

## Aerosol Size Distributions Observed in the Asian Dust Source Region in China

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Asian dust (Hwangsa in Korean) which is a typical example of mineral aerosol frequently occurs in the Sand desert, Gobi desert and Loess plateau in northern China and Mongolia during the spring season plays an important role on environmental issues and climate change in this region. The size distributions of mineral aerosols released by wind-erosion from the dust source regions are of primary important to model their emission and transport patterns as well as their effect on climate. To examine the aerosol size distribution of the Asian dust, aerosol samplings have been taken at three sites located in the Asian dust source regions in northern China using the 8-stage cascade impactor; one is located at Duolun (42.323N, 116.521E, 1243 m) in the sand desert area of Inner Mongolia, another is at Yulin (38.281 N, 109.50 E, 1, 150m) in the loess plateau of Shaanxi Province and the other is located at Zhangye (39.081 N, 100.28 E, 1, 452m) in the gobi desert of Gansu Province. It is found that the particle size distribution of the observed mass concentration at all sites shows a tetra-modal distribution that can be expressed optimally with four log-normal distribution functions. The maximum probability density of the aerosol spectral mass concentration is found at the range of 5- 6  $\mu\text{m}$  in diameter at all sites. However only the site located at the loess plateau area shows its maximum probability density at the submicron size when the total mass concentration is low. The probability density of the spectral mass concentration tends to be shifted toward the large particle size with the increase of the total mass concentration at all sites.