

6.159 Measurements of black carbon containing aerosols in South Korea during KORUS-AQ.

Early Career Scientist

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Abstract:

Black carbon (BC) is a light-absorbing aerosol with strong anthropogenic sources that has important climatic and health impacts, both regionally and globally. Materials internally mixed with BC, including water, affect its optical properties and lifetime in the atmosphere, and thus are critical to understanding its ultimate impacts; these processes are still highly uncertain. The NASA KORUS-AQ campaign during the summer of 2016 was a multi-platform research campaign focusing on studying air quality over South Korea, in a region with particularly high BC emissions and loadings. The NOAA Humidified-Dual Single Particle Soot Photometer (HD-SP2) was deployed on the NASA DC-8 aircraft to measure the refractory BC content and mass mixing ratio (MMR) of single BC-containing aerosol particles sampled *in situ* under dry and humidified conditions. These measurements facilitated the characterization of water uptake by black carbon-containing particles, and improved the understanding of BC-containing aerosol's ambient properties and evolution in the atmosphere. Preliminary results from the KORUS-AQ field campaign are discussed, including BC MMRs, degree of internal mixing, and propensity to be associated with water-active materials.