[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-P31]Temperature dependence of ozone reactivity observed at a suburban site in Japan

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Keywords:biogenic VOCs, field observation, emission

Biogenic volatile organic compounds (BVOCs) have been focused on as precursors of tropospheric ozone (O_3) and secondary organic aerosols. Various species of BVOCs have C=C double bonds and can react with O_3. To capture BVOCs comprehensively, a total ozone reactivity (R_{O3}, the sum of k_i[VOC_i]) analyzer has been developed [1-5]. R_{O3} of sample BVOCs can be determined when decrease of O_3 due to BVOCs+O_3 is precisely monitored. In our previous studies, the detection limit of the analyzer reached 2 x10^{-5} s^{-1} (*S/N* =3, 60-s average, 50-s reaction) [5]. To apply the analyzer to field observations, measurement tests of R_{O3} in the ambient air were conducted in this study. The observation was conducted at a suburban site, Tokorozawa campus, Waseda University, Tokorozawa, Saitama, Japan, on July 6 and 7, 2016, and April 30, May 3, July 19, 20 and 21, 2017. Contribution of ambient NO on R_{O3} was corrected with observed NO concentration and correction factor considered [6]. As a result of the test, R_{O3} was significantly captured when the temperature was high during daytime in summer. Fig. 1 shows an example of correlation plot between the observed ozone reactivity (R_{O3}) and the ambient temperature. It was found that observed R_{O3} increased with temperature increasing. It was suggested that observed R_{O3} could be explained by temperature dependence of BVOCs emission from plants.

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