

[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-P07]Using small compact PM2.5 sensors, long term and multipoint measurements in Hanoi, Vietnam

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Keywords:PM2.5 measurement, compact sensor, air quality, Mega city, Southeast Asia

A year round observation of PM_{2.5} mass concentrations was conducted in Hanoi University of Science and Technology (HUST) from July 2016 to now using newly developed highly sensitive sensors. And also from October 2017 to now, we have installed the PM2.5 sensors in Thai Nguyen University of Technology (TNUT) and Vietnam National University of Agriculture (VNUA). Hourly PM_{2.5} concentration data in HUST agreed well with corresponding data obtained with a beta attenuation monitor, located 3 km away. The monthly variation showed that PM_{2.5} levels were high in the dry season, particularly in December (median = 62 mg m⁻³) and low in the rainy season, particularly in June and July (medians = 19 mg m⁻³). PM_{2.5} haze episodes with levels higher than 100 mg m⁻³ were observed 13 times during the dry season (October 2016–March 2017). These episodes may link to meteorological conditions, because the daily PM_{2.5} and CO levels increased several days after a cold surge for most of the PM_{2.5} haze episodes. Two episode events were investigated further in higher temporal resolution. For both events, PM_{2.5} peaks appeared at midnight for some days after a cold surge, while CO levels often increased at rush hours. For first event, short peaks of PM_{2.5} (duration of about 1 h) with fast rates of increase of ~5 mg m⁻³ min⁻¹ were observed. This highlights the importance of high temporal resolution of PM_{2.5} sensors in assessing of health effect. For second event, a broad peak (duration of one and half days) of PM_{2.5} with gradual increase was observed together with high CO levels. This research reveals for first time characteristics of PM_{2.5} haze episode in Hanoi that should be studied further to develop an effective air pollution management in this city. This study is supported by JSPS Kakenhi (17H04483).