

6.047 Multiplatform Observations of Air Quality in Korea: An International Cooperative Air Quality Field Study KORUS-AQ 2016.

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Abstract:

Due to remarkable economic growth over the last two decades, East Asia has become a region experiencing some of the poorest air quality in the world. In addition to local sources of pollution, the Korea peninsula is downwind of the largest emission sources in East Asia, complicating the understanding of air quality over Korea. Thus, knowing the factors controlling changes in air pollution across urban-rural and marine-continental interfaces, in addition to the contributions from local emissions and transboundary transport, is important for building effective management strategies and improving air quality in East Asia.

During 6 weeks between May and June 2016, the KORea and United States Air Quality field study (KORUS-AQ) took place and employed an integrated observing strategy including multiplatform observations (i.e. ground stations, aircraft, ships, and satellites) and chemical transport models. This mission aims to not only strengthen our knowledge of atmospheric chemistry but also prepare for the future launch of geostationary satellite instruments by both countries to provide real-time monitoring of air quality (e.g. O₃, NO₂, SO₂, HCHO, AOD, etc.) and enabling better scientific understanding of the transboundary transport of air pollutants. GEMS (Geostationary Environmental Monitoring Spectrometer) is a satellite instrument planned for launch in 2019 by the Republic of Korea. The instrument will observe East Asia and the western Pacific region. GEMS will also make

critical contributions to the global air quality perspective, working in concert with geostationary missions launched by the U.S. (TEMPO: Tropospheric Emissions: Monitoring of Pollution) and Europe (Sentinel-4) and low-Earth orbit missions including the European Sentinel-5 Precursor. A scientific overview and expected outcomes from the mission will be discussed in terms of the potential for improving both air quality models and the remote sensing of air quality.