P15 Transport/transformations study during the MAPS (pre-KORUS-AQ) field campaign.

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Rapid industrial development in East Asia and specifically in China has resulted in unprecedented increase in anthropogenic emissions, inducing air quality issues over northeast Asia.Trans-boundary transport from Chinese outflow to downstream areas is an important factor to understand the atmospheric concentrations of air pollutants over its downwind areas. In this study,we assess the meteorological conditions in association with PBL (Planetary Boundary Layer) characteristics, transport pathways and chemical transformation processes of pollutants from China during Megacity Air Pollution Studies –Seoul (MAPS) 2015 campaign. MAPS project was designed to characterize the chemical evolutions of oxidants and aerosol in and out of Korea peninsula, and investigate the urban and regional/sub-regional transport pathways and contributions of pollutants from Asian megacities including Beijing, Shanghai, and Seoul. In this study, WRF-Chem simulations with up-to-date Asian emission data set and surface and air borne observations were employed to analyze horizontal/vertical structures of long range transport and gas-to-particle chemical conversion over Yellow Sea located between China and South Korea. We found out that trans-boundary transport of Chinese sources effects on air quality within and above planetary boundary layer were clearly simulated in South Korea, and interestingly the secondary chemical conversion during the long-range transport process was shown above marine boundary layer over Yellow Sea.