Air Resources Laboratory Publications - 2014

Journals

Birner, T., S. M. Davis and **D. J. Seidel** (2014) The changing width of Earth's tropical belt, *Physics Today* 67(12), 38; doi: 10.1063/PT.3.2620

Brooks, S.; X. Ren, **M. Cohen**, **W.T. Luke**, P. Kelley, **R. Artz**, A. Hynes, W. Landing, B. Martos (2014). Airborne Vertical Profiling of Mercury Speciation near Tullahoma, TN, USA. *Atmosphere*, 5 (3): 557-574. doi:10.3390/atmos5030557

Chai, T. and **R. R. Draxler**. (2014) Root mean square error (RMSE) or mean absolute error (MAE)? – Arguments against avoiding RMSE in the literature, *Geoscientific Model Development*. 7, 1247-1250. doi:10.5194/gmd-7-1247-2014.

Chai, T., **P. Lee**, L. Pan, H. Kim, and D. Tong (2014). Building and testing atmospheric chemistry reanalysis modeling system, *Air Pollution Modeling and its Application XXIII*, D. Steyn and R. Mathur (eds.), Springer Proceedings in Complexity, pp. 581-585, doi:10.1007/978-3-319-04379-1_96.

De Vleeschouwer F, Heleen Vanneste, Dmitri Mauquoy, Natalia Piotrowska, Fernando Torrejo´ n, Thomas Roland, **Ariel Stein**, and Gae¨l Le Roux (2014) Emissions from Pre-Hispanic Metallurgy in the South American Atmosphere. *PLoS ONE* 9(10): e111315. doi:10.1371/journal.pone.0111315

Duncan, B. N., A. I. Prados, …**Pius Lee**…et al. (2014). Satellite data of atmospheric pollution for U.S. air quality applications: Examples of applications, summary of data end-user resources, answers to FAQs, and common mistakes to avoid. *Atmospheric Environment* 94: 647-662. http://dx.doi.org/10.1016/j.atmosenv.2014.05.061

Flynn, C. M., E.K. Pickering, J. Szykman, T. Knepp, M. Silverman, R. Long, and **P. Lee (2014)** Can surface air quality be estimated from satellite observations of trace gases? *Environmental Manager*, September, 2014, 28-33.

Free, M. and B. Sun. (2014) Trends in U.S. Total Cloud Cover from a Homogeneity-Adjusted Dataset. Journal of Climate. 27(13): 4959-4969. doi:10.1175/jcli-d-13-00722.1.

Fu, Dongjie, Baozhang Chen, Huifang Zhang, Juan Wang,T. Andy Black, Brian D.Amiro, Gil Bohrer, Paul Bolstad, Richard Coulter, Abdullah F.Rahman, Allison Dunn, J. Harry McCaughey, **Tilden Meyers**, and Shashi Verma, (2014).

Estimating landscape net ecosystem exchange at high spatial–temporal resolution based on Landsat data, an improved upscaling model framework, and eddy covariance flux measurements. *Remote Sensing of Environment* 141: 90-104. http://dx.doi.org/10.1016/j.rse.2013.10.029

Gaumont-Guay,D. , T.A. Black, A.G. Barr, T.J. Griffis, R.S. Jassal, P. Krishnan, N. Grant and Z. Nesic (2014). Eight years of forest-floor CO2 exchange in a boreal black spruce forest: spatial integration and multi-temporal trends. *Agricultural and Forest Meteorology* 184, 25–35. http://dx.doi.org/10.1016/j.agrformet.2013.08.010

Gilmanov, T. G.,…Mark Hauer…**Tilden Meyers**…et al. (2014). Productivity and Carbon Dioxide Exchange of Leguminous Crops: Estimates from Flux Tower Measurements. *Agronomy Journal*. **106**(2): 545-559. doi: 10.2134/agronj2013.0270

