precipitation Physics
 Sponsor: National Science Foundation
 Period: May 1, 1988–April 30, 1989
 Amount: \$166,322
 Capacity: Principal Investigator (with K. V. Beard and H. T. Ochs)

Title: Investigations of the Mesoscale and Microscale Structure of Midwest Winter Cyclonic Storms
 Sponsor: National Center for Atmospheric Research
 Period: December 15, 1988–March 5, 1989
 Amount: Facilities Grant to Use CHILL Radar and 75 Class Rawinsondes
 Capacity: Lead Principal Investigator (with M. K. Ramamurthy)

Title: Investigations of the Mesoscale and Microscale Structure of Midwest Winter Cyclonic Storms
 Sponsor: National Science Foundation
 Period: December 15, 1988–December 14, 1990
 Amount: \$190,104
 Capacity: Lead Principal Investigator (with M. K. Ramamurthy)

Title: Investigations of the Mesoscale and Microscale Structure of Midwest Winter Cyclonic Storms

Sponsor: National Center for Atmospheric Research
 Period: January 2, 1990–March 7, 1990
 Amount: Facilities Grant to Use CHILL Radar and 125 Class Rawinsondes
 Capacity: Lead Principal Investigator (with M. K. Ramamurthy)

Title: A Proposal for Cooperative Research to Improve Operational Forecasting of Midwestern Severe Weather
 Sponsor: University Corporation for Atmospheric Research (UCAR)
 Period: May 1, 1990–April 30, 1994
 Amount: \$58,245
 Capacity: Principal Investigator (with M. K. Ramamurthy and R. R. Czys)

Title: Hawaiian Rainband Project
 Sponsor: National Center for Atmospheric Research
 Period: June 20, 1990–August 25, 1990
 Amount: Facilities grant to use NCAR Electra aircraft, CP3 and CP4 Doppler radars and other equipment
 Capacity: Principal Investigator (with scientists from several universities)

Title: Investigations of Warm-Cloud Precipitation Physics
 Sponsor: National Science Foundation
 Period: July 1, 1990–August 25, 1990
 Amount: \$63,400 to participate in Hawaiian Rainband Project
 Capacity: Lead Principal Investigator (with K. V. Beard and H. T. Ochs)

Title: Investigation of the Structure of Winter Cyclonic Storms
 Sponsor: Campus Research Board
 Period: February 25, 1991–February 24, 1992
 Amount: \$8,900
 Capacity: Principal Investigator

Title: Investigations of Mesoscale Structure of Continental Winter Cyclonic Storms
 Sponsor: National Science Foundation
 Period: March 1, 1991–February 28, 1994
 Amount: \$430,100
 Capacity: Lead Principal Investigator (with M. K. Ramamurthy)

Title: Investigations of Warm Cloud Precipitation Physics
 Sponsor: National Science Foundation
 Period: May 1, 1991–May 1, 1993
 Amount: \$343,751
 Capacity: Lead Principal Investigator (with K. V. Beard and H. T. Ochs)

Title: Storm Fronts Experiment Systems Test
 Sponsor: National Center for Atmospheric Research
 Period: February 1, 1992–March 15, 1992
 Amount: Facilities Grant to Use CP3, CP4 and CHILL national radar research facilities in Kansas City and Colorado areas
 Capacity: Lead Principal Investigator (with M. K. Ramamurthy (U. Illinois) and P. Hobbs (U. Washington))

Title: Laboratory, Field and Modeling Studies of Raindrop Shape

Sponsor: National Science Foundation
 Period: July 15, 1992–January 14, 1996
 Amount: \$423,300
 Capacity: Principal Investigator (with K. V. Beard and H. T. Ochs)

Title: Stable Isotopes in Cloud Tops: An Investigation of the Water Budget of the Upper Troposphere
 Sponsor: National Science Foundation
 Period: October 1, 1992–September 30, 1996
 Amount: \$145,040
 Capacity: Lead Principal Investigator, UI (with H. T. Ochs), and R. Smith (lead PI at Yale University)

