**Publication List – Kenneth E. Pickering**

Pickering, K. E. and J. E. Jiusto, Observations of the relationship between dew and radiation fog, *J. Geophys. Res*., 83:2430‑2436, 1978.

Dickerson, R. R., G. J. Huffman, W. T. Luke, L. J. Nunnermacker, K. E. Pickering, A. C. D. Leslie, C. G. Lindsey, W. G. N. Slinn, T. J. Kelly, P. H. Daum, A. C. Delany, J. P. Greenberg, P. R. Zimmerman, J. G. Boatman, J. D. Ray, and D. H. Stedman, Thunderstorms: an important mechanism in the transport of air pollutants, *Science*, 235:460-465, 1987.

Fehsenfeld, F. C., R. R. Dickerson, G. Huebler, W. T. Luke, L. J. Nunnermacker, E. J. Williams, J. M. Roberts, J. G. Calvert, C. M Curran, A. C. Delany, C. S. Eubank, D. W. Fahey, A. Fried, B. W. Gandrud, A. O. Langford, P. C. Murphy, R. B. Norton, K. E. Pickering, and B. A. Ridley, A ground-based intercomparison of NO, NOx, and NOy measure­ment techniques, *J. Geophys. Res*., 92:14,710-14,722, 1987.

Pickering, K. E., R. R. Dickerson, G. J. Huffman, J. Boatman, and A. Schanot, Trace gas transport in the vicinity of frontal convective clouds, *J. Geophys. Res*., 93:759-773, 1988.

Pickering, K. E., R. R. Dickerson, W. T. Luke, and L. J. Nunnermacker, Clear-sky vertical profiles of trace gases as affected by up­stream convective activity, *J. Geophys. Res.*, 94:14,879-14,892, 1989.

Pickering, K. E, A. M. Thompson, R. R. Dickerson, W. T. Luke, D. P. McNamara, J. P. Greenberg, and P. R. Zimmerman, Model calculations of tropospheric ozone production poten­tial following observed convective events, *J. Geophys. Res*., 95:14,049-14,062, 1990.

Scala, J. R., M. Garstang, W-K Tao, K. E. Pickering, A. M. Thompson, J. Simpson, V. W. J. Kirchhoff, E. V. Browell, G. W. Sachse, A. L. Torres, G. L. Gregory, R. A. Rasmussen, and M. A. K. Khalil, Cloud draft structure and trace gas transport, *J. Geophys. Res.*, 95:17,015-17,030, 1990.

Pickering, K. E, A. M. Thompson, J. R. Scala, W.-K. Tao, J. Simpson, and M. Garstang, Photochemical ozone production in tropical squall line con­vection during NASA/GTE/ABLE 2A, *J. Geophys. Res*., 96:3099-3114, 1991­.

Pickering, K. E., A. M. Thompson, J. R. Scala, W.-K. Tao, R. R. Dickerson, and J. Simpson, Free tropospheric ozone production following entrainment of urban plumes into deep convection, *J. Geophys. Res*., 97:17,985-18,000, 1992.

Pickering, K. E., J. R. Scala, A. M. Thompson, W.-K. Tao, and J. Simpson, A regional estimate of convective transport of CO from biomass burning, *Geophys. Res. Lett*., 19:289-292, 1992.

Pickering, K. E., A. M. Thompson, J. R. Scala, W.-K. Tao, and J. Simpson, Ozone production potential following convective redistribu­tion of biomass burning emissions by a tropical squall line, *J. Atmos. Chem*., 14:297-313, 1992.

Luke, W. T., R. R. Dickerson, W. F. Ryan, K. E. Pickering, and L. J. Nunnermacker, Tropospheric chemistry over the lower Great Plains of the United States 2: Trace gas profiles and distributions, *J. Geophys. Res*., 97:20,647-20,670, 1992.

Pickering, K. E., A. M. Thompson, W.-K. Tao, and T. L. Kucsera, Upper tropospheric ozone production following mesoscale convec­tion during STEP/EMEX, *J. Geophys. Res.*, 98:8737-8749, 1993.

Thomp­son, A. M., D. P. McNamara, K. E. Pickering, and R. D. McPeters, Effect of marine stratocumulus on TOMS ozone, *J. Geophys. Res*., 98:23,051-23,057, 1993.

Johnson, J. E., V. M. Koropalov, K. E. Pickering, A. M. Thompson, N. Bond, and J. W. Elkins, SAGA-3 experiment: Overview and meteorological and oceanic conditions, *J. Geophys. Res.*, 98:16,893-16,908, 1993.

Tao, W.-K., J. Simpson, C.H. Sui, B. Ferrier, S. Lang, J. Scala, M.-D. Chou, and K. Pickering, Heating, moisture and water budgets of tropical and midlatitude squall lines: Compari­sons and sensitivity to longwave radiation, *J. Atmos. Sci*., 50:673-690, 1993.

Pickering, K. E., A. M. Thomp­son, D. P. McNamara, and M. R. Schoeberl, An intercomparison of isentropic trajectories over the South Atlantic, *Mon. Weather Rev*., 122:864-879, 1994.

Thompson, A. M., K. E. Pickering, R. R. Dickerson, W. G. Ellis, Jr., D. J. Jacob, J. R. Scala, W.-K. Tao, D. P. McNamara, and J. Simpson, Convective transport over the Central United States and its role in the regional CO and ozone budgets, J*. Geophys. Res*., 99:18,703-18,711, 1994.

Pickering, K. E., A. M. Thompson, W.-K. Tao, R. B. Rood, D. P. McNamara, and A. M. Molod, Vertical transport by convective clouds: Comparisons of three modeling approaches, *Geophys. Res. Lett*., 22: 1089-1092, 1995.

