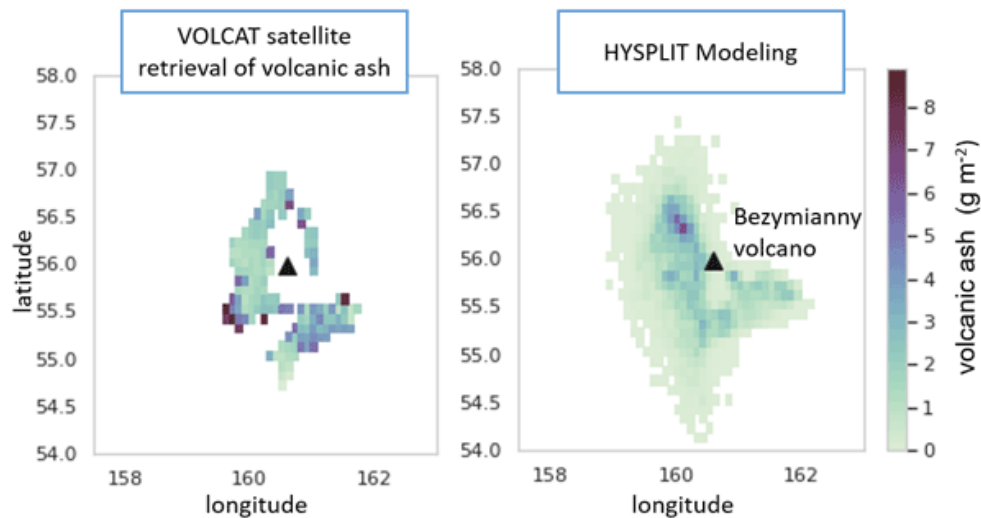


Air Resources Laboratory

Publications for Fiscal Year 2022



Crawford, A., Chai, T., Wang, B., Ring, A., Stunder, B., Loughner, C. P., Pavolonis, M., and Sieglaff, J.: Evaluation and bias correction of probabilistic volcanic ash forecasts, *Atmos. Chem. Phys.*, 22, 13967–13996, <https://doi.org/10.5194/acp-22-13967-2022>, 2022.



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Q1

Kim, D., Chin, M., Cruz, C. A., Tong, D., & Yu, H. (2021). Spring dust in western North America and its interannual variability—Understanding the role of local and transported dust. *Journal of Geophysical Research: Atmospheres*, 126, e2021JD035383. <https://doi.org/10.1029/2021JD035383>

Li, Y., Tong, D., Ma, S., Zhang, X., Kundragunta, S., Li, F., & Saylor, R. (2021). Dominance of Wildfires Impact on Air Quality Exceedances during the 2020 Record-Breaking Wildfire Season in the United States. *Geophysical Research Letters*, 48, e2021GL094908. <https://doi.org/10.1029/2021GL094908>

Ma, S., Tong, D., Lamsal, L., Wang, J., Zhang, X., Tang, Y., Saylor, R., Chai, T., Lee, P., Campbell, P., Baker, B., Kondragunta, S., Judd, L., Berkoff, T. A., Janz, S. J., and Stajner, I.: Improving predictability of high ozone episodes through dynamic boundary conditions, emission refresh and chemical data assimilation during the Long Island Sound Tropospheric Ozone Study (LISTOS) field campaign, *Atmos. Chem. Phys.* <https://doi.org/10.5194/acp-21-16531-2021>

Mahmud, K., Scott, R. L., Biederman, J. A., Litvak, M. E., Kolb, T., Meyers, T. P., Krishnan, P., Bastrikov, V., MacBean, N., (2021). Optimizing Carbon Cycle Parameters Drastically Improves Terrestrial Biosphere Model Underestimates of Dryland Mean Net CO₂ Flux and its Inter-Annual Variability. *Journal of Geophysical Research: Biogeosciences*, 126, e2021JG006400. <https://doi.org/10.1029/2021JG006400>

