[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-P29]Development of a large volume sampling system for measuring stable isotope analysis of carbonyl sulfide

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Keywords:Carbonyl sulfide, Sulfur isotope, atmospheric trace components

Carbonyl sulfide (OCS) is the most abundant sulfur-containing gas in the ambient atmosphere, with an average mixing ratio of 500 parts per trillion (ppt) by volume in the troposphere. OCS is suggested as a sulfur source of the stratospheric sulfate aerosols (SSA) which plays an important role for Earth of radiation budget and for ozone depletion. Moreover, since leaves consume OCS whenever they are assimilating CO_2 with same process but plant does not emit OCS to atmosphere by respiration, OCS provides a means to partition net ecosystem exchange into gross primary production (GPP) and respiration on land. Nevertheless, current figures for tropospheric OCS sources and sinks carry large uncertainties.

Recently, our group developed new method measuring sulfur isotopic composition of OCS using fragmentation ions S^+. However, for applying our method to air, there is problem in collection over 8 nmol of OCS from air. Therefore, we developed OCS collection system in air.
For developing large volume collection system, we referred to the large volume collection system for carbon isotope measurement method for halocarbons. The large volume sampling system were collected volatile organic compounds including OCS from up to 500 L in air for 100 min. At the presentation, we report that OCS collection efficiency by using our collection system and the OCS isotopic compositions in air were presented. Additionally, we introduce the collected volatile organic compound with OCS in this system and discuss the possibility of a new development to atmospheric chemistry.