Phillip Bruce Chilson

Associate Professor

SCHOOL OF METEOROLOGY
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Place of Birth: Spartanburg, SC, USA
Date of Birth: January 3, 1963
Citizenship: USA

EDUCATION

Ph.D. Physics, Clemson University, December 1993.
A Study of Precipitation Using Dual-Frequency and Interferometric Doppler Radars
M.S. Physics, University of Florida, August 1990.
The Use of Fiber Optics as an Ultra-Low Temperature Heater
B.S. Physics, Clemson University, May, 1985.

PROFESSIONAL DEVELOPMENT

Jan. 2005 – present	**Associate Professor** School of Meteorology University of Oklahoma, Norman, Oklahoma
Apr. 2005 – present	**Adjunct Associate Professor** Department of Electrical and Computer Engineering University of Oklahoma, Norman, Oklahoma
Apr. 2003 – Dec. 2006	**Adjunct Associate Professor** Department of Electrical Engineering University of Nebraska, Lincoln, Nebraska
Mar. 2003 – present	**Associate Editor** Radio Science American Geophysical Union, Washington, DC
Apr. 2003 – Dec. 2004	**Research Scientist III** Cooperative Institute for Research in the Environmental Sciences University of Colorado, Boulder, Colorado
Aug. 2000– Apr. 2003	**Research Scientist II** Cooperative Institute for Research in the Environmental Sciences University of Colorado, Boulder, Colorado

Jan. 2000 – June 2000	**Deputy Coordinator: Atmospheric Research Programme**, Institutet för Rymdfysik, Kiruna Sweden
Dec. 1998 – June 2000	**Docent (Associate Professor / Reader) in Atmospheric Physics** Umeå Universitet, Umeå Sweden
Mar. 1997 – June 2000	**Research Scientist** Institutet för Rymdfysik, Kiruna Sweden
Feb. 1994 – Jan. 1997	**Max-Planck-Gesellschaft Postdoctoral Scientist** Max-Planck-Institut für Aeronomie, Katlenburg-Lindau Germany
July 1991 – Dec. 1993	**Research Assistant** Clemson University, Clemson, South Carolina
Mar. 1991 – June 1991	**Physics Instructor** Spartanburg Technical College, Spartanburg, South Carolina
June 1988 – Aug. 1990	**Research Assistant** University of Florida, Gainesville, Florida
Aug. 1987– May 1988	**Teaching Assistant** University of Florida, Gainesville, Florida
Aug. 1986– May 1987	**Teaching Assistant** Purdue University, West Lafayette, Indiana
Sept. 1985– July 1986	**Fulbright Scholar** Institut für Festkörperforschung der Kernforschungsanlage, Jülich Germany

ACTIVITIES, HONORS, AND ORGANIZATIONS

- **Awards and Honors**

  Recipient of a Fulbright Scholarship, 1985

  Recipient of the Clemson University Physics Award, 1993

  Recipient of the Clemson University German Award, 1993

  Recipient of a Max-Planck-Gesellschaft Postdoctoral Scientist Award, 1993

  Recipient of the AGU Editor's Citation for Excellence in Refereeing, 2001

  Selected to participate in the NASA Earth Science Summer School – Processes of Global Change, 1996

  Selected to participate in the National Science Foundation Summer Science Training Program, 1980

- **Professional Organizations**

  Member of the European Geophysical Society

  Member of the American Meteorological Society

  Member of the American Geophysical Union

  Member of the American Physical Society

  Member of the Sigma Pi Sigma Physics Honor Society

  Member of the Alpha Lambda Delta Academic Honor Society

- **Department Service**

  Member, Graduate Studies Committee, 2005 - present

  Chair, Graduate Studies Committee, 2007 - present

  Member, Radar Innovations Laboratory Steering Committee, 2006 - present

  Assist in development of the Weather Radar and Instrumentation Curriculum, 2005 - present

  Assist in development of the Atmospheric Radar Research Center, 2005 - present

- **College and University Service**

  Participant, OU Speaker Service, 2006 - present

  Member, OU Kessler Farm Field Laboratory Executive Committee, 2005 - present

  Help represent the University of Oklahoma and the state of Oklahoma in the NSF sponsored National Ecological Observing Network (NEON) Program

  Associate of the OU Graduate Program in Ecology and Evolutionary Biology.

