

SIZE-SEGREGATED SOURCE ESTIMATION BY THE FACTOR ANALYSIS FOR THE MEASUREMENT USING DRUM IMPACTOR AT GOSAN, KOREA IN SPRING 2002**J.S. Han¹**, K.J. Moon¹, Y.J. Kim², S.S. Cliff³, T.A. Cahill³¹*Atmospheric Chemistry Division, Department of Air Quality Research, National Institute of Environmental Research, Incheon, Korea*²*ADEMRC, Kwangju Institute of Science and Technology, Gwangju, Korea*³*The DELTA Group (DAS), University of California, Davis, USA*

The studies on the influence of the long-range transport (LRT) of pollutants have been actively performed in Korea because it is located in the west-windward middle latitude region in northeast Asia, which has been known as major sources of anthropogenic pollutants. Size distribution of aerosols suggests the bases to reveal the potentiality of LRT. Therefore, it is necessary to secure the continuous data of size distribution with high time resolution in the accepted region. In this study, size distributions of 19 species trace element every 3hr, using the 8-stage Davis Rotating Unit for Monitoring (DRUM) impactor were measured at Gosan, Korea from 29th March to 30th May 2002. The impaction substrates were analyzed by synchrotron X-ray fluorescence at the DELTA Group in the University of California Davis using in beamline 10.3.1 at the Advanced Light Source of Lawrence Berkeley National Laboratory. Factor analysis and calculation of ratios between trace elements for each size range were performed to verify the estimation of sources and the possibility of LRT. Conclusively, during the Non-Asian Dust period, soil, sea salt, coal combustion, and nonferrous metal source were main sources in the coarse particle range (2.5~12 μm). On the other hand, in the relatively fine particle range (0.56~2.5 μm), road dust, sea salt, oil fired boiler, and nonferrous metal source were mostly contributed. Finally, oil and coal combustion, municipal incineration, gasoline vehicle, nonferrous metal sources were largely influenced in the very fine particle range (0.09~0.56 μm).