

## **Nicole Riemer**

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### Education Background

Diploma (equivalent to B.Sc. and M.S.), Meteorology, University of Karlsruhe, Germany, 1997  
Doctorat (equivalent to Ph.D.), Meteorology, University of Karlsruhe, Germany, 2002

### Academic Positions since Ph.D.

Assistant Professor, Institute for Terrestrial and Planetary Atmospheres, School of Marine and Atmospheric Sciences, Stony Brook University, NY, USA, 3/2005-12/2007  
Adjunct Assistant Professor, Institute for Terrestrial and Planetary Atmospheres, School of Marine and Atmospheric Sciences, Stony Brook University, NY, USA, since 1/2008  
Assistant Professor, Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign, IL, USA, since 1/2008  
Associate Professor, Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign, IL, USA, since 8/2014

### Other Professional Employment

Research Scientist, Institute for Meteorology and Climate Research, Karlsruhe Institute of Technology, Germany, 2002  
Postdoctoral Scholar, Department of Mechanical and Aeronautical Engineering, University of California, Davis, CA, USA, 1/2003 – 3/2004  
Postdoctoral Scholar, Center for Turbulence Research, Stanford University and NASA Ames, CA, USA, 4/2004 - 2/2005

### Honors, Recognitions, and Outstanding Achievements

Member of the German National Academic Foundation, 1995 (Scholarship awarded to top 0.3% of German students who demonstrate academic excellence in their chosen field of study and show a strong sense of social responsibility)  
Scholarship from the German National Academic Foundation (one of 1000 Germany-wide) to study at the California Institute of Technology, 1997  
Presenter at “Science Alive” (week-long public exhibition by the Herman von Helmholtz Organization in Munich), 2000  
Presenter in the Young Talents Speaker Series at the Forschungszentrum Karlsruhe, 2002  
Invited Presenter at Telluride Workshop on Organic Aerosols 2006  
Recipient of the Hewlett International Travel Grant 2009  
Invited Presenter at Telluride Workshop on Aerosol-Cloud interactions 2010, 2012, and 2014  
Recipient of NSF-CAREER award 2013  
2014-2015 I. C. Gunsalus Scholar

### *List of Teachers Ranked as Excellent for the following courses:*

Fall 2008 for ATMS 301, Atmospheric Thermodynamics, required course with 16 students enrolled.  
Fall 2009 for ATMS 301, Atmospheric Thermodynamics, required course with 15 students enrolled.  
Spring 2010 for ATMS 597, Aerosol Dynamics and Chemistry, elective course with 13 students enrolled.  
Spring 2011 for ATMS 306, Cloud Physics, elective course with 11 students enrolled.  
Fall 2011 for ATMS 301, Atmospheric Thermodynamics, required course with 31 students enrolled  
Spring 2012 for ATMS 420, Atmospheric Chemistry, elective course with 18 students enrolled

Spring 2013 for ATMS 597, Aerosol Dynamics and Chemistry, elective course with 6 students enrolled.  
Fall 2013 for ATMS 504, Physical Meteorology, elective course with 15 students enrolled.  
Spring 2014 for ATMS 420, Atmospheric Chemistry, elective course with 20 students enrolled

#### Membership and Offices Held in Professional Societies

American Geophysical Union (AGU) since 2003  
American Association of Aerosol Research (AAAR) since 2003  
Member of the American Meteorological Society (AMS) since 2008  
Member of the International Commission on Atmospheric Chemistry and Global Pollution (2010-2014)  
Aerosol Chemistry Working Group Vice Chair of the American Association of Aerosol Research (AAAR), 2011  
Aerosol Chemistry Working Group Chair of the American Association of Aerosol Research (AAAR), 2012  
Member of the American Association of Aerosol Research (AAAR) Publications Committee since 2012  
Member of the advisory panel for the Environmental Molecular Sciences Laboratory (EMSL) Atmospheric Aerosol Systems Science Theme (2014)

#### Editorships of Journals

Editor, *Aerosol Science and Technology*, 2014–present  
Editorial Board member, *Atmosphere*, 2012–present  
Editor, *Atmospheric Chemistry and Physics*, European Geosciences Union, 2009–2014  
Editorial Board member, *Atmospheric and Climate Science*, 2011–2014

