

CURRICULUM VITAE

Robert Wood

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Education:

- B.A.* University of Cambridge, UK, 1989-1992
Natural Sciences (Physics and Theoretical Physics)
- Ph.D.* University of Manchester Institute of Science and Technology, UK, 1993-1997
Atmospheric Physics, Title: *Aircraft Observations of Boundary Layer Structure*, Advisor
Peter R Jonas

Professional Experience

Department of Atmospheric Sciences, University of Washington, Seattle (2006-present):

Assistant Professor: Responsible for the development of a program of research centered on the understanding of cloud physical processes, and teaching in the undergraduate and graduate program.

Department of Atmospheric Sciences, University of Washington, Seattle (2004-2006):

Research Assistant Professor: Responsible for the development of a program of research centered on the understanding of cloud physical processes.

Department of Atmospheric Sciences, University of Washington, Seattle (2001-2003):

Research Associate: Studied boundary layer cloud structure, variability, and microphysical processes.

Meteorological Research Flight, UK Met Office (1997-2001):

Research Scientist: Research related to boundary layer cloud microphysical processes and structural properties. Responsibilities included the planning and executing of aircraft-based field programs.

Honors

- The 2001 L. F. Richardson Prize, Royal Meteorological Society.
- Editors' Citation for Excellence in Refereeing for *Journal of Geophysical Research – Atmospheres*, 2007.

Professional Activities

- Reviewer for *Journal of the Atmospheric Sciences*, *Quarterly Journal of the Royal Meteorological Society*, *Journal of Climate*, *Journal of Geophysical Research*, *Atmospheric Research*, *Atmospheric Chemistry and Physics*, *Journal of Applied Meteorology*, *Journal of Atmospheric and Oceanic Technology*, *Atmospheric Chemistry and Physics*, *Transactions on Geoscience and Remote Sensing*, *Journal of Computational Physics*, *Geophysical Remote Sensing Letters*.

- Member of American Meteorological Society, Royal Meteorological Society, American Geophysical Union
- American Meteorological Society STAC Atmospheric Radiation committee member
- VAMOS Ocean-Cloud-Atmosphere-Land Study (VOCALS) Scientific Working Group member
- Principal Investigator - VOCALS-Regional Experiment (VOCALS-REx), Chile, Oct/Nov 2008.
- Principal Investigator – ARM Mobile Facility Deployment - Clouds, Aerosols and Precipitation (CAP-MBL), Azores (March-December 2009)
- VAMOS Modeling Group member.
- Chairperson Elect, Gordon Conference on Radiation and Climate, 2011.
- NASA CloudSat/CALIPSO Mission Science Team Member.
- Physics of Stratocumulus Top (POST) Science Team Member.

