



Air Resources Laboratory Publications – 2008



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- Altieri, K.E., S.P. Seitzinger, **A.G. Carlton**, B.J. Turpin, G.C. Klein, and A.G. Marshall. Oligomers formed through in-cloud methylglyoxal reactions: Chemical composition, properties, and mechanisms investigated by ultra-high resolution FTICR mass spectrometry. *Atmospheric Environment* 42(7):1476-1490 (2008).
- Appel, K.W., P.V. Bhave, A.B. Gilliland**, G. Sarwar, and **S.J. Roselle**. Evaluation of the Community Multiscale Air Quality (CMAQ) Model Version 4.5: Sensitivities impacting model performance: Part II - Particulate matter. *Atmospheric Environment* 42(24):6057-6066 (2008).
- Baklanov, A., **J. Ching**, C.S.B. Grimmond, and A. Martilli. Chapter 5. Model urbanization strategy: Summaries, recommendations and requirements. Report of COST Action 728, Urbanization of meteorological and air quality models. Workshop on Model Urbanization Strategy, UK Met Office, Exeter, UK, 3-4 May, 2007, [PDF](#), 15 May. (2008).
- Baldauf, R., E. Thoma, M. Hays, R. Shores, J. Kinsey, B. Gullett, S. Kimbrough, **V. Isakov**, T. Long, R. Snow, A. Khlystov, J. Weinstein, F. Chen, R. Seila, D. Olson, I. Gilmour, S. Cho, N. Watkins, R. Rowley, and J. Bang. Traffic and meteorological impacts on near-road air quality: Summary of methods and trends from the Raleigh near-road study. *Journal of the Air & Waste Management Association* 58:865-878 (2008).
- Boersma, K.F., D.J. Jacob, H.J. Eskes, **R.W. Pinder**, J. Wang, and R.J. van der A. Intercomparison of SCIAMACHY and OMI tropospheric NO₂ columns: Observing the diurnal evolution of chemistry and emissions from space. *Journal of Geophysical Research*, Vol. 113, D16S26, doi:10.1029/2007JD008816 (2008).
- Bowker, G.E., **D.A. Gillette**, G. Bergametti, B. Marticorena, and **D.K. Heist**. Fine-scale simulations of Aeolian sediment dispersion in a small area in the northern Chihuahuan Desert. *Journal of Geophysical Research*, Vol. 113, F02S11, doi:10.1029/2007JF000748 (2008).
- Brooks, S., R. Arimoto, S. Lindberg, and G. Southworth. Antarctic polar plateau snow surface conversion of deposited oxidized mercury to gaseous elemental mercury with fractional long-term burial. *Atmospheric Environment* 42(12):2877-2884 (2008).

- Brooks, S., S. Lindberg, G. Southworth, and R. Arimoto. Springtime atmospheric mercury speciation in the McMurdo, Antarctica coastal region. *Atmospheric Environment* 42(12):2885-2893 (2008).
- Butler, T.J., **M.D. Cohen**, F.M. Vermeylen, G.E. Likens, D. Schmeltz, and **R.S. Artz**. Regional precipitation mercury trends in the eastern USA, 1998-2005: Declines in the Northeast and Midwest, no trend in the Southeast. *Atmospheric Environment* 42:1582-1592 (2008).
- Cook, R., **V. Isakov**, **J. S. Touma**, **W. Benjey**, J. Thurman, E. Kinnee, and D. Ensley. Resolving local scale emissions for near roads modeling assessments. *Journal of the Air & Waste Management Association* 58(3):451-461 (2008).
- Dennis, R.L.**, **P.V. Bhave**, and **R.W. Pinder**. Observable Indicators of the sensitivity of PM_{2.5} nitrate to emission reductions, Part II: Sensitivity to errors in total ammonia and total nitrate of the CMAQ-predicted nonlinear effect of SO₂ emission reductions. *Atmospheric Environment* 42:1287-1300 (2008).
- Eckman, R.M.** Comment on "Dynamical Implications of Block Averaging" by G. Treviño and E.L. Andreas. *Boundary-Layer Meteorology* 127:345-351 (2008).
- Eckman, R.M.** Comment on the Reply of G. Treviño and E.L. Andreas. *Boundary Layer Meteorology* 127:357-358 (2008).
- Eisele, F., D.D. Davis, D. Helmig, S.J. Oltmans, W. Neff, G. Huey, D. Tanner, G. Chen, J. Crawford, R. Arimoto, M. Buhr, L. Mauldin, M. Hutterli, J. Dibb, D. Blake, S.B. Brooks, B. Johnson, J.M. Roberts, Y. Wang, D. Tan, and F. Flocke. Antarctic Tropospheric Chemistry Investigation (ANTCI) 2003 overview. *Atmospheric Environment* 42(12):2749-2761 (2008).
- Ervens, B., **A. G. Carlton**, B.J. Turpin, K.E. Altieri, S. M. Kreidenwies, and G. Feingold. Secondary organic aerosol yields from cloud-processing of isoprene oxidation products. *Journal of Geophysical Research Letters*.35 L02816 (2008).
- Garcia, V.**, N. Fann, R. Haeuber, and P. Lorang. Assessing the public health impact of regional-scale air quality regulations. *Journal of the Air & Waste Management Association*, EM, 29-34 (2008).
- Gego, E.**, **A. Gilliland**, **J. Godowitch**, **S.T. Rao**, P.S. Porter, and C. Hogrefe. Modeling analyses of the effects of changes in nitrogen oxides emissions from the electric power sector on ozone levels in the eastern United States. *Journal of the Air & Waste Management Association* 58:580-588 (2008).
- Gilliland, A.B.**, C. Hogrefe, **R.W. Pinder**, J.M. Godowitch, K.L. Foley, and S.T. Rao. Dynamic evaluation of regional air quality models: Assessing changes in O₃

