



NOAA Air Resources Laboratory Calendar Year 2020 Publications

1. Ahn, D., Hansford, J. R., Howe, S., **Ren, X.**, Salawitch, R. J., Zeng, N., **Cohen, M. D.**, **Stunder, B.** Salmon, O. E., and Shepson, P. B., Gurney, K. R., T. Oda, A. Karion, I. Lopez-Coto, R. R. Dickerson, Fluxes of Atmospheric Greenhouse-Gases in Maryland (FLAGG-MD): Emissions of Carbon Dioxide in the Baltimore-Washington area, *Geophys. Res.– Atmos.*, 125, e2019JD032004, <https://doi.org/10.1029/2019JD032004>, 2020.
2. Angevine, W. M., Peischl, J., **Crawford, A.**, **Loughner, C. P.**, Pollack, I. B., and Thompson, C. R.: Errors in top-down estimates of emissions using a known source, *Atmos. Chem. Phys.*, 20, 11855–11868, <https://doi.org/10.5194/acp-20-11855-2020>
3. Bae, C., Kim, H. C., Kim, B-U., Kim, Y., Woo, J-H., and Kim, S. (2020). Updating Chinese SO₂ emissions with surface observations for regional air-quality modeling over East Asia. *Atmospheric Environment* 228, 117416. <https://doi.org/10.1016/j.atmosenv.2020.117416>
4. Bae, M., Kim, B-U, Kim, H. C., and Kim, S. (2020). A Multiscale Tiered Approach to Quantify Contributions: A Case Study of PM_{2.5} in South Korea During 2010–2017, *Atmosphere* 2020, 11, 141; doi:10.3390/atmos11020141
5. Benish, S. E., He, H., **Ren, X.**, Roberts, S. J., Salawitch, R. J., Li, Z., Wang, F., Wang, Y., Zhang, F., Shao, M., Lu, S., and Dickerson, R. R.: Measurement report: Aircraft observations of ozone, nitrogen oxides, and volatile organic compounds over Hebei Province, China, *Atmos. Chem. Phys.*, 20, 14523–14545, <https://doi.org/10.5194/acp-20-14523-2020>, 2020.
6. Buban, M. S., Lee, T.R., and **Baker, C.B.** 2020: A comparison of the U.S. Climate Reference Network precipitation data to the Parameter-Elevation Regressions on Independent Slopes Model (PRISM). *J. Hydrometeor.* 21, 2391–2400. DOI:10.1175/JHM-D-19-0232.1
7. Buisán, S. T., Smith, C. D., Ross, A., **Kochendorfer, J.**, Collado, J. L., Alastrué, J., Wolff, Roulet, Y.-A., Earle, M. E., Laine, T., Rasmussen, R., Nitu, R. (2020). The potential for uncertainty in Numerical Weather Prediction model verification when using solid precipitation observations. *Atmos Sci Lett.* 2020; e976. <https://doi.org/10.1002/asl.976>
8. Cahuich-López, M. A., Mariño-Tapia, I., Souza, A. J., Gold-Bouchot, G., **Cohen, M.**, and Lozano, D. V. (2020). Spatial and temporal variability of sea breezes and synoptic influences over the surface wind field of the Yucatán Peninsula. *Atmósfera*, [S.I.], v. 33, n. 2, p. 123-142. <https://doi.org/10.20937/ATM.52713>
9. Campbell, P.C., J.O. Bash, J.A. Herwehe, R.C. Gilliam, and D. Li, Impacts of Tiled Land Cover Characterization on Global Meteorological Predictions Using the MPAS–A. *Journal of Geophysical Research-Atmospheres* (2020). <https://doi.org/10.1029/2019JD03209>
10. Choi, S., Lamsal, L. N., Follette-Cook, M., Joiner, J., Krotkov, N. A., Swartz, W. H., Pickering, K. E., **Loughner, C. P.**, Appel, W., Pfister, G., Saide, P. E., Cohen, R. C., Weinheimer, A. J., and

- Herman, J. R.: Assessment of NO₂ observations during DISCOVER-AQ and KORUS-AQ field campaigns, *Atmos. Meas. Tech.*, 13, 2523–2546, <https://doi.org/10.5194/amt-13-2523-2020>, 2020.
