

[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-P22]Model analysis of long-range transport of black carbon from Asian continent into the high-latitude regions during MIRAI Arctic research cruise, MR15-03

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Keywords:black carbon, long-range transport, CTM, Arctic Ocean

Long-range transport of black carbon(BC) from Asian continent into the high-latitude regions, ex. the Arctic ocean is one of the most notable issues in terms of global warming and local air quality. On-board measurements of BC over from Japan to the Arctic Ocean north of Alaska began with the JAMSTEC's MIRAI Arctic research cruise from the summer of 2014. The BC concentrations in cleaner air-mass over the Arctic Ocean succeeded to be obtained with high accuracy (Taketani et al.,2016). Additionally, Taketani et al. (2016) detected relatively high BC and suggested impacts from long-range transport of BC into the Arctic Ocean.

In this study, we investigated causes of the observed relatively high BC during the MIRAI Arctic research cruise by using the atmospheric chemical transport model, WRF/CMAQ. The target is Arctic research cruise of 2015, MR15-03(from 23, Aug to 21, Oct). Model could capture observed BC variability, though model tended to overestimate observations. Our model analysis explained that observed relatively high BC during across the Bering sea on 10 - 13, Oct was transported from Asian continent involved by the northwestward of the low pressure. Emission sensitivity analysis suggested that this high BC event was affected by long-range transport of BC emitted from Asian anthropogenic sources. We will also introduce model analysis for observed relatively high BC over the Arctic Ocean.