Pickering, K. E., A. M. Thompson, Y. Wang, W.-K. Tao, Y. Wang, W.-K. Tao, D. P. McNamara, V. W. J. H. Kirchhoff, B. G. Heikes, G. W. Sachse, J. D. Brashaw, G. L. Gregory, and D. R. Blake, Convective transport of biomass burning emissions over Brazil during TRACE-A, *J. Geophys. Res*., 101: 23,993-24,012, 1996.

Pickering, K. E., A. M. Thompson, D. P. McNamara, M. R. Schoeberl, H. E. Fuelberg, R. O. Loring, Jr., M. V. Watson, K. Fakhruzzaman, and A. S. Bachmeier, TRACE-A trajectory intercomparison: 1. Effects of different input analyses, *J. Geophys. Res*., 101: 23,909-23,925, 1996.

Allen, D. J., P. Kasibhatla, A. M. Thompson, R. B. Rood, B. G. Doddridge, K. E. Pickering, R. D. Hudson, and S.-J. Lin, Transport-induced interannual variability of carbon monoxide determined using a chemistry and transport model, *J. Geophys. Res*., 101: 28,655-28,669, 1996.

Wang, Y., W.-K. Tao, K. Pickering, A. M. Thompson, J. S. Kain, R. F. Adler, J. Simpson, P. R. Keehn, and G. S. Lai, Mesoscale model (MM5) simulations of TRACE-A and PRESTORM convective events and associated tracer transport, *J. Geophys. Res*., 101: 23,013-24,027, 1996.

Fuelberg, H. E., R. O. Loring, Jr., M. V. Wason, M. C. Sinha, K. E. Pickering, A. M. Thompson, G. W. Sachse, D. R. Blake, and M. R. Schoeberl, TRACE-A trajectory intercomparison: 2. Isentropic and kinematic methods, *J. Geophys. Res*., 101: 23,927-23,939, 1996.

Thomp­son, A. M., K. E. Pickering, D. P. McNamara, M. R. Schoeberl, R. D. Hudson, J. H. Kim, E. V. Browell, V. W. J. H. Kirchhoff, and D. Nganga, Where did tropospheric ozone over southern Africa and the tropical Atlantic come from in October 1992? Insights from TOMS, GTE/TRACE-A, and SAFARI, *J. Geophys. Res*., 101: 24,251-24,278, 1996.

Thompson, A. M., R. D. Diab, G. E. Bodeker, M. Zunckel, G. J. R. Coetzee, C. B. Archer, D. P. McNamara, K. E. Pickering, J. Combrink, J. Fishman, and D. Nganga, Ozone over southern Africa during SAFARI-92/TRACE-A, *J. Geophys. Res*., 101: 23,793-23,807, 1996.

Stenchikov, G., R. R. Dickerson, K. Pickering, W. Ellis, Jr., B. Doddridge, S. Kondragunta, O. Poulida, J. Scala, and W.-K. Tao, Stratosphere-troposphere exchange in a midlatitude mesoscale convective complex: Part 2, Numerical simulations, *J. Geophys. Res.*, 101: 6837-6851, 1996.

Ellis, Jr., W. G., A. M. Thompson, S. Kondragunta, K. E. Pickering, G. Stenchikov, R. R. Dickerson, and W.-K. Tao, Potential ozone production following convective transport based on future emission scenarios, *Atmos. Environ*., 30: 667-672, 1996.

Allen, D., K. Pickering, and A. Molod, An evaluation of deep convective mixing in the Goddard Chemical-Transport Model using ISCCP cloud parameters, *J. Geophys. Res*., 102: 25,467-25,476, 1997.

Thompson, A. M., W.-K. Tao, K. E. Pickering, J. R. Scala, and J. Simpson, Tropical deep convection and ozone formation, *Bull. Amer. Met. Soc*., 78: 1043-1054, 1997.

Pickering, K. E., Y. Wang, W.-K. Tao, C. Price, and J.-F. Mueller, Vertical distributions of lightning NOx for use in regional and global chemical transport models, *J. Geophys. Res.*, 103: 31,203-31,216, 1998.

Penner, J., D. Bergmann, J. Walton, D. Kinnison, M. Prather, D. Rotman, C. Price, K. Pickering, and S. Baughcum, An evaluation of upper tropospheric NOx with two models, *J. Geophys. Res*., 103: 22,097-22,113, 1998.

Fuelberg, H. E., J. R. Hannan, P. F. J. van Velthoven, E. V. Browell, G. Bieberbach, Jr., R. D. Knabb, K. E. Pickering, and H. B. Selkirk, A meteorological overview of the SONEX period, *J. Geophys. Res*., 105, 3633-3651, 2000.

Allen, D., K. Pickering, G. Stenchikov, A. Thompson, and Y. Kondo, A three-dimensionsal total odd nitrogen (NOy) simulation during SONEX using a stretched-grid chemical transport model, *J. Geophys. Res*., 105, 3851-3876, 2000.

Jeker, D., L. Pfister, A. M. Thompson, D. Brunner, D. J. Boccippio, K. E. Pickering, H. Wernli, Y. Kondo, and J. Staehelin, Measurements of nitrogen oxides at the tropopause: Attribution to convection and correlation with lightning, *J. Geophys. Res*., 105, 3679-3700, 2000.

DeCaria, A., K. Pickering, G. Stenchikov, J. Scala, J. Stith, J. Dye, B. Ridley, and P. Laroche, A cloud-scale model study of lightning-generated NOx in an individual thunderstorm during STERAO-A, *J. Geophys. Res*., 105, 11,601-11,616, 2000.