Q2

Campbell, P. C., Tang, Y., Lee, P., Baker, B., Tong, D., Saylor, R., Stein, A., Huang, J., Huang, H.-C., Strobach, E., McQueen, J., Pan, L., Stajner, I., Sims, J., Tirado-Delgado, J., Jung, Y., Yang, F., Spero, T. L., and Gilliam, R. C.: Development and evaluation of an advanced National Air Quality Forecasting Capability using the NOAA Global Forecast System version 16, *Geosci. Model Dev.*, 15, 3281–3313, <https://doi.org/10.5194/gmd-15-3281-2022>,

Jung, J., Y. Choi, S. Mousavinezhad, D. Kang, D.C. Wong, J. Park, A. Pouyaei, M. Momeni, and H. Kim: Changes in the ozone chemical regime over the contiguous United States inferred by the inversion of NO_x and VOC emissions using satellite observation, *Atmospheric Research*, 270 (2022), 106076, doi: 10.1016/j.atmosres.2022.106076, 2022

Kochendorfer, J., Earle, M., Rasmussen, R., Smith, C., Yang, D., Morin, S., Mekis, E., Buisan, S., Roulet, Y., Landolt, S., Wolff, M., Hoover, J., Thériault, J. M., Lee, G., Baker, B., Nitu, R., Lanza, L., Colli, M., & Meyers, T. (2021). How Well are We Measuring Snow Post-SPICE?, *Bulletin of the American Meteorological Society* <https://journals.ametsoc.org/view/journals/bams/aop/BAMS-D-20-0228.1/BAMS-D-20-0228.1.xml>

Kotsakis, A., Sullivan, J. T., Hanisco, T. F., Swap, R. J., Caicedo, V., Berkoff, T. A., Gronoff, G., Loughner, C.P., Ren, X., Luke, W.T., Kelley, P., Stratton, P.R., Delgado, R., Abuhassan, N., Shalaby, L., Santos, F.C., Dreessen, J., Sensitivity of total column NO₂ at a marine site within the Chesapeake Bay during OWLETS-2, *Atmospheric Environment*, 277, 2022, 119063, <https://doi.org/10.1016/j.atmosenv.2022.119063>.

Lopez-Coto, Israel, Ren, Xinrong, Karion, Anna, McKain, Kathryn, Sweeney, Colm, Dickerson, Russell R., McDonald, Brian C., Ahn, Doyeon Y., Salawitch, Ross J., He, Hao, Shepson, Paul B., and Whetstone, James R. Carbon Monoxide Emissions from the Washington, DC, and Baltimore Metropolitan Area: Recent Trend and COVID-19 Anomaly. *Environmental Science & Technology* 2022 56 (4), 2172-2180. DOI: 10.1021/acs.est.1c06288

Pitt, J.R., I. Lopez-Coto, K.D. Hajny, J. Tomin, R. Kaeser, T. Jayarathne, B.H. Tirm, C.R. Floerchinger, C.P. Loughner, C.K. Gatley, L.R. Hutyra, K.R. Gurney, G.S. Roest, J. Liang, S. Gourdji, A. Karion, J.R. Whetstone, and P.B. Shepson (2021), New York City greenhouse gas emissions estimated within

inverse modelling of aircraft measurements, *Elementa: Science of the Anthropocene*. <https://doi.org/10.1525/elementa.2021.00082>

Q3

Ahn, D.Y., Salawitch, R.J., Canty, T.P., He, H., Ren, X.R., Goldberg, D.L., Dickerson, R.R. The U.S. power sector emissions of CO₂ and NO_x during 2020: Separating the impact of the COVID-19 lockdowns from the weather and decreasing coal in fuel-mix profile, *Atmospheric Environment: X*, Volume 14, 2022, 100168, <https://doi.org/10.1016/j.aeaoa.2022.100168>.

