P14 A numerical study on the emission improvement using WRF-Chem based on both satellite and in-situ measurements in Eastern China.

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Korea peninsula has been influenced by air pollutants transported in long-range distances from upstream regions, especially from eastern China. Due to the high level of air pollutions in Korea, air quality forecasting system has been estabilished and operated in South Korea on the basis of both meteorological model and air quality model. However it has been an challenging task to operate the air pollution forecasting system for the prediction of air pollutants such as PM10 and ozone, presumably due to the emission uncertainties particularly over the windward regions.

To understand the impact of emission from eastern china on the air quality in South Korea, it is highly important to characterize and to verify the chinise emissions, especially over eastern chinise region. Thus, in an effort to quantify the emissions, WRF-Chem modeling system has been used to evaluated the impact of emissions based on the measurements in and around Korean Peninsula. As a first step, the updated emission inventory were used for modeling and the air quality simulation results were generated to assess the emission, and modified the emissions using using measurements. Here measurements include in-situ measurements obtained from the regional and sub-regional atmospheric background stations in China and South Korea, Satellite column consentrations, aircraft data, and other optical properties

The result shows that the simulated spatial distribution is found to be similar in comparison with observation, but simulations were overall underestimated and sometimes peak values were not captured in some regions. We tentatively tried to modify the emissions in amendment-and-adjustment manner based on the various measurements for improving the model prediction performance in South Korea