Pickering, K. E., A. M. Thompson, H. Kim, A. J. DeCaria, L. Pfister, T. L. Kucsera, J. C. Witte, M. A. Avery, D. R. Blake, J. H. Crawford, B. G. Heikes, G. W. Sachse, S. T. Sandholm, and R. W. Talbot, Trace gas transport and scavenging in PEM-Tropics B South Pacific Convergence Zone convection, *J. Geophys. Res.*, 106, 32,591-32,602, 2001.

Park, R. J., G. L. Stenchikov, K. E. Pickering, R. R. Dickerson, D. J. Allen, and S. Kondragunta, Regional air pollution and its radiative forcing: Studies with a single-column chemical and radiation transport model, *J. Geophys. Res.*, 106, 28,751-28,770, 2001.

Allen, D. J. and K. E. Pickering, Evaluation of lightning flash rate parameterizations for use in a global chemical transport model, *J. Geophys. Res.*, 107(D23), 4711, doi:10.1029/2002JD002066, 2002.

Allen, D. J., J. E. Dibb, B. Ridley, K. E. Pickering, and R. W. Talbot, An estimate of the stratospheric contribution to springtime tropospheric ozone maxima using TOPSE measurements and Beryllium-7 simulations, *J. Geophys. Res.*, 108(D4), 8355, doi:10.1029/2001JD001428, 2003.

Kiley, C. M., H. E. Fuelberg, P. I. Palmer, D. J. Allen, G. R. Carmichael, D. J. Jacob, C. Mari, R. B. Pierce, K. E. Pickering, Y. Tang, O. Wild, T. D. Fairlie, J. A. Logan, G. W. Sachse, and D. G. Streets, An intercomparison and evaluation of aircraft-derived and simulated CO from seven chemical transport models during the TRACE-P experiment, *J. Geophys. Res.*, 108(D21), 8819, doi:10.1029/2002JD003089, 2003.

Pickering, K. E., “Convective Transport”, chapter in *Handbook of Weather, Climate, and Water*, John Wiley and Sons, Hoboken, NJ, 2003.

Allen, D. J., K. E. Pickering, M. Fox-Rabinovitz, Evaluation of pollutant outflow and CO sources during TRACE-P using model-calculated, aircraft-based, and MOPITT-derived CO concentrations, *J. Geophys. Res.*, 109, D15S03, doi:10.1029/2003JD004250, 2004.

Park, R. J., K. E. Pickering, D. J. Allen, G. L. Stenchikov, and M. Fox-Rabinovitz, Global simulation of tropospheric ozone using the University of Maryland Chemical Transport Model (UMD-CTM) 1. Model description and evaluation, *J. Geophys. Res*., 109,D09301,doi:10.1029/2003JD004266, 2004.

Park, R. J., K. E. Pickering, D. J. Allen, G. L. Stenchikov, and M. Fox-Rabinovitz, Global simulation of tropospheric ozone using the University of Maryland Chemical Transport Model (UMD-CTM) 2. Regional transport and chemistry over the Central United States using a stretched grid, *J. Geophys. Res*., 109, D09303, doi:10.1029/2003JD004269, 2004.

Ridley, B., L. E. Ott, K. E. Pickering, L. Emmons, D. Montzka, A. Weinheimer, D. Knapp, F. Grahek, G. Heymsfield, M. McGill, P. Kucera, M. J. Mahoney, D. Baumgardner, and G. Brasseur, Florida thunderstorms: A faucet of reactive nitrogen to the upper troposphere, *J. Geophys. Res.*, 109, D17305, doi:10.1029/2004JD004769, 2004.

DeCaria, A. J., Pickering, K. E., Stenchikov, G. L., and Ott, L. E.: Lightning-generated NOx and its impact on tropospheric ozone production: A three-dimensional modeling study of a Stratosphere-Troposphere Experiment: Radiation, Aerosols and Ozone (STERAO-A) thunderstorm, *J. Geophys. Res*., 110, 1-13, doi:10.1029/2004JD005556, 2005.

Stenchikov, G., K. Pickering, A. DeCaria, W.-K. Tao, J. Scala, L. Ott, D. Bartels, and T. Matejka, Simulation of the fine structure of the 12 July 1996 Stratosphere-Troposphere Experiment: Radiation, Aerosols and Ozone (STERAO-A) storm accounting for effects of terrain and interaction with mesoscale flow, *J. Geophys. Res*., 110, D14304, doi:10.1029/2004JD005582, 2005.

Ridley, B. A., K. E. Pickering, and J. E. Dye, Comments on the parameterization of lightning-produced NO in global chemistry-transport models, *Atmos. Environ.*, 39, 6184-6187, 2005.

Cooper, O. R., et al., Large upper tropospheric ozone enhancements above midlatitude North America during summer: In situ evidence from the IONS and MOZAIC ozone measurement networks, *J. Geophys. Res*., 111, D24S05, doi:10.1029/2006JD007306, 2006.

Bertram, T. H., et al., Direct measurements of the convective recycling of the upper troposphere, *Science*, 315, 816-820, 2007.

Barth, M. C., S.-W. Kim, W. C. Skamarock, A. L. Stuart, K. E. Pickering, and L. E. Ott, Simulations of the redistribution of formaldehyde, formic acid, and peroxides in the 10 July 1996 Stratospheric-Tropospheric Experiment: Radiation, Aerosols, and Ozone deep convection storm, *J. Geophys. Res*., 112, D13310, doi:10.1029/2006JD008046, 2007.

Thompson, A. M., et al., Intercontinental Chemical Transport Experiment Ozonesonde Network Study (IONS) 2004: 2. Tropospheric ozone budgets and variability over northeastern North America, *J. Geophys. Res*., 11 2 , D12S13, doi:10.1029/2006JD007670, 2007.

