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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Magnetic signatures of natural and anthropogenic sources of urban dust aerosol" *by* Haijiao Liu et al.

Anonymous Referee #1

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Urban dust aerosols are important not only for pollution studies, but also for the global climatic changes. It is difficult to distinguish and quantify contributions from natural and anthropogenic origins. In this study, authors provided an excellent example from Xi'an, Northern China. The study includes two relevant parts: 1) characterization of these two kinds magnetic particles using X (Xfd) and SEM/EDS methods; and 2) a time series of dust flux between 2009 and 2014. The current data sets greatly improve our understanding of the natural and anthropogenic origins inputs to the Xi'an city. However, I think the data sets are not complete especially for ACP with such a high IF. Specifically, authors used magnetic methods to quantify the magnetic particles, but they only measured X and Xfd. X is affected by many factors, e.g., concentration, grain size, mineral types. The current study focused only on concentration without

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Discussion paper

information of grain size and mineral types. I strongly encourage authors to provide a more comprehensive study on this issue.

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