  Lecturer, OU Speaker Service, 2006 - present

  Seeing the Atmosphere Through the Eyes of a Radar
  The Historical Development of Radar and How It Turned the Tides of World War II
  Exploring the World of Chaos: An Atmospheric Perspective

- **Professional Service**

  Main Session Organizer, 11th International Workshop on MST Radars, Gadanki / Tirupati, India, 2006

  Member, Review Panel, Canadian Foundation for Climate and Atmospheric Sciences, Ontario, Canada, 2006

  Associate Editor, Radio Science (American Geophysical Union), 2003 - present

  Lecturer at the Third International School of Atmospheric Radar, Trieste, Italy, 2002

  Session Chair, 9th International Workshop on MST Radars, Toulouse, France, 2000

  Reviewer for the following journals and organizations

  Annales Geophysicae
  Annales Geophysicae
  Contributions to Atmospheric Physics
  Geophysical Research Letters
  Journal of Applied Meteorology
  Journal of Atmospheric and Solar Terrestrial Physics
  Journal of Atmospheric and Oceanic Technology
  Journal of Geophysical Research
  Nature
  Planetary and Space Science
  Radio Science
  National Science Foundation, Geosciences Directorate
  Canadian Foundation for Climate and Atmospheric Sciences

STUDENT SUPERVISION

Student Advising at OU

- **Graduates Degrees Awarded**

  Andrew Ballinger (M.S. in Meteorology) / co-advisor, May 2007, *Radio-Wave Scatter and Dynamical Processes in the Polar Mesopause Region Observed Using MST and Meteor Radars*

  Laura Kanofsky (M.S. in Meteorology), May 2007, *Characterization of Central Oklahoma Precipitation Using Radar-Derived and Ground-Based Drop Size Distributions*

- **Graduate Degrees in Progress**

  Timothy Alberts (M.S. in Meteorology), Expected completion in May 2008, *Evaluation of Pulse Compression Schemes for Implementation on Phased Array Weather Radar*

  Michael Morris (M.S. in Meteorolgy), Expected completion in May 2008, *In-Situ Validation of Raindrop Size Distributions Retrieved from Profilers and Polarimetric Radar Variables*

  Danny Scipion (Ph.D. in Electrical and Computer Engineering) / co-advisor, Expected completion in May 2011, *Characterization of the Daytime Convective Boundary Layer Using Numerical Simulations and Radar Field Experiments*

- **Graduate Committees**

  Michael James (M.S. in Meteorology), Completed 2006, *Refractivity Retrieval From Ground Clutter Echoes Implemented on the KOUN S-Band Radar*

  Sean Arms (M.S. in Meteorology), Completed 2006 *Experimental study of turbulence in the atmospheric surface layer over non-uniform terrain with patchy vegetation*

  Kyle Whipple (M.S. in Meteorology), Completed 2007, *A comparison of optical and electric filed signatures of lightning flashes*

  Clark Payne (M.S. in Meteorology), In progress, *Electrical, Dual-Polarimetric Radar, and Lightning Mapping Observations of a Tornadic Supercell During TELEX*

  Brad Isom (M.S. in Electrical and Computer Engineering), In progress, *Characterization and Mitigation of Wind Turbine Clutter on the WSR-88D Radar*

  Sean Arms (Ph.D. in Meteorology), In progress, *Boundary layer development near extreme changes in surface roughness*

  Igor Ivic (Ph.D. in Electrical and Computer Engineering), In progress, *Detection thresholds for spectral moments and polarimetric variables*

- **Undergraduate Research Supervised**

  Julie Phillipson, advisor, NSF-REU Project, Summer 2005, *Establishment and Instrumentation of the Kessler Farm Field Laboratory PicoNet*

  Mark Van Every, advisor, OU-UROP Award, 2006, *Development and Implementation of a Data Collection System for a Precipitation Monitoring Network*

  Mathew Elliott, PicoNet Project, 2007 - present

  Aaron Gleason, PicoNet Project, 2007 - present

  Mark Van Every, PicoNet Project, 2006 - present

Student Advising Outside OU

- **Graduate Degrees Awarded**

  Victoria Barabash (Ph.D in Atmospheric Physics from Umeå University) / co-advisor, February 2004, *Investigations of Polar Mesoshere Summer Echoes in Northern Scandinavia* (Now with Department of Space Science Luleå University of Technology, Sweden)