Title: Investigation of Warm Cloud Precipitation Physics
 Sponsor: National Science Foundation
 Period: August 15, 1993–January 31, 1998
 Amount: \$632,810
 Capacity: Lead Principal Investigator (with K. V. Beard and H. T. Ochs)

Title: Stable Isotopes in Cloud Tops: An Investigation of the Water Budget of the Upper Troposphere
 Sponsor: National Center for Atmospheric Research
 Period: February 1–March 15, 1994
 Amount: Facilities grant for 15 flight hours of the NCAR Electra
 Capacity: Principal Investigator (with H. T. Ochs and R. Smith)

Title: General Education Board Instructional Development
 Sponsor: General Education Board, UIUC
 Period: May 21, 1994–August 21, 1994
 Amount: \$6424
 Capacity: Principal Investigator (with J. E. Walsh)

Title: Gravity Wave and Occlusion Research
 Sponsor: Campus Research Board
 Period: October 8, 1994–July 31, 1995
 Amount: \$17,267
 Capacity: Principal Investigator

Title: Gravity Waves and Occlusions During STORM-FEST
 Sponsor: National Science Foundation
 Period: January 1, 1995–December 31, 1997
 Amount: \$440,190
 Capacity: Principal Investigator (with M. K. Ramamurthy)

Title: Atmospheric Sciences Computer Laboratory
 Sponsor: The University of Illinois at Urbana-Champaign
 Period: July 1, 1995
 Amount: \$32,000
 Capacity: Principal Investigator (with M. K. Ramamurthy)

Title: Small Cumulus Microphysics Experiment
 Sponsor: National Science Foundation and National Center for Atmospheric Research
 Period: July 1–August 15, 1995

Amount: \$23,124
Capacity: Lead Principal Investigator (with H. T. Ochs)

Title: Small Cumulus Microphysics Experiment
Sponsor: National Science Foundation and National Center for Atmospheric Research
Period: July 1–August 15, 1995
Amount: Facilities grant for use of the CP2 radar, the C-130 NCAR aircraft and the Wyoming King Air
Capacity: Principal Investigator (with H. T. Ochs, and scientists from NCAR and several other universities)

Title: Field and Modeling Studies of Warm Cloud Precipitation Physics
Sponsor: National Science Foundation
Period: June 1, 1997–May 31, 2000
Amount: \$613,177
Capacity: Lead Principal Investigator (with H. T. Ochs and K. V. Beard)

Title: Studies of Gravity Waves, Lee Cyclones and Precipitation Bands
Sponsor: National Science Foundation
Period: December 1, 1997–November 30, 2000
Amount: \$396,631
Capacity: Lead Principal Investigator (with M. K. Ramamurthy and B. F. Jewett)

Title: Snowband Dynamics Project
Sponsor: National Science Foundation and National Center for Atmospheric Research
Period: December 1997–January 1998
Amount: Facilities grant for use of NCAR Electra aircraft, Dropsonde and sounding Facilities, and ELDORA radar facility
Capacity: Lead Principal Investigator (with M. K. Ramamurthy and B. F. Jewett)

Title: Continuing studies of Mesoscale Gravity Waves and Precipitation Bands
Sponsor: National Science Foundation
Period: February 1, 2001 – January 31, 2004
Amount: \$498,140
Capacity: Principal Investigator (with M. K. Ramamurthy and B. F. Jewett)

Title: Mesoscale Ensemble Forecasting of Winter Precipitation
Sponsor: University Corporation for Atmospheric Research (UCAR)
Period: March 1, 2002–August 31, 2003
Amount: \$9,965
Capacity: Principal Investigator (with M. K. Ramamurthy and B. F. Jewett)

Title: Field and Modeling Studies of Warm Cloud Precipitation Physics
Sponsor: National Science Foundation
Period: September 13, 2001–September 12, 2004
Amount: \$599,998
Capacity: Lead Principal Investigator (with H. T. Ochs, K. V. Beard, N. Laird)
Title: Continuing studies of Mesoscale Gravity Waves and Precipitation Bands – BAMEX supplement
Sponsor: National Science Foundation
Period: February 1, 2001 – January 31, 2004

