

Robert M. Rauber Professor and Head-Department of Atmospheric Sciences

- Education:** *Ph.D.* (1985), *M.S.* (1981) Atmospheric Science, Colorado State University
B.S. (1978, Physics), *B.A.* (1973, English) Pennsylvania State University
- Professional Experience:** *Head, Department of Atmospheric Sciences*, Univ. of Illinois (2008-present)
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; (1987-92)
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)
- Publications:** Over 75 publications in reviewed literature in the following journals and books: *Nature*, *Monthly Weather Review*, *the Journal of Atmospheric Sciences*, *the Journal of Applied Meteorology*, *the Journal of Atmospheric and Oceanic Technology*, *the Journal of Geophysical Research*, *Geophysical Research Letters*, *the Bulletin of the American Meteorological Society*, *Weather and Forecasting*, *Encyclopedia of the Atmospheric Sciences*, *Encyclopedia of Imaging Technology*, *Encyclopedia of World Geography*, *Handbook of Meteorology*, *World Book Encyclopedia* (2002, 1st ed., 2005, 2nd ed, 2008, 3rd ed.):
- Textbooks:** *Severe and Hazardous Weather* (currently used by over 90 universities)
Active learning exercises for Severe and Hazardous Weather
Instructor's Manual for Severe and Hazardous Weather
- Grants:** *Principal investigator on 18 National Science Foundation Grants* (total awarded ~ \$7.5 million)
Principal investigator on 2 COMET/UCAR grants (total awarded ~ \$68,000)
Principal investigator in 1 AT&T grant (total awarded ~ \$161,000)
Principal investigator on NSF facility grants (Facilities awarded: NCAR C130, Electra, King Air aircraft, CP2, CP3, CP4, CHILL, SPOL radars, Sounding and surface facilities, dropsondes)
Principal investigator on 4 Univ. of Illinois Research Board Grants (total awarded ~ \$50,000)
Principal investigator on 2 Univ. of Illinois Education Grants (total awarded ~ \$38,000)
- Editorships:** *Chief Editor, Journal of Applied Meteorology and Climatology* (2005-2010)
Chief Editor, Journal of Applied Meteorology (2003-2005)
Editor, Journal of Applied Meteorology (1998-2002)
Associate Editor, Weather and Forecasting (1998-2001)
- Special awards and honors** *Fellow, American Meteorological Society* (2006)
Delta Sigma Omicron Distinguished Teaching Award, University of Illinois (2002)
Alumni Discretionary Award (2003)
Campus Award for Excellence in Graduate and Professional Teaching, Univ. of Illinois (2006)
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))
- Conf. Chair:** *American Meteorological Society Conference on Cloud Physics* (1998)
United States Weather Research Program Quantitative Precipitation Workshop (2004)
- Current Panels and Committees** *American Meteorological Society Radar Meteorology Committee* (2007-2010)
National Center for Research-Research Appl. Program Advisory Comm. (2006-)
University Corporation for Atmospheric Research Members Committee (2007-)
University Corporation for Atmospheric Research Member Representative (2006-)
American Meteorological Society Publications Commission (2003-2010)
University Corporation for Atmospheric Research Heads and Chairs representative (2006-)
- Field Campaigns** *Investigator in 21 Field campaigns including (most recently) the Rain in Cumulus over the Ocean (RICO, 2004-5), Profiling of Winter Storms (PIOWS, 2004), the Bow Echo and MCV Experiment (BAMEX, 2003) the Snow Band Dynamics project (1997-98), and the Small Cumulus Microphysics Study (SCMS, 1995)*

Publications:

Books

1. Rauber, R. M., J. Walsh and D. Charlevoix, 2002: Severe and Hazardous Weather, Kendall Hunt Publishing Company, 616 pp.
2. Rauber, R. M., J. Walsh and D. Charlevoix, 2002: Active learning exercises for Severe and Hazardous Weather, Kendall Hunt Publishing Company, 102 pp.
3. Rauber, R. M., J. Walsh and D. Charlevoix, 2002: Instructor's manual for Severe and Hazardous Weather, Kendall Hunt Publishing Company, 273 pp.
4. 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.
5. 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.
6. 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.
7. 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 (Now used at over 90 Universities as of Fall 2008 semester)
8. 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, in press.
9. 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, in press.

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. In press.
10. Rauber, R.M., 2008: Storm. World Book Encyclopedia. World Book Publishing, Chicago, IL. In press.
11. Rauber, R.M., 2008: Thunderstorm. World Book Encyclopedia. World Book Publishing, Chicago, IL. In press.
12. Rauber, R.M., 2008: Flash Flood. World Book Encyclopedia. World Book Publishing, Chicago, IL. In press.

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 ultragrant 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. Rauber, R. M., 2003: Editorial. *J. Appl. Met. Clim.*, **42**, 3.
43. Rauber, R. M., M. Garstang, and D. A. R. Kristovich, 2003: Editorial. *J. Appl. Met. Clim.*, **42**, 3.
44. 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..
45. Ralph, M., R. M. Rauber, B. F. Jewett, D. E. Kingsmill, P. Pisano, P. Pugnier, 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.
46. 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.
47. 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.
48. 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.
49. 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.
50. Rauber, R. M., K. Heideman, and J. Klemp, 2006: Editorial. *J. Appl. Met. Clim.*, **45**, 3.
51. Jorgensen, D. P., R. M. Rauber, K. F. Heideman, M. E. Fernau, M. A. Friedman, and A. L. Schien, 2006: The history of scholarly publications of the American Meteorological Society. *Bull. Amer. Meteor. Soc.*, **88**, 1122-1126
52. Jorgensen, D. P., R. M. Rauber, K. F. Heideman, M. E. Fernau, M. A. Friedman, and A. L. Schien, 2007: What happens to my paper after it is sent to the AMS? Peer Review and Publication. *Bull. Amer. Meteor. Soc.*, **88**, 1126-1129.
53. Jorgensen, D. P., R. M. Rauber, K. F. Heideman, M. E. Fernau, M. A. Friedman, and A. L. Schien, 2007: What determines how much we pay? The cost of AMS publications. *Bull. Amer. Meteor. Soc.*, **88**, 1129-1131.
54. Jorgensen, D. P., R. M. Rauber, K. F. Heideman, M. E. Fernau, M. A. Friedman, and A. L. Schien, 2007: What's new – The electronic workflow. *Bull. Amer. Meteor. Soc.*, **88**, 1131-1134.
55. McFarquhar, G.M., M.S. Timlin, R.M. Rauber, B.F. Jewett, J.A. Grim and D.P. Jorgensen, 2007a: Vertical variability of cloud hydrometeors in the stratiform region of mesoscale convective systems and bow echoes. *Mon. Wea. Rev.* **135**, 3405-3428.
56. Cronsce 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.
57. 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.

58. 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.
59. 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.
60. 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
61. Smith, A., R. M. Rauber, G. M. McFarquhar, B.F. Jewett, M. S. Timlin, and J. A. Grim, 2008: Microphysical and Thermodynamic Structure and Evolution of the Trailing Stratiform Regions of Mesoscale Convective Systems during BAMEX: Part I: Observations. *Mon. Wea. Rev.*, in press
62. Grim, J.A., G. M. McFarquhar, R. M. Rauber, A. Smith, and B.F. Jewett, 2008: 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.*, in press.
63. Snodgrass, E., L. Di Girolamo, and R. M. Rauber, 2008: Precipitation characteristics of Trade Winds Clouds during RICO Derived from Radar, Satellite and Aircraft Measurements. *J. Appl. Meteor. and Climatology*. In press.
64. Grim, J.A., R. M. Rauber, G. M. McFarquhar, A. Smith, and B.F. Jewett, 2008: Development and Forcing of the Rear Inflow Jet in a Rapidly Developing and Decaying Squall Line During BAMEX. *Mon. Wea. Rev.*, accepted with revisions.

