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Interactive comment on “Dust storms come to central and southwestern China, too: implications from a major dust event in Chongqing” by Q. Zhao et al.

Q. Zhao et al.

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Comments: The authors did not give any consideration on possible contamination associated with their samples. With the fact that their sampling sites were close to busy road and power plants, I hardly believe their ‘dust’ was the one transported from deserts. Therefore, the conclusions the authors derived were built on a weak foundation. Substantial revisions and justifications must be made to the current version of the manuscript before further consideration.

Response: We sincerely thank the reviewer for addressing an important issue for this study. However, we expect stronger comments than vague “beliefs” based on sampling

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sites alone, and did indeed provide considerable evidence against local sources for the peak dust in the manuscript. Evidence against local resuspension of dust was twofold: (1) an abrupt decrease of wind speed just when the PM10 increased, and (2) the appearance of the dust peak four hours earlier than the normal midnight peak of pollutants. Both these points were shown in Figure 5 and noted in Section 4.1 (P20731 L25).

Evidence provided against industrial pollution (power plants, etc.) and for transported dust was chemical. (1) Ratios of pollution components (Pb, SO₄²⁻ and OC) to Al decreased to a minimum during the event (showing the strong contribution of dust to the extra material). (2) The Ca/Al ratio also decreased to a minimum then (showing that the extra material was not influenced by construction in nearby urban areas). (3) The Si/Al ratio decreased to a minimum then (showing that the dust had been transported). These decreases were shown in figures 6 and 7, and discussed in sections 4.2.1 and 4.2.2. Supporting material is given for coal burning signatures in Okuda et al. (2008) and Guo et al. (2008), for biomass burning signatures in Duan et al. (2004), for the Ca/Al ratio in Zhang and Iwasaka (1999) and He et al. (2001), and for depleted Si after transport in Gatz and Prospero (1996).

Thus, the reviewer's claim that we did not address this question simply does not hold up. We showed that chemical evidence pointed to transported dust, and that meteorological evidence pointed away from local dust. Nevertheless, we have further clarified this issue in the revised version (see the first paragraph of Sections 4.2.1 and 4.2.2).

Okuda, T et al., Trends in hazardous trace metal concentrations in aerosols collected in Beijing, China from 2001 to 2006, Chemosphere, 72, 917-924, 2008

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