11. **Crawford, A.** The Use of Gaussian Mixture Models with Atmospheric Lagrangian Particle Dispersion Models for Density Estimation and Feature Identification. *Atmosphere* 2020, 11, 1369. <https://doi.org/10.3390/atmos11121369>
 12. **Diamond, H.J.** and C. J. Schreck, Eds., 2020: The Tropics [in “State of the Climate in 2019”]. *Bull. Amer. Meteor. Soc.*, **101** (8), S185–S238, <https://doi.org/10.1175/BAMS-D-20-0077.1>.
 13. Gaubert, B., Emmons, L. K., Raeder, K., Tilmes, S., Miyazaki, K., Arellano Jr., A. F., Elguindi, N., Granier, C., Tang, W., Barré, J., Worden, H. M., Buchholz, R. R., Edwards, D. P., Franke, P., Anderson, J. L., Saunois, M., Schroeder, J., Woo, J.-H., Simpson, I. J., Blake, D. R., Meinardi, S., Wennberg, P. O., Crouse, J., Teng, A., Kim, M., Dickerson, R. R., He, H., **Ren, X.**, Pusede, S. E., and Diskin, G. S.: Correcting model biases of CO in East Asia: impact on oxidant distributions during KORUS-AQ, *Atmos. Chem. Phys.*, 20, 14617–14647, <https://doi.org/10.5194/acp-20-14617-2020>, 2020
 14. Hall, D.L.; Anderson, D.C.; Martin, C.R.; **Ren, X.R.**; Salawitch, R.J.; He, H.; Canty, T.P.; Hains, J.C.; Dickerson, R.R. Using near-road observations of CO, NO_y, and CO₂ to investigate emissions from vehicles: Evidence for an impact of ambient temperature and specific humidity. *Atmos. Environ.* **2020**, 232, 12 <https://doi.org/10.1016/j.atmosenv.2020.117558>, 2020
 15. He, H., Liang, X.-Z., Sun, C., Tao, Z., and **Tong, D. Q.**: The long-term trend and production sensitivity change in the US ozone pollution from observations and model simulations, *Atmos. Chem. Phys.*, 20, 3191–3208, <https://doi.org/10.5194/acp-20-3191-2020>, 2020.
 16. Holmes, M.A., **Myles, L.**, and Schneider, B. Diversity and Equality in Honours and Awards Programs: Steps Toward a Fair Representation of Membership. *Advances in Geosciences* 53, 41-51 (2020), <https://adgeo.copernicus.org/articles/53/41/2020/>
 17. Jeon, B.; Cizdziel, J.V.; Brewer, J.S.; **Luke, W.T.**; **Cohen, M.D.**; **Ren, X.**; **Kelley, P.**, Gaseous Elemental Mercury Concentrations along the Northern Gulf of Mexico Using Passive Air Sampling, with a Comparison to Active Sampling. *Atmosphere* 2020, 11, 1034. <https://www.mdpi.com/2073-4433/11/10/1034/pdf>
 18. **Kim, H. C.**, **Chai, T.**, **Stein, A.**, and Kondragunta, S.: Inverse modeling of fire emissions constrained by smoke plume transport using HYSPLIT dispersion model and geostationary satellite observations, *Atmos. Chem. Phys.*, 20, 10259–10277, <https://doi.org/10.5194/acp-20-10259-2020>, 2020.