Non-reviewed publications—articles, abstracts, and conference presentations:

1. Rauber, R. M., 1978: Operation manual for the Arecibo Upper Atmosphere Optical Emissions Laboratory, Arecibo Observatory, Arecibo, Puerto Rico, August.
2. Tan, K., V. H. Levenson, R. M. Rauber, and P. A. Walsh, 1979: Temperature, stability, and the vertical distribution of AgI released from the ground. 7th Conf. Weather Modif., AMS, Banff, Alberta, 8–12 October.
3. Rilling, R. A., R. M. Rauber, and K. Tan, 1979: Determination of the residence characteristics of silver iodide in a mountain valley by a graphite filter sampling technique. 7th Conf. Weather Modif., AMS, Banff, Alberta, 8–12 October.
4. Rauber, R. M., 1981: Microphysical processes in two stably stratified orographic cloud systems. M.S. thesis, Atmospheric Science Paper #337, Dept. of Atmos. Sci., Colorado State Univ., Ft. Collins, CO 80523.
5. Rauber, R. M., and L. O. Grant, 1981: Supercooled water zones in stably stratified flow over a mountain barrier. 2nd Conf. Mountain Meteor., AMS, Steamboat Springs, CO, 9–12 November. Grant, L. O., R. M. Rauber, and J. Greenson, 1981: Radar descriptions of Rocky Mountain clouds. 8th Conf. Planned and Inadvertent Wea. Modif., AMS, Reno, NV, 5–7 October.
6. Rauber, R. M., and L. O. Grant, 1981: Comparison of model determined and observed orographic cloud characteristics. 8th Conf. Planned and Inadvertent Wea. Modif., AMS, Reno, NV, 5–7 October.

7. Rauber, R. M., and L. O. Grant, 1981: Microphysical processes and weather modification potential of two stably stratified orographic storms. 8th Conf. Planned and Inadvertent Wea. Modif., AMS, Reno, NV, 5–7 October.
8. Rauber, R. M., and L. O. Grant, 1982: COSE III Operation Log. Dept. of Atmos. Sci., Colorado State Univ., Ft. Collins, CO 80523.
9. Blumenstein, R. R., R. M. Rauber, and L. O. Grant, 1982: Microphysical growth processes during a rapidly evolving orographic cloud system. Conf. on Cloud Physics, AMS, Chicago, IL, 15–18 November.
10. Grant, L. O., P. J. DeMott, and R. M. Rauber, 1982: An inventory of ice crystal concentrations in a series of stable orographic cloud systems. Conf. on Cloud Physics, AMS, Chicago, IL, 15–18 November.
11. Rauber, R. M., L. O. Grant, and J. B. Snider, 1982: Spatial and temporal variations of cloud liquid water determined by aircraft and microwave radiometer measurements in northern Colorado orographic storms. Conf. on Cloud Physics, AMS, Chicago, IL, 15–18 November.
12. Uttal, T., R. M. Rauber, and L. O. Grant, 1982: Budget analysis of liquid water, vapor, and ice during a mid-December Colorado orographic cloud system. Conf. on Cloud Physics, AMS, Chicago, IL 15–18 November.
13. Sherretz, L. A., R. M. Rauber, and L. D. Nelson, 1983: A comparison of the potential of cloud seeding to enhance mountain snowpack in Colorado during dry, normal, and wet winters. Available from Colorado Dept. Natural Resources, Wea. Modif. Program, 1313 Sherman St., Rm. 718, Denver, CO 80203.
14. Rauber, R. M., and L. O. Grant, 1983: Preliminary analysis of the hypothesis used in the Utah operational weather modification program. Final Report to the Utah Dept. of Water Resources, 1636 W. North Temple, Salt Lake City, UT 84116.
15. Orville, H. D., W. M. Cotton, D. B. Johnson, L. Davis, and R. M. Rauber, 1984: Report of the Hypothesis Assessment Committee for the Federal/State Cooperative Weather Modification Program. Submitted to Colorado State University, Dept. of Atmos. Sci., Ft. Collins, CO 80523.
16. Grant, L. O., and R. M. Rauber, 1984: Hypothesis evaluation and development for seeding continental wintertime mountain cloud systems. 9th Conf. on Weather Modification, AMS, Park City, UT, 21–23 May.
17. Lee, R. R., and R. M. Rauber, 1984: Condensate supply rates in a wintertime orographic cloud system. 9th Conf. on Weather Modification, AMS, Park City, UT, 21–23 May.
18. Rauber, R. M., D. Feng, L. O. Grant, and J. B. Snider, 1984: The spatial and temporal distribution of supercooled cloud water during wintertime storms over the northern Colorado Rockies. 9th Conf. on Weather Modification, AMS, Park City, UT, 21–23 May.
19. Rauber, R. M., D. Feng, L. O. Grant, and J. B. Snider, 1984: Continuous spatial and temporal variations of supercooled water during wintertime mountain storms using a passive microwave radiometer. 9th Intl. Cloud Physics Conf., Tallinn, Estonia, USSR.
20. Cotton, W. R., G. J. Tripoli, and R. M. Rauber, 1984: A numerical simulation of small scale topographic variations on the generation of aggregate snow flakes. 9th Intl. Cloud Physics Conference, Tallinn, Estonia, USSR.
21. Rauber, R. M., D. Feng, L. O. Grant, and J. B. Snider, 1984: The spatial and temporal distribution of supercooled cloud liquid water during wintertime storms over the northern Colorado Rockies. Atmospheric Science Paper #382. Dept. of Atmos. Sci., Colorado State Univ., Ft. Collins, CO 80523.
22. Rauber, R. M., and L. O. Grant, 1985: Precipitation augmentation potential of wintertime storms over the Tushar Mountains of Utah. Final Report to the Utah Dept. of Water Resources, 1636 W. North Temple, Salt Lake City, UT 84116.
23. Rauber, R. M., and L. O. Grant, 1985: COSE IV Operation Log. Dept. of Atmos. Sci., Colorado State Univ., Ft. Collins, CO 80523, 183 pp.
24. Rauber, R. M., 1985: Aggregation, the role of crystal habit. 4th Scientific Conf. Weather Modif., WMO, Honolulu, HI 12–14 August.

