

## ***Interactive comment on “Use of a mobile laboratory to evaluate changes in on-road air pollutants during the Beijing 2008 Summer Olympics” by M. Wang et al.***

### **Anonymous Referee #3**

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### **General comments**

The manuscript by Wang et al. presents measurements in Beijing before, during, and after the 2008 Olympics. The topic of the work is in the field of ACP. However, I'd rather see this paper in AMT where more effort could be spent on the technical aspects, the measurement strategy, and the quality of the measurements. For ACP the conclusion needs more essence. Stating that the control strategies were effective is not sufficient. The findings of this work are not compared to measurements of other groups or model calculations nor their effect on secondary pollutants (ozone, PAN, etc.) is mentioned.

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In its current status the paper cannot be published in ACP because many points are unclear. Many critical points have already been addressed by two other referees. These points I will not repeat or comment. Here, I would like to raise some additional aspects.

## Specific comments

I do not understand the discussion about the ratio of benzene to toluene. Both, traffic and the use of solvents were restricted, the findings indicate that the use of solvents was entirely stopped? In addition, the measurements are done within the dense plume of pollutants above a freeway. Is the PTR-MS specific enough under these conditions to identify benzene and toluene unambiguously.

Beijing has detailed network of atmospheric measurements at various locations. Are the measurements presented here before and after the Olympics representative for Beijing?

From the current material it is difficult to identify the different periods of the measurements: Table A1 has 7 periods, Fig 3 has three, the figures 7a to 7c has 6, and Figure 8 has one only. I suggest to organize these figures in a way that they share the same time axis and that the same sampling periods are used throughout the manuscript.

The 4th ring road is a heavily used freeway with frequent traffic congestions. Is it true that only data are presented when a minimum speed (60 km/h ?) is reached. Were the meteorological measurements aboard the vehicle used? The relative wind speed could be used to identify possible contaminations by the vehicle. What is the interpretation of Table 3?

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## Minor comments technical corrections

1. For PM1 surface area  $S(\text{PM}_1)$  use instead of  $S_{\text{PM}_1}$  for readability.
2. Use Euro 4 instead of Euro IV, The stages are typically referred to as Euro 1, Euro 2, . . . and Euro 5 for Light Duty Vehicle standards. The corresponding series of standards for Heavy Duty Vehicles use Roman, rather than Arabic numerals (Euro I, Euro II, etc.).
3. Table 1: Met One is a company not an instrument, please specify.
4. Fig. 8: use x axis ticks for days and reduce the number of labels.
5. Fig. 6: centigrade is not a unit, use °C

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 12857, 2009.

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