#### Publications

1. B. Vogel, N. Riemer, H. Vogel, F. Fiedler, Findings on  $\text{NO}_y$  as an indicator for ozone sensitivity based on different numerical simulations, *J. Geophys. Res.*, 104, 3605-3620, 1999.
2. N. Riemer, H. Vogel, B. Vogel, F. Fiedler, Modeling of tropospheric soot aerosol on the regional scale, *J. Aerosol Sci.*, 31, Suppl. 1, p. S431, 2000.
3. N. Riemer, H. Vogel, B. Vogel, F. Fiedler, Modification of the visibility by soot aerosol on the regional scale – Numerical simulations, *J. Aerosol Sci.*, 32, Suppl. 1, p. S121, 2001.
4. N. Riemer, H. Vogel, B. Vogel, F. Fiedler, Impact of the hydrolysis of  $\text{N}_2\text{O}_5$  on tropospheric chemistry – Numerical Simulations, *J. Aerosol Sci.*, 32, Suppl. 1, p. S285, 2001.
5. H. Saathoff, K.-H. Naumann, N. Riemer, S. Kamm, O. Möhler, U. Schurath, H. Vogel, B. Vogel, The loss of  $\text{NO}_2$ ,  $\text{HNO}_3$ ,  $\text{NO}_3/\text{N}_2\text{O}_5$ , and  $\text{HO}_2/\text{HOONO}_2$  on soot aerosol: A chamber and modeling study, *Geophys. Res. Letters*, 28, 1957, 2001.
6. N. Riemer, H. Vogel, B. Vogel, B. Schell, I. Ackermann, Ch. Kessler, H. Hass, The impact of the heterogeneous hydrolysis of  $\text{N}_2\text{O}_5$  on tropospheric chemistry and nitrate aerosol formation, *J. Geophys. Res.*, 108, 4144, doi: 10.1029/2002JD002436, 2003.
7. N. Riemer, H. Vogel, B. Vogel, F. Fiedler, Modeling aerosols on the mesoscale- $\gamma$ : Treatment of soot aerosol and its radiative effects, *J. Geophys. Res.*, 108, 4601, doi: 10.1029/2003JD003448, 2003.
8. N. Riemer, H. Vogel, B. Vogel, Soot aging time scales in polluted regions during day and night, *Atmos. Chem. Phys.*, 4, 1885-1893, 2004.
9. N. Riemer and A.S. Wexler, Droplets to drops by turbulent coagulation, *J. Atmos. Sci.*, 62, 1962-1975, 2005.
10. N. Riemer, O.M. Doherty, S. Hameed, On the variability of African dust transport across the Atlantic, *Geophys. Res. Letters*, 33, L13814, doi:10.1029/2006GL026163, 2006.
11. N. Riemer, A.S. Wexler, K. Diehl, Droplet growth by turbulent coagulation – Comparison of theory and measurements, *J. Geophys. Res.*, 112, D07204, doi:10.1029/2006JD007702, 2007.
12. O. Doherty, N. Riemer, S. Hameed, Saharan mineral dust transport into the Caribbean: Observed trends and controls, *J. Geophys. Res.*, 113, D07211, doi:10.1029/2007JD009171, 2008.
13. R. McGraw, L. Leng, W. Zhu, N. Riemer, M. West, Aerosol dynamics using the quadrature method of moments: Comparing several quadrature schemes with particle-resolved simulation, *Journal of Physics: Conf. Series*, 125, 012020, doi:10.1088/1742-6596/125/1/012020, 2008.
14. F. Xu, D.-P. Wang, N. Riemer, Modeling flocculation processes of fine-grained particles using a size-resolved method: Comparison with published laboratory experiments, *Continental Shelf Res.*, 28, 2668-2677, doi:10.1016/j.csr.2008.09.001, 2008.