25. Rauber, R. M., and L. O. Grant, 1985: Supercooled liquid water structure of a shallow orographic cloud system in southern Utah. 4th Scientific Conf. Weather Modif., WMO, Honolulu, HI, 12–14 August.
26. Cotton, W. R., R. M. Rauber, E. Mulvihill, and G. Tripoli, 1985: The simulation of orographic snowfall over the northern Colorado Rockies, A blind simulation experiment. 4th Scientific Conf. Weather Modif., WMO, Honolulu, HI, 12–14 August.
27. Uttal, T., R. M. Rauber, and L. O. Grant, 1985: Distribution of liquid, vapor and ice in the upper levels of an orographic cloud system: Total water budget from field observations. 4th Scientific Conf. Weather Modif., WMO, Honolulu, HI, 12–14 August.
28. Uttal, T., L. O. Grant, and R. M. Rauber, 1985: Trajectories of ice crystals through the upper levels of an orographic cloud and resulting calculations of ice mass in the cloud. 4th Scientific Conf. Weather Modif., WMO, Honolulu, HI, 12–14 August.
29. Rauber, R. M., 1985: Physical structure of northern Colorado River Basin cloud systems. Atmospheric Science Paper #390, Dept. of Atmos. Sci., Colorado State Univ., Ft. Collins, CO 80523.
30. Rogers, D. C., R. M. Rauber, and L. O. Grant, 1986: Studies of wintertime storms over the Tushar Mountains of Utah. Final Report to the Dept. of Water Resources, 1636 W. North Temple, Salt Lake City, UT 84116.
31. Grant, L. O., and R. M. Rauber, 1986: Weather modification related characteristics of Colorado and Utah orographic clouds. 10th Conf. on Wea. Mod., AMS, Arlington, VA, 27–30 May.
32. Rauber, R. M., 1986: Ice particle concentrations and evidence for ice multiplication in wintertime storms over the northern Colorado River basin. 10th Conf. on Wea. Mod., AMS, Arlington, VA, 27–30 May.
33. Rauber, R. M., 1986: Aggregation in wintertime cloud systems over the northern Colorado Rockies. Conf. on Cloud Phys., AMS, Snowmass, CO, 22–26 September.
34. Deshler, T., R. M. Rauber, and J. H. Humphries, 1986: A comparison of snow-fall characteristics from winter orographic storms over coastal and inland mountain barriers. Conf. on Cloud Phys., AMS, Snowmass, CO, 22–26 September.
35. Blumenstein, R., and R. M. Rauber, 1986: Ice nucleation kinetics in a theoretical cloud model. Conf. on Cloud Phys., AMS, Snowmass, CO, 22–26 September.
36. Huggins, A. W., R. M. Rauber, T. F. Lee, A. P. Kuciauskas, G. L. Hemmer, C. J. Wilcox, R. D. Elliott, D. A. Griffith, and J. A. Flueck, 1986: SCPP Meteorological and Statistical Support, Interim Progress Report to the Dept. of the Interior, Bureau of Reclamation, Div. of Atmos. Res. Research, Contract No. 4-CR-81-03860, available from BOR, DARR, Bldg. 67, Denver Federal Center, Denver, CO 80225, 375 pp.
37. Orville, H. D., W. R. Cotton, L. G. Davis, D. B. Johnson, and R. M. Rauber, 1986: A Program of Federal/State/Local Cooperative Weather Modification Research: Design Considerations. Part I: Hypothesis Description and Assessment. Prepared for Weather Modification Program Office, NOAA, Contract NA83RAC00088. Dept. of Atmos. Sci., Colorado State Univ., Ft. Collins, CO 80523.
38. Long, A. B., J. B. Snider, R. M. Rauber, and K. Sassen, 1986: Investigations of winter mountain storms in Utah, Chapter 6, Supercooled water. Final report of the Utah Dept. of Natural Resources, Div. of Water Resources to NOAA. Alexis B. Long, P.I., Atmos. Sci. Center, Desert Research Institute, Reno, NV 89506.
39. Rauber, R. M., and M. Heggli, 1987: The influence of cloud droplets on the measurement of ice particle concentrations with a Particles Measuring Systems 2D-C optical array probe. 6th Symp. on Met. Obs. and Instrumentation, AMS, New Orleans, LA, 12–16 January.
40. Heggli, M., R. M. Rauber, and J. B. Snider, 1987: Evaluation of a dual-channel radiometer designed to measure integrated water vapor and cloud liquid in the atmosphere. 6th Symp. on Met. Obs. and Instrumentation, AMS, New Orleans, LA, 12–16 January.
41. Hemmer, G. L., R. M. Rauber, A. W. Huggins, T. F. Lee, A. P. Kuciauskas, C. J. Wilcox, and R. D. Elliott, 1987: SCPP Meteorological and Statistical Support, Interim Progress Report to the Dept. of

- the Interior, Bureau of Reclamation, Div. of Atmos. Res. Research, Contract No. 4-CR-81-03860, available from BOR, DARR, Bldg. 67, Denver Federal Center, Denver, CO 80225, 152 pp.
42. Huggins, A. W., R. M. Rauber, T. F. Lee, A. P. Kuciauskas, G. L. Hemmer, C. J. Wilcox, R. D. Elliott, D. A. Griffith, and J. A. Flueck, 1987: SCPP Meteorological and Statistical Support, Final Report to the Dept. of the Interior, Bureau of Reclamation, Div. of Atmos. Res. Research, Contract No. 4-CR-81-03860, available from BOR, DARR, Building 67, Denver Federal Center, Denver, CO 80225, 306 pp.
 43. Heggli, M., and R. M. Rauber, 1987: Winter storms over the central Sierra, Nevada: Observations of supercooled liquid water 1976–1987. 11th Conf. Wea. Modif., Edmonton, Alberta, 6–9 October.
 44. Rauber, R. M., 1988: Complex microphysical interactions within a central Sierra Nevada orographic cloud system. 10th Intl. Cloud Physics Conf., Bad Homburg, Federal Republic of Germany.
 45. Rauber, R. M., and R. S. Rasmussen, 1988: Panel Recommendations, Orographic Cloud Modeling, 2nd. Intl. Cloud Modeling Workshop Proceedings, World Meteor. Org.
 46. Ramamurthy, M. K., R. M. Rauber, B. P. Collins, and P. C. Kennedy, 1989: Dramatic evidence of gravity-wave induced precipitation bands: A twin case study. 12th Conf. Weather Analysis and Forecasting, Monterey, CA, Amer. Meteor. Soc.
 47. Rauber, R. M., M. T. Shields, and M. K. Ramamurthy, 1989: Dynamic forcing and mesoscale organization of precipitation bands in a Midwest winter cyclonic storm. 12th Conf. Weather Analysis and Forecasting, Monterey, CA, Amer. Meteor. Soc.
 48. Shields, M. T., R. M. Rauber, and M. K. Ramamurthy, 1990: Dynamical forcing and mesoscale organization of precipitation bands in a Midwest winter cyclonic storm. 4th Conf. on Mesoscale Processes, Boulder, CO, Amer. Meteor. Soc.
 49. Ramamurthy, M. T., B. P. Collins, R. M. Rauber, and P. C. Kennedy, 1990: Dramatic evidence of atmospheric solitary waves. 4th Conf. on Mesoscale Processes, Boulder, CO, Amer. Meteor. Soc.
 50. Ochs, H. T., J. Su, R. M. Rauber, 1990: The visualization of meteorological data. 6th Intl. Conf. on Interactive Information and Processing Systems for Meteorology, Oceanography, and Hydrology, Anaheim, CA, Amer. Meteor. Soc.
 51. Ramamurthy, M. K., and R. M. Rauber, 1991: UNIWIPP: A University of Illinois field experiment to investigate the structure of mesoscale precipitation in winter storms. 1st Conf. on Winter Storms, New Orleans, LA, Amer. Meteor. Soc., 270–271.
 52. Rauber, R. M., and M. K. Ramamurthy, 1991: The St. Valentine's Day ice storm—An extreme freezing rain disaster. 1st Conf. on Winter Storms, New Orleans, LA, Amer. Meteor. Soc., 272–273.
 53. Collins, B. P., M. K. Ramamurthy and R. M. Rauber, 1991: Gravity wave induced precipitation bands: A case study. 1st Conf. on Winter Storms, New Orleans, LA, Amer. Meteor. Soc., 274–275.
 54. Li, M., R. M. Rauber and M. K. Ramamurthy, 1991: Mesoscale structure of narrow precipitation zones embedded within flow over an intense winter anticyclone. 1st Conf. on Winter Storms, New Orleans, LA, Amer. Meteor. Soc., 276–277.
 55. 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. 1st Conf. on Winter Storms, New Orleans, LA, Amer. Meteor. Soc., 278–279.
 56. Malhotra, N. K., M. K. Ramamurthy and R. M. Rauber, 1991: A comparative study of large amplitude atmospheric gravity waves. 1st Conf. on Winter Storms, New Orleans, LA, Amer. Meteor. Soc., 280–282.
 57. Ramamurthy, M. K., R. M. Rauber, B. P. Collins and N. K. Malhotra, 1992: An observational study of large amplitude atmospheric solitary waves. 5th Conf. on Mesoscale Processes, Atlanta, GA, Amer. Meteor. Soc.
 58. Rauber, R. M., M. K. Ramamurthy and A. Tokay, 1992: A Doppler radar study of an extreme freezing rain disaster: The St. Valentine's Day ice storm. 5th Conf. on Mesoscale Processes, Atlanta, GA, Amer. Meteor. Soc.