 19. **Kim, H. C.**, Kim, S., Lee, S-H, Kim, B-U, **Lee, P.** (2020). Fine-scale columnar and surface NO_x concentrations over South Korea: Comparison of surface monitors, TROPOMI, CMAQ and CAPSS inventory. *Atmosphere* 2020, 11(1), 101; <https://doi.org/10.3390/atmos11010101>
 20. **Kim, H.C.**; Bae, C.; Bae, M.; Kim, O.; Kim, B.-U.; Yoo, C.; Park, J.; Choi, J.; Lee, J.-B.; Lefer, B.; **Stein, A.**; Kim, S. Space-Borne Monitoring of NO_x Emissions from Cement Kilns in South Korea. *Atmosphere* 2020, 11(8), 881; <https://doi.org/10.3390/atmos11080881>
 21. **Kochendorfer, J.**, Earle, M. E., Hodyss, D., Reverdin, A., Roulet, Y., Nitu, R., Rasmussen, R., Landolt, S., Buisán, S., Laine, T. (2020). Undercatch Adjustments for Tipping-Bucket Gauge Measurements of Solid Precipitation, *Journal of Hydrometeorology*, 21(6), 1193-1205. <https://doi.org/10.1175/JHM-D-19-0256.1>

22. Kramer, S. J., Kirtman, B. P., Zuidema, P., Ngan, F. (2020). Subseasonal Variability of Elevated Dust Concentrations Over South Florida. *JGR Atmospheres*, 125(6), e2019JD031874. <https://doi.org/10.1029/2019JD031874>
23. Krishnan, P., **Meyers, T.P.**, Hook, S.J., Heuer, M., Senn, M., Dumas, E.J. (2020). Intercomparison of In Situ Sensors for Ground-Based Land Surface Temperature Measurements. *Sensors*, 20, 5268-5294. *Sensors* 2020, 20(18), 5268; <https://doi.org/10.3390/s20185268>
24. Lee, D., Wang, S.Y., Zhao, L., Kim, H.C., Kim, K., Yoon, J.-H., Long-term increase in atmospheric stagnant conditions over northeast Asia and the role of greenhouse gases-driven warming, *Atmos. Environ.* (2020), Article 117772, 10.1016/j.atmosenv.2020.117772
25. Lee, K.-K., Y. Park, S.-P. Han, and Kim, H.C., 2020: The alerting effect from rising public awareness of air quality on the outdoor activities of megacity residents, *Sustainability* 2020, 12, 820; doi:10.3390/su12030820
26. **Lee, P.**, Tong, D., et. al. World Meteorological Organization, Training Materials and Best Practices for Chemical Weather/Air Quality Forecasting, ETR-26; 2020. https://library.wmo.int/doc_num.php?explnum_id=10439
27. Lee, T. R. and Buban, M. Evaluation of Monin–Obukhov and Bulk Richardson Parameterizations for Surface–Atmosphere Exchange, *Journal of Applied Meteorology and Climatology* 59, 6 (2020): 1091-1107, <https://doi.org/10.1175/JAMC-D-19-0057.1>
28. Li, Y., Tong, D. Q., Ngan, F., **Cohen, M. D.**, **Stein, A. F.**, Kondragunta, S., et al. (2020). Ensemble PM2.5 forecasting during the 2018 Camp Fire event using the HYSPLIT transport and dispersion model. *Journal of Geophysical Research: Atmospheres*, 125, e2020JD032768. <https://doi.org/10.1029/2020JD032768>
29. Lopez-Coto, I., **Ren, X.**, Salmon, O. E., Karion, A., Shepson, P. B., Dickerson, R. R., **Stein, A.**, Prasad, K., Whetstone, J. R. (2020) *Environ. Sci. Technol.* 2020, 54, 5, 2606-2614; <https://doi.org/10.1021/acs.est.9b06619>
30. **Loughner, C. P.**, Follette-Cook, M. B., Duncan, B. N., Hains, J., Pickering, K. E., Moy, J., Tzortziou, M. (2020) The benefits of lower ozone due to air pollution emission reductions (2002–2011) in the Eastern US during extreme heat, *Journal of the Air & Waste Management Association*, DOI: 10.1080/10962247.2019.1694089
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32. Pal, S., Lee, T. R., Clark, N.E. (2020). The 2019 Mississippi and Missouri River Flooding and Its Impact on Atmospheric Boundary Layer Dynamics. *Geophysical Research Letters*, 47(6), e2019GL086933. <https://doi.org/10.1029/2019GL086933>
33. Pan, L., Kim, H.C., **Lee, P.**, **Saylor, R.**, Tang, Y., Tong, D., Baker, B., Kondragunta, S., Xu, C., Ruminiski, M. G., Chen, W., Mcqueen, J., and Stajner, I.: Evaluating a fire smoke simulation algorithm in the National Air Quality Forecast Capability (NAQFC) by using multiple observation data sets during

the Southeast Nexus (SENEX) field campaign, *Geosci. Model Dev.*, 13, 2169–2184, <https://doi.org/10.5194/gmd-13-2169-2020>, 2020.