Publications

- [1] Wood, R., I. M. Stromberg, P. R. Jonas and C. S. Mill, 1997: Analysis of an air motion system on a light aircraft for boundary layer research. *J. Atmos. Oceanic Technol.*, **14**, 960-968.
- [2] Wood, R., D. W. Johnson and S. R. Osborne, 1998: The effect of drizzle on the redistribution of aerosol in the boundary layer: estimation of the scale of the effect during ACE-2 using aircraft data. *J. Aerosol Sci.*, **29**, Supp 1, 1097-1098.
- [3] Wood, R., I. M. Stromberg and P. R. Jonas, 1999: Aircraft observations of sea breeze frontal structure. *Quart. J. Roy. Meteor. Soc.*, **125**, 1959-1996.
- [4] Wood, R. and P. R. Field, 2000: Relationships between total water, condensed water and cloud fraction in stratiform clouds examined using aircraft data. *J. Atmos. Sci.*, **57**, 1888-1905.
- [5] Wood, R., D. W. Johnson, S. R. Osborne, M.O. Andreae, B. Bandy, T. S. Bates, C. O'Dowd, P. Glantz, K. Noone, P. K. Quinn, J. Rudolph, K. Suhre, 2000: Boundary layer and aerosol evolution during the third Lagrangian experiment of ACE-2. *Tellus*, **52B**, 401-422.
- [6] Osborne, S. R., D. W. Johnson, R. Wood, B. Bandy, M. O. Andreae, C. O'Dowd, P. Glantz, K. Noone, J. Rudolph, T. S. Bates P. K. Quinn, 2000: Evolution of the aerosol, cloud and boundary layer dynamic and thermodynamic characteristics during the second lagrangian experiment of ACE-2. *Tellus*, **52B**, 375-400.
- [7] Johnson D. W., S. R. Osborne, R. Wood, B. Bandy, M. O. Andreae, C. O'Dowd, P. Glantz, K. Noone, J. Rudolph, T. S. Bates P. K. Quinn, 2000: Observations of the evolution of the aerosol, cloud and boundary layer characteristics during the first Lagrangian experiment of ACE-2. *Tellus*, **52B**, 348-374.
- [8] Johnson D. W., S. R. Osborne, R. Wood, B. Bandy, M. O. Andreae, C. O'Dowd, P. Glantz, K. Noone, J. Rudolph, T. S. Bates P. K. Quinn, 2000: An overview of the Lagrangian experiments undertaken during the second Aerosol Characterisation Experiment. *Tellus*, **52B**, 290-320.
- [9] Solazzo, M., L. M. Russell, D. Percival, S. R. Osborne, R. Wood and D. Johnson, 2000: Entrainment rates during ACE-2 Lagrangian experiments calculated from aircraft measurements. *Tellus*, **52B**, 335-347.
- [10] Andreae, M. O., W. Elbert, R. Gabriel, D. W. Johnson, S. R. Osborne R. Wood, 2000: Soluble ion chemistry of the atmospheric aerosol and SO₂ concentrations over the eastern North Atlantic during ACE-2. *Tellus*, **52B**, 1066-1087.
- [11] Ghosh, S., P. R. Jonas and R. Wood, 2000: Large eddy simulations and aircraft observations of two cases of stratocumulus cloud. *Quart. J. Roy. Meteor. Soc.*, **126**, 2851-2872.
- [12] Wood, R., 2000: Parametrization of the effect of drizzle upon the droplet effective radius in stratocumulus clouds. *Quart. J. Roy. Meteorol. Soc.*, **126**, 3309-3325.
- [13] Suhre, K., D. W. Johnson, R. Rosset, S. R. Osborne, R. Wood, T. S. Bates, F. Raes, 2000: A continental outbreak of air that occurred during the Second Aerosol Characterization Experiment (ACE 2): A Lagrangian experiment. *J. Geophys. Res.*, **105**, 17911-17924.

- [14] Suhre, K., V. Crassier, C. Mari, R. Rosset, D. W. Johnson, S. R. Osborne, R. Wood, M. O. Andreae, B. Bandy, T. S. Bates, S. Businger, C. Gerbig, F. Raes and J. Rudolph, 2000, Chemistry and aerosols in the marine boundary layer: 1-D modelling of three ACE-2 Lagrangian experiments. *Atmos. Environ.*, **34**, 5079-5094.
- [15] Osborne, S. R., D. W. Johnson, K. N. Bower, R. Wood, 2001: Modification of the aerosol size distribution within exhaust plumes produced by diesel-powered ships. *J. Geophys. Res.*, **106**, 9827-9842.
- [16] Larson, V. E., R. Wood, P. R. Field, J.-C. Golaz, T. H. Vonder Haar, W. R. Cotton, 2001: Systematic biases in the microphysics and thermodynamics of numerical models that ignore subgrid-scale variability. *J. Atmos. Sci.*, **58**, 1117-1128.
- [17] Larson, V. E., R. Wood, P. R. Field, J.-C. Golaz, T. H. Vonder Haar, W. R. Cotton, 2001: Small-scale and mesoscale variability of scalars in cloudy boundary layers: One dimensional probability density functions. *J. Atmos. Sci.*, **58**, 1978-1994.
- [18] Wood, R. and J. P. Taylor, 2001: Liquid water path variability in unbroken marine stratocumulus cloud. *Quart. J. Roy. Meteorol. Soc.*, **127**, 2635-2662.
- [19] Wood, R., S. Irons, and P. R. Jonas, 2002: How important is the spectral ripening effect in stratiform boundary layer clouds? Studies using simple trajectory analysis. *J. Atmos. Sci.*, **59**, 2681-2693.
- [20] Price, J. D., and R. Wood, 2002: Comparison of probability density functions for total specific humidity and saturation deficit humidity, and consequences for cloud parameterization. *Quart. J. Roy. Meteorol. Soc.*, **128**, 2059-2072.
- [21] Wood, R., P. R. Field, and W. R. Cotton, 2002: Autoconversion rate bias in stratiform boundary layer cloud parameterizations. *Atmos. Res.*, **65**, 109-128.
- [22] Wood, R., C. S. Bretherton, and D. L. Hartmann, 2002: Diurnal cycle of liquid water path over the subtropical and tropical oceans. *Geophys. Res. Lett.* 10.1029/2002GL015371.
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- [25] Wood, R., and Bretherton, C.S., 2004: Boundary layer depth, entrainment and decoupling in the cloud-capped subtropical and tropical marine boundary layer. *J. Clim.*, **17**, 3576-3588.
- [26] Comstock, K. K., R. Wood, S. E. Yuter, and C. S. Bretherton, 2004: Reflectivity and rain rate in and below drizzling stratocumulus. *Quart. J. Roy. Meteor. Soc.*, **128**, 2891-2918.
- [27] Stevens, B., G. Vali, K. Comstock, R. Wood, M. VanZanten, P.H. Austin, C.S. Bretherton, D.H. Lenschow, 2005: Pockets of Open Cells (POCs) and drizzle in marine stratocumulus, *Bull. Am. Meteorol. Soc.*, **86**, 51-57.
- [28] Wood, R., 2005: Drizzle in stratocumulus. Part I: Horizontal and vertical structure. *J. Atmos. Sci.*, **62**, 3011-3034.
- [29] Wood, R., 2005: Drizzle in stratocumulus. Part II: Microphysical Aspects. *J. Atmos. Sci.*, **62**, 3035-3050.
- [30] Wood, R., and P. Blossey, 2005: Comments on: "On the parameterization of the autoconversion process. Part I: Analytical formulation of the Kessler-type parameterizations". *J. Atmos. Sci.*, **62**, 3003-3006.
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- [33] Wood, R., and D. L. Hartmann, 2006: Spatial variability of liquid water path in marine low cloud: The importance of mesoscale cellular convection. *J. Clim.*, **19**, 1748-1764.