59. Rauber, R. M., K. V. Beard, H. T. Ochs, and L. J. Miller, 1992: Raindrop formation in Hawaiian rainbands. 11th Intl. Conf. on Clouds and Precipitation, Montreal, Canada, International Commission on Clouds and Precipitation, August 17–21.
60. Rauber, R.M., 1992: Mesoscale precipitation events associated with near-stationary frontal zones in wintertime. International Symposium on Torrential Rain and Flood, Huangshan City, China (1992)
61. Austin, G. R., R. M. Rauber, H. T. Ochs, K. V. Beard, and L. J. Miller, 1993: Role of eddy circulations in early formation of island-induced tropical rainbands as determined from dual-Doppler radar analysis. Preprints, 26th Intl. Conf. Radar Meteorology, Norman, OK, Amer. Meteor. Soc., May 24–28.
62. Szumowski, M. J., R. M. Rauber, H. T. Ochs, K. V. Beard, and L. Jay Miller, 1993: Development of precipitation in convective tropical rainbands based on dual-Doppler radar and aircraft data analyses. Preprints, 26th Intl. Conf. Radar Meteorology, Norman, OK, Amer. Meteor. Soc., May 24–28.
63. Shields, M. T., R. M. Rauber and M. K. Ramamurthy, 1993: Doppler radar analysis of a severe spring snow storm. Preprints, 26th Intl. Conf. on Radar Meteorology, Norman, Oklahoma, Amer. Meteor. Soc., Boston.
64. Grzelak, T. R., M. K. Ramamurthy and R. M. Rauber, 1993: The development and structure of occlusions in winter cyclones. 13th Conf. on Weather Analysis and Forecasting, Vienna, Virginia, Amer. Meteor. Soc., Boston.
65. Christensen, D. L., R. M. Rauber and M. K. Ramamurthy, 1993: Synoptic scale environment of a mesoscale gravity wave, 13th Conf. on Weather Analysis and Forecasting, Vienna, Virginia, Amer. Meteor. Soc., Boston.
66. Ochs, H. T., R. M. Rauber, G. R. Austin, M. J. Szumowski, K. V. Beard, and L. J. Miller, 1993: Precipitation processes in convective tropical rainbands. 20th Conf. on Hurricanes and Tropical Meteorology, San Antonio, TX, Amer. Meteor. Soc.
67. Szumowski, M. J., R. M. Rauber, K. V. Beard and H. T. Ochs, 1993: Development of precipitation in convective tropical rainbands. Fourth International Conference on Precipitation: Hydrological and Meteorological Aspects of Rainfall Measurement and Prediction, Iowa City, Iowa.
68. Austin, G. R., R. M. Rauber, K. V. Beard and H. T. Ochs, 1993: Horizontal shear and early formation of island-induced tropical rainbands. Fourth International Conference on Precipitation: Hydrological and Meteorological Aspects of Rainfall Measurement and Prediction, Iowa City, Iowa.
69. Rauber, R. M., M. K. Ramamurthy, and D. L. Christensen, 1994: Structure of a mesoscale gravity wave observed during STORMFEST. 6th Conf. on Mesoscale Processes, Portland, OR, Amer. Meteor. Soc.
70. Laird, N. F., D. A. R. Kristovich, H. T. Ochs III, and R. M. Rauber, 1994: Mesoscale interactions within the boundary layer behind the Cape Canaveral sea-breeze front. 6th Conf. on Mesoscale Processes, Portland, OR, Amer. Meteor. Soc.
71. Grzelak, T. R., M. K. Ramamurthy, and R. M. Rauber, 1994: The development and structure of rainbands within an occluded cyclone during STORM-FEST. 6th Conf. on Mesoscale Processes, Portland, OR, Amer. Meteor. Soc.
72. Austin, G. R., L. J. Miller, R. M. Rauber, and H. T. Ochs III, 1994: Early formation of island-induced tropical rainbands observed during the Hawaiian Rainband Project. 6th Conf. on Mesoscale Processes, Portland, OR, Amer. Meteor. Soc.
73. Szumowski, M. J. R. M. Rauber, H. T. Ochs III, K. V. Beard, and L. J. Miller, 1994: Development of precipitation in convective tropical rainbands based on dual-Doppler radar and aircraft data analyses. 6th Conf. on Mesoscale Processes, Portland, OR, Amer. Meteor. Soc.
74. Rauber, R. M., H. T. Ochs III, and J. Su, 1995: An analysis and visualization system for optical array probe data from instrumented aircraft. Conf. on Cloud Physics, Dallas, TX, January 1995, Amer. Meteor. Soc., 86–89.

75. Laird, N. F., D. A. R. Kristovich, H. T. Ochs III and R. M. Rauber, 1995: Radar observations of convective clouds developing behind a sea breeze front. Conf. on Cloud Physics, Dallas, TX, January 1995, Amer. Meteor. Soc., 263–266.
76. Szumowski, M. J., R. M. Rauber, H. T. Ochs III, K. V. Beard and L. J. Miller, 1995: Formation and evolution of rain in warm, convective tropical clouds. Conf. on Cloud Physics, Dallas, TX, January 1995, Amer. Meteor. Soc., 371–373.
77. Smith, R. B., D. Rye, R. M. Rauber, H. T. Ochs III, and G. Kok, 1995: Stable isotopes of water in the troposphere. Conf. on Cloud Physics, Dallas, TX, January 1995, Amer. Meteor. Soc., 527–529.
78. Ochs, H. T. III, G. R. Austin, R. M. Rauber, and L. J. Miller, 1995: Formation of tropical rainbands in Hawaii. 21st Conf. on Hurricanes and Tropical Meteorology, Miami, FL, April 1995, Amer. Meteor. Soc., 351–353.
79. Rauber, R. M., N. F. Laird, D. A. R. Kristovich, H. T. Ochs III and L. J. Miller, 1995: The Cape Canaveral sea breeze: Kinematic structure and thunderstorm initiation. 21st Conf. on Hurricanes and Tropical Meteorology, Miami, FL, April 1995, Amer. Meteor. Soc., 655–657.
80. Ochs, H. T. III, G. R. Austin, R. M. Rauber, and L. J. Miller, 1995: Formation of tropical rainbands in Hawaii. Reprints of the AMS Conference on Hurricanes and Tropical Meteorology, Miami, Florida.
81. Rauber, R. M. and H. T. Ochs III, 1995: Simultaneous satellite and radar measurements of cloud and precipitation structure in tropical trade wind cloud clusters. 5th International Conference on Precipitation, Crete, Greece.
82. Ochs, H. T. III and R. M. Rauber, 1995: The frequency and location of enhanced thunderstorm precipitation on the eastern shore of Florida. 5th International Conference on Precipitation, Crete, Greece.
83. Szumowski, M. J., H. T. Ochs III, and R. M. Rauber, 1995: Lagrangian calculations of raindrop growth in shallow convective clouds based on kinematic fields obtained through dual-Doppler data syntheses. Reprints of the 27th AMS Conference on Radar Meteorology, Vail, Colorado.
84. Yang, M., R. M. Rauber and M. K. Ramamurthy, 1995: Dual Doppler derived structure of a mesoscale gravity wave during STORMFEST. Reprints of the 27th AMS Conference on Radar Meteorology, Vail, Colorado.
85. Rauber, R. M., H. T. Ochs III, and G. R. Austin, 1996: Sources of Hawaiian rainbands. Reprints of the AMS Conference on Coastal Meteorology, Atlanta, Georgia.
86. Dekker, P., R. M. Rauber, and H. T. Ochs III, 1996: The influence of inland rivers on the structure of the sea breeze front as determined from dual-Doppler radar observations. Reprints of the AMS Conference on Coastal Meteorology, Atlanta, Georgia.
87. Laird, N. F., R. M. Rauber, and H. T. Ochs III, 1996: Relationship between high-resolution satellite data and radar-estimated rainfall rates within cloud fields over the north central tropical Pacific Ocean. Reprints of the AMS Conference on Satellite Meteorology, Atlanta, Georgia.
88. Ochs, H. T. III, R. M. Rauber, and G. R. Austin, 1996: Sources of Hawaiian rainbands as determined from analysis of DMSP and GOES data. Reprints of the AMS Conference on Satellite Meteorology, Atlanta, Georgia.
89. Szumowski, M. J., W. W. Grabowski, R. M. Rauber, and H. T. Ochs III, 1996: A statistical study of warm rain formation in shallow, tropical convection. Proceedings of the 12th International Conference on Clouds and Precipitation, Zurich, Switzerland.
90. Szumowski, M. J., H. T. Ochs III, R. M. Rauber, and W. W. Grabowski, 1996: Lagrangian calculations of raindrop growth in shallow convective clouds based on kinematic fields obtained from both a cloud model and dual-doppler data syntheses. Proceedings of the 12th International Conference on Clouds and Precipitation, Zurich, Switzerland.
91. Rauber, R. M., M. J. Szumowski, and H. T. Ochs III, 1996: Observed structure and microphysics of shallow tropical clouds. Proceedings of the 12th International Conference on Clouds and Precipitation, Zurich, Switzerland.
92. Ochs, H. T. III, R. M. Rauber, and G. R. Austin, and L. J. Miller 1996: Sources of Hawaiian Rainbands. Proceedings of the 7th Conf. Mesoscale Processes, Reading, England.