34. **Pendergrass, W.**, Lichiheb, N., White, R., Hicks, B., **Myles, L.**, (2020) ARL Tech Memo: High-Resolution Meteorological Monitoring over the National Capital Region: Data from the DCNet Network at the US Department of Commerce Herbert C. Hoover Building Station. TM-280, <https://doi.org/10.25923/x74e-3k77>
35. **Pendergrass, W.**; Ngan, F., Hicks, B.B., Hosker, Jr., R.P., Mazzola, C.A., Bruggeman, D.A., (2020) ARL Tech Memo: Demonstrating the Feasibility of Using the 1996 MVP Tracer Study for Transport and Diffusion Model Validation. TM-281, <https://doi.org/10.25923/x74e-3k77>
36. **Ren, X.**; **Luke, W.T.**; Kelley, P.; **Cohen, M.D.**; Olson, M.L.; Walker, J.; Cole, R.; Archer, M.; Artz, R.; **Stein, A.A.** Long-Term Observations of Atmospheric Speciated Mercury at a Coastal Site in the Northern Gulf of Mexico during 2007–2018. *Atmosphere* 2020, 11, 268. <https://doi.org/10.3390/atmos11030268>
37. Salinger, M.J., **Diamond, H.J.**, Behrens, E. et al. Unparalleled coupled ocean-atmosphere summer heatwaves in the New Zealand region: drivers, mechanisms and impacts. *Climatic Change* (2020). <https://doi.org/10.1007/s10584-020-02730-5>
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39. Shi, X., Ge, Y., Zheng, J., Ma, Y., **Ren, X.**, Zhang, Y. (2020) Budget of nitrous acid and its impacts on atmospheric oxidative capacity at an urban site in the central Yangtze River Delta region of China, *Atmospheric Environment*, Volume 238, 2020, v117725, ISSN 1352-2310, <https://doi.org/10.1016/j.atmosenv.2020.117725>.
40. Smith, C. D., Ross, A., **Kochendorfer, J.**, Earle, M. E., Wolff, M., Buisán, S., Roulet, Y.-A., Laine, T., Evaluation of the WMO Solid Precipitation Intercomparison Experiment (SPICE) transfer functions for adjusting the wind bias in solid precipitation measurements, (2020) *Hydrol. Earth Syst. Sci.*, 24, 4025–4043, 2020. <https://doi.org/10.5194/hess-24-4025-2020>
41. Sullivan, J., J. Dreessen, T. Berkoff, R. Delgado, **X. Ren**, and T. Aburn, OWLETS: An Enhanced Monitoring Strategy Directly within the Chesapeake Bay, *EM: Air and Waste Management Association's Magazine for Environmental Managers*, October 2020.
42. Tang Y., Tong, D.Q., Yang K., **Lee P.**, Baker B., **Crawford A.**, **Luke W.**, **Stein, A.A.**, Campbell, P.C., Ring, A., Flynn, J., Wang, Y., McQueen, J., Pan, L., Huang, J., Stajner, I. (2020) Air quality impacts of the 2018 Mt. Kilauea Volcano eruption in Hawaii: A regional chemical transport model study with satellite-constrained emissions, *Atmospheric Environment*, 117648, <https://doi.org/10.1016/j.atmosenv.2020.117648>.
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47. Wilson, T. B., **Diamond, H. J.**, Kochendorfer, J., **Meyers, T. P.**, Hall, M., Casey, N. W., **Baker, C. B.**, Leeper, R., Palecki, M. A. (2020). Evaluating time domain reflectometry and coaxial impedance sensors for soil observations by the U.S. Climate Reference Network, *Vadose Zone Journal*, 19 (1). <https://doi.org/10.1002/vzj2.20013>
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