Oral | Symbol A (Atmospheric, Ocean, and Environmental Sciences) | A-AS Atmospheric Sciences, Meteorology & Atmospheric Environment

[A-AS22_1PM2]Atmospheric Chemistry

Convener:*Nobuyuki Takegawa(Research Center for Advanced Science and Technology, University of Tokyo), Yousuke Sawa(Geochemical Research Department, Meteorological Research Institute), Yugo Kanaya(Research Institute for Global Change, Japan Agency for Marine-Earth Science and Technology), Kenshi Takahashi(Research Institute for Sustainable Humanosphere, Kyoto University), Hiroshi Tanimoto(National Institute for Environmental Studies), Chair:Nobuyuki Takegawa(Research Center for Advanced Science and Technology, University of Tokyo)

Thu. May 1, 2014 4:15 PM - 6:00 PM 511 (5F)

This session provides a forum for the presentation of the broad spectrum of tropospheric and stratospheric chemistry, including various research topics (air quality and climate), approaches (modeling, field measurements, satellite data analysis, 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.

4:15 PM - 4:30 PM

[AAS22-P21_PG]Observation of formaldehyde and glyoxal variations by MAX-DOAS in Chiba and Tsukuba in 2013

3-min talk in an oral session

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Keywords:Formaldehyde, Glyoxal, MAX-DOAS, diurnal variation, seasonal variation

BVOCs (Biogenic Volatile Organic Compounds) are plant-released organic chemicals that are volatile in air at normal ambient temperature and pressure. Reactions of BVOC in the atmosphere have a great influence on the OH abundance in the atmosphere. In addition, the reactions lead to the formation of ozone, which is not only adversely affecting plants and human health but also acting as a greenhouse gas. Furthermore, part of the products from the oxidation reaction of BVOCs forms aerosols, which play a critical role in cloud formation processes and radiation balance. Thus, BVOCs are deeply related with climate and air quality surrounding us. Recently, formaldehyde and glyoxal are recognized as important indicators of oxidations of BVOCs. However, their observations have been limited. In this study, we use the data got from MAX-DOAS to analysis the diurnal variation, seasonal variation of formaldehyde and glyoxal for the first time. And then we try to find the reason or the factors which makes the variations.Figure1 shows the data of glyoxal concentration observed in China during 2013. To know the diurnal and seasonal variation, we calculated the average value of every hour in each month. We found the clearly pattern that the concentration of glyoxal is high during the day and summer. At noon of the summer, the concentration of glyoxal was increased to more than 0.105ppbv. We also found the same pattern in Tsukuba. In this study, we observed glyoxal and formaldehyde in the same time, and organize the data of Chiba and Tsukuba in 2013 and try to find the reason of the variation.

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