Evaluation of small sensor technology for criteria air pollutants at ground-based sites and a citizen science network

Rachelle Duvall[1], Russell Long[1], Melinda Beaver[1], Eric Hall[1], James Szykman[2], Surender Kaushik[1]

[1] U.S. Environmental Protection Agency, 109 T.W. Alexander Drive, Research Triangle Park, NC 27711

[2] U.S. Environmental Protection Agency, c/o NASA Langley Research Center, 21 Langley Blvd., Hampton, VA 23681

A number of small sensor technologies for the measurement of NO_2, O_3 and other criteria pollutants have recently emerged. There is a growing interest in understanding the capability of sensor technology in accurately measuring ambient concentrations of gas-phase criteria pollutants. Small sensors that measure NO_2 and the sum of NO_2 and O_3 were deployed in Houston, TX during the month of September 2013 during NASA's DISCOVER-AQ Study at a ground-based site and a citizen science based network involving seven local schools (combination of elementary, middle, and high schools). A multipollutant sensor that measures NO_2, NO, O_3, SO_2, and CO was also deployed from May-June 2014 at the AIRS site in RTP, NC. The sensors were collocated with Federal Reference and Equivalent Methods (FRM/FEM). Comparisons between the sensor measurements and FRM/FEM measurements will be presented. Preliminary results show that the sensors performed well compared to FRM/FEM data. Additional field testing of sensor technologies during DISCOVER-AQ will also be discussed.