



Preface to Special Issue

Long-range transported air pollutants in East Asia — Observation, measurements, and model analysis

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Rapid economic growth in East Asia causes consumption of vast amount of fossil fuel for energy source. Emission of acid forming gases such as NO_x and SO_2 as well as particulate matter affects the environment of the source country, surrounding countries, and moreover, whole northern hemisphere by long-range trans-boundary air pollution. Among these atmospheric pollutants, aerosols attract special attention these days, because there are many unclear points; for example, aerosol spatial distribution, formation mechanisms in the atmosphere, quantitative evaluation of environmental impacts, and so on. Therefore, scientifically supported data of trans-boundary air pollutants observed by well-arranged ground-based observations in this region as well as reliable and detailed model studies are very important. In order to analyze trans-boundary air pollution within and from East Asia observations on isolated islands and/or on the summit of mountains utilizing a network among East Asian and Southeast Asian countries are urgently needed. Emission source analysis with such as statistical analyses and estimation of the contribution of long-range transported aerosols and locally emitted aerosols are also very important.

Although it is said that the emission of SO_2 and NO_x in China is decreasing, the problem of high concentration of $\text{PM}_{2.5}$ in East Asia is still attracting much attention of the people not only in East Asia but also all over the world.

Under such circumstances “Global Research Organization” was settled in Tokyo University of Agriculture and Technology, Japan (TUAT). Under this umbrella Shiro Hatakeyama set up an international research group with professors from countries/areas surrounding East Asian continent such as Korea (Yong Pyo Kim), Taiwan (Neng-Huei (George) Lin), and Hong Kong (Chak K. Chan). By this research team an intensive observation experiment was performed in October–November, 2015 at Cape Hedo, Okinawa, as well as remote sites in Korea and Taiwan. Several researchers out of the research team from Japan and China also took part in this campaign.

This special issue aims to publicize the results of the campaign and to get more information from the experts in the same research field, which includes observations, measurements, data analysis, and modeling. We invited papers not only from this research group but also many researchers in the same research field. Through the papers collected in this special issue we can see that much more concrete image of long-range trans-boundary air pollution in East Asia have been drawn.

It is our great pleasure that 25 papers were accepted and now to be published. The volume is separated into five focus areas.

1. Observations of aerosols at mountainous, coastal, and urban measurement sites. (nine papers)
2. Model studies concerning long range transport (LRT) of aerosols including chemical reactions taking place during the transport. (four papers)

3. Observational and model studies to distinguish between locally emitted and long-range-transported aerosols and gaseous pollutants. (seven papers)
4. Measurements of physicochemical properties of aerosols at source and sink areas. (two papers)
5. Aerosol Measurements by use of an aircraft, a satellite, and a new measurement technique. (three papers)

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