Ott, L. E., K. E. Pickering, G. L. Stenchikov, H. Huntrieser, and U. Schumann, Effects of lightning NOx production during the 21 July European Lightning Nitrogen Oxides Project storm studied with a three-dimensional cloud-scale chemical transport model, *J. Geophys. Res*., 112, D05307, doi:10.1029/2006JD007365, 2007.

Barth, M., S. Kim, C. Wang, K. Pickering, L. Ott, G. Stenchikov, M. Leriche, S. Cautenet, J-P. Pinty, C. Barthe, C. Mari, J. Helsdon, R. Farley, A. Fridlind, A. Ackerman, and V. Spridionov*,* Cloud-scale model intercomparison of chemical constituent transport in deep convection, *Atmos. Chem. Phys.*, 7, 4709-4731, 2007.

Pickering, K. E., H. Huntrieser, and U. Schumann, Lightning and NOx Production in Global Models, chapter in*[Lightning: Principles, Instruments and Applications · Review of Modern Lightning Research](http://www.springer.com/earth+sciences/meteorology/book/978-1-4020-9078-3)****,*** Betz, H.D., Schumann, U., Laroche, P. (Eds.), Springer,2009**.**

# Ott, L. E., S. Pawson, and M. Suarez, J. Bacmeister, K. Pickering, G. Stenchikov, H. Huntrieser, M. Loewenstein, J. Lopez, I. Xueref-Remy, Analysis of convective transport and parameter sensitivity in a single column version of the Goddard Earth Observation System, Version 5, General Circulation Model, *J. Atmos. Sci.*, 66, 627-646, 2009.

Halland, J. J., H. E. Fuelberg, K. E. Pickering, and M. Luo Identifying convective transport of carbon monoxide by comparing remotely sensed observations from TES with cloud modeling simulations, *Atmos. Chem. Phys.*, 9, 4279-4294, 2009

Neil, D. O., S. Kondragunta, G. Osterman, K. E. Pickering, R. W. Pinder, A. Prados, and J. Szykman, Satellite observations for detecting and tracking changes in atmospheric composition, *Environ. Manager*, October, 2009.

Witte, J. C., M. R. Schoeberl, A. R. Douglass, J. F. Gleason, N. A. Krotkov, J. C.

Gille, K. E. Pickering, and N. Livesey, Satellite observations of changes in air quality during the 2008 Beijing Olympics and Paralympics, *Geophys. Res. Lett*., 36, L17803, doi:10.1029/2009GL039236, 2009.

Jourdain, L., S. S. Kulawik, H. M. Worden, K. E. Pickering, J. Worden, and A. M. Thompson, Lightning NOx emissions over the USA constrained by TES ozone observations and the GEOS-Chem model, *Atmos. Chem. Phys*., 10, 107-119, 2010

Ott, L. E., K. E. Pickering, G. L. Stenchikov, D. J. Allen, A. J. DeCaria, B. Ridley, R.-F. Lin, S. Lang, W.-K. Tao, Production of lightning NOx and its vertical distribution calculated from 3-D cloud-scale chemical transport model simulations, *J. Geophys. Res*., 115, D04301, doi:10.1029/2009JD011880, 2010.

Bucsela,E. J., K. E. Pickering, T. L. Huntemann, R. C. Cohen, A. Perring, J. F. Gleason, R. J. Blakeslee, R. I. Albrecht, R. Holzworth, J. P. Cipriani, D. Vargas-Navarro, I. Mora-Segura, A. Pacheco-Hernández, S. Laporte-Molina, Lightning-generated NOx seen by OMI during NASA’s TC4 experiment, *J. Geophys. Res.*, 115, D00J10, doi:10.1029/2009JD013118, 2010.

Yoshida, Y., B. N. Duncan, C. Retscher, K. E. Pickering, E. A. Celarier, J. Joiner, and J. F. Gleason, The impact of the 2005 Gulf hurricanes on pollution emissions as inferred from Ozone Monitoring Instrument (OMI) NO2, *Atmos. Environ.*, 44, 1443-1448, 2010.

Hansen, A., H. E. Fuelberg, K. E. Pickering, Vertical distributions of lightning sources and flashes over Kennedy Space Center, Florida, *J. Geophys. Res.*, 115, D14203, doi:10.1029/2009JD013143, 2010.

Duncan, B., Y. Yoshida, J. Olson, S. Sillman, C. Retscher, R. Martin, L. Lamsal, Y. Hu, K. Pickering, C. Retscher, D. Allen, and J. Crawford, Application of OMI observations to a space-based indicator of NOx and VOC controls on surface ozone formation*, Atmos. Environ*., 44, 2213-2223, doi:10.1016/j.atmosenv.2010.03.010, 2010.

Allen, D. J., K. E. Pickering, B. N. Duncan, M. Damon, Impact of lightning-NO emissions on North American photochemistry as determined using the GMI model, *J. Geophys. Res.*, 115, D22301, doi:10.1029/2010JD014062, 2010.

Morris, G., A. M. Thompson, K. E. Pickering, S. Chen, E. J. Bucsela, and P. A. Kucera, Observations of ozone production in a dissipating tropical convective cell during TC4, *Atmos., Phys Chem.*, 10, 11189-11208, 2010.

Yuan, Tianle, L. Remer, K. Pickering, and H. Yu, Observational evidence of aerosol enhancement of lightning activity and convective invigoration, *Geophys. Res. Lett.*, 38, L04701, doi:10.1029/2010GL046052, 2011.

Martini, M., D. J. Allen, K. E. Pickering, G. L. Stenchikov, A. Richter, E. Hyer, and C. Loughner,North American trace gas export due to anthropogenic and lightning-NO emissions, *J. Geophys. Res.*, 116, D07305, doi:10.1029/2010JD014305, 2011.