- **Graduate Committees**

  Jose Fernandez (Ph.D. in Electrical and Computer Engineering from the University of Nebraska), Completed 2004, *Interferometric Studies of Polar Mesosphere Summer Echoes over Northern Scandinavia*

- **Bachelor Degree Projects: University of Umeå Space Engineering Program**

  Annika Nilsson / co-advisor, Summer 1997, *Height calibration for ESRAD*

  Martin Johnsson, Summer 1998, *Development of a CCD Camera Control System for Use in an Unmanned Atmospheric Research Aircraft*

  Per Johansson, Summer 1999, *Design and construction of the telemetry link for RIPAN*

  Johann Stanojev, Summer 1999, *The RIPAN ground station: A virtual cockpit*

  Johan Carlsson, Summer 2000, *Further developments and implementation of a CCD camera for RIPAN*

  Ronny Härmä, Summer 2000, *Development of the upleg portion of the RIPAN Telemetry Link (RTL)*

  Jimmy Nyman, Summer 2000, *The digital interface for the RIPAN navigational control hardware*

PEDAGOGICAL ACTIVITIES

- **Undergraduate Level**

  Introductory level course in mechanics and thermodynamics, Spartanburg Technical College, Spartanburg, SC, 1991.

  METR 2014 / 2013, Introduction to Meteorology I, OU School of Meteorology, Fall 2005, Fall 2006

  METR 3213, Physical Meteorology I (Thermodynamics), OU School of Meteorology, Fall 2007

- **Graduate Level**

  Graduate level course in Digital Signal Processing, Swedish Institute of Space Physics, Kiruna, Sweden, 1999

  METR 5683 / ECE 5683, Weather Radar Applications, OU School of Meteorology, Spring 2006, Spring 2007

- **Other**

  Lecturer at the Third International School of Atmospheric Radar, International Centre for Theoretical Physics, Trieste, Italy, 2002.

  Developed a new set of lab modules and exercises for use in METR 2011 (laboratory component of METR 2013)

  Developed new course and lab modules focusing on phased array weather within the context of an NSF CCLI grant (used in METR 5683 / ECE 5683)

  Assist in the development and execution of the new Weather Radar and Instrumentation Curriculum at OU. The new curriculum is a joint effort between the Schools of Meteorology and Electrical and Computer Engineering

  Active member of the OU Faculty Learning Community (a network of faculty and educators interested in promoting the development of pedagogical skills and methodologies)

GRANTS, CONTRACTS, AND AWARDS

1. Completed: P. B. Chilson, G. Schmidt, K. Schlegel, and R. Friedel, Internal funding within the Max-Planck-Institut für Aeronomie, **DM10,000**, Investigation of lightning discharges in the upper atmosphere using VLF passive receiving stations and VHF Doppler radar, 05/01/1995 – 04/28/1996, Max-Planck-Institut für Aeronomie

2. Completed: R. D. Palmer and P. B. Chilson, National Science Foundation, **$12,000**, An Investigation of the Spatial Structure and Dynamics of PMSE Using Coherent Radar Imaging, 01/01/1999 – 06/30/1999, Swedish Institute of Space Physics

3. Completed: P. B. Chilson Naturvetenskapliga forskningsrådet, **SEK15,000**, Travel award for participation in a technology transfer program between IRF and NOAA towards the development of new radar interferometry methods for studying the atmosphere and atmospheric dynamics, 06/01/1999, Swedish Institute of Space Physics

4. Completed: R. D. Palmer and P. B. Chilson, National Science Foundation, **$120,000**, A Study of the Small-Scale Structure of PMSE Over Sweden Using Coherent Radar Imaging, 02/01/2000 – 01/31/2003, University of Colorado

5. Completed: P. B. Chilson, Vaisala Inc. **$202,041**, Implementation of Range Imaging on Vaisala Wind Profilers, 06/01/2002 – 05/31/2005 University of Colorado / University of Oklahoma

6. Completed P. B. Chilson CEDAR Collaborative Research: Studies of Radio-Wave Scatter and Dynamical Processes in the Summer Polar Mesopause Region, National Science Foundation, **$121,409**, 02/15/2002 – 01/31/2007, University of Colorado / University of Oklahoma

7. Current: P. B. Chilson, CEDAR Collaborative Research: Studies of Radio-Wave Scatter and Dynamical Processes in the Summer Polar Mesopause Region (Supplement), National Science Foundation, **$21,925**, 01/01/2006 – 07/31/2007, University of Oklahoma