Allen, D., S. Allen, T. Jickells, S. Abbasi, A. Baker, M. Bergmann, J. Brahney, T. Butler, M. Dusan, S. Eckhart, M. Kanakidou, P. Laj, J. Levermore, D. Li, P. Liss, K. Liu, N. Majowald, P. Masque, A. Mayes, P. McGinnity, I. Osvath, K.A. Prather, J.M. Prospero, L.E. Revell, S.G. Sander, W.J. Shim, J. Slade, A.F. Stein, O. Tarasova, S. Wright, The Atmospheric Cycle of Microplastics in the Marine Environment *Nature Reviews Earth & Environment* (2022), 10.1038/s43017-022-00292-x

Bae, M., B.-U. Kim, H.C. Kim, J.H. Woo, and S. Kim: An observation-based adjustment method of regional contribution estimation from upwind emissions to downwind PM_{2.5} concentrations, *Environment International*, 163(2022), 107214, doi:10.1016/j.envint.2022.107214, 2022

Campbell PC, Tong D, Saylor R, Li Y, Ma S, Zhang X, Kondragunta S, Li F. Pronounced increases in nitrogen emissions and deposition due to the historic 2020 wildfires in the western U.S. *Sci Total Environ*. 2022 May 21:156130. doi: 10.1016/j.scitotenv.2022.156130.

Clark, Nicholas E., Sandip Pal, and Temple R. Lee. "Empirical Evidence for the Frontal Modification of Atmospheric Boundary Layer Depth Variability over Land", *Journal of Applied Meteorology and Climatology* (published online ahead of print 2022), accessed Aug 10, 2022, <https://doi.org/10.1175/JAMC-D-21-0099.1>

Crawford, A., Chai, T., Wang, B., Ring, A., Stunder, B., Loughner, C. P., Pavolonis, M., and Sieglaff, J.: Evaluation and bias correction of probabilistic volcanic ash forecasts, *Atmos. Chem. Phys.*, 22, 13967–13996, <https://doi.org/10.5194/acp-22-13967-2022>, 2022.

Mitchell, L.E., Lin, J.C., Hutyra, L.R., Bowling, D., Cohen, R., Davis, K., DiGangi, E., Duren, R., Ehleringer, J., Fain, C., Falk, M., Guha, A., Karion, A., Keeling, R., Kim, J., Miles, N., Miller, C., Newman, S., Pataki, D., Prinzivalli, S., Ren, X., Rice, A., Richardson, S., Sargent, M., Stephens, B., Turnbull, J., Verhulst, K., Vogel, F., Weiss, R., Whetstone, J., and Wofsy, S. A multi-city urban atmospheric greenhouse gas measurement data synthesis. *Sci Data* 9, 361 (2022). <https://doi.org/10.1038/s41597-022-01467-3>

Son, K., Kim, BU., Kim, H.C., and Kim, S. Source apportionment of ambient concentration and population exposure to elemental carbon in South Korea using a three-dimensional air quality model. *Air Qual Atmos Health* (2022). <https://doi.org/10.1007/s11869-022-01213-z>

Yang Z, Demoz B, Delgado R, Tangborn A, Lee P, Sullivan JT. The Dynamical Role of the Chesapeake Bay on the Local Ozone Pollution Using Mesoscale Modeling—A Case Study. *Atmosphere*. 2022; 13(5):641. <https://doi.org/10.3390/atmos13050641>

Q4

Baker, C.B., Cosh, M., Bolten, J., Brusberg, M., Caldwell, T., Connolly, S., Dobrev, I., Edwards, N., Goble, P.E., Ochsner, T.E., Quiring, S.M., Robotham, M., Skumanich, M., Svoboda, M., White, W.A., and Woloszyn, M. "Working toward a National Coordinated Soil Moisture Monitoring Network: vision, progress, and future directions," *Bulletin of the American Meteorological Society* (published online ahead of print 2022), accessed Sep 7, 2022, <https://doi.org/10.1175/BAMS-D-21-0178.1>

Brune WH, Jenkins JM, Olson GA, McFarland PJ, Miller DO, Mao J, Ren X. Extreme hydroxyl amounts generated by thunderstorm-induced corona on grounded metal objects. *Proc Natl Acad Sci*. 2022 Sep 13;119(37):e2201213119. doi: 10.1073/pnas.2201213119.

