

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

Anonymous Referee #2

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This paper archives magnetic monitoring data for five years. In addition, detailed SEM/EDX data of anthropogenic particulates give a basic idea why the magnetic approach is useful to monitor the anthropogenic pollution especially by biomass burning.

Major points: 1. Authors mainly applied magnetic susceptibility to resolve the natural and anthropogenic signatures. Because X_{lf} and X_{fd} can be controlled by various factors including mineralogy and grain-size, more detailed magnetic data should greatly improve the quality of this paper. 2. As shown in Figures 4 and 8, X_{lf} shows an opposite trend to dust flux. This means that dominant anthropogenic magnetic signals were diluted by less magnetic natural dust input. Hence, the total quantitative anthropogenic matters are not varied but qualitative contribution is reduced as a result of increasing natural dust flux (Figure 8). Such a qualitative result may be estimated only by dust

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flux ratio without X_{lf} data. To clarify the discussion 4.1, authors are highly encouraged to present quantitative magnetic data such as a saturation magnetization.

Minor points: 1. Figure 1: Insert a scale bar in a road-map. 2. Page 3, line 6: Check the reference (Maher et al., 1988) 3. Page 4, line 18: Sampling time? Filtering? Dust bag? Not enough information for sampling. 4. Page 6, lines 10 and 11: Why X_{lf} indicates different mineralogy? 5. Page 6, line 15: Difference in mean X_{fd} values of 6.9%, 5.1%, 4.6%, and 2.5% have any scientific meaning? 6. Page 7, line 13: Is that platinum or carbon coat for SEM observation?

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