8. Current: P. B. Chilson, E. Fedorovich, and R. D. Palmer, Characterization of the Daytime Convective Boundary Layer Using Numerical Simulations and Radar Field Experiments, National Science Foundation, **$401,938**, 04/01/2006 – 03/31/2009, University of Oklahoma

9. Current: P. B. Chilson, E. Fedorovich, and R. D. Palmer, Characterization of the Daytime Convective Boundary Layer Using Numerical Simulations and Radar Field Experiments, University of Oklahoma

and Cooperative Institute for Mesoscale Meteorological Studies (Match), **$111,714**, 04/01/2006 – 03/31/2009, University of Oklahoma

10. Completed: R. D. Palmer, T. Yu, M. Yeary, G. Zhang, and P. B. Chilson, From NWRT to MPAR: A Research Partnership Between OU and NSSL, NOAA National Severe Storms Laboratory, **$199,938**, 03/01/2006 – 02/28/2007, University of Oklahoma

11. Current: G. Zhang, M. Xue, T. Schuur, P. B. Chilson, R. D. Palmer and D. Zrnic, Improving Microphysics Parameterizations and Quantitative Precipitation Forecasting Through Optimal Use of Video Disdrometer, Profiler, and Polarimetric Radar Observations, National Science Foundation, **$464,616**, 09/01/2006 – 08/31/2009, University of Oklahoma

12. Current: M. Yeary, T.-Y. Yu, R. D. Palmer, M. Biggerstaff, P. B. Chilson, and G. Zhang, MOVING TO THE NEXT LEVEL: Refining and Disseminating a Pedagogical Taxonomy and Hands-On Curriculum Materials for an Interdisciplinary Program and Multi-Function Weather Radar, National Science Foundation, **$499,064**, 06/01/2006 – 05/31/2011, University of Oklahoma

13. Current: M. Yeary, R. D. Palmer, P. B. Chilson, and Y. Zhang, Radar Next Generation Observing Systems via Digital Imaging Radar Development, NASA EPSCoR, **$20,975**, 02/01/2007 – 07/31/2007, University of Oklahoma

14. Current: M. Yeary, R. D. Palmer, G. Zhang, M. Xue, T.-Y. Yu, A. Zahrai, G. Crain, Y. Zhang, R. Doviak, Q. Xu, and P. B. Chilson, MRI: Development of a Multi-Channel Receiver for the Realization of Multi-MissionCapabilities at the National Weather Radar Testbed, National Science Foundation, **$699,440**, 09/01/2007 – 08/31/2009, University of Oklahoma

15. Current: R. D. Palmer, T.-Y. Yu, G. Zhang, M. Yeary, P. B. Chilson, Y. Zhang, and G. Crain, Optimal Use of Phased Array Radar for Multi-Mission Weather Surveillance and Aircraft Tracking, NOAA National Severe Storms Laboratory, **$253,801**, 04/01/2007 – 03/31/2008, University of Oklahoma

16. Current: G. Crain, T.-Y. Yu, M. Yeary, R. D. Palmer, G. Zhang, Y. Zhang, and P. B. Chilson, Phased Array Radar Technology, Lockheed Martin - Maritime System & Sensors, **$74,986**, 01/01/2007 – 12/31/2007, University of Oklahoma

17. Current: Y. Zhang, T.-Y. Yu, M. Yeary, R. D. Palmer, P. B. Chilson, and G. Zhang Airborne Phased Array Radar for Microphysics-Based, External Hazard Detection and Monitoring, NASA Langley Research Center, **$299,151**, 08/01/2007 – 07/31/2008, University of Oklahoma

18. Pending: L. Wallace, P. B. Chilson, A. Tarhule, and G. Wellborn Development of a Laboratory/Classroom Building at Kessler Farm Field Laboratory, University of Oklahoma, National Science Foundation, **$250,000**, 11/01/2007 – 10/31/2010, University of Oklahoma

19. Pending: V. Melnikov, P. B. Chilson, and D. Meecham, Obtaining Cloud Characteristics with the WSR-88D radar and comparisons with MMCR observations, US Department of Energy, **$418,110**, 11/01/2007 – 10/31/2010, University of Oklahoma

PUBLICATIONS

Refereed Journal Articles

1. Chaplin, R. L., and P. B. Chilson, 1986: The coefficient of kinetic friction for aluminum. *Wear*, **107**, 213–225.

2. Jung, P., and P. B. Chilson, 1987: Creep and microstructural changes in dispersion hardened Ni-20% Cr-1% Th02 during proton irradiation. *J. Nucl. Mater.*, **149**, 1–6.

