[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-P03]Working standard gas saving system for in-situ CO_2 and CH_4 measurements and calculation method for concentrations and uncertainty.

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Keywords:Carbon dioxide, Methane, Siberia, in-situ measurement, CRDS

Continuous measurements of CO_2 and CH_4 concentration have been carried out using a tower network in Siberia (JR-STATION: Japan-Russia Siberian Tall Tower Inland Observation Network) to study the spatial and temporal variations of CO_2 and CH_4 and estimate the distribution of the flux over this vast area (Sasakawa et al., 2010, 2012, 2013) where only a few atmospheric investigations had been made. Transport of working standard gases to remote sites is a significant issue. Thus, to reduce the consumption of the gases, Watai et al. (2010) developed a system that utilizes in-situ air as sub-working standard gas to track the baseline drift of an NDIR. The calibrations using the working standard gases were carried out twice a day. Watai et al. (2010) installed the system at the first tower site in West Siberia (Berezorechka). We modified the working gas saving system and further added a CH_4 sensor (Suto et al., 2010), then expanded the tower network. We evaluated the uncertainty of the concentrations obtained from this modified system. From the year of 2015, we installed a Cavity Ring-Down Spectroscopy (CRDS; Picarro inc.) at Karasevoe, Demyanskoe, and Noyabrsk. We thus validate the recent data with the data by the CRDSs.

References

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