He, Hao, Christopher P. Loughner, Jeffrey W. Stehr, Heather L. Arkinson, Lacey C. Brent, Melanie B. Follette-Cook, Maria A. Tzortziou, Kenneth E. Pickering, Anne M. Thompson, Douglas K. Martins, Glenn S. Diskin, Bruce E. Anderson, James H. Crawford, Andrew J. Weinheimer, **Pius Lee**, Jennifer C. Hains, and Russell R. Dickerson, (2014). An elevated reservoir of air pollutants over the Mid-Atlantic States during the 2011 DISCOVER-AQ campaign: Airborne measurements and numerical simulations. *Atmospheric Environment* 85: 18-30. http://dx.doi.org/10.1016/j.atmosenv.2013.11.039

Hicks, B. B., **W. R. Pendergrass III**, C. A. Vogel, R. N. Keener Jr., and S. M. Leyton (2014). On the Micrometeorology of the Southern Great Plains 1: Legacy Relationships Revisited. *Boundary-Layer Meteorology*. 151 (3): 389-405. doi:10.1007/s10546-013-9902-2.

Hicks, B., **W. R. Pendergrass III**, C. A. Vogel, R. N. Keener Jr., S. M. Leyton (2014). On the Micrometeorology of the Southern Great Plains. 2: Turbulence Statistics. *Boundary-Layer Meteorology*: 1-16. doi:10.1007/s10546-014-9981-8

Hicks, Bruce B., **William R. Pendergrass**, Christoph A. Vogel, and **Richard S. Artz** (2014). On the Drag and Heat of Washington, D.C., and New York City. *Journal of Applied Meteorology and Climatology*. 53 (6), 1454–1470. http://dx.doi.org/10.1175/JAMC-D-13-0154.1

Huang, M., Kevin W. Bowman, Gregory R. Carmichael, Tianfeng Chai, R. Bradley Pierce, John R. Worden, Ming Luo, Ilana B. Pollack, Thomas . Ryerson, J. Andrew Neuman, James M. Roberts, Elliot L. Atlas, and Donald R. Blake (2014), Changes in nitrogen oxides emissions in California during 2005–2010 indicated from top-down and bottom-up emission estimates, *Journal of Geophysical Research-*

Atmospheres, 119, 22: 12,928-12952. doi:10.1002/2014JD022268.

Kim, H. C., H. Choi, F. Ngan, and **P. Lee**, Surface ozone variability in synoptic pattern perspectives, Air Pollution Modeling and its Application XXIII, D. Steyn and R. Mathur (eds.), Springer Proceedings in Complexity, 551-556, doi 10.1007/978-3-319-04379-1_91

Lee, DaeGyun, Soontae Kim, Hyuncheol Kim, and Fong Ngan (2014) Retrospective Air Quality Simulations of the TexAQS-II: Focused on Emissions Uncertainty. *Asian Journal of Atmospheric Environment* Vol. 8-4, pp. 212-224. doi: http://dx.doi.org/10.5572/ajae.2014.8.4.212.

Lee, P.; F. Ngan; H. Lei; B. Baker; B. Dornblaser; G. McGauhey; and D. Tong (2014). An Application for Improving Air Quality -- a Houston Case Study, *Earthzine* 3-29. http://earthzine.org/2014/03/29/an-application-for-improving-air-quality-a-houston-case-study/

Lee, P., L. Pan, H. Kim, and D. Tong (2014). Intensive campaigns supported by air quality forecasting capability to identify chemical and atmospheric regimes susceptible to air quality standard violations, *Air Pollution Modeling and its Application XXIII*, D. Steyn and R. Mathur (eds.), Springer Proceedings in Complexity, pp 587-592, doi: 10.1007/978-3-319-/04379-1_97

Lee, P. and Y. Liu (2014). Preliminary Evaluation of a Regional Atmospheric Chemical Data Assimilation System for Environmental Surveillance. *International Journal of Environmental Research and Public Health,* 11 (12*)*, 12795-12816. doi:10.3390/ijerph111212795