3. Clark, J. C., P. B. Chilson, and G. G. Ihas, 1990: Reusable pressure seal for low temperature use requiring a small annular space. *Rev. Sci. Instrum.*, **61**, 3621–3622.

4. Chilson, P. B., J. C. Clark, and G. G. Ihas, 1991: Millikelvin heater using a light emitting diode and fibre optics. *Cryogenics*, **31**, 921–923.

5. Chilson, P. B., R. D. Palmer, M. F. Larsen, C. W. Ulbrich, S. Fukao, M. Yamamoto, T. Tsuda, and S. Kato, 1992: First observations of precipitation with a spatial interferometer. *Geophys. Res. Lett.*, **19**, 2409–2412.

6. Chilson, P. B., C. W. Ulbrich, M. F. Larsen, P. Perillat, and J. E. Keener, 1993: Observations of a tropical thunderstorm using a vertically pointing, dual frequency, collinear beam doppler radar. *J. Atmos. Ocean. Tech.*, **10**, 663–673.

7. Ulbrich, C. W., and P. B. Chilson, 1994: Effects of variations in precipitation size distribution and fallspeed law parameters on relations between mean doppler fallspeed and reflectivity factor. *J. Atmos. Ocean. Tech.*, **11**, 1656–1663.

8. Chilson, P. B., C. W. Ulbrich, M. F. Larsen, R. D. Palmer, S. Fukao, M. Yamamoto, and T. Nakamura, 1995: The effects of particle size distributions on cross-spectral phase measurements in spatial interferometry. *Radio Sci.*, **30**, 1065–1083.

9. Cohn, S. A., and P. B. Chilson, 1995: NCAR workshop on multiple-receiver and multiple-frequency techniques for wind profiling. *Bull. Amer. Meteor. Soc.*, **76**, 2474–2480.

10. Chilson, P. B., and G. Schmidt, 1996: Implementation of frequency domain interferometry at the SOUSY VHF radar: First results. *Radio Sci.*, **31**(2), 263–272.

11. Chilson, P. B., P. Czechowsky, and G. Schmidt, 1996: A comparison of ambipolar diffusion coefficients in meteor trains using VHF radar and UV lidar. *Geophys. Res. Lett.*, **23**, 2745–2748.

12. Ulbrich, C. W., and P. B. Chilson, 1996: CORRIGENDUM. *J. Atmos. Ocean. Tech.*, **13**, 915–920.

13. Chilson, P. B., A. Muschinski, and G. Schmidt, 1997b: First observations of Kelvin-Helmholtz billows in an upper level jet using VHF frequency domain interferometry. *Radio Sci.*, **32**(3), 1149–1160.

14. Chilson, P. B., P. Czechowsky, J. Klostermeyer, R. Rüster, and G. Schmidt, 1997a: An investigation of measured temperature profiles and VHF mesosphere summer echoes at midlatitudes. *J. Geophys. Res.*, **102**(D20), 23819–23828.

15. Barabash, V., P. Chilson, S. Kirkwood, A. Réchou, and K. Stebel, 1998: Investigations of the possible relationship between PMSE and tides using a VHF MST radar. *Geophys. Res. Lett.*, **35**, 3297–3300.

16. Kirkwood, S., V. Barabash, P. Chilson, A. Réchou, K. Stebel, P. Espy, G. Witt, and J. Stegman, 1998: The 1997 PMSE season - its relation to wind, temperature and water vapour. *Geophys. Res. Lett.*, **25**, 1867–1870.

17. Chilson, P. B., S. Kirkwood, and A. Nilsson, 1999: The Erange MST radar: A brief introduction and procedure for range validation using balloons. *Radio Sci.*, **34**(2), 427–436.

18. Muschinski, A., P. B. Chilson, S. Kern, J. Nielinger, G. Schmidt, and T. Prenosil, 1999: First frequency-domain interferometry observations of large-scale vertical motion in the atmosphere. *J. Atmos. Sci.*, **56**, 1248–1258.

19. Palmer, R. D., T.-Y. Yu, and P. B. Chilson, 1999: Range imaging using frequency diversity. *Radio Sci.*, **34**(6), 1485–1496.

