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Abstract

Kosa (Asian dust) particles, according to balloon-borne and aircraft-borne measurements made intensively in Nagoya Japan and Dunhuang, China, frequently shows noticeable chemical-physical transformation of Kosa particles during long-range transport (Zhang at el., 2000; Iwasaka et al., 2003; Trochkine et al., 2003; Matsuki et al., 2005).

It is strongly suggested that not only geographic and climatic condition of northern east Asia but also rapid expand of human activities are important factor controlling the chemical-physical modification of Kosa particles during those long-range transport. Iwasaka et al. (1988) firstly suggested that there is large possibility of chemical modification of Kosa particles with pollutant such as Sox and NOx in the free troposphere on the basis of aircraft-borne measurements over Japan islands, and after then lots of investigations showed possible chemical modifications. Concerning with the microphysical processes controlling chemical modification of Kosa particles, there are many problems remaining unsolved, and thus more studies, especially contribution of atmospheric humidity to surface chemical reactions, are necessary.

Sakamoto et al. (2004) showed on the basis of laboratory experiment that oxidation of sulfur dioxide on dust particles were possibly controlled by ozone content and humidity. From field measurements, Matsuki et al. (2005) also suggested the important contribution to surface reaction on Kosa particles. Taking into large contribution of water vapor supplied to the Atmosphere from the surface of Japan sea to modification of quality of air masses, existence of Japan sea seems to be very large in chemical-physical transformation of Kosa particles.

Recently scientific project of ADOES (Asian Dust and Ocean EcoSystem) was established under the leadership of Chinese scientific community collaborating with international project of SOLAS (Surface Ocean and Lower Atmosphere Studies) in 2004, and intensive measurements of Kosa particles and other relating gases and particles have been made over the China continent and the East China Sea. In Spring of 2006, we tried balloon-borne measurements over the East China Sea (Observation with Ocean Traversing Balloon under the effect of westerly) to understand aerosol distribution in the marine boundary layer as joint program of Kanazawa University 21 COE program and ADOES. The measurements are still on the first step, but new type monitoring style seems to grow in ADOES; 1) Not only Chinese scientists but also Japan and Korean scientists work for making research plan of ADOES including field observation plan over the ocean. 2) Intensive collaboration between Japan and China scientists has been made for balloon-borne measurements over the East China Sea. 3) Observational data are completely shared each

others, and coauthor ship is encouraged for publications. Collaboration of those tree countries are essential to protect environment of pan Japan sea areas, and collaboration of China, Korea and Japan scientist communities possibly well contributes. The Kanazawa University 21 COE program is desired to establish more active collaboration program near future and contribute to obtain much better understanding of environment and to protect environment of pan Japan sea areas.

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