Buisán, S. T., Serrano-Notivoli, R., Kochendorfer, J., and Bello-Millán, F. J. (2022). Adjustment of solid precipitation during the Filomena extreme snowfall event in Spain: from observations to “true precipitation”. *Bulletin of the American Meteorological Society* (published online ahead of print 2022), <https://doi.org/10.1175/BAMS-D-22-0012.1>

Chai, T. (2022). Root Mean Square. In: Daya Sagar, B.S., Cheng, Q., McKinley, J., Agterberg, F. (eds) *Encyclopedia of Mathematical Geosciences*. Encyclopedia of Earth Sciences Series. Springer, Cham. https://doi.org/10.1007/978-3-030-26050-7_280-1

Clark, N. E., S. Pal, and T. R. Lee, 2022: Empirical evidence for frontal modifications of atmospheric boundary layer depth variability over land. *Journal of Applied Meteorology and Climatology*, 61, 1041-1063, <https://doi.org/10.1175/JAMC-D-21-0099.1>

Diamond, H.J. and C. J. Schreck, Eds., 2022: The Tropics [in “State of the Climate in 2021”]. *Bull. Amer. Meteor. Soc.*, 103 (8), S1–S59, <https://doi.org/10.1175/BAMS-D-22-00090.1>.

Fang, S., Dong, X., Zhuang, S., Tian, Z., Chai, T., Xu, Y., Zhao, Y., Sheng, Li., Ye, X., and Xiong, W., Oscillation-free Source Term Inversion of Atmospheric Radionuclide Releases With Joint Model Bias Corrections and Non-smooth Competing Priors, *Journal of Hazardous Materials*, (2022) doi: <https://doi.org/10.1016/j.jhazmat.2022.129806>

Maurer, C., S. Galmarini, E. Solazzo, J. Kuśmierczyk-Michulec, J. Baré, M. Kalinowski, M. Schoppner, P. Bourgooin, A. Crawford, A. Stein, T. Chai, F. Ngan, A. Malo, P. Seibert, A. Axelsson, A. Ringbom, R. Britton, A. Davies, M. Goodwin, P.W. Eslinger, T.W. Bowyer, L. Glascoe, D.D. Lucas, S. Cicchi, P. Vogt, Y. Kijima, A. Furuno, P. Long, B. Orr, A. Wain, K. Park, K. Suh, A. Quérel, A. Quérel, O. Saunier, O. Saunier, & D. Quélo, D. Quélo. Third international challenge to model the medium-to long-range transport of radionuclides to four Comprehensive Nuclear-Test-Ban Treaty monitoring stations. 2022, *Journal of environmental radioactivity*, 106968. doi: 10.1016/j.jenvrad.2022.106968

McCandless, T., Gagne, D.J., Kosović, B., Haupt, S.E., Yang, B., Becker, C., & Schreck, J., Machine Learning for Improving Surface-Layer-Flux Estimates. *Boundary-Layer Meteorol* (2022). <https://doi.org/10.1007/s10546-022-00727-4>

McKinney, T., Perlaky, N., Danielson, E., Mohammed, A., Lee, J., O’Bryan, B., Stoll, C., Hochmuth, C., Gallien, T., Kerr, S., Johnson, T., Shiffer, C., Hassler, S., Jankens, E., Feaster, M., Morris, C., Leffler, Z., Crawford, A., Cohen, M., Newchurch, M., Brown, B., Tucker, P., & Knupp, K. (2022). Around the World They Go: Circumnavigating Balloon Satellites!, *Bulletin of the American Meteorological Society* (published online ahead of print 2022). Retrieved Sep 8, 2022, from <https://journals.ametsoc.org/view/journals/bams/aop/BAMS-D-21-0135.1/BAMS-D-21-0135.1.xml>

Zhang, L., Montuoro, R., McKeen, S. A., Baker, B., Bhattacharjee, P. S., Grell, G. A., Henderson, J., Pan, L., Frost, G. J., McQueen, J., Saylor, R., Li, H., Ahmadov, R., Wang, J., Stajner, I., Kondragunta, S., Zhang, X., and Li, F.: Development and evaluation of the Aerosol Forecast Member in the National Center for Environment Prediction (NCEP)’s Global Ensemble Forecast System (GEFS-Aerosols v1), *Geosci. Model Dev.*, 15, 5337–5369, <https://doi.org/10.5194/gmd-15-5337-2022>, 2022.