15. N. Riemer, M. West, R.A. Zaveri, R.C. Easter, Simulating the evolution of soot mixing-state with a particle-resolved aerosol model, *J. Geophys. Res.*, 114, D09202, doi: 10.1029/2008JD011073, 2009.
16. N. Riemer, H. Vogel, B. Vogel, T. Anttila, T.F. Mentel, A. Kiendler-Scharr, The relative importance of organic coatings for the heterogeneous hydrolysis of N<sub>2</sub>O<sub>5</sub>, *J. Geophys. Res.*, 114, D17307, doi: 10.1029/2008JD011369, 2009.
17. M. Springmann, D. A. Knopf, N. Riemer, Detailed heterogeneous chemistry in an urban plume box model: Reversible co-adsorption of O<sub>3</sub>, NO<sub>2</sub>, and H<sub>2</sub>O on soot coated with benzo[a]pyrene, *Atmos. Chem. Phys.*, 9, 7461-7479, 2009.
18. N. Riemer, M. West, R.A. Zaveri, R.C. Easter, Estimating soot aging time scales with a particle-resolved aerosol model, *J. Aerosol Sci.*, 41, 143-158, doi: 10.1016/j.jaerosci.2009.08.009, 2010.
19. F. Xu, D.-P. Wang, N. Riemer, An idealized study of flocculation effects on sediment trapping in an Estuarine Turbidity Maximum over tidal cycles, *Continental Shelf Res.*, 30, 1314-1323, 2010.
20. R. A. Zaveri, R. C. Easter, J. C. Barnard, N. Riemer, M. West, Effect of aerosol mixing-state on optical and cloud activation properties, *J. Geophys. Res.*, 115, D17210, 2010.
21. J. Ching, N. Riemer, M. Miller, M. Dunn In-cloud turbulence structure of marine stratocumulus, *Geophys. Res. Letters*, 37, L21808, 2010.
22. W. Chang, P. Bhave, S. Brown, N. Riemer, J. Stutz, D. Dabdub, Tropospheric N<sub>2</sub>O<sub>5</sub>: A review of ambient measurements and model calculations, *Aerosol Sci. Technol.*, 45, 655-685, 2011.
23. V. Aquila, J. Hendricks, A. Lauer, N. Riemer, H. Vogel, J. P. Schwarz, J. R. Spackman, B. Weinzierl, D. Baumgardner, M. Righi, and M. Dall'Amico, MADE-IN: A new aerosol microphysics submodel for global simulation of potential atmospheric ice nuclei, *Geosci. Model Dev.*, 4, 325-355, 2011.
24. R. E. L. DeVille, N. Riemer, M. West: The Weighted Flow Algorithm (WFA) for stochastic particle coagulation, *J. Comput. Phys.*, 230, 8427-8451, 2011.
25. J. C. Kaiser, N. Riemer, D.A. Knopf, Detailed heterogeneous oxidation of soot surfaces in a particle-resolved aerosol model, *Atmos. Chem. Phys.*, 11, 4505-4520, 2011.
26. C. O. Stanier, A. Singh, W. Adamski, J. Baek, M. Caughey, G. Carmichael, E. Edgerton, D. Kenski, M. Koerber, J. Oleson, T. Rohlf, S. R. Lee, N. Riemer, S. Shaw, S. Sousan, and S. N. Spak, Overview of the LADCO winter nitrate study: hourly ammonia, nitric acid and PM<sub>2.5</sub> composition at an urban and rural site pair during PM<sub>2.5</sub> episodes in the US Great Lakes region, *Atmos. Chem. Phys.*, 12, 11037-11056, 2012.
27. S. Hameed and N. Riemer, Relationship of Sahel Precipitation and Atmospheric Centers of Action, *Advances in Meteorology*, 2012, 953853, 2012.
28. O. M. Doherty, N. Riemer, S. Hameed, Control of Saharan mineral dust transport to Barbados in Winter by the Intertropical Convergence Zone over West Africa, *J. Geophys. Res.*, D19117, 2012.
29. J. Ching, N. Riemer, M. West, Impacts of black carbon mixing state on cloud droplet activation—Insights from a particle-resolved model, *J. Geophys. Res.*, 117, doi:10.1029/2012JD018269, D2320, 2012. **Ogura award 2012 for best student paper**
30. N. Riemer and M. West, Quantifying Aerosol Mixing State with Entropy and Diversity Measures, *Atmos. Phys. Chem.*, 13, 11423–11439, 2013. **Editor's Highlight**
31. L. Fierce, N. Riemer, T Bond, Particle-resolved model analysis of the cloud condensation nuclei activity of primary aerosol, *J. Geophys. Res.*, 118, doi:10.1002/2013JD020608, 2013.
32. J. Tian, N. Riemer, L. Pfaffenberger, A. Petzold, H. Schlager, Modeling the evolution of aerosol particles in a ship plume using PartMC-MOSAIC, *Atmos. Phys. Chem.*, 14, 5327-5347, 2014.
33. O. M. Doherty, N. Riemer, S. Hameed, Role of the Convergence Zone Over West Africa in Controlling Saharan Mineral Dust Emission and Transport in the Boreal Summer, *Tellus B*, 66, 23191, 2014.
34. J. C. Kaiser, J. Hendricks, M. Righi, N. Riemer, R. A. Xaveri, S. Metzger, V. Aquila, The MESSy submodel MADE3 (v2.0B): Description and a box model test, *Geosci. Model Dev.*, 7, 1137-1157, 2014.
35. R. M. Healy, N. Riemer, J. C. Wenger, M. Murphy, M. West, L. Poulain, A. Wiedensohler, I. P. O'Connor, E. McGillicuddy, J. R. Sodeau, and G. J. Evans, Single particle diversity and mixing state measurements, *Atmos. Phys. Chem.*, 14, 6289-6299, 2014.
36. L. Fierce, N. Riemer, T. Bond, Explaining variance in black carbon's aging timescale, *Atmos. Chem. Phys. Discuss.*, 14, 18703-18737, 2014.