

Interactive comment on “Spatial and temporal variations of the concentrations of PM₁₀, PM_{2.5} and PM₁ in China” by Y. Q. Wang et al.

Anonymous Referee #1

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This manuscript presented PM concentrations over China measured by China Atmosphere Watch Network. Although PM_{2.5} measurements are available over China since 2013, the measurement data presented in this paper are valuable because it covers longer period (2006-2014) and provides PM₁/PM_{2.5}/PM₁₀ information. This dataset would be very helpful for understanding the evolution of PM concentration over China. The manuscript could be published in ACP after the following concerns are addressed.

Availability of the dataset. I believe that these data are very valuable. Are the data available to the community? Are they publically accessed or obtainable by request? A few sentences about the data availability would be very helpful.

Sect. 2. The authors claimed that GRIMM measurements are in good agreement with

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TEOM. I am curious if the authors compared GRIMM with other instruments under heavy pollution condition in China. Referring to comparison in western countries is not very convincing.

P15326, L6-16, more comparison for the same period (2006-2014) would be meaningful.

P15328, Sect. 3.4, this could be the most important section in the manuscript. In this section, inter-annual variations of PM_{2.5} concentrations of individual sites are presented one by one. It would be very boring to international readers who don't familiar with Chinese cities. The overall PM trend over China and the driven forces behind the trend are missing in this section.

P15330, Sect. 3.5, I would like to see diurnal variations in PM₁ and PM₁₀ concentrations and if they are similar to PM_{2.5}.

P15332, L16-17, the authors concluded that "emission variation must to be considered for long-term trend analysis especially in rapid developing countries." Emission data should be used in the discussion to support their arguments.

Figures. Fig. 1 and Fig. 2 could be combined into one figure.

Figure 3 could be removed because it doesn't provide additional information than Table 2.

PM₁/PM_{2.5} ratios should be also presented in Figure 5.

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