20. Réchou, A., V. Barabash, P. Chilson, S. Kirkwood, S. Savitskaya, and K. Stebel, 1999: The influence of synoptic weather systems on vertical propogation of lee waves. *Ann. Geophys.*, **17**, 957–970.

21. Chilson, P. B., E. Belova, M. T. Rietveld, S. Kirkwood, and U.-P. Hoppe, 2000: First artificially induced modulation of PMSE using the EISCAT heating facility. *Geophys. Res. Lett.*, **27**, 3801–3804.

22. Belova, E., P. B. Chilson, M. Rapp, and S. Kirkwood, 2001: Electron temperature dependence of PMSE power: Experimental and modelling results. *Adv. Space Res.*, **28**(7), 1077–1082.

23. Chilson, P. B., S. Kirkwood, and I. Häggström, 2001a: Frequency-domain interferometry mode observations of PMSE using the EISCAT VHF radar. *Ann. Geophys.*, **18**, 1599–1612.

24. Chilson, P. B., R. D. Palmer, A. Muschinski, D. A. Hooper, G. Schmidt, and H. Steinhagen, 2001b: SOMARE-99: A demonstrational field campaign for ultra-high resolution VHF atmospheric profiling using frequency diversity. *Radio Sci.*, **36**(4), 695–707.

25. Muschinski, A., P. B. Chilson, R. D. Palmer, G. Schmidt, and H. Steinhagen, 2001: Boundary-layer convection and diurnal variation of vertical-velocity characteristics in the free troposphere. *Q. J. R. Meteorol. Soc.*, **127**, 423–444.

26. Palmer, R. D., P. B. Chilson, A. Muschinski, G. Schmidt, T.-Y. Yu, and H. Steinhagen, 2001: SOMARE-99: Observations of tropospheric scattering layers using multiple-frequency range imaging. *Radio Sci.*, **36**(4), 681–693.

27. Yu, T.-Y., R. D. Palmer, and P. B. Chilson, 2001: An investigation of scattering mechanisms and dynamics in PMSE using coherent radar imaging. *J. Atmos. Sol. Terr. Phys.*, **63**, 1797–1810.

28. Barabash, V., S. Kirkwood, and P. B. Chilson, 2002: Are variations in PMSE intensity affected by energetic particle precipitation? *Ann. Geophys.*, **20**, 539–545.

29. Chilson, P. B., T.-Y. Yu, R. D. Palmer, and S. Kirkwood, 2002: Estimates of aspect sensitivity within polar meshosphere summer echoes using coherent radar imaging. *Ann. Geophys.*, **20**, 213–223.

30. Kirkwood, S., V. Barabash, E. Belova, H. Nilsson, N. Rao, K. Stebel, A. Osepian, and P. B. Chilson, 2002: Polar mesosphere winter echoes during solar proton events. *Adv. Polar Upper Atm. Res.*, **16**, 111–125.

31. Belova, E., P. B. Chilson, S. Kirkwood, and M. T. Rietveld, 2003a: The response time of PMSE to ionospheric heating. *J. Geophys. Res.*, **108**(D8), doi:10.1029/2002JD002385.

32. Belova, E., S. Kirkwood, P. B. Chilson, and M. T. Rietveld, 2003b: Reply to comment by M. Rapp and F.-J. Lübken on "the response of time on PMSE to ionospheric heating". *J. Geophys. Res.*, **108**(D23), doi:10.1029/2003JD004167.

33. Chilson, P. B., T.-Y. Yu, R. G. Strauch, A. Muschinski, and R. D. Palmer, 2003: Implementation and validation of range imaging on a UHF radar wind profiler. *J. Atmos. Ocean. Tech.*, **20**(7), 987–996.

34. Chilson, P. B., 2004: The retrieval and validation of Doppler velocity estimates from range imaging. *J. Atmos. Ocean. Tech.*, **21**(7), 1033–1043.

35. Fernandez, J., R. D. Palmer, P. B. Chilson, I. Häggström, and M. Rietveld, 2005: Range imaging observations of PMSE using the EISCAT VHF radar: Phase calibration and first results. *Ann. Geophys.*, **23**, 207–220.