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- [35] Wood, R., and C. S. Bretherton, 2006: On the relationship between stratiform low cloud cover and lower tropospheric stability., *J. Clim.*, **19**, 6425-6432.
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- [37] Field, P. R. and R. Wood, 2007: Precipitation and cloud structure in midlatitude cyclones. *J. Clim.*, **20**, 233-254.
- [38] Wood, R., 2007: Cancellation of aerosol indirect effects in marine stratocumulus through cloud thinning. *J. Atmos. Sci.*, **64**, 2657-2669.
- [39] Kubar, T. L., D. L. Hartmann, and R. Wood, 2007: Radiative and convective driving of tropical high clouds. *J. Clim.*, **20**, 5510-5526.
- [40] Comstock, K. K., S. E. Yuter, R. Wood, and C. S. Bretherton, 2007: The three dimensional structure and kinematics of drizzling stratocumulus. *Mon. Wea. Rev.*, **135**, 3767-3784.
- [41] Field, P. R. and R. Wood, 2007: Corrigendum to Precipitation and cloud structure in midlatitude cyclones. *J. Clim.*, **20**, 5208-5210.

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- [42] Yuan, J., D. L. Hartmann, and R. Wood, 2007: Dynamic effects on tropical mean cloud radiative forcing and radiation budget. *J. Clim.*, in press.
- [43] Chen, R., R. Wood, Z. Li, R. Ferraro, and F-L Chang, 2008: Studying the vertical variation of cloud droplet effective radius using ship and spaceborne remote sensing data. *J. Geophys. Res.*, submitted.
- [44] Chand, D., T. L. Anderson, R. Wood, R. J. Charlson, Y. Hu, Z. Liu, M. Vaughan, 2008: Quantifying above-cloud aerosol using spaceborne lidar for improved understanding of cloudy-sky direct climate forcing. *J. Geophys. Res.*, in press.
- [45] Lopez, M. A., D. L. Hartmann, P. N. Blossey, R. Wood, C. S. Bretherton, and T. L. Kubar, 2008: A test of the simulation of tropical convective cloudiness by a cloud-resolving model. *J. Clim.* submitted.
- [46] Wood, R., K. K. Comstock, C. S. Bretherton, C. Cornish, J. Tomlinson, D. R. Collins, and C. Fairall, 2008: Open cellular structure in marine stratocumulus sheets. *J. Geophys. Res.*, submitted.
- [47] Field, P. R., A. Gettelman, R. Neale, R. Wood, P. J. Rasch and H. Morrison, 2008: Midlatitude cyclone compositing to constrain climate model behavior using satellite observations. *J. Clim.*, submitted.
- [48] Kay, J. E., and R. Wood, 2008: Timescale analysis of aerosol sensitivity during homogeneous freezing and implications for upper tropospheric water vapor budgets. *Geophys. Res. Lett.*, submitted.
- [49] Wood, R. M. Kohler, R. Bennartz, C. O'Dell, 2008: The diurnal cycle of surface divergence over the global oceans. *Quart. J. Roy. Meteorol. Soc.*, submitted.