Amount: \$50.062
Capacity: Principal Investigator (with M. K. Ramamurthy and B. F. Jewett)

Title: Rain in Cumulus over the Ocean Experiment
Sponsor: National Science Foundation and National Center for Atmospheric Research
Period: November 2004–January 2005
Amount: Facilities grant for use of NCAR C-130, NCAR Spol Radar, NCAR ISS, NCAR SABL lidar, NCAR dropsondes, Wyoming King Air aircraft
Capacity: Lead Principal Investigator (with H. Ochs)

Title: Research Experience for undergraduates
Sponsor: National Science Foundation
Period: November 2004–January 2005
Amount: ~\$32,300
Capacity: Lead Principal Investigator

Title: Precipitation Studies in Trade Wind Clouds – The Rain in Cumulus over the Ocean (RICO) Experiment
Sponsor: National Science Foundation
Period: March 2004–February 2009
Amount: ~\$1,430,572
Capacity: Lead Principal Investigator (with H. Ochs)

Title: Bow Echoes and Mesoscale Gravity Waves - The Role of Microphysical Processes
Sponsor: National Science Foundation
Period: March 2004–February 2009
Amount: ~\$746,282
Capacity: Lead Principal Investigator (with G. McFarquhar, B. Jewett, M. Ramamurthy)

Title: Remote sensing of hazardous winter storms
Sponsor: Research Board
Period: January 2004–December 2005
Amount: ~\$18,480
Capacity: Lead Principal Investigator

Title: Studies of orographic precipitation processes
Sponsor: National Science Foundation
Period: May 2005–April 2008
Amount: ~\$326,201
Capacity: Principal Investigator (with S. Goeke)

Title: Investigations of mesoscale and microscale processes in extratropical cyclones and mesoscale convective systems
Sponsor: National Science Foundation
Period: January 2009–January-2013
Amount: ~\$1,289,230
Capacity: Lead Principal Investigator

Title: Research Experience for undergraduates
Sponsor: National Science Foundation
Period: January 2009–January-2013

Amount: ~\$12,423
 Capacity: Lead Principal Investigator

Title: Investigations of mesoscale and microscale processes in extratropical cyclones and mesoscale convective systems
 Sponsor: National Science Foundation
 Period: January 2009-March 2009
 Amount: Facilities grant for use of NCAR Mobile Integrated Sounding System, Soundings
 Capacity: Lead Principal Investigator

Title: Investigations of mesoscale and microscale processes in extratropical cyclones and mesoscale convective systems
 Sponsor: National Science Foundation
 Period: January 2009-March 2010
 Amount: Facilities grant for use of NCAR C-130, Wyoming Cloud radar, Wyoming Cloud Lidar, NCAR MISS, Soundings, Dropsondes
 Capacity: Lead Principal Investigator

Title: RICO – Continuing Research
 Sponsor: National Science Foundation
 Period: October 1, 2009-September 30, 2013
 Amount: \$800,163
 Capacity: Lead Principal Investigator

Title: Collaborative Research-Profilng of Winter Storms
 Sponsor: National Science Foundation
 Period: January 2013-December-2017
 Amount: \$942, 593
 Capacity: Lead Principal Investigator

Title: HAIPER cloud radar investigation of a Nor'Easter
 Sponsor: National Science Foundation
 Period: February 2015
 Amount: Facilities grant for use of NCAR HAIPER aircraft and HAIPER cloud radar
 Capacity: Lead Principal Investigator

Title: Elevated Nocturnal Convection - The Role of Microphysical Processes
 Sponsor: National Science Foundation
 Period: December 2014-November-2018
 Amount: \$752,507
 Capacity: Principal Investigator

Title: Collaborative Research: SNOWIE: Seeded and Natural Orographic Winter Clouds: The Idaho Experiment
 Sponsor: National Science Foundation
 Period: August 2016-July-2019
 Amount: \$505,146
 Capacity: Lead Principal Investigator

Title: Southern Ocean Clouds, Radiation, Aerosol Transport Experimental Study: SOCRATES: Microphysical processes in Southern Ocean clouds
 Sponsor: National Science Foundation