stemming from changes in emissions and meteorology. *Atmospheric Environment* 42:5110-5123 (2008).

Godowitch, J., A. Gilliland, R. Draxler, and S.T. Rao. Modeling assessment of point source NO_x emission reductions on ozone air quality in the eastern United States. *Atmospheric Environment* 42(1):87-100 (2008).

Gu, L., P.M. Hanson, W.M. Post, D.P. Kaiser, B. Yang, R. Nemani, S.G. Pallardy, and **T. Meyers.** The 2007 eastern US spring freeze: Increased cold damage in a warming world? *Bioscience* 58(3):253-262 (2008).

Hicks, B.B. On estimating dry deposition rates in complex terrain. *Journal of Applied Meteorology and Climatology* 47:1651-1658 (2008).

Irwin, J.S., K. Civerolo, C. Hogrefe, W. Appel, K. Foley, and J. Swall. A procedure for inter-comparing the skill of regional-scale air quality model simulations of daily maximum 8-h ozone concentrations. *Atmospheric Environment* 42:5403-5412 (2008).

Kirby, S. R. Dobosy, D. Williamson, and E. Dumas. An aircraft-based data analysis method for discerning individual fluxes in a heterogeneous agricultural landscape *Agricultural and Forest Meteorology*, 148(3):481-489 (2008).

Liang, X-Z., K.E. Kunkel, G.A. Meehl, R.G. Jones, and **J.L. Wang.** Regional climate models downscaling analysis of general circulation models present climate biases propagation into future change projections. *Geophysical Research Letters*, Vol. 35, L08709, doi:10.1029/2007GL032849 (2008).

Liao, K-J., E. Tagaris, **S.L. Napelenok**, K. Manomaiphiboon, J-H. Woo, P. Amar, S. He, and A.G. Russel, Current and future linked responses of ozone and PM_{2.5} to emission controls. *Environmental Science & Technology* 42(13):4670-4675 (2008).

Mathur, R., S. Yu, D. Kang, and **K.L. Schere.** Assessment of the winter-time performance of developmental particulate matter forecasts with the Eta-CMAQ modeling system. *Journal of Geophysical Research-Atmospheres* 113(D02303) (2008).

Napelenok, S.L., D.S. Cohan, M.T. Odman, and S. Tonse. Extension and evaluation of sensitivity analysis capabilities in a photochemical model. *Environmental Modelling & Software* 23:994-999 (2008).

Napelenok, S. L., R. Pinder, A. B. Gilliland, and R. V. Martin. A method of evaluating spatially-resolved NO_x emissions using Kalman filter inversion, direct sensitivities,

and space-based NO₂ observations. *Atmospheric Chemistry and Physics* 8:6469-6499 (2008).