Loughner, C. P., D. J. Allen, K. E. Pickering, R. R. Dickerson, D.-L. Zhang, and Y.-X. Shou, Impact of fair-weather cumulus clouds and the Chesapeake Bay breeze on pollutant transport and transformation, *Atmos. Environ.*, 45, 4060-4062, 2011.

Yegorova, E. A., D. J. Allen, C.P. Loughner, K. E. Pickering, R. R. Dickerson, J. E. Yorks, Characterization of an eastern U.S. severe air pollution episode using WRF/Chem, *J. Geophys. Res.*, 116, D17306, doi:10.1029/2010JD015054, 2011.

Natraj, V., X. Liu, S. Kulawik, K. Chance, R. Chatfield, D. P. Edwards, A. Eldering, G. Francis, T. Kurosu, K. Pickering, R. Spurr, and H. Worden, Multispectral sensitivity studies for the retrieval of tropospheric and lowermost tropospheric ozone from simulated clear sky GEO-CAPE measurements, *J. Geophys. Res.*, 45, 7151-7165, 2011.

Allen, D. J., K. E. Pickering, R. W. Pinder, B. H. Henderson, K. W. Appel, and A. Prados, Impact of lightning-NO on eastern United States photochemistry during the summer of 2006 as determined using the CMAQ model, *Atmos. Chem. Phys.*, 12, 1737-1758, 2012.

Loughner, C. P, D. J. Allen, D.-L. Zhang, K. E. Pickering, R. R. Dickerson and L. Landry, Roles of urban tree canopy and buildings in urban heat island effects: Parameterization and preliminary results, *J. Appl. Met. Clim.*, 51, 1775-1793, 2012.

Fishman, J., and 31 coauthors including K. Pickering, The United States’ next generation of atmospheric composition and coastal ecosystem measurements, *Bull. Amer. Meteorol. Soc*., DOI: 10.1175/BAMS-D-11-00201.1, 2012.

Yuan, T, L. Remer, H. Bian, J. R. Ziemke, R. Albrecht, K. E. Pickering, L. Oreopoulos, S. J. Goodman, H. Yu, and D. J. Allen, Aerosol indirect effect on tropospheric ozone via lightning, *J. Geophys. Res.*, 117, D18213, doi:10.1029/2012JD017723, 2012.

Cummings, K., T. Huntemann, K. Pickering, M. Barth, W. Skamarock, H. Hoeller, H. Betz, A. Volz-Thomas, H. Schlager, Cloud-resolving chemistry simulation of a Hector thunderstorm, *Atmos. Phys. Chem.,* 13, 2757-2777, 2013.

Goldberg, D. L., C. P. Loughner, M. Tzortziou, J. W. Stehr, K. E. Pickering, L. T. Marufu, and R. R. Dickerson , Higher surface ozone concentrations over the Chesapeake Bay than over the adjacent land: Observations and models from the DISCOVER-AQ and CBODAQ campaigns, *Atmos. Environ.*, 84, 9 – 19, 2014.

He, H., C.P. Loughner, J. Stehr, H. Arkinson, L. Brent, M. Follette-Cook, M. Tzortziou, K. E. Pickering, A. Thompson, G. Diskin, B. Anderson, J. Crawford, A. Weinheimer, R. Cohen, P. Lee, J. Hains, and R. Dickerson, An elevated reservoir of air pollutants over the Mid-Atlantic States during the 2011 DISCOVER-AQ campaign: airborne measurements and numerical simulations, *Atmos. Environ.*, 85, 18 – 30, 2014.

Bucsela, E. J., N. A. Krotkov, E. A. Celarier, L. N. Lamsal, W. H. Swartz, P. K. Bhartia, K. F. Boersma, J. P. Veefkind, J. F. Gleason, and K. E. Pickering, A new stratospheric and tropospheric NO2 retrieval algorithm for nadir-viewing satellite instruments: applications to OMI, *Atmos. Meas. Tech*., 6, 2607–2626, 2013.

Flynn, C. M., K. E. Pickering, J. H. Crawford, L. Lamsal, N. Krotkov, J. Herman, A. Weinheimer, G. Chen, X. Liu, J. Szykman, S.-C. Tsay, C. Loughner, J. Hains, P. Lee, R. R. Dickerson, J. Stehr, L. Brent, Relationship between column-density and surface mixing ratio: Statistical analysis of O3 and NO2 data from the July 2011 Maryland DISCOVER-AQ mission, *Atmos. Environ.*, 92, 429-441, 2014.

Loughner, C. P., M. Tzortziou, M. Follette-Cook, K. E. Pickering, D. Goldberg, C. Satam, A. Weinheimer, J. H. Crawford, D. J. Knapp, D.D. Montzka, G. S. Diskin, and R. R. Dickerson , Impact of bay breeze circulations on surface air quality and boundary layer export, *J. Appl. Meteor. Clim.*, 53, 1697-1713, 2014.

Duncan, B. N., et al., 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, *Atmos. Environ.*, 94, 647-662, 2014.

Shi, J. J., T. Matsui, W.-K. Tao, Q. Tan, C. Peters-Lidard, M. Chin, K. Pickering, N. Guy, S. Lang, and E.M. Kemp, Implementing an aerosol-cloud microphysics-radiation coupling into the NASA Unified WRF: Simulation results for the 6-7 August 2006 AMMA Special Observing Period, *Quart. J. Royal Met. Soc.*, 140, 2158-2175, 2014.