Period: June 2017 to June 2020
Amount: \$454,507
Capacity: Lead Principal Investigator

Title: Southern Ocean Clouds, Radiation, Aerosol Transport Experimental Study: SOCRATES:
Travel grant
Sponsor: National Science Foundation
Period: November 2016-October 2018
Amount: \$52,541
Capacity: Lead Principal Investigator

Title: Cloud, Aerosol and Monsoon Processes Philippines Experiment, CAMP²Ex
Sponsor: National Aeronautics and Space Administration
Period: October 2017 – October 2020
Amount: \$598,778
Capacity: Co-Principal Investigator

Title: Investigation of Microphysics and Precipitation for Atlantic Coast-Threatening Snowstorms:
IMPACTS
Sponsor: National Aeronautics and Space Administration
Period: January 2019-December 2023
Amount: \$887,990
Capacity: Lead Principal Investigator

Title: PECAN/HIWC Studies of Nocturnal Thunderstorms and High Ice Water Content in Clouds
Sponsor: National Science Foundation
Period: May 2019-April-2022
Amount: \$349,689
Capacity: Principal Investigator

Theses Supervised

M.S. degree

1. Andrews, Block M. “Ultra-Large Drop Growth and Survival in Hawaiian Rainbands” – 1989
2. Shields, Michael T., “Dynamical Forcing and Mesoscale Organization of Precipitation Bands in a Midwest Winter Cyclonic Storm” – 1990
3. Collins, Brian, Investigation of a large amplitude gravity wave in the Midwest United States: A case study of the 5 January 1998 event. – 1991.
4. Li, Meng, “Mesoscale structure of a narrow precipitation zone embedded within flow over an intense winter anticyclone” – 1992
5. Maholtra, Naresh. A comparative study of large amplitude gravity waves. – 1992.
6. Christensen, David L., “Synoptic Scale Environment of a Mesoscale Gravity Wave Event” – 1994
7. Guo, Qizhou: The role of synoptic and mesoscale forcings in the central and southern plains storm of 5-6 March 1989. 1994.
8. Szumowski, Marcin Jan, “Formation and Evolution of Rain in Warm Convective Tropical Clouds” – 1994
9. Chen, Lih-Ho, Numerical simulation of a large amplitude gravity wave. – 1994:
10. Austin, Gary R., “Doppler Radar and High Resolution Satellite Analysis of Trade Wind Clusters and Rainbands” – 1995
11. Dekker, Paul, “The Influence of Inland Rivers on the Structure of the Sea Breeze As Determined from Dual-Doppler Radar Observations” – 1996

