Abstract AMS-16

Radiocarbon-based source apportioning of organic carbon aerosols over Mt. Tai, China

: A case study from the 2006 sampling campaign.

Shan Liu1, 2, Masao Uchida3, Kanako Mantoku3, Toshiyuki Kobayashi3, Kimitaka Kawamura1

1. Chubu Institute for Advanced Studies, Chubu University, Kasugai, Japan,

2. School of Environmental Science and Engineering, Hubei Polytechnic University, Huangshi, China

3. NIES-TERRA AMS facility, National Institute for Environmental Studies, Tsukuba, Japan

In order to better characterize carbonaceous components in atmospheric aerosols and to assess the contributions of biomass sources in the carbonaceous aerosols in the regions where heavily influenced by field burning of agricultural wastes, we collected carbonaceous aerosols at the summit of Mt. Tai (1534 m above sea level) on a daytime and nighttime basis during a summertime campaign (May–June 2006) and analyzed radiocarbon and 13C of bulk-phase organic aerosols to determine the relative contribution of biomass and fossil sources. Mt. Tai is heavily influenced by field burning of agricultural wastes such as wheat straws in the North China Plain during the harvest season in early summer (Fu et al., 2008). Thus, it is an ideal site to characterize the air quality influenced by the heavy biomass burning for this purpose. In this study, we present radiocarbon and 13C data of carbonaceous aerosols at Mt Tai and discuss the source apportionment using the Markov Chain Monte Carlo-driven Bayesian modeling.

Reference;

Fu et al., Organic molecular compositions and temporal variations of summertime mountain aerosols over Mt. Tai, North China Plain, Journal of Geophysical Research, 113, D19107, doi:10.1029/2008JD009900.