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Interactive Comment

Interactive comment on "Long-range transport of giant particles in Asian dust identified by physical, mineralogical, and meteorological analysis" *by* G. Y. Jeong et al.

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Dear Dr. Querol: Thank you for introducing a valuable reference for the XRD analyses of small dust samples. Silver filter may be a better choice for reducing the background X-ray scattering from filter materials. About ten years ago, I (GYJ) have attempted the XRD analyses of several mgs of dust removed from the cellulose filter by ultrasonic agitation in methanol. Small dust samples were smeared on glass slide. XRD analyses were done for 15-20 h per each sample to get enough counts for quantification. Several problems were encountered during the analyses: high background from glass materials, intensity loss in high angle region due to thin sample thickness, and pre-

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ferred orientation of platy particles. I had to do some assumptions and several steps of data treatments. Although the results were included in Jeong (2008), they are evidently semiquantitative as recognized by Alastuey et al. (2005). Fully quantitative XRD analysis requires the preparation of randomly oriented sample with enough thickness which needs about 1 g of powder sample as done in Jeong et al. (2008, 2011). The merit of XRD is reduced if it is semiquantitative. The single particle analysis provides wealthy data on particle size, morphology, agglomeration, and microstructures in addition to semiquantitative mineralogical data. Fully quantitative XRD analysis of small dust sample is challenging subject, waiting further technical development as the quantification of the mineral composition of single dust particle.

Sincerely

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Interactive comment on Atmos. Chem. Phys. Discuss., 13, 21041, 2013.