12. Grzelak, Thomas: "The structure and evolution of a Rocky Mountain cyclone during STORMFEST – 1996.
13. Steve, Ronald A., III, "Evolution of Convective Elements in Lake-Effect Boundary Layers" – 1996 (with D. Kristovich)
14. Olthoff, L. Scott, "A 25-year Climatology of Ice Storms" – 1998
15. Barnes, James M., "A 25-Year Climatological Study of Heavy Snowfalls in the Chicago Metropolitan Area," – 1999 (Research report for non-thesis degree)
16. Miller, Dianne S. "Freezing precipitation: a synoptic weather pattern and sounding-based climatology.- 2001 (Research report for non-thesis degree)
17. Malmberg, Julie "Acid Rain Curriculum Development" 2003 (Research report for non-thesis degree)
18. Grim, Joseph: "Observations of the fine-scale structure and mechanisms of formation of banded precipitation within the northwest quadrant of two wintertime extratropical cyclones" 2003
19. Cellitti, Michael: Extreme cold air outbreaks, the polar vortex, and the large scale circulation. 2005
20. Estrem, Marcia: Analysis of vertical motions in fine-scale winter precipitation bands using wind profiler Doppler spectra. 2005
21. Davison, Jennifer: The temperature effect on the coalescence efficiency of small precipitation drops and its implications on interpreting the relative humidity effect. 2005.
22. Kruk, Michael: Bow Echoes during BAMEX: Assessing transitions in surface wind damage using WSR-88D data. 2005.
23. Snodgrass, Eric: "Precipitation characteristics from trade wind clouds during RICO derived from radar, satellite, and aircraft measurements" 2006.
24. Smith, Andrea: Explaining the variability of cloud microphysics in stratiform regions of BAMEX MCSs using high-resolution radar and optical array probe measurements. 2006.
25. Roussy, Katie: "Web based instruction in atmospheric science for elementary school education." 2006
26. Colón-Robles, Marilé: The influence of low level wind speed on droplet spectra near cloud base in trade wind cumulus. (2006)
27. Guarante, Brian: WRF simulations of a severe squall line: Comparison against high resolution dual and quad Doppler radar measurements from BAMEX. (2007)
28. Pounder, Daniel: Relationship isolation and variable elimination of soil and surface layer data through principal component analysis. (2007)
29. Plummer, David: Supercooled liquid water detection using dual-polarization radar in orographic cloud systems (2008).
30. Hampton, Justin: Study of fine scale mesoscale precipitation bands in the TROWAL region of extratropical cyclones. 2009.
31. Minor, Hillary: Trade wind cloud evolution observed by polarization radar: relationship to aerosol characteristics (2010).
32. Pitcel, Michelle: Idealized modeling of the role of stability and shear on mesoscale gravity wave evolution. (2010)
33. Rosenow, Andrew: Exploring methods to extract vertical motions in winter storms. (2011).
34. Wegman, Joseph: Electrical charging in the comma-head region of continental winter cyclones (2012)
35. Peterson, Melissa: Investigation of the comma-head stability structure of wintertime mid-latitude cyclones using high resolution observations (2012)
36. Schulz, Amanda: Understanding precipitation, cold pools and cloud arcs in the tropics. (2013)
37. Stechman, Dan: Interaction of an Upper-Tropospheric Jet with a Squall Line Originating Along a Cold Frontal Boundary (2015)
38. Finlon, Joseph: A Comparison of X-band Polarization Parameters with In-Situ Microphysical Measurements in the Comma Head of Two Winter Cyclones (2015)
39. Owens, Nathan: The role of lake enhancement in the evolution of the 2011 Chicago-area Groundhog's Day Blizzard (2016)
40. Plummer PHD
41. Rosenow PHD

42. Stechman PHD
43. Finlon PHD
44. Keeler PHD
45. Choate, Jessica: Source air feeding convection within a nocturnal mesoscale convective system during the evolution from surface-based to elevated CAPE. (2016)
46. Janiszewski, Andrew: Fine scale structure of a snowstorm over the Northeastern United States. (2018)
47. Lammers, Andrew: Effects of atmospheric profiles on local infrasound propagation (2018)
48. Adams, Alex (in progress)
49. Springer, Adam MS
50. Miller, Rose MS
51. Zaremba, Troy (in progress)
52. Varcie, Megan (in progress)

Ph.D. degree

1. Szumowski, Marcin Jan, “Rain Formation in Shallow Tropical Convection” – 1997
2. Yang, MuQun, “Origin, Maintenance and Fine Scale Structure of the 14-15 February 1992 Mesoscale Gravity Wave Observed During STORM-FEST” – 1998
3. Han, Mei “Synoptic and Mesoscale Dynamics of Snowbands in Winter Cyclones.- 2004.
4. Grim, Joseph “The development, evolution and forcing of the rear inflow jet in bow echoes during BAMEX. 2007
5. Davison, Jennifer A revised conceptual model of the tropical marine boundary layer. (2012)
6. Plummer, David: Structure and statistical analysis of the microphysical properties of the comma-head region of cold-season midlatitude cyclones (2014)
7. Keeler, Jason: Dynamics of cloud-top generating cells in winter cyclones (2015)
8. Rosenow, Andrew: Analysis of the vertical velocities and elevated instability in the comma-head of continental winter cyclones (2016)
9. Fay, Bethany, Numerical simulations of mesoscale convective systems: techniques for comparison with observations and a high resolution analysis of flow patterns in the convective region and transition zone of a simulated MCS. (2017)
10. Stechman, Dan: Observed microphysical characteristics and inferred thermodynamic processes contributing to the structure, evolution, and maintenance of nocturnal elevated mesoscale convective systems. (2018)
11. Finlon, Joseph: (in Progress)
12. Janiszewski, Andrew (in progress)
13. Miller, Rose (in progress)