93. Grzelak, T. R., M. K. Ramamurthy, and R. M. Rauber, 1996: The mesoscale rainbands within a Rocky Mountain lee cyclone. Proceedings of the 7th Conf. Mesoscale Processes, Reading, England.
94. Rauber, R. M., M. Yang, and M. K. Ramamurthy, 1996: Dual-Doppler study of a mesoscale gravity wave. Proceedings of the 7th Conf. Mesoscale Processes, Reading, England.
95. Jewett, B. J., M. K. Ramamurthy, and R. M. Rauber, 1996: Numerical study of the genesis of a large amplitude gravity wave. Proceedings of the 7th Conf. Mesoscale Processes, Reading, England.
96. Szumowski, M. J., R. M. Rauber and H. T. Ochs III, 1997: Evidence for accretional drop growth in shallow tropical convection based on four-dimensional dual Doppler radar data. Proceedings of the 28th Conf. Radar Meteorology, Austin TX, pp. 384-385.
97. Rauber, R. M., M. Yang, and R. M. Ramamurthy, 1997: Dual Doppler analysis of the kinematic and thermodynamic structure of a mesoscale gravity wave observed during STORM-FEST. Proceedings of the 28th Conf. Radar Meteorology, Austin TX, pp. 418-419.
98. Wang, J.-J., R. M. Rauber, H. T. Ochs III, and R. E. Carbone, 1997: The formation and evolution of trade wind rainbands on the Island of Hawaii. Proceedings of the 28th Conf. Radar Meteorology, Austin TX, pp. 453-454.
99. Jewett, B. J., M. K. Ramamurthy and R. M. Rauber, 1998: Numerical study of the evolution of gravity waves during STORM-FEST. 16th Conf on Weather Analysis and Forecasting, Phoenix, AZ, pp 458-459
100. Olthoff, L. S., R. M. Rauber, K. Kunkel and M. K. Ramamurthy, 1998: Freezing rain climatology: 25 year study. 16th Conf on Weather Analysis and Forecasting, Phoenix, AZ
101. Laird, N. F., H. T. Ochs II, R. M. Rauber and L. Jay Miller, 1998: Microphysical properties of small cumulus clouds, PartI: Observations. Proceedings of the AMS Conference on Cloud Physics, Everett, WA.
102. H. T. Ochs II, R. M. Rauber, Laird, N. F., and L. Jay Miller, 1998: Microphysical properties of small cumulus clouds, Part II: Modelling studies. Proceedings of the AMS Conference on Cloud Physics, Everett, WA.
103. Wang, J.-J., R. M. Rauber, H. T. Ochs III, and R. E. Carbone, 1998: The effects of the Island of Hawaii on trade-wind rainband evolution. Proceedings of the AMS Conference on Cloud Physics, Everett, WA.
104. Szumowski, M. J., R. M. Rauber and H. T. Ochs III, 1998: A test of the ultragravit nuclei theory using a lagrangian raindrop trajectory model in four dimensional dual-Doppler fields. Proceedings of the AMS Conference on Cloud Physics, Everett, WA.
105. R. M. Rauber, Wang, J.-J., H. T. Ochs III, and R. E. Carbone, 1998: Precipitation enhancement of trade wind rainbands by the Island of Hawaii. 6th International Conference on Precipitation, Kona, HI.
106. H. T. Ochs III, R. M. Rauber, and N. F. Laird, 1998: A numerical model of developing precipitation in tropical clouds. 6th International Conference on Precipitation, Kona, HI.
107. Szumowski, M. J., R. M. Rauber and H. T. Ochs III, K. V. Beard, 1998: Formation of precipitation in shallow tropical convection. 6th International Conference on Precipitation, Kona, HI.
108. Wang, J. J., R. M. Rauber, H. T. Ochs III, and R. E. Carbone, 1999: Effects of the Island of Hawaii on offshore rainband evolution. 8th Conference on Mesoscale Processes, Boulder, CO.
109. Wang, J. J., R. M. Rauber, H. T. Ochs III, and R. E. Carbone, 1999: A radar study of the effects of the Island of Hawaii on offshore rainband evolution. 29th International Conference on Radar Meteorology, Montreal, Canada.
110. King, M. C., R. M. Rauber, M. K. Ramamurthy and B. F. Jewett, 1999: Dynamics of a heavy snowband as derived by the ELDORA airborne radar system. 8th Conference on Mesoscale Processes, Boulder, CO.
111. Jewett, B. F., M. K. Ramamurthy, and R. M. Rauber, 1999: Initiation and modeled evolution of a STORM-FEST gravity wave. 8th Conference on Mesoscale Processes, Boulder, CO.