Lamsal, L. N., N. A. Krotkov, E. A. Celarier, W. H. Swartz, K. E. Pickering, E. J. Bucsela, J. F. Gleason, R. V. Martin, S. Philip, H. Irie, A. Cede, J. Herman, A. J. Weinheimer, J. J. Szykman, T. N. Knepp, Evaluation of OMI operational standard NO2 column retrievals using *in situ* and surface-based NO2 observations, *Atmos. Chem Phys.*, 14, 11587-11609, 2014.

Eck, T. F., B. N. Holben, J. S. Reid, A. Arola, R. A. Ferrare, C. A. Hostetler, S. N. Crumeyrolle, T. A. Berkoff, E. J. Welton, S. Lolli, A. Lyapustin, Y. Wang, J. S. Schafer, D. M. Giles, B. E. Anderson, K. L. Thornhill, P. Minnis, K. E. Pickering, C. P. Loughner, A. Smirnov, and A. Sinyuk, Observations of rapid aerosol optical depth enhancements in the vicinity of polluted cumulus clouds, *Atmos. Chem. Phys.*, 14, 11633-11656, 2014.

Smith, J. W, G. S. Jenkins, and K. E. Pickering, WRF-Chem model estimates of equatorial Atlantic Ocean tropospheric ozone increases via June 2006 African biomass burning ozone precursor transport, *J. Atmos. Chem.*, doi:10.1007/s10874-014-9293-x, 2014.

C. Liu, X. Liu, M. G. Kowalewski, S. J. Janz, G. González Abad, K. E. Pickering, K. Chance, L. N. Lamsal, Characterization and calibration of ACAM slit functions for trace gas retrievals during the 2011 DISCOVER-AQ flight campaign, *Atmos. Meas. Tech.*, 8, 751-759, 2015.

Tong, D., L. Lamsal, L. Pan, H. Kim, P. Lee, T. Chai, I. K. Pickering and I. Stajner, Long-term NOx trends over large cities in the United States during the great recession: Comparison of satellite retrievals, ground observations, and emission inventories, *Atmos. Environ.*, 107, 70-84, 2015.

Crawford, J. H., K. E. Pickering, B. N. Holben, A. Weinheimer, R. Auvil, N. Trevino, and M. Estes, Unique perspectives from the DISCOVER-AQ deployments, *Environ. Manager*, Sept. 2014, pp. 44-47, 2014.

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

Crawford, J. H. and K. E. Pickering, DISCOVER-AQ: Advancing strategies for air quality observations in the next decade, *Environ. Manager*, Sept. 2014, pp. 4-7, 2014.

Pickering, K. E. and P. Lee, DISCOVER-AQ: Air quality forecasting guides flight plans, *Environ. Manager*, Sept. 2014, pp. 39-43, 2014.

Follette-Cook, M., K. Pickering, J. Crawford, B. Duncan, C. Loughner, G. Diskin, A. Fried, and A. Weinheimer, Spatial and temporal variability of trace gas columns derived from WRF/Chem regional model output: Planning for geostationary observations of atmospheric composition, *Atmos. Environ.*, 118:28-34, 2015.

Barth, M. C., C. A. Cantrell, W. H. Brune, S. A. Rutledge, J. H. Crawford, H. Huntrieser, L. Carey, D. MacGorman, M. Weisman, K. E. Pickering, and many other co-authors, The Deep Convective Clouds and Chemistry (DC3) Field Campaign, *Bull. Amer. Meteor. Soc.*, doi:19,1175/BAMS-D-13-00290.1, 2015.

Liaskos, C., D. J. Allen, and K. E. Pickering, Sensitivity of tropical tropospheric composition to lightning NOx production as determined by replay simulations with GEOS-5*, J. Geophys. Res*., 120, doi:10.1002/2014JD022987, 2015.

Lamsal, L., B. N. Duncan, Y. Yoshida, N. A. Krotkov, K. E. Pickering, D. G. Streets, Z. Lu, U.S. NO2 trends (2005–2013): EPA Air Quality System (AQS) data versus improved observations from the Ozone Monitoring Instrument (OMI), *Atmos. Environ.*, 110:130-143, 2015.

Wang, L., M. Follette-Cook, M. J. Newchurch, K. E. Pickering, A. Pour-Biazar, S. Kuang, W. Koshak, and H. Peterson, Evaluation of lightning-induced tropospheric ozone enhancements observed by ozone lidar and simulated by WRF/Chem, *Atmos. Environ.*, 115:185-191, 2015.

Liu, C., X. Liu, M. G. Kowalewski, S. J. Janz, G. Gonzalez Abad, K. E. Pickering, K. Chance, and L. N. Lamsal, Analysis of ACAM data for trace gas retrievals during the 2011 DISCOVER-AQ campaign, *J. Spectroscopy*, doi:10.1155/2015/827160, 2015.

Duncan, B. N., L. N. Lamsal, A. M. Thompson, Y. Yoshida, Z. Lu, D. G. Streets, M. M Hurwitz, and K. E. Pickering, A space-based, high-resolution view of notable changes in urban NOx pollution around the world (2005-2014), *J. Geophys. Res.,* 121, doi:10.1002/2015JD024121, 2015.

Pollack, I. B., C. R. Homeyer, T. B. Ryerson, K. C. Aikin, J. Peischl, E. C. Apel, T. Campos, F. Flocke, R. S. Hornbrook, D. J. Knapp, D. D. Montzka, A. J. Weinheimer, D. Riemer, G. Diskin, G. Sachse, T. Mikoviny, A. Wisthaler, E. Bruning, D. MacGorman, K. A. Cummings, K. E. Pickering, H. Huntrieser, M. Lichtenstern, H. Schlager, and M. C. Barth, Airborne quantification of upper tropospheric NOx production from lightning in deep convective storms over the United States Great Plains, *J. Geophys. Res.*, 121, doi:10.1002/2015JD023941, 2016.