- Nolte, C.G., P.V. Bhave**, J.R. Arnold, **R.L. Dennis**, K.M. Zhang, and A.S. Wexler. Modeling urban and regional aerosols—Application of the CMAQ-UCD aerosol model to Tampa, a coastal urban site. *Atmospheric Environment* 42:3179-3191 (2008).
- Nolte, C.G., A. B. Gilliland**, C. Hogrefe, and L.J. Mickley. Linking global to regional models to assess future climate impacts on surface ozone levels in the United States. *Journal of Geophysical Research* 113(D14307):1-14 (2008).
- Otte, T.L.** The impact of nudging in the meteorological model for retrospective air quality simulations. Part I: Evaluation against national observation networks. *Journal of Applied Meteorology and Climatology* 47(7): 1853-1867 (2008).
- Otte, T.L.** The Impact of nudging in the meteorological model for retrospective air quality simulations. Part II: Evaluating collocated meteorological and air quality observations. *Journal of Applied Meteorology and Climatology* 47(7):1868-1887 (2008).
- Ozkaynak, H., T. Palma, **J. Touma**, and J. Thurman. Modeling population exposures to outdoor sources of hazardous air pollutants. *Journal of Exposure and Environmental Epidemiology* 18(1):45-58 (2008).
- Pinder, R.W. R.L. Dennis**, and **P.V. Bhave**. Observable indicators of the sensitivity of PM_{2.5} nitrate to emission reductions, Part I: Derivation of the adjusted gas ratio and applicability at regulatory-relevant time scales. *Atmospheric Environment* 42:1275-1286 (2008).
- Pinder, R.W., A.B. Gilliland**, and **R.L. Dennis**. Environmental impact of atmospheric NH₃ emissions under present and future conditions in the eastern United States. *Geophysical Research Letters*, Vol. 35, L12808, doi:10.1029/2008GL033732 (2008).
- Pongprueksa, P., C-J, Lin, S.E. Lindberg, C. Jang, T. Braverman, **O.R. Bullock, Jr.**, T. C. Ho, and H-W.Chu. Scientific uncertainties in atmospheric mercury models III: Boundary and initial conditions, model grid resolutions, and Hg (II) reduction mechanisms. *Atmospheric Environment* 42(8):1828-1845 (2008).
- Pouliot, G.**, T. Pace, B. Roy, **T. Pierce**, and D. Mobley. Development of a biomass burning emissions inventory by combining satellite and ground-based information. *Journal of Applied Remote Sensing*, Vol. 2, 021501, doi:10.1117/1.2939551 (2008).

- Queen, A., Y. Zhang, **R. Gilliam**, and **J. Pleim**. Examining the sensitivity of MM5-CMAQ predictions to explicit, microphysics schemes and horizontal grid resolutions, Part I – Database, evaluation protocol and precipitation predictions. *Atmospheric Environment* 42(16):3842-3855 (2008).
- Rao, S.T.**, C. Hogrefe, T. Holloway, and G. Kallos. Chapter 3. Long-Range Transport of Atmospheric Pollutants and Transboundary Pollution. World Atlas of Atmospheric Pollution, R. Sokhi, Editor, Anthem Press, 34-45 (2008).
- Sarwar, G., **S.J. Roselle**, **R. Mathur**, **W. Appel**, **R.L. Dennis**, and B. Vogel. A comparison of CMAQ HONO predictions with observations from the Northeast Oxidant and Particle Study. *Atmospheric Environment* 42:5760-5770 (2008).
- Seidel, D.J.**, Q. Fu, W.J. Randel and T.J. Reichler. Widening of the tropical belt in a changing climate. *Nature Geoscience*, doi:10.1038/ngeo.2007.38 (2008).
- Steffen, A., T. Douglas, M. Amyot, P. Ariya, K. Aspmo, T. Berg, J. Bottenheim, **S. Brooks**, F. Cobbett, A. Dastoor, A. Dommergue, R. Ebinghaus, C. Ferrari, K. Gardfeldt, M.E. Goodsite, D. Lean, A. Poulain, C. Scherz, H. Skov, J. Sommar, and C. Temme. A synthesis of atmospheric mercury depletion event chemistry in the atmosphere and snow. *Atmospheric Chemistry and Physics*. 8:1445-1482 (2008).
- Sullivan, T.J., B.J. Cosby, J.R. Webb, **R.L. Dennis**, A.J. Bulger, and F.A. Deviney. Streamwater acid-base chemistry and critical loads of atmospheric sulfur deposition in Shenandoah National Park, Virginia. *Journal of Environmental Monitoring and Assessment* 137(1-3):85-99 (2008).
- Thoma, E.D., R.C. Shores, **V. Isakov**, and R.W. Baldauf. Characterization of near-road pollutant gradients using path-integrated optical remote sensing. *Journal of the Air & Waste Management Association* 58:879-890 (2008).
- Yu S., **R. Mathur**, **K. Schere**, D. Kang, **J. Pleim**, **J. Young**, D. Tong, **G. Pouliot**, S.A. McKeen, and **S.T. Rao**. Evaluation of real-time PM 2.5 forecasts and process analysis for PM 2.5 formation over the eastern United States using the Eta-CMAQ forecast model during the 2004 ICARTT study. *Journal of Geophysical Research*, 113, D06204, doi:10.1029/2007JD009226 (2008).
- Watkins, T., **S.T. Rao**, and R. Wyzga. The role of exposure science in air quality management. *Journal of the Air & Waste Management Association*, EM, 24-27 (2008).