36. Kirkwood, S., P. Chilson, E. Belova, P. Dalin, I. Häggström, M. Rietveld, and W. Singer, 2006: Infrasound - the cause of polar mesosphere winter echoes? *Ann. Geophys.*, **24**, 475–491

37. Scipión, D., P. B. Chilson, E. Fedorovich, and R. D. Palmer, 2007: An LES-based radar simulator for studies of a daytime atmospheric convective boundary layer. *J. Atmos. Ocean. Tech.*, **in revision**

38. Ballinger, A., P. B. Chilson, R. D. Palmer, S. Kirkwood, and N. J. Mitchell, 2007: On the validity of the ambipolar diffusion assumption in the polar mesopause region. *Geophys. Res. Lett.*, **submitted**

39. Kanofsky, L., and P. B. Chilson, 2007: Quantitative precipitation estimation and error analysis with a uhf wind profiling radar and a two-dimensional video disdrometer. *J. Atmos. Ocean. Tech.*, **submitted**

40. Teshiba, M. S., P. B. Chilson, A. Ryzhkov, T. J. Schuur, R. D. Palmer, and L. M. Kanofsky, 2007: An investigation of microphysical processes of rain formation using uhf wind profilers and s-band polarimetric radar. *J. Atmos. Ocean. Tech.*, **submitted**

Other Publications (Refereed):

1. P. B. Chilson and C. Chilson, 2007: Morphologische Erscheinungen in der Meteorologie (English: Manifestations of Morphology in Meteorology), *Beiträge von "Morphologie und Digitale Welt in Sprach- und Naturwissenschaft"*, Ernst-Moritz-Arndt-Universität Greifswald, **under review**.

Other Publications (Non-Refereed):

1. R. Palmer, G. Zhang, M. Biggerstaff, P. Chilson, J. Crain, S. Torres, M. Yeary, T.-Y. Yu, and Y. Zhang, 2007: Atmospheric Radar Research Center - ARRC University of Oklahoma, USA, *IEEE GRSS Newsletter*, **March 2007**, 10-16

Conference Proceedings

1. Kilian, J. D., P. B. Chilson, G. G. Ihas, and E. D. Adams, 1989: New design for a copper demagnetization stage, AIP Conference Proceedings 194, *Quantum Fluids and Solids - 1989*, Eds. G. G. Ihas and Y. Takano, 393–396.

2. Chilson, P. B., R. D. Palmer, M. F. Larsen, C. W. Ulbrich, S. Fukao, M. Yamamoto, T. Nakamura, and S. Kato, 1993: Precipitation measurements using spatial interferometry, Proceedings of the *26th International Conference on Radar Meteorology*, AMS, 648–651.

3. Keener, J. E., C. W. Ulbrich, M. F. Larsen, R. D. Palmer, and P. B. Chilson, 1993: A study of tropical thunderstorm lightning with the use of dual wavelength Doppler radar, Proceedings of the *26th International Conference on Radar Meteorology*, AMS, 324–326.

4. Ulbrich, C. W., P. B. Chilson, M. F. Larsen, and J. E. Keener, 1993: Z - V measurements obtained using dual frequency Doppler measurements at vertical incidence, Proceedings of the *26th International Conference on Radar Meteorology*, AMS, 641–643.

5. Chilson, P. B. and C. W. Ulbrich, 1994: The dependence of v_D - Z relations on variations in precipitation size distribution and fall speed law parameters, Proceedings of the *International Seminar on Advanced Weather Radar Systems*, COST-75, Ed. C.G. Collier, 419–427.

6. Chilson, P. B., E. L. Sheppard, M. F. Larsen, R. D. Palmer, C. W. Ulbrich, S. Fukao, M. Yamamoto, T. Nakamura, and T. Tsuda: 1994, Analysis of real and simulated precipitation data using spatial interferometry techniques, Proceedings of the *Sixth Workshop on Technical and Scientific Aspects of MST/ST*, STEP Handbook, Ed. B. Edwards, 277–281.

7. Chilson, P. B., C. W. Ulbrich, M. F. Larsen, S. Fukao, M. Yamamoto, T. Nakamura, and T. Tsuda: 1994, Temporal decorrelations of spatial interferometry measurements resulting from precipitation particle size distributions, Proceedings of the *Third International Symposium on Tropospheric Profiling: Needs and Technology*, 283–285.

8. Chilson, P. B., P. Czechowsky, J. Klostermeyer, R. Rüster, and G. Schmidt, 1996: A study of PMSE-like echoes at mid latitudes using VHF radar and lidar, Proceedings of the *Seventh Workshop on Technical and Scientific Aspects of MST/ST Radar*, STEP Handbook, Ed. B. Edwards, 88–91.

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