

## ***Interactive comment on “Latitudinal gradient and interannual variation of PM<sub>10</sub> concentration over eighty-six Chinese cities” by W. J. Qu et al.***

**Anonymous Referee #1**

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Review of “Latitudinal gradient and interannual variation of PM<sub>10</sub> concentration over eighty-six Chinese cities” by Qu W. et al. General comments: This is generally a good paper in which spatio-temporal variation of PM<sub>10</sub> in China is shown using daily API data at 86 stations during 2000–2007. A clear latitudinal gradient of PM<sub>10</sub> is presented and the authors try their best to explain what they see from the data.

Specific comments: A few issues need further consideration before the paper is accepted. 1). PM<sub>10</sub> is set to 600 when API is 500. The authors should discuss uncertainty arising from this approximation, especially in north region where dust storms often impact PM in spring. 2). PM<sub>10</sub> is calculated from eq. 1 no primary pollutant is indicated. There are 40% of cases in south region, so again the authors should give a few words about data uncertainty in this case. 2. Meteorology and terrain is key factors impacting PM<sub>10</sub>,

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so the authors should discuss these issues when spatio-temporal variation of PM<sub>10</sub> is explained. 3. The median value is much better than the average here, especially in north china. One would expect small influence from inaccurate of PM<sub>10</sub> on PM<sub>10</sub> trend analysis when API is 500. 4. The authors should provide strong evidence that different measures have been made during 2000–2006 in Beijing–Tianjing–Shijiazhuang area and its surrounding areas, if not, discussion of Olympic Games should be deleted. 5. In section 3.7, trend is not independent of time interval selected in the analysis, so quite different trends of visibility or AOD from that of PM<sub>10</sub> is not surprising.

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