Post-Doctoral Research Scientists

1. Szumowski, Marcin J.
2. Jewett, Brian J.
3. Wang, Jian-Jian
4. Goeke, Sabine

Courses Taught and Semester (F=Fall, S=Spring)

ATMS 100 Introduction to Meteorology

F87, F88, F89, S92

ATMS 101 Weather Analysis

F88, F89

ATMS 120 Severe and Hazardous Weather

S88, S89, S90, F92, F93, F94, F95, F96, F98, S99, S00, S01, F01, S02, S07, F12

ATMS 201

S19

ATMS 303 Synoptic Weather Analysis
 F09
ATMS 397 World Weather and Society
 F16
ATMS 410 (formerly 312) Radar Meteorology
 F91, S94, S96, F97, F99, F02, F04, F06, F10, S12, S14
ATMS 490 Research Review
 F90,
ATMS 401: Applied Meteorology
 , F11, F13, F15, F17
ATMS 510 (formerly 421) Precipitation Physics
 S88, S91
ATMS 403 (formerly 303) Weather Analysis and Forecasting
 S93, S95, S97, S98, S03, S04, S05, S06
ATMS 500 Synoptic Dynamics
 S08, F08, F09
ATMS 501 Mesoscale Meteorology
 F03, F05, F07, S09, S11, F14
ATMS 571 Professional Development
 F02, F03, F06, F07, F10, F15
SPECIAL: Technical Writing
 F97

Field Campaigns

1. Investigation of Microphysics and Precipitation for Atlantic Coast-Threatening Snowstorms: IMPACTS 2020-3
2. The Cloud, Aerosol and Monsoon Processes Philippines Expt (CAMP2Ex) 2019
3. Southern Ocean Clouds, Radiation, Aerosol Transport Ex, Study (SOCRATES) 2018
4. Seeded and Natural Orographic Wintertime clouds—the Idaho Experiment 2017
5. Plains Elevated Convection at Night (PECAN) 2015
6. Nor'Easter 2015
7. Profiling of Winter Storms (PLOWS) 2008-10
8. Rain in Cumulus over the Ocean experiment (RICO) 2004-5
9. Profiling of Winter Storms (PLOWS) 2003-4
10. Bow Echo and MCV Experiment (BAMEX) 2003
11. Lake-Induced Convection Experiment/Snow Band Dynamics project 1997-8
12. Small Cumulus Microphysics Experiment(SCMS) 1995
13. Cloud Isotope Project/Winter Icing and Storms Project(CIP/WISP) 1994
14. Cloud Isotope Project 1993
15. STORM Fronts Experiment Systems Test (STORM-FEST) 1992
16. Convection and Precipitation/Electrification Experiment (CaPE) 1991
17. University of Illinois Winter Precipitation Project (UNIWIPP) 1990
18. Hawaiian Rainband Project 1990
19. University of Illinois Winter Precipitation Project (UNIWIPP) 1989
20. University of Illinois Winter Precipitation Project (UNIWIPP) 1988
21. Sierra Cooperative Pilot Project (SCPP) 1986
22. Sierra Cooperative Pilot Project (SCPP) 1985
23. Joint Hawaiian Warm Rain Project 1985
24. Colorado Orographic Seeding Experiment IV 1984
25. Utah Federal/State Orographic Seeding program 1983
26. Colorado Orographic Seeding Experiment III 1981-2
27. Colorado Orographic Seeding Experiment II 1979
28. Colorado Orographic Seeding Experiment I 1978