Lei, H., D. J. Wuebbles, X.Z. Liang, Z. Tao, S. Olsen, **R. Artz**, X. Ren, and **M. Cohen**. (2014). Projections of atmospheric mercury levels and their effect on air quality in the United States. *Atmospheric Chemistry & Physics.* 14(2): 783-795. doi:10.5194/acp-14-783-2014

Lei, H. and **J. X. L. Wang** (2014). Sensitivities of NOx transformation and the effects on surface ozone and nitrate. *Atmospheric Chemistry & Physics.* 14(3): 1385-1396. doi: 10.5194/acp-14-1385-2014

Lei, H. and **J. X. L. Wang** (2014). Observed characteristics of dust storm events over the western United States using meteorological, satellite, and air quality measurements. *Atmospheric Chemistry and Physics*. 14(15): 7847-7857. doi:10.5194/acp-14-7847-2014.

Mahmood, R., R.A. Pielke, K. G. Hubbard, D. Niyogi, P. A. Dirmeyer, C. McAlpine, A. M.

Carletin, R. Hale, S. Gameda, A. Betran-Przekurat, **B. Baker**, R. McNider, D. R. Legates, M. Shepherd, J. Du, P. D. Blanken, O. W. Frauenfeld, U. S. Nair, and S. Fall (2014). Land cover changes and their biogeophysical effects on climate. *International Journal of Climatology*, 34(4), 929-953. doi: 10.1002/joc.3736

Morton, D., D. Arnold, P. Webley, G. Wotawa, and **B. Stunder** (2014). Unified model intercomparison for volcanic ash transport modelling, *International Journal of Environment and Pollution*, Vol. 55, Nos. 1/2/3/4, pp. 210–218. doi: 10.1504/IJEP.2014.065926

Pan L., D. Tong, **P. Lee**, H. Kim, T. Chai, and C. Ding (2014). Diagnostic Evaluation of NOx Upgrades on Air Quality Forecast, *Air Pollution Modeling and its Application XXIII*, D. Steyn and R. Mathur (eds.), Springer Proceedings in Complexity, pp. 511-517, doi:10.1007/978-3-319-04379-1_84.

Pan, Li, Daniel Tong, **Pius Lee**, Hyuncheol Kim and Tianfeng Chai (2014). Assessment of NOx and O3 forecasting performances in the U.S. National Air Quality Forecasting Capability before and after the 2012 major emissions updates, *Atmospheric Environment*, 95, 610–619, doi:10.1016/j.atmosenv.2014.06.020

Pickering, E. K., and **P. Lee (**2014) Air quality forecasting guides flight plans during DISCOVER-AQ, *Environmental Manager*, September, 2014, 39-43.

Ren X., **W.T. Luke**, P. Kelley, **M. Cohen**, F. Ngan, **R. Artz**, J. Walker, S. Brooks, C. Moore, P. Swartzendruber, D. Bauer, J. Remeika, A. Hynes, J. Dibb, J. Rolison, N. Krishnamurthy, W.M. Landing, A. Hecobian, J. Shook, and L.G. Huey. (2014) Mercury Speciation at a Coastal Site in the Northern Gulf of Mexico: Results from the Grand Bay Intensive Studies in Summer 2010 and Spring 2011. *Atmosphere*. 5(2):230-251. doi:10.3390/atmos5020230

Rolph, G. D., F. Ngan, **R.R. Draxler** (2014). Modeling the fallout from stabilized nuclear clouds using the HYSPLIT atmospheric dispersion model. *Journal of Environmental Radioactivity* **136**(0): 41-55. http://dx.doi.org/10.1016/j.jenvrad.2014.05.006

Saylor, Rick D., Glenn M. Wolfe, **Tilden P. Meyers**, and Bruce B. Hicks. (2014). A corrected formulation of the Multilayer Model (MLM) for inferring gaseous dry deposition to vegetated surfaces. *Atmospheric Environment* Volume 92, 141–145. http://dx.doi.org/10.1016/j.atmosenv.2014.03.056

Seidel, D.J., G. Feingold, A. R. Jacobson, and N. Loeb (2014). Detection limits of albedo changes induced by climate engineering. *Nature Climate Change* 4(2): 93-98. doi:10.1038/nclimate2076.

