The authors thank the anonymous referees for their time to review our manuscript and particularly for their valuable comments and suggestions that have significantly improved the manuscript. We have made most of the changes suggested by the reviewers and have outlined these in detail below.

Anonymous Reviewer#3

Comment on "Dicarboxylic acids, ketocarboxylic acids, α-dicarbonyls, fatty acids and benzoic acid in PM2.5 aerosol collected during CAREBeijing-2007: an effect of traffic restriction on air quality" by K. F. Ho et al. The manuscript describes the presence of dicarboxylic acids, carbonyls, fatty acids and benzoic acids and OC, EC, and WSOC concentrations in PM2.5 samples collected in 2007 in two sites in the metropolitan area of Beijing.

One of the outcomes is that traffic restrictions decrease the impact of 'primary' organics, while secondary products are not influenced. These secondaries seem to be 'regional'. The amount of data (samples) is limited, which could bias the results and discussion. But the sampling sites are interesting for publication in ACP. However, it is not clear whether the analytical data was already obtained in 2007 (or 2008) and is presented now, or that the chemical analyses were performed recently in stored (7 years) samples. This later issue may have affected to state of the organic compound in the samples, and the results and discussion.

Response:

As replied to Referee #2 above, we agree that the number of samples is small, which is limited by the CAREBeijing-2007 campaign itself. The campaign was a pilot study to study the effects of the traffic restriction on the air quality of Beijing and to get experience and scientific evidence for the preparation of the 2008 Olympic game. There were only three consecutive days with traffic restriction (17-19 August), and we took measurements on two days (17 and 19 August). The rest was made before and after the traffic control events.
As for the stability of organic aerosol, the samples were measured in 2010, around 2.5 years after samples collection and storage at -20 ^{o}C. We consider that it is within the range of uncertainties.

The manuscript is well written and logically structured. However, there are some comments that need to be taken into account in order to improve the manuscript. The main issue is the fact that the PM concentrations and chemical concentrations in the "clean air" samples are still (very) high in both sites. For example, where does one find average PM2.5 concentrations under clean air conditions between 60 and 70 μg/m^3?

Response:

Such $PM_{2.5}$ level (e.g., ~60-70 μg/m^3) was defined as "clean air" by comparing our data with previous $PM_{2.5}$ data in Beijing with 'blue sky' occurring. This level is also

comparable to the recently released Chinese pollution standard (75 μg/m^3 of $PM_{2.5}$). Certainly, the concentrations are still much higher than the values measured in urban cities in the developed countries (e.g., US and Europe). Nevertheless, to avoid the misleading to the readers, we changed 'clean air' to 'less polluted air' in the revised manuscript.

Figure 1 is very small, but with a 'zoom' one can see it well.

Response:

The resolution of Figure 1 has been increased in the revised manuscript.

Often the influence of local vs. regional contamination can be observed by the 'correlations' between the same chemical in two sites. If regional influences (photochemical aging) is dominant over local (emissions) than one observes similar and correlated concentration variations in time. Is this the case in the present study? Based on figure 1 there seems not to be much correlation and there is also not much variation between days….with vs without restriction…

Response: We realize that the different start time at Beijing and Yufa (i.e., the first three days), as shown in Fig. 1, may mislead the readers. We now point out this in Fig. 1 caption. In general, the aerosol composition at Beijing and Yufa follows a similar trend from 13-31 August. There are a few data points (e.g., for benzoic acid) that do not correlate between Beijing and Yufa. This could be explained by the wind direction and enhanced local emissions (e.g., coal and biomass burning at Yufa), that is, the air mass we measured at these two sites could be different (Yufa is at the south of Beijing).
From Fig. 1 we can see the large variation at different wind sectors. Also the effects of traffic control on PM should be considered with the air mass from same wind sectors.

Page 14866 and 14867 states that in Figure 3 it is visible that there are "substantially" higher concentrations of chemical species, OC and EC under "pollution event" conditions than under "clean air" conditions. The differences are not that much and "clean air" is maybe not the best name for this event, since all levels are high compared to other urban sites.

Response: Following the reviewer's suggestion, we remove "substantially". Also we change "clean air" to "less polluted air".

Any comparison with other "megacities" is missing and would be welcome to understand the high concentrations found in the present study.

Response: We did not tabulate a comparison with previous studies. However, we compared our results with previous results in the main text (see Section 3.1 and 3.2).

The OC/EC ratios are "slightly" different (line 26), but the authors claim that "the low OC/EC ratio during pollution episodes..". First, the ratios are very similar and, second, the OC/EC of 2.05-2.52 are not low.

Response: the "low" should be "lower" when comparing the OC/EC during pollution episodes with that during less polluted air. We change the description to the following:
"The average OC/ EC ratios at less polluted air (PKU: 2.63; Yufa: 2.19) events were slightly higher than those found at the pollution episodes (PKU: 2.52; Yufa: 2.05) at both sites. The slightly lower OC/EC ratio during pollution episodes is likely associated to high combustion emissions, especially from traffic exhaust. The slightly higher OC/EC ratios observed during less polluted air events suggest that secondary formation of OA was critical."

Page 14866 The ratios of C16:0 and C18:0 were used to determine that cooking is "a dominant source" (line 14), however, the observed ratios between 0.6-1.2 could be other: : :such as unpaved/paved roads (line 11). Moreover, normally cooking is accompanied with high levels of C18:1 (relative to C18:0). This was not the case here. There is too much contradiction in the results to point to cooking as a dominant (local) source. Generally, it is not clear whether the storage of the samples affected the results, if not, the authors should justify better that "traffic restrictions" do not affect the air quality much and that concentrations of chemicals and EC, OC, WSOC are high in Beijing at the time of sampling. This is a tough job when there are (only) ten samples.

Response: We agree with the reviewer that it is not straightforward to conclude that cooking is a dominant source by simply using the $C_{18:0}/C_{16:0}$ ratios. In the revised manuscript, it reads *"The $C_{18:0}/C_{16:0}$ ratios observed in this study had a range between 0.64 – 1.17 (average value: 0.85 in both locations) in PKU and Yufa, indicating that contribution of cooking emissions and paved/unpaved road dust cannot be ruled out."*
As discussed above, we believe the effects from sample storage are within the range of measurement uncertainties. The "traffic restrictions" can reduce the emissions of some primary pollutants (e.g., EC in PKU, see Fig. 5a) and certain secondary aerosol species formed from oxidation of traffic emitted volatile organic compounds (see Fig 5). However, the effect of "traffic restrictions" on air quality could be limited given emission from other sources (e.g., biomass burning and cooking). Further, a very recent study from Huang et al. (2014) shows a majority of secondary aerosol during pollution events at Beijing. This also explains the high OC and WSOC measured in this study.

Reference:
Huang R.J., et al., High secondary aerosol contribution to particulate pollution during haze events in China. Nature, 514, 218-222, 2014.