

## Peter J. Adams

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**Research Interests:** Aerosol chemistry, thermodynamics, and microphysics; global and regional scale chemical transport models; aerosols and climate; process-based emissions models.

**Education:** Ph.D., Chemical Engineering, California Institute of Technology, 2001; MS, Chemical Engineering, California Institute of Technology, 1998; BS, Chemical Engineering, Cornell University, 1996.

**Professional Experience:** Carnegie Mellon University, Department of Civil and Environmental Engineering and Department of Engineering and Public Policy, Assistant Professor (August 2001-June 2006) and Associate Professor (July 2006-present).

**Teaching Experience:**

Professor, Carnegie Mellon University: Fluid Mechanics, Engineering and Public Policy Project, Air Quality Engineering, Climate Change Science and Policy.

**Honors:**

American Association for Aerosol Research: Friedlander Award (Outstanding Dissertation), 2004.  
Journal of Geophysical Research Excellence in Refereeing (2003); Fannie and John Hertz Foundation Graduate Fellow (1996-2001).

**Selected Journal Articles:**

- Adams, P. J., J. H. Seinfeld, and D. M. Koch, Global concentrations of tropospheric sulfate, nitrate, and ammonium aerosol simulated in a general circulation model, *J. Geophys. Res.*, 104, 13,791-13,823, 1999.
- Adams, P. J., J. H. Seinfeld, D. M. Koch, L. J. Mickley, and D. J. Jacob, General circulation model assessment of direct radiative forcing by the sulfate-nitrate-ammonium-water inorganic aerosol system, *J. Geophys. Res.*, 106, 1097-1111, 2001.
- Adams, P. J., and J. H. Seinfeld, Predicting global aerosol size distributions in general circulation models, *J. Geophys. Res.*, 10.1029/2001JD001010, 2002.
- Adams, P. J., and J. H. Seinfeld, Disproportionate impact of particulate emissions on global cloud condensation nuclei concentrations, *Geophysical Research Letters*, 10.1029/2002GL016303, 2003.
- Dawson, J. P., P. J. Adams, and S. N. Pandis, Sensitivity of ozone to summertime climate in the eastern USA: A modeling case study, *Atmos. Environ.*, doi: 10.1016/j.atmosenv.2006.10.033, 2006.
- Dawson, J.P., P.J. Adams, and S.N. Pandis, Sensitivity of PM<sub>2.5</sub> to climate in the Eastern US: a modeling case study, *Atmospheric Chemistry and Physics*, 7, 4295-4309, 2007.
- Dawson, J. P., P. N. Racherla, B. H. Lynn, P. J. Adams, and S. N. Pandis, Simulating present-day and future air quality as climate changes: model evaluation, submitted to *Atmospheric Environment*, 2007.
- Gilmore, E. A., L. B. Lave, and P. J. Adams, The costs, air quality and human health effects of meeting peak electricity demand with installed backup generators, *Environ. Sci. Tech.*, 40, 6887-6893, 2006.
- Jung, J.G., P.J. Adams, and S.N. Pandis, Simulating the size distribution and chemical composition of ultrafine particles during nucleation events, *Atmos. Environ.*, 40 (13), 2248-2259, 2006.
- Liao, H., P. J. Adams, S. H. Chung, J. H. Seinfeld, L. J. Mickley, and D. J. Jacob, Interactions between tropospheric chemistry and aerosols in a unified general circulation model, *J. Geophys. Res.*, 10.1029/2001JD001260, 2003.

- Liao, H., Seinfeld, J. H., Adams, P. J., and L. J. Mickley, Global radiative forcing of coupled tropospheric ozone and aerosols in a unified general circulation model, *J. Geophys. Res.*, 109 (D16), Art. No. D16207, 2004.
- Morgan, M.G., P.J. Adams, and D.W. Keith, Elicitation of expert judgments of aerosol forcing, *Climatic Change*, 75 (1-2), 195-214, 2006.
- Pierce, J.R., and P.J. Adams, Global evaluation of CCN formation by direct emission of sea salt and growth of ultrafine sea salt, *J. Geophys. Res.*, 111, 10.1029/2005JD006186, 2006.
- Pierce, J.R., and P.J. Adams, Efficiency of cloud condensation nuclei formation from ultrafine particles, *Atmospheric Chemistry and Physics*, 7, 1367-1379, 2007.
- Pierce, J.R., K. Chen, and P.J. Adams, Contribution of carbonaceous aerosol to cloud condensation nuclei: Processes and uncertainties evaluated with a global aerosol microphysics model, *Atmospheric Chemistry and Physics*, in press, 2007.
- Pinder, R. W., Anderson, A. J., Davidson, C. I., Adams, P. J., A process based model of ammonia emissions from dairy cows: improved temporal and spatial resolution, *Atmos. Environ.*, 38, 1357-1365, 2004.
- Pinder, R. W., Strader, R., Davidson, C. I., Adams, P. J., A temporally and spatially resolved ammonia emission inventory for dairy cows in the United States, *Atmos. Environ.*, 38, 3747-3756, 2004.
- Pinder, R. W., P. J. Adams, S. N. Pandis, and A. B. Gilliland, Temporally resolved ammonia emission inventories: Current estimates, evaluation tools, and measurement needs, *J. Geophys. Res.*, 111, D16310, doi:10.1029/2005JD006603, 2006.
- Pinder, R. W., P. J. Adams, and S. N. Pandis, Ammonia emission controls as a cost-effective strategy for reducing atmospheric particulate matter in the Eastern US, *Environ. Sci. Tech.*, 41, 380-386, 2006.
- Racherla, P. N., and P. J. Adams, Sensitivity of global ozone and fine particulate matter concentrations to climate change, *J. Geophys. Res.*, 111, doi:10.1029/2005JD006939, 2006.
- Racherla, P.N., and P.J. Adams, The response of surface ozone to climate change over the eastern United States, *Atmospheric Chemistry and Physics*, submitted, 2007.
- Sotiropoulou, R.E.P., A. Nenes, P.J. Adams, and J.H. Seinfeld, Cloud condensation nuclei prediction error from application of Köhler theory: Importance for the aerosol indirect effect, *Journal of Geophysical Research*, doi:10.1029/2006JD007834, 2007.

### **Recent Invited Talks:**

- Telluride Workshop on Organic Particles in the Atmosphere (Invited Talk), “Organic Aerosols as CCN: Magnitude of Contribution and Key Uncertainties”, August 2006.
- Electric Power Research Institute (Invited Talk), “Ammonia: Environmental Impacts, Emissions, Inorganic PM<sub>2.5</sub>, and the Clean Air Interstate Rule”, July 2006.
- European Aerosol Conference, “Factors Controlling the Tropospheric CCN Budget”, August 2005.
- National Oceanic and Atmospheric Administration, “Efficient Computational Modeling of Aerosol-Climate Interactions”, May 2005.
- University of New Hampshire, “Tropospheric CCN Formation”, March 2005.
- National Center for Atmospheric Research Workshop on Chemistry-Climate Interactions, “Aerosol Formation and Chemistry: Sensitivity of CCN to Chemistry and Microphysics”, February 2005.
- Georgia Institute of Technology, “Insights into Aerosol Climate Forcings from Global Microphysics Models”, February 2004.

### **Memberships and Professional Service:**

American Association for Aerosol Research (AAAR): member and Internet committee; American Geophysical Union (AGU); American Society of Civil Engineers (ASCE); Pennsylvania Department of Environmental Protection Air Quality Technical Advisory Committee.