112. Rauber, R. M., M. K. Ramamurthy, B. F. Jewett, and M. C. King, 1999: The Snowband Dynamics Project. 8th Conference on Mesoscale Processes, Boulder, CO.
113. Yang, M., R. M. Rauber, and M. K. Ramamurthy, 1999: Origin, maintenance and fine scale structure of the St. Valentine's Day mesoscale gravity wave observed during STORM-FEST. 8th Conference on Mesoscale Processes, Boulder, CO.
114. Rauber, R. M., 1999: Precipitation mechanisms in cloud systems. NCAR Colloquium on Ice Formation in the Atmosphere, Boulder, CO.
115. Ramamurthy, M. K., R. M. Rauber, M. Yang and B. F. Jewett, 1999: A new genesis mechanism for large amplitude gravity waves. 8th Conference on Mesoscale Processes, Boulder, CO.
116. King, M. C., R. M. Rauber, M. K. Ramamurthy and B. F. Jewett, 1999: Kinematic structure of a heavy snowband determined from ELDORA data. 29th International Conference on Radar Meteorology, Montreal, Canada.
117. Yang, M., R. M. Rauber, and M. K. Ramamurthy, 1999: Origin, maintenance and fine scale structure of the St. Valentine's Day mesoscale gravity wave observed during STORM-FEST. 29th International Conference on Radar Meteorology, Montreal, Canada.
118. Ochs, H. T., III, R. M. Rauber, N. F. Laird, K. V. Beard and L. J. Miller, 1999: A radar/model comparison of precipitation in tropical cumulus clouds. 29th International Conference on Radar Meteorology, Montreal, Canada.
119. Szumowski, M. J., H. T. Ochs III, and R. M. Rauber, 1999: The role of changing CCN concentrations in precipitation formation using a parcel and trajectory model in four dimensional Doppler radar fields. 29th International Conference on Radar Meteorology, Montreal, Canada.
120. Rauber, R. M., M. K. Ramamurthy, M. Yang and B. F. Jewett, 1999: Radar and profiler evidence for a new genesis mechanism for large amplitude gravity waves. 29th International Conference on Radar Meteorology, Montreal, Canada.
121. Houston, A. L., M. K. Ramamurthy, and R. M. Rauber, 1999: Quantitative evaluation of the 4 February – 7 February 1998 heavy snowband over the Ohio River Valley. 17th Conf. on Wea. Analysis and Forecasting, Denver, CO.
122. Ochs, H. T., III, N. F. Laird, and R. M. Rauber, 2000: Observations and modeling studies of Florida cumulus clouds. Proceedings of the 13th International Conference on Clouds and Precipitation, Reno, Nevada.
123. 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. Proceedings of the 13th International Conference on Clouds and Precipitation, Reno, Nevada.
124. Rauber, R. M., 2000: Educational opportunities with Mobile observation platforms. NCAR Workshop on Mobile Observation Systems, Boulder, CO.
125. Rauber, R. M., 2000: Use of the ELDORA radar system during SNOWBAND. NCAR Workshop on Airborne Doppler Radar Systems, Boulder, CO.
126. Ochs, H. T. III, N. F. Laird, and R. M. Rauber, 2001: Precipitation formation in small Florida Cumulus. 7th Int. Conf. on Precipitation, Rockport, Maine.
127. Jewett, B. F., M.K. Ramamurthy and R. M. Rauber, 2001: The role of evaporative processes in gravity wave genesis. Proc. 9th Conf. On Mesoscale Processes, Amer. Met. Soc., Ft. Lauderdale, FL.
128. Rauber, R. M., M. K. Ramamurthy, B. F. Jewett and M. Han, 2001: Fine scale structure and dynamics of a heavy snowband. Proc. 9th Conf. On Mesoscale Processes, Amer. Met. Soc., Ft. Lauderdale, FL.
129. Laird, N. F., D. A. R. Kristovich, R. M. Rauber, and H. T. Ochs III, 2001: Radar and model-derived mass flux profiles of a sea-breeze circulation along a complex coastline. 30th International Conf. On Radar Meteorology, Munich, Germany.
130. Mei H., M. K. Ramamurthy, R. M. Rauber, B. F. Jewett, and J. A. Grim, 2003: Modeling study of the frontal circulations associated with a heavy snowband in an extratropical cyclone. 10th Conference on Mesoscale Processes, American Meteorological Society. Portland, OR.

131. Grim J. A., M. Han, M. K. Ramamurthy, R. M. Rauber, B. F. Jewett, 2003: Comparative study of the mesoscale structure and dynamics of heavy snowbands in the trowal region of two extratropical cyclones. 10th Conference on Mesoscale Processes, American Meteorological Society. Portland, OR
132. Davis, C. A., N. Atkins, G. Bryan, W. Cotton, D. Dowell, J. M. Fritsch, B. Jewett, R. Johns, D. Jorgensen, K. Knupp, W.-C. Lee, G. McFarquhar, R. Przybylinski, B. Rauber, B. Smull, J. Trapp, S. Trier, R. Wakimoto, M. Weisman, and C. Ziegler, 2003: Observations from the bow echo and MCV experiment (BAMEX). 31st International Conference on Radar Meteorology, Seattle, WA.
133. Goeke, S., H. T. Ochs, III and R. M. Rauber, 2003: Statistical determination of the characteristic time for precipitation development in cumulus clouds using radar. 31st International Conference on Radar Meteorology, Seattle, WA.
134. Rauber, R. M., 2003: Hazardous winter weather – a radar perspective. 31st International Conference on Radar Meteorology, Seattle, WA.
135. McFarquhar, G.M., R. Rauber, B. Jewett, and D.P. Jorgensen, 2003: Observations of the vertical variability of cloud hydrometeors in stratiform regions during BAMEX. 31st International Conference on Radar Meteorology, American Meteorological Society, Invited poster, August, Seattle, WA.
136. Rauber, R. M., and M. Ralph, 2004: An Implementation Plan For Cool Season Quantitative Precipitation Forecasting, United States Weather Research Program, 55 pp.
137. McFarquhar, G.M., M.S. Timlin, R. Rauber, and B.F. Jewett, 2004: Observations of vertical variability of cloud hydrometeors in stratiform regions behind bow echoes: Implications for downdraft formation. 14th International Conference on Clouds and Precipitation, July, Bologna, Italy, 592-595.
138. Kruk, M.C., R. Rauber, G. McFarquhar, B. Jewett, J. Trapp, and C. Davis, 2004: The 4 July 2003 Indiana/Ohio derecho: assessing transitions in surface wind damage. BAMEX Science Team Meeting, March, Fairview Heights, IL.
139. McFarquhar, G.M., M.S. Timlin, R. Rauber, and B.F. Jewett, 2004: Observations of vertical variability of cloud hydrometeors in stratiform regions behind bow echoes. BAMEX Science Team Meeting, March, Fairview Heights, IL.
140. Smith, A., R. Rauber, G. McFarquhar, and B. Jewett, 2004: Radar observations of bow echo: relationship to microphysics. BAMEX Science Team Meeting, March, Fairview Heights, IL.
141. Kruk, M.C., R. Rauber, G.M. McFarquhar, B.F. Jewett, R. J. Trapp, and C.A. Davis., 2005: Bow Echoes During BAMEX: Assessing Transitions in Surface Wind Damage. BAMEX Working Group Meeting, Fairview Heights, IL.
142. Smith, A., R. Rauber, G.M. McFarquhar, B.F. Jewett, M. Timlin and J. Grim, 2005: Microphysical Profiles in the Context of Evolving Trailing Stratiform Regions of BAMEX MCSs. BAMEX Working Group Meeting, Fairview Heights, IL.
143. McFarquhar, G.M., M. Timlin, R. Rauber, B. Jewett, J. Grim, A. Smith and D. Jorgensen, 2005: An Update on Analysis of Spiral Microphysical Data Collected during BAMEX. BAMEX Working Group Meeting, Fairview Heights, IL.
144. Smith, A. M., R. M. Rauber, G. M. McFarquhar, B. F. Jewett, M. S. Timlin and J. A. Grim, 2005: Microphysical structure of the trailing stratiform region of BAMEX mesoscale convective systems. 32nd AMS conf. Radar Meteorology, Albuquerque, NM.
145. Grim, J. A., and R. M. Rauber, 2005: Dual rear inflow jets within the 26 August 2003 derecho. 32nd AMS conf. Radar Meteorology, Albuquerque, NM.
146. Guarente, B. A., B. F. Jewett, R. M. Rauber, and G. M. McFarquhar, 2005: WRF Simulations of a Severe Squall Line: Comparisons against High Resolution BAMEX Observations. 11th AMS conf Mesoscale Processes, Albuquerque, NM.
147. Grim, J. A., R. M. Rauber, G. M. McFarquhar, D.P. Jorgensen, M. S. Timlin, B. F. Jewett, and A. M. Smith, 2005: Quad-Doppler and Microphysical Observations of the BAMEX 29 June 2003 MCS. 32nd AMS conf. Radar Meteorology, Albuquerque, NM.

