

## Composition characteristics and sources of size-resolved airborne particles in Himeji city

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### Abstract

As a part that, an epidemiological study on the effects of chemical composition of airborne particulate matter (PM) and ozone on asthma attacks, we carried out size-resolved sampling of PM in Himeji City, and elemental and ionic composition analyses of the PM sample. Size-resolved PM was collected using a 3-stage NLAS impactor (Tokyo Dylec Co., Ltd.; particle cut size at sampling stages was 10, 2.5 and 1.0  $\mu\text{m}$  for a flow rate of 3 L/min) with a 1 week sampling interval, and the PM sampling was began in November, 2009. Concentrations of several elemental and ionic species in the PM sample were determined by PIXE and ion chromatography analysis. Our results suggest that:

- Affect the PM size range of soil and sea salt particles and Aeolian dust (Kosa aerosol) were coarse particles (PM larger than  $\text{PM}_{2.5}$ ).
- Sulfate and ammonium ions, which showed high values in the fine particles (PM smaller than  $\text{PM}_{2.5}$ ), nitrate ion showed a higher value in the coarse particles.
- Sulfate and nitrate ions are considered to occur in different forms.

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