[EJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-AS Atmospheric Sciences, Meteorology & Atmospheric Environment

[A-AS06]Atmospheric Chemistry

convener:Yoko Iwamoto(Graduate School of Biosphere Science, Hiroshima University), Tomoki Nakayama(Graduate School of Fisheries and Environmental Sciences, Nagasaki University), Sakae Toyoda(東京工業大学物質理工学院, 共同), Nawo Eguchi(Kyushu University)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
This session provides a forum for the presentation of the broad spectrum of tropospheric and stratospheric chemistry, including various research topics (e.g., dynamical processes, air quality and climate), approaches (modeling, field measurements, remote sensing, and laboratory studies), and species (gas and aerosol). This session also provides an opportunity for discussing possible future collaboration with other research fields relevant to atmospheric chemistry.

[AAS06-P12]A Study on Regional Contribution Rates and Components to PM2.5 in Busan, Korea Using CAMx PAST

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PM2.5 has recently been adopted as the national ambient air quality standard (NAAQS) as of 2015 in Korea, so official measurement began in 2015. The annual average concentration of PM2.5 in Busan was 26 μg/m3 in 2015, 27 in 2016, and showed an increasing trend of exceeding NAAQS (below 25 μg/m3). Korea is located below China, so pollutants emitted from the eastern region of China have also been identified as having a significant impact. In this study, a three-dimensional, numerical air quality model, the Comprehensive Air Quality Model with Extensions (CAMx), was coupled with Particulate Matter Source Apportionment Technology (PSAT) to analyze region and source category contributions to PM2.5 content and related chemical components. This research took place in Busan, Korea, during May 2017. Emission-based models require both meteorological information and emission data. Four nested modeling domains were constructed for both the meteorological model and the chemical transport model (CTM) in this study. Grid resolutions were 27 km, 9 km, 3 km and 1km, respectively, and the corresponding nesting grids are denoted as domain1, domain2, domain3 and domain4. Meteorological input data was determined with a WRF meteorological model using National Centers for Environmental Prediction (NCEP) Final (FNL) global analysis data. The Clean Air Policy Support System (CAPSS) developed by the Ministry of Environment was used to gather air pollutant emission data within South Korea. For other areas, the Model Inter-Comparison Study for Asia (MEIC) and Regional Emission Inventory in Asia (REAS) were used to input air pollutant emission data. According to the CAMx results, the soil-derived component represented the highest proportion. The second highest was sulfate (23.6%), followed by nitrate (12.7%) and ammonium (12.4%). The regional contribution caused by emission sources in Busan represented 36.9% of PM2.5 content. However, the contribution rate from China was 34.1%, similar to that of Busan.