

Jennifer M. Comstock

Dr. Jennifer Comstock's research interests are understanding the physical processes that influence cloud lifecycle using remote sensing and modeling techniques, with a focus on ice and mixed phase clouds. Dr. Comstock has participated in 12 major field campaigns covering a wide range of topics related to cirrus cloud lifecycle, orographic mixed-phase and convective clouds, shallow cumulus clouds, deep convective clouds, and aerosol radiative effects from anthropogenic and natural sources. Her research and field campaign experience has led to nearly 70 peer reviewed publications. Dr. Comstock's current work is focused on improving measurements and science products for users of data from the Atmospheric Radiation Measurement (ARM) User Facility and building ties between the observational and modeling

Employment History

Pacific Northwest National Laboratory, Richland, WA, USA

- Earth Scientist, May 2003 – present
- Postdoctoral Research Associate, Sept. 2000 – April 2003
- Current position: Engineering Manager and Science Products Lead for the Department of Energy's ARM User Facility, Jan. 2015-present

Department of Meteorology, University of Utah, Salt Lake City, UT

- Postdoctoral Research Associate, May 2000 - August 2000
- Graduate Research Assistant, August 1994 - April 2000

National Oceanic and Atmospheric Administration (NOAA), Boulder, CO

- Research Assistant - Air Resources Laboratory and Climate Monitoring and Diagnostics Laboratory, 1991-1994

Education

Ph. D. Meteorology, University of Utah, Salt Lake City, 2000

B. A. Physics, University of Colorado, Boulder, 1993

Awards

- University of Utah Distinguished Alumni Award – 2018
- Earth and Biological Sciences Division Best Award (2016, 2017, 2018)
- Exceptional Contribution Program Award, Pacific Northwest National Laboratory, (2013, 2016, 2022)
- Recipient of the Peter B. Wagner Memorial Award for Women in Atmospheric Sciences, 1998

Professional Service & Committees

- ARM Infrastructure Management Board, 2018-present
- AGU Fall Meeting Organizing Committee, Atmospheric Sciences - 2018 - Present

- Co-Convener, AGU Session on Observing and Modeling Atmospheric Vertical Motion, AGU Fall Annual meeting - Dec 2013
- AMS Committee on Laser Atmospheric Studies (2005-2011)
- Co-Chair AMS Fifth Symposium on Lidar Atmospheric Applications, Jan 2011, 91th AMS Annual Meeting, Seattle, WA
- Co-Chair AMS Fourth Symposium on Lidar Atmospheric Applications, Jan 2009, 89th AMS Annual Meeting, Phoenix, AZ
- ASR Focus Group Lead – Vertical Velocity (2012-2015)
- Steering Committee– DOE Atmospheric Systems Research (ASR), Cloud Lifecycle Working Group (2010-present)
- ARM Lidar Focus Group – Lead (2008-2009)
- ARM Ice Clouds Focus Group – Lead (2003-2008)

Key Publications

Fan, J. D., and coauthors, 2018: Substantial convection and precipitation enhancements by ultrafine aerosol particles, *Science*, 359, 411-418. doi:10.1126/science.aan8461

Riihimaki, L. D., Comstock, J. M., Anderson, K. K., Holmes, A., and Luke, E., 2016: A path towards uncertainty assignment in an operational cloud-phase algorithm from ARM vertically pointing active sensors, *Adv. Stat. Clim. Met. Ocean.*, 2, 49-62, doi:10.5194/ascmo-2-49-2016.

Comstock, J. M., A. Protat, S. A. McFarlane, J. Delanoe, and M. Deng, 2013: Assessment of Uncertainty in Cloud Radiative Effects and Heating Rates through Retrieval Algorithm Differences: Analysis using 3-years of ARM data at Darwin, Australia. *JGR*, doi:10.1002/jgrd.50404.

Fan, J., J. M. Comstock, and M. Ovchinnikov, 2010: The CCN and IN Effects on Tropical Anvil Characteristics and Water Vapor of the Tropical Tropopause Layer. *Environ. Res. Lett.*, 5, doi:10.1088/1748-9326/5/4/044005.

Fan, J., J. M. Comstock, M. Ovchinnikov, S. A. McFarlane, G. McFarquhar, and G. Allen, 2010: Tropical anvil characteristics and water vapor of the tropical tropopause layer: Impact of heterogeneous and homogeneous freezing parameterizations, *JGR*, doi:10.1029/2009JD012696.

Comstock, J. M., R.-F. Lin, D. O'C. Starr, and P. Yang, 2008: Understanding ice supersaturation, particle growth, and number concentration in cirrus clouds, *JGR*, doi:10.1029/2008JD010332.

Comstock, J. M., T. P. Ackerman, and G. G. Mace, 2002: Ground-based lidar and radar remote sensing of tropical cirrus clouds at Nauru Island: Cloud statistics and radiative impacts. *JGR*, 107(23), 4714, doi:10.1029/2002JD002203.

Comstock, J. M., and K. Sassen, 2001: Retrieval of cirrus cloud radiative and backscattering properties using combined lidar and infrared radiometer (LIRAD) measurements. *JTECH*, 18, 1658-1673.