148. Estrem M., R. M. Rauber, K. R. Knupp, B. F. Jewett, J. T. Walters, and D. Phillips 2005: Vertical motions in precipitation bands in three winter cyclones. 32nd AMS conf. Radar Meteorology, Albuquerque, NM.
149. Snodgrass, E., R. M. Rauber, L. Di Girolamo, and G. Zhao, 2005: Synergizing high-resolution EOS Terra satellite data and S-POLKA radar reflectivity to assess trade wind cumuli precipitation. 32nd AMS conf. Radar Meteorology, Albuquerque, NM.
150. Kruk, M.C., R. M. Rauber, G. M. McFarquhar, B. F. Jewett, and R. J. Trapp. 2005: Bow echoes during BAMEX: assessing transitions in surface wind damage using WSR-88D data. 32nd AMS conf. Radar Meteorology, Albuquerque, NM.
151. Di Girolamo, L., G. Zhao, E. Snodgrass, and R. Rauber, 2005: Trade wind cumuli statistics from the Rain In Cumulus over Ocean (RICO) experiment. Pan-GCSS Meeting on Clouds, Climate and Models, 16-20 May, Athens, Greece.
152. Genkova, I., G. Zhao, M. Roblers, R. Rauber, and L. Di Girolamo, 2005: Trade wind cumulus cloud properties retrieval and validation. Symposium on Satellite Meteorology: Past, Present, and Future, 11-13 July, Madison, WI.
153. Genkova, I., G. Zhao, G. Seiz, E. Snodgrass, M. Colon, L. Di Girolamo, R. Rauber, 2005: Validation of trade wind cumulus cloud properties produced by meteorological satellites. SPIE International Symp. Remote Sens., 19 – 22 September, Bruges, Belgium.
154. Snodgrass, E., L. Di Girolamo, R. Rauber, and G. Zhao, 2005: Synergizing high-resolution EOS Terra satellite data and S-POLKa radar reflectivity to assess trade wind cumuli precipitation. American Geophysical Union 2005 Fall Meeting, December 5-9, San Francisco, CA.
155. Di Girolamo, L., W. Chapman, L. Liang, R. Rauber, E. Snodgrass, M. Wilson, Y. Yang, G. Zhao, C. Moroney, M. Fromm, and S. Palm, 2005: UIUC Report: cloud mask status, the water and energy cycle of trade wind cloud, and polar stratospheric clouds. MISR Science Team Meeting, December, Pasadena, CA.
156. Snodgrass, E., R. Rauber, and L. Di Girolamo, 2006: Assessing trade-wind cloud precipitation through the synergy of high resolution satellite data and S-band radar data. RICO Workshop, 18 – 21 January, Boulder, CO.
157. Snodgrass, E., L. Di Girolamo, R. Rauber, and G. Zhao, 2006: Precipitation characteristics from trade wind clouds during RICO derived from radar, satellite and aircraft measurements. American Meteor. Soc. 12th Conf. Cloud Phys, 10 – 14 July, 2006, Madison, WI.
158. Smith, A.M., R. Rauber, G. McFarquhar, B.F. Jewett, M.S. Timlin and J.A. Grim, 2006: Variations in the microphysical structure of stratiform regions of BAMEX MCSs from optical array probe measurements and high-resolution radar observations. 12th Conf. Cloud Physics, Amer. Meteor. Soc., Madison, WI
159. Guarente, B.A., B.F. Jewett, G.M. McFarquhar and R.M. Rauber, 2006: WRF simulations of a severe squall line: comparison against high-resolution microphysical, thermodynamic and kinematic measurements from BAMEX. 12th Conf. Cloud Physics, Amer. Meteor. Soc., Madison, WI
160. McFarquhar, G., M.S. Timlin, R.M. Rauber, B.F. Jewett, J. Grim and D.P. Jorgensen, 2006: Vertical profiles of ice cloud microphysical properties observed behind convective lines during the Bow Echo and Mesoscale Convective Vortices Experiment. 12th Conf. Cloud Physics, Amer. Meteor. Soc., Madison, WI
161. Grim, J.A., G.M. McFarquhar, R.M. Rauber, D.P. Jorgensen, M.S. Timlin, A.M. Smith and B.F. Jewett, 2006: Microphysical and quad-Doppler observations of the BAMEX 29 June 2003 MCS. 12th Conf. Cloud Physics, Amer. Meteor. Soc., Madison, WI
162. Di Girolamo, L., R. Rauber, E. Snodgrass, G. Zhao, H. Minor, and M. Freer, 2006: Cloud and precipitation properties of trade wind clouds during RICO derived from radar and satellite observations. GEWEX Cloud System Study Workshop, 18 – 21 September, 2006, New York, NY
163. Di Girolamo, L., R. Rauber, E. Snodgrass, G. Zhao, and O. Mayol-Bracero, 2006: Aerosol, cloud and precipitation characteristics in the trade wind region from satellite, radar and aircraft measurements sampled during RICO. MISR Science Team Meeting, December, Pasadena, CA.

164. Di Girolamo, L., R. Rauber, E. Snodgrass, and G. Zhao, 2006: Aerosol, cloud and precipitation characteristics in the trade wind region from satellite, radar and aircraft measurements sampled during RICO. American Geophysical Union 2006 Fall Meeting, December 11-15, San Francisco, CA.
165. Jewett, B.F., R.M. Rauber, and G.M. McFarquhar, 2007: Observations and modeling of mesoscale convective systems: What we have learned from BAMEX. Midwest Bow Echo Workshop, Louisville National Weather Service and University of Louisville, Louisville KY, 28 February 2007.
166. Rauber, R. M., 2007: RICO from Napkin to Publication. National Science Foundation Facilities Planning Conference, Boulder CO.
167. Di Girolamo, L. R. Rauber, G. Zhao, E. Snodgrass, M. Freer, and H. Minor, 2007: Aerosol, cloud and precipitation characteristics in the trade wind regime from satellite, radar, and aircraft measurements sampled during RICO. Gordon Res. Conf. on Radiation and Climate, July 29 – August 3, New London, NH.
168. Grim, J.A., R.M. Rauber, G.M. McFarquhar, B.F. Jewett and D.P. Jorgensen, 2007: High-resolution observations of the rapid development and decay of the 29 June 2003 squall line during BAMEX. 12th Conf. on Mesoscale Processes, American Meteorological Society, Waterville Valley, NH, 6-9 August 2007.
169. Smith, A.M., R.M. Rauber, G.M. McFarquhar, B.F. Jewett, M.S. Timlin, and J.A. Grim, 2007: Explaining variations in cloud microphysics in BAMEX MCSs using high resolution radar and optical array probe measurements. 12th Conf. on Mesoscale Processes, American Meteorological Society, Waterville Valley, NH, 6-9 August 2007.
170. Di Girolamo, L., R. Rauber, S. Dey, E. Snodgrass, and G. Zhao, 2008: Cloud and precipitation characteristics of trade wind clouds during RICO derived from radar, satellite, and aircraft measurements. Pan-GCSS Meeting on Advances on Modeling and Observing Clouds and Convection, 2-6 June, Toulouse, France.
171. Davison, J., R. Rauber, and L. Di Girolamo, 2008: Boundary layer characteristics of the trade wind boundary layer derived from radar measurements during RICO. Pan-GCSS Meeting on Advances on Modeling and Observing Clouds and Convection, 2-6 June, Toulouse, France.
172. Rauber, R. M., Minor, H.A., S. Göke, Colon-Robles, M., J. Davison and L. Di Girolamo, 2008: Precipitation evolution in trade wind clouds during RICO derived from dual polarization radar and aircraft data. Pan-GCSS Meeting on Advances on Modeling and Observing Clouds and Convection, 2-6 June, Toulouse, France.
173. Davison, J., R. Rauber, and L. Di Girolamo, 2008: A radar characterization of the trade wind boundary layer. 18th Symposium on Boundary Layers and Turbulence, 9-13 June, Stockholm, Sweden.
174. Colon-Robles, M., R.M. Rauber, J.B. Jensen, and L. Di Girolamo, 2008: Aerosol size distribution variability near Caribbean trade wind cumulus clouds. Int. Conf. Clouds Precip., 7 – 11 July, Cancun, Mexico.
175. Minor, H.A., R. M. Rauber, S. Göke, and M. Freer, 2008: Pulsation of Trade Wind Clouds and Effects on Precipitation Development. Int. Conf. Clouds Precip., 7 – 11 July, Cancun, Mexico.
176. Davison, J., R. Rauber, and L. Di Girolamo, 2008: Variability in Trade wind Cloud Layers and Potential Effects on Cloud Structure. Int. Conf. Clouds Precip., 7 – 11 July, Cancun, Mexico.
177. Rauber, R. M., A. M. Smith, G. M. McFarquhar, J. A. Grim, M. S. Timlin, B. F. Jewett and D. P. Jorgensen, 2008: Microphysical and thermodynamic structure and evolution of the trailing stratiform regions of mesoscale convective systems during BAMEX. Int. Conf. Clouds Precip., 7 – 11 July, Cancun, Mexico.