International, national or local professional committees or working group

1. Federal/State Hypothesis Assessment Committee for Weather Modification Research (1984)

2. Weather Modification Association Standards and Ethics Committee (1986-88)
3. American Meteorological Society Committee on Planned and Inadvertent Weather Modification (1988-91)
4. National Storm Program Winter Program Working Group (1989)
5. Hawaiian Rainband Program Steering Committee (1990)
6. National Storm Fronts Experiment Steering Committee (1991)
7. National Center for Atmospheric Research Cloud Physics Working Group (1993-94)
8. Global Energy and Water Cycle Experiment (GEWEX) Cloud Systems Study (GCSS) Extratropical Layer Clouds Working Group (1993-94)
9. American Meteorological Society Cloud Physics Committee (1995-97)
10. Winter Icing and Storms Project Steering Committee (1996-98)
11. American Meteorological Society Cloud Physics Committee (Chairman) (1998-2001)
12. National Science Foundation Observing Facilities Advisory Panel (1999-2002 [vice chairman 2000-01, chairman 2001-2])
13. American Meteorological Society Publications Commission (2003-2011)
14. USWRP Cool Season Planning Committee chair (2003-4)
15. American Meteorological Society Conference Planning committee – Mesoscale Conference 2005
16. American Meteorological Society Conference Planning committee – Radar Conference 2005.
17. American Meteorological Society Radar committee (2007-2011)
18. University Corporation for Atmospheric Research Representative (2006-12)
19. University Corporation for Atmospheric Research Members Committee (2008-09)
20. AMS Heads and Chairs Committee (2006,2008,2010)
21. NCAR Research Applications Program Advisory Committee (2006-17)
22. NSF Facilities Meeting Planning Committee (2007)
23. National Science Foundation Panel-Vortex Campaign (2008)
24. National Science Foundation Site Visit Team – CASA (2009, 2010, 2011)
25. UCAR President’s Advisory Committee on University Relations (2010-15)
26. Chair, University of Utah Department of Atmospheric Sciences Review committee (2010)
27. Department of Energy Review Panel (2012)
28. AMS Fellows selection committee (2010-12)
29. AMS Awards Committee (2013-2018)
30. AMS Board on Data Stewardship (2013-2018)
31. UCAR Heads and Chairs representative (2006-2017)
32. AMS Publications Commission (2005-2019)
33. AMS Publications Commissioner (2013-2018)
34. Vice president-International Commission on Clouds and Precipitation (ICCP) (2012-16)
35. Colorado State University College of Engineering Dean’s Advisory Board (2015-2017)
36. Review Board: State University of New York Oswego, Department of Meteorology (2015)
37. Review Board: University of Nebraska-Lincoln, Department of Earth and Atmos Sci (2015)
38. Review Board: University of South Alabama Department of Meteorology (2016)
39. Review Board: University of Vienna Department of Meteorology and Geology (2016)
40. NCAR Earth Observing Laboratory Advisory Committee (2017-2020)
41. Review Board: University of Wyoming Department of Atmospheric Sciences (2019)

Chair, Session Chair or Program Committee of scientific conference/symposium

Session co-chairman: Final summary session, Workshop on Precipitation Enhancement, American Meteorological Society (1984)

Panelist: Cloud Physics and Radar Committee, 25th Battan Memorial Conference, American Meteorological Society (1987)

Session Co-chairman: Orographic Cloud Modeling Panel, 2nd International Cloud Modeling Conference, World Meteorological Organization, Toulouse, France (1988)

Session Chairman: 6th Conference on Mesoscale Processes, American Meteorological Society, Portland, OR (1994)

Program Committee: Conference on Cloud Physics, American Meteorological Society Dallas, TX (1995)

Session Chairman: Conference on Cloud Physics, American Meteorological Society, Dallas, TX (1995)

Program Chairman: Conference on Cloud Physics, American Meteorological Society (1998)

Session Chairman: Conference on Cloud Physics, American Meteorological Society (1998)

Session Chairman, 29th International Conference on Radar Meteorology, Montreal, Canada. (1999)

Session Chairman, 13th International Conference on Clouds and Precipitation, Montreal, Canada. (1999)

Co-Chairman, USWRP Cool Season Precipitation Forecasting Workshop (2003)

Session Chairman, 32nd AMS conf. Radar Meteorology, Albuquerque, NM (2005)

Chairman, RICO Workshop, 18 – 21 January, Boulder, CO (2006)