Bela, M. M., M. C. Barth, O. B. Toon, A. Fried, C. R. Homeyer, H. Morrison, K. A. Cummings, Y. Li, K. E. Pickering, and many other coauthors, Wet scavenging of soluble gases in DC3 deep convective storms using WRF-Chem simulations and aircraft observations, *J. Geophys. Res.,* 121, doi:10.1002/2015JD024623, 2016.

Wang, J., D. J. Allen, K. E. Pickering, Z. Li, and H. He, Impact of aerosol direct effect on East Asian air quality during the EAST-AIRE campaign, *J. Geophys. Res.*, 121, 6534–6554, doi:10.1002/2016JD025108. 2016.

Huntrieser, H., M. Lichtenstern, M. Scheibe, H. Aufmhoff, H. Schlager, T. Pucik, A. Minikin, B. Weinzierl, K. Heimerl, D. Futterer, B. Rappengluck, L. Ackermann, K. E. Pickering, K. A. Cummings, M. Biggerstaff, D. Betten, S. Honomichl, and M. C. Barth, On the origin of pronounced gradients in the thunderstorm outflow region during DC3, *J. Geophys. Res.*, 121, 6600–6637, doi:10.1002/2015JD024279, 2016.

Fried, A.*.* M.C. Barth, M. Bela, O.B. Toon, P. Weibring, D. Richter, J. Walega, Y.

Li, K. Pickering, and many other co-authors, Convective transport and scavenging of formaldehyde to the upper troposphere and lower stratosphere in thunderstorms over the

central United States during the 2012 DC3 study,, *J. Geophys. Res.*, 121, doi:10.1002/

2015JD024477, 2016.

C. R. Nowlan, X. Liu, J. Leitch, K. Chance, G. González Abad, C. Liu, P. Zoogman, J. Cole, T. Delker, W. Good, F. Murcray, L. Ruppert, D. Soo, M. B. Follette-Cook, S. Janz, M. Kowalewski, C. Loughner, K. Pickering, J. Herman, M. Beaver, R. Long, J. Szykman, L. Judd, X. Ren, and J. Al-Saadi, Nitrogen dioxide observations from the Geostationary Trace gas and Aerosol Sensor Optimization airborne instrument: Retrieval algorithm and measurements during DISCOVER-AQ Texas 2013, *Atmos. Meas. Tech.*, 9, 2647–2668, 2016.

Pickering, K. E., E. Bucsela, D. J. Allen, A. Ring, R. Holzworth, and N. Krotkov, Estimates of lightning NOx production based on OMI NO2 observations over the Gulf of Mexico, , *J. Geophys. Res.*, 121, doi:10.1002/2015JD024179, 2016.

Flynn, C. M., K. E. Pickering, J. H. Crawford, A. Weinheimer, K. L. Thornhill, C. Loughner, P. Lee, Variability of O3 and NO2 profile shapes during DISCOVER-AQ: Implications for satellite observations and comparisons to model-simulated profiles, *Atmos. Environ.*, 147, 133-156, 2016.

Mazzuca, G. M., X. Ren, C. P. Loughner, M. Estes, J. H. Crawford, K. E. Pickering, and R. R. Dickerson, Ozone production and its sensitivity to NOx and VOCs: Results from DISCOVER-AQ in Houston in 2013, *Atmos. Chem. Phys.*, 16, 14463-14474, 2016.

Mazzuca, G. M., K. E. Pickering, R. D. Clark, C. P. Loughner, A. Fried, R. R. Dickerson, D. C. Stein- Zweers, and A. J. Weinheimer, Use of tethersonde and aircraft profiles to study the impact of mesoscale and microscale meteorology on air quality, *Atmos. Environ.*, 149, 55-69, 2016.

Loughner, C. P., M. Tzortziou, S. Shroder, and K. E. Pickering , Enhanced dry

deposition of nitrogen pollution near coastlines: A case study covering the Chesapeake Bay estuary and Atlantic Ocean coastline, *J. Geophys. Res. Atmos*., 121, 14,221–14,238, doi:10.1002/2016JD025571, 2017.

Lamsal, L. N., S. J. Janz, N. A. Krotkov, K. E. Pickering, R. J. D. Spurr, M. G. Kowalewski, C. P. Loughner, J. H. Crawford, W. H. Swartz, and J. R. Herman, High-resolution NO2 observations from the Airborne Compact Atmospheric Mapper: Retrieval and validation, *J. Geophys. Res. Atmos*., 122, doi:10.1002/2016JD025483, 2017.

Li, Y., K. E. Pickering, D. J. Allen, M. C. Barth, M. M. Bela, K. A. Cummings, L. D. Carey, R. M. Mecikalski, A. O. Fierro , T. L. Campos, A. J. Weinheimer, G. S. Diskin, and M. I. Biggerstaff, Evaluation of deep convective transport in storms from different convective regimes during the DC3 field campaign using WRF-Chem with lightning data assimilation, *J. Geophys. Res. Atmos*., 122, doi:10.1002/2017JD026461, 2017.

Holben, B. N. and 35 co-authors including K. E. Pickering, An overview of mesoscale aerosol processes, comparisons, and validation studies from DRAGON networks, *Atmos. Chem. Phys*., 18, 655–671, https://doi.org/10.5194/acp-18-655-2018, 2018.

Levelt, P. and 41 co-authors including K. E. Pickering, The Ozone Monitoring Instrument: Overview of 14 years in space, *Atmos. Phys. Chem.*, 18, 5699-5745, https://doi.org/10.5194/acp-18-5699-2018, 2018.