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: 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: July 2008-June 2012
Amount: In review
Capacity: Lead 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. Li, Meng, “Mesoscale structure of a narrow precipitation zone embedded within flow over an intense winter anticyclone” – 1992
4. Christensen, David L., “Synoptic Scale Environment of a Mesoscale Gravity Wave Event” – 1994
5. Szumowski, Marcin Jan, “Formation and Evolution of Rain in Warm Convective Tropical Clouds” – 1994
6. Austin, Gary R., “Doppler Radar and High Resolution Satellite Analysis of Trade Wind Clusters and Rainbands” – 1995
7. Dekker, Paul, “The Influence of Inland Rivers on the Structure of the Sea Breeze As Determined from Dual-Doppler Radar Observations” – 1996
8. Steve, Ronald A., III, “Evolution of Convective Elements in Lake-Effect Boundary Layers” – 1996 (with D. Kristovich)
9. Olthoff, L. Scott, “A 25-year Climatology of Ice Storms” – 1998
10. Barnes, James M., “A 25-Year Climatological Study of Heavy Snowfalls in the Chicago Metropolitan Area,” – 1999 (Research report for non-thesis degree)
11. Miller, Dianne S. “Freezing precipitation: a synoptic weather pattern and sounding-based climatology.- 2001 (Research report for non-thesis degree)
12. Malmberg, Julie “Acid Rain Curriculum Development” 2003 (Research report for non-thesis degree)
13. 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
14. Cellitti, Michael: Extreme cold air outbreaks, the polar vortex, and the large scale circulation. 2005
15. Estrem, Marcia: Analysis of vertical motions in fine-scale winter precipitation bands using wind profiler Doppler spectra. 2005
16. Snodgrass, Eric: “Precipitation characteristics from trade wind clouds during RICO derived from radar, satellite, and aircraft measurements” 2006.

17. Smith, Andrea: Explaining the variability of cloud microphysics in stratiform regions of BAMEX MCSs using high-resolution radar and optical array probe measurements. 2006.
18. Roussy, Katie: "Web based instruction in atmospheric science for elementary school education." 2006
19. Colón-Robles, Marilé: The influence of low level wind speed on droplet spectra near cloud base in trade wind cumulus. (2006)
20. Guarante, Brian: WRF simulations of a severe squall line: Comparison against high resolution dual and quad Doppler radar measurements from BAMEX. (2007)
21. Pounder, Daniel: Principal Component Analysis of micrometeorological data to determine growing trends. In progress
22. Minor, Hillary: Evolution of trade wind clouds as determined by dual-polarization radar. In progress.
23. Plummer, David: Polarization radar signatures of orographic cloud systems in MAP. In progress.
24. Pitcal, Michelle: Forcing for mesoscale gravity waves as determined from WRF model simulations. In progress
25. Hampton, Justin: Climatology of bands in cyclones in the Midwestern United States. 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. Davison, Jennifer "Forcing and dynamics of trade wind cloud circulations" In progress
5. Grim, Joseph "The role of Microphysical processes in the generation of strong winds in Mesoscale convective systems. In progress
6. Colón-Robles, Marilé: Aerosol processing by clouds and its effect on the trade wind layer. 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

ATMS 410 (formerly 312) Radar Meteorology

F91, S94, S96, F97, F99, F02, F04, F06

ATMS 490 Research Review

F90,

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

ATMS 501 Mesoscale Meteorology

F03, F05, F07

ATMS 571 Professional Development
 F02, F03, F06, F07
SPECIAL: Technical Writing
 F97

Field Campaigns

- | | |
|--|--------|
| 1. Rain in Cumulus over the Ocean experiment (RICO) | 2004-5 |
| 2. Profiling of Winter Storms (PLOWS) | 2003-4 |
| 3. Bow Echo and MCV Experiment (BAMEX) | 2003 |
| 4. Lake-Induced Convection Experiment/Snow Band Dynamics project | 1997-8 |
| 5. Small Cumulus Microphysics Experiment(SCMS) | 1995 |
| 6. Cloud Isotope Project/Winter Icing and Storms Project(CIP/WISP) | 1994 |
| 7. Cloud Isotope Project | 1993 |
| 8. STORM Fronts Experiment Systems Test (STORM-FEST) | 1992 |
| 9. Convection and Precipitation/Electrification Experiment (CaPE) | 1991 |
| 10. University of Illinois Winter Precipitation Project (UNIWIPP) | 1990 |
| 11. Hawaiian Rainband Project | 1990 |
| 12. University of Illinois Winter Precipitation Project (UNIWIPP) | 1989 |
| 13. University of Illinois Winter Precipitation Project (UNIWIPP) | 1988 |
| 14. Sierra Cooperative Pilot Project (SCPP) | 1986 |
| 15. Sierra Cooperative Pilot Project (SCPP) | 1985 |
| 16. Joint Hawaiian Warm Rain Project | 1985 |
| 17. Colorado Orographic Seeding Experiment IV | 1984 |
| 18. Utah Federal/State Orographic Seeding program | 1983 |
| 19. Colorado Orographic Seeding Experiment III | 1981-2 |
| 20. Colorado Orographic Seeding Experiment II | 1979 |
| 21. 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 (2003-2008)
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 (2007-2009)
18. University Corporation for Atmospheric Research Representative (2006-08)
19. University Corporation for Atmospheric Research Members Committee (2008-09)
20. UCAR Research Applications Program Advisory Committee (2006-08)
21. NSF Facilities Meeting Planning Committee (2007)
22. National Science Foundation Panel-Vortex Campaign (2008)

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)
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)

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

Reviewer for journals and federal/state agencies

1. Boundary Layer Meteorology
2. Journal of Atmospheric and Oceanic Technology
3. Journal of Atmospheric Research
4. Journal of the Atmospheric Sciences
5. Journal of Applied Meteorology
6. Journal of Geophysical Research - Atmospheres

7. Journal of Weather Modification
8. Journal of the Royal Meteorological Society
9. Antarctic Science
10. National Oceanic and Atmospheric Administration
11. National Science Foundation

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

Membership in professional societies

1. American Geophysical Union (full member)
2. American Meteorological Society (full member)
3. Sigma Xi (full member)
4. Phi Kappa Phi (full member)

News

1. Research featured on WGN news in Chicago (January, 1998)
2. Article on research appeared on front page of Chicago Tribune (January 12, 1998)
3. Featured on WGN news in Chicago (January 2003)