Session Chairman, 12th AMS Conf. Cloud Physics (2006)

Radar Meteorology Committee, American Met. Soc. (2007-2012)

Session Chairman, Pan-GCSS Meeting on Advances on Modeling and Observing Clouds and Convection, Toulouse, France (2008)

Session Chairman: International Conference on Clouds and Precipitation, Cancun, Mexico (2008)

Organizer, AMS Heads and Chairs committee, Boulder, CO (2010)

Program Co-Chairman: American Meteorological Society 35th Conf on Radar Meteorology (2011)

Select Seminars outside University of Illinois

1. National Oceanic and Atmospheric Administration, Environmental Research Laboratory, Seminar on Radiometric Observations, August 1985
2. McGill University, Seminar on Microphysical Processes in Mountain Storms, December 1986
3. National Center for Atmospheric Research, Seminar on Warm Rain Processes, July 1991
4. Northern Illinois University, Seminar on Radar Measurements in Winter Storms, 1994
5. University of Alabama at Huntsville, Seminar on Mesoscale Processes Producing Winter Precipitation Bands, 1997
6. North Carolina State University, Seminar on Mesoscale Gravity Waves, 1997
7. Purdue University, Seminar on Warm Rain Processes in Tropical Clouds, 1998
8. University of Wisconsin, Seminar on Mesoscale Gravity Waves, 1998
9. Desert Research Institute, University of Nevada at Reno, Seminar on Mesoscale Gravity Waves, 1999
10. American Meteorological Society Central Illinois Chapter, Seminar on Freezing Precipitation, 2000
11. Colorado State University, Seminar on Mesoscale Gravity Wave Genesis, 2001
12. University of Wisconsin, Seminar on Heavy snowstorms, 2003
13. University of Puerto Rico, Seminar on Trade wind clouds 2006
14. University of Northern Illinois, Seminar on Trade wind clouds 2006
15. National Science Foundation. The Rain in Cumulus over the Ocean Campaign 2006
16. National Center for Atmospheric Research. RICO: From dinner napkin to publication. 2008
17. Western Illinois University How tornadoes form. 2008
18. Purdue University. Precipitation characteristics of trade wind clouds derived from radar, satellite and aircraft measurements. 2009
19. National Weather Service, Lincoln. The Profiling of Winter Storms experiment. 2010
20. Chinese Meteorological Administration, May 2010, Beijing, China
21. Northern Illinois University, DeKalb, IL 2011
22. National Center for Atmospheric Research, Boulder, CO 2011
23. National Center for Atmospheric Research, Boulder, CO 2012
24. University of South Alabama, Mobile, AL 2012
25. University of Manchester, England 2013
26. Penn State University 2014

27. Fine-scale Structure of the 2-3 February 2015 Nor'easter using high-resolution HIAPER Cloud Radar Observations. University of North Dakota, Department of Atmospheric Sciences

Reviewer for journals and federal/state agencies

All American Meteorological Society and American Geophysical Union Atmospheric Science Journals, including:

1. Boundary Layer Meteorology
2. Journal of Atmospheric and Oceanic Technology
3. Journal of Atmospheric Research
4. Journal of the Atmospheric Sciences
5. Monthly Weather Review
6. Journal of Applied Meteorology
7. Journal of Geophysical Research - Atmospheres
8. Journal of Weather Modification
9. Journal of the Royal Meteorological Society
10. Antarctic Science

Government agencies including

11. National Oceanic and Atmospheric Administration
12. National Science Foundation
13. National Aeronautics and Space Administration
14. Department of Energy

University or college level committees

1. University Senate - 1989-91
2. University Senate Admissions Committee - 1990-92
3. University Task Force on the Environment - Graduate Education Subcommittee - 1993
4. University Senate Committee on Student Discipline - 1995-98
5. LAS Committee on Admissions and Academic Standards - 1998-2000
6. LAS Committee on Independent Plan of Study - 2003-2005
7. LAS Committee on Committees - 2008
8. Campus Promotion and Tenure committee - 2015-17

Membership in professional societies

1. American Geophysical Union (full member)
2. American Meteorological Society (fellow)