Bela, M. M., M. C. Barth, O. B. Toon, A. Fried, C. Ziegler, K. A. Cummings, Y. Li, K. E.

Pickering, Dale Allen, C. R. Homeyer, H. Morrison, Q. Yang, R. M. Mecikalski, L. Carey, M. I. Biggerstaff, D. P. Betten, A. A. Alford, Effects of scavenging, entrainment, and aqueous chemistry on peroxides and formaldehyde in deep convective outflow over the central and southeast U.S., *J. Geophys. Res. Atmos.*, 123, <https://doi.1029/2018JD028271>, 2018.

Li, Y., K. E. Pickering, M. C. Barth, M. M. Bela, K. A. Cummings, and D. J. Allen, Evaluation of parameterized convective transport of trace gases in simulation of storms observed during the DC3 field campaign, *J. Geophys. Res. Atmos.*, 123, https://doi.org/10.1029/2018JD028779, 2018.

Nowlan, C. R., and 17 other authors including K. E. Pickering, Nitrogen dioxide and formaldehyde measurements from the GEOstationary Coastal and Air Pollution Events (GEO-CAPE) Airborne Simulator over Houston, Texas, *Atmos. Meas. Tech.*, 11, 5941-5964, <https://doi.org/10.5194/amt-11-5941-2018>, 2018.

Kang, D. and K. E. Pickering, Lightning NOx emissions and the implications for surface air quality over the contiguous United States, *Environ. Manager*, November 2018.

Cummings, K. A., K. E. Pickering, M. C. Barth, M. M. Bela, Y. Li, D. Allen, E. Bruning, D. R. MacGorman, C. Ziegler, M. I. Biggerstaff, B. Fuchs, T. Davis, L. Carey, R. Mecikalski, and D. L. Finney, Evaluation of lightning flash rate parameterizations in a cloud-resolved WRF simulation of the 29-30 May 2012 Oklahoma severe supercell system observed during DC3, *J. Geophys. Res.*, submitted, 2018.

Mazzuca, G. M., K. E. Pickering, D. A. New, J. Dreessen, and R. R. Dickerson, Impact of bay breeze and thunderstorm circulations on surface ozone at a site along the Chesapeake Bay 2011-2016, *Atmos. Environ.*, 198, 351-365, 2019.

Kang, D., K. Pickering, D. Allen, K. Foley, D. Wong, R. Mathur, and S. Roselle, Simulating lightning NOx production in CMAQ: Evolution of scientific updates, *Geosci. Model Devel.*, 12, 3071–3083, <https://doi.org/10.5194/gmd-12-3071-2019>, 2019.

Li, Y., K. E. Pickering, M. C. Barth, M. M. Bela, K. A. Cummings, D. J. Allen, Wet scavenging in WRF-Chem simulations of parameterized convection for a supercell storm during the DC3 field campaign,*Journal of Geophysical Research: Atmospheres*, 124. <https://doi.org/10.1029/2019JD030484>, 2019.

Allen, D. J., K. E. Pickering, E. Bucsela, N. Krotkov, and R. Holzworth, Lightning NOx production in the tropics as determined using OMI NO2 retrievals and WWLLN stroke data, *J. Geophys. Res. Atmos.*, 124, 13,498-13,518, https://doi.org/10.1029/2018JD029824, 2019.

Bucsela, E. J., K. E. Pickering, D. J. Allen, R. Holzworth, and N. Krotkov, Mid-latitude lightning NOx production efficiency inferred from OMI and WWLLN data, *J. Geophys. Res. Atmos.,* 124, 13,475-13497, https://doi.org/10.1029/2019JD030561, 2019.

Kang, D., K. Foley, R. Mathur, S. Roselle, K. Pickering, and D. Allen, Lightning NOX Production in CMAQ Part II – Performance Evaluations, *Geosci. Model Devel.*, 12, 4409–4424, https://doi.org/10.5194/gmd-12-4409-2019, 2019.

Chance, K., and 44 coauthors including K. Pickering, TEMPO Green Paper: Chemistry, physics, and meteorology experiments with the Tropospheric Emissions: Monitoring of Pollution instrument, *Proc. SPIE* 11151, Sensors, Systems, and Next-Generation Satellites XXIII, 111510B; doi:10.1117/12.2534883, 2019.

Carey, L. D., E. V. Schultz, C. J. Schultz, W. Deierling, W. A. Petersen, A. L. Bain, and K. E. Pickering, An evaluation of relationships between radar-inferred kinematic and microphysical

parameters and lightning flash rates in Alabama storms, *Atmosphere*, 10, 796; doi:10.3390/atmos10120796, 2019.

Choi, S. and 14 coauthors including K. Pickering, Assessment of NO2 observations during DISCOVER-AQ and KORUS-AQ field campaigns, *Atmos. Meas. Tech.*, 13, 2523–2546, 2020

<https://doi.org/10.5194/amt-13-2523-2020>, 2020.

Flocke, F., Pfister, G., J. Crawford, K. Pickering, G. Pierce, D. Bon, and P. Reddy, Air Quality in the Northern Colorado Front Range Metro Area: The Front Range Air Pollution and Photochemistry Éxperiment (FRAPPÉ), *J. Geophys. Res. Atmos.*, 125, http://doi.org/10.1029/2019JD031197, 2020.

Loughner, C. P., M. B. Follette-Cook, B. N. Duncan, J. Hains, K. E. Pickering, J. Moy, M. Tzortziou, The benefits of lower ozone due to air pollution emission reductions (2002 – 2011) in the Eastern U. S. during extreme heat, *J. Air and Waste Manag. Assoc.*, https://doi.org/10.1080/10962247.2019.1694089, 2020.