Tong D., H. Lei, L. Pan, T. Chai, H. Kim, **P. Lee**, **R. Saylor**, M. Wang, and S. Kondragunta. (2014). Assimilation of satellite oceanic and atmospheric products to improve emission forecasting, *Air Pollution Modeling and its Application XXIII*, D. Steyn and R. Mathur (eds.), Springer Proceedings in Complexity, pp. 563-569, doi:10.1007/978-3-319-04379-1_93.

VandenBoer, T. C., M. Z. Markovic, J. E. Sanders, X. Ren, S. E. Pusede, E. C. Browne, R. C. Cohen, L. Zhang, J. Thomas, W. H. Brune and J. G. Murphy (2014). Evidence for a nitrous acid (HONO) reservoir at the ground surface in Bakersfield, CA, during CalNex 2010, *Journal of Geophysical Research-Atmospheres*, 119(14), 9093-9106. doi:10.1002/2013JD020971

Vet, Robert, **Richard S. Artz**, and Silvina Carou (2014). Preface to: A global assessment of precipitation chemistry and deposition of sulfur, nitrogen, sea salt, base cations, organic acids, acidity and pH, and phosphorus. *Atmospheric Environment* **93**: 1-2. doi:10.10.1016/j.atmosenv.2013.11.013.

Vet, Robert, **Richard S. Artz**, Silvina Carou, Mike Shaw, Chul-Un Ro, Wenche Aas, Alex Baker, Van C. Bowersox, Frank Dentener, Corinne Galy-Lacaux, Amy Hou, Jacobus J. Pienaar, Robert Gillett, Cristina M. Forti, Sergey Gromov, Hiroshi Hara, Tamara Khodzher, Natalie M. Mahowald, Slobodan Nickovic, P.S.P. Rao, and Neville W. Reid. (2014). A global assessment of precipitation chemistry and deposition of sulfur, nitrogen, sea salt, base cations, organic acids, acidity and pH, and phosphorus. *Atmospheric Environment* **93**: 3-100. doi:10.1016/j.atmosenv.2013.10.060

Vet, Robert, **Richard S. Artz**, Silvina Carou, Mike Shaw, Chul-Un Ro, Wenche Aas, Alex Baker, Van C. Bowersox, Frank Dentener, Corinne Galy-Lacaux, Amy Hou, Jacobus J. Pienaar, Robert Gillett, Cristina M. Forti, Sergey Gromov, Hiroshi Hara, Tamara Khodzher, Natalie M. Mahowald, Slobodan Nickovic, P.S.P. Rao, and Neville W. Reid. (2014). Addendum to: "A global assessment of precipitation chemistry and deposition of sulfur, nitrogen, sea salt, base cations, organic acids, acidity and pH, and phosphorus" *Atmospheric Environment*. 93: 101-116. doi:10.1016/j.atmosenv.2014.02.017

Wilson, T. B., **J. Kochendorfer**, **T.P. Meyers**, M. Heuer, K. Sloop, and J. Miller (2014). Leaf litter water content and soil surface CO_2 fluxes in a deciduous forest. *Agricultural and Forest Meteorology*. 192–193, pp 42-50. doi:10.1016/j.agrformet.2014.02.005

Technical Memos and Other Reports

Dumas, E., R. Dobosy, D. Senn, **B. Baker**, D. Sayres, C. Tuozzolo, M. Rivero, N. Allen, C. Healy, J. Munster, J. Anderson, 2014: Airborne measurements of CO_2 and CH_4 fluxes over the Alaskan North Slope using the Flux Observations of Carbon from an Airborne Laboratory (FOCAL) system. NOAA Technical Memorandum OAR ARL-267, Air Resources Laboratory, Atmospheric Turbulence and Diffusion Division, Oak Ridge, Tennessee, 50 pp, May, 2014.