6.098 Changing of emission source contribution of transboundary transported particulate PAHs, EC, and OC observed at Noto, coastal site of Sea of Japan, during the period from 2004 to 2013.

Presenting Author:
Yayoi Inomata, Kanazawa University, yayoiinomata.acap@gmail.com

Co-Authors:
Kajino Mizuo, Meteorological Research Institute
Sato Keiichi, Asia Center for Air Pollution Research
Tang Ning, Kanazawa University
Hayakawa Kazuichi, Kanazawa Universiy
Ueda Hiromasa , Kyoto University

Abstract:

Polycyclic aromatic hydrocarbons (PAHs) are regarded as persistent organic compounds which is emitted by incomplete combustion process from fossil fuel, vehicles, and biomass burning. PAHs are highly concerned because of carcinogenic and mutagenic properties. Considering that the rapid population growth and energy demand, economical development, East Asia is one of the large PAHs emitted region. This study analyzed temporal variations of particulate PAH, organic carbon (OC), elementary carbon (EC) concentrations at Noto, facing the Sea of Japan. Particulate phase PAH, OC, and EC concentrations are clear seasonal variation with high in winter and low in summer. The PAH concentrations in winter at Noto are increased until the year of 2008, after then, decreased. The concentrations of OC and EC are increased before 2006 and then decreased until 2008, after then increased. After the year 0f 2011, the concentrations are decreased. It is found that PAH concentrations are increased with increasing EC as well as OC concentrations. The relation was different among seasons. In winter, PAH concentrations against EC or OC are larger than those in other seasons. The ratio of OC/PAHs and EC/PAHs are high in the period from 2004 to 2006 and after then rapidly decreased. These suggest that the PAH emissions are changed reflecting the emission amount as well as source contribution. The effect of changing of source contribution for PAHs, OC, and EC and temporal variations of these concentrations will be also discussed using the chemical transport model, Regional Air Quality Model (RAQM-POPs).