Atmospheric
Chemistry
and Physics
Discussions

Interactive comment on "Molecular distributions and stable carbon isotope compositions of oxalic acid and related SOA in Beijing before, during and after the 2014 APEC" *by* Jiayuan Wang et al.

Anonymous Referee #1

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Wang et al.,

The study compared the PM before, during and after APEC in 2014. The study focused on organic compounds in fine particles and they understand how these organic compounds change during the emission control. Recently, many periovus studies prove the organics in fine particles were dominant in North China plain which could be important policy to control VOCs in the future. However, details about organic compounds is scare. Obviously, the study is important to provide more details about organics. Moreover, during the APEC period, the Chinese central government made strick emission control in North China Plain in winter. After the APEC period, one severe haze-fog event ocurred. The phenonmon provides one change to understand what kind of chem-

ical mechnims to promote the haze formation following the source emission change. I think the study provide some insights to improve the air quarlity in Bejing and well understand details about organics. After the reading, the currrent ms need to be revised after one publication.

(1) Abstract: The abstract is so long and two paragraph. I may suggest to take some details away and make major findings in the abstract.

(2) Title: Molecular distributions" what does this mean? I think the authors only provide the concentration changes of oxalic acid and related SOA. Seemsly, the word is not corrrect here.

(3) L253-254, the statement is unexpected. Could you show the result in anywhere? Also, the data only containing NH4+ as the basic ion is bias. What about Na+, k+, and Ca2+? I think the bisulfate depending on the particle size. More smaller particle size is more acidic. Therefore, the conclusion should be revised. Also, I noticed several pervious papers in ACP. They found the Beijing air is NH3-rich not NH3-limited. Please find them and carefully made the conclusion.

(4) Section 3.3.2 Figure 6 shows three classes of air masses. I am confused the name of the type. I think the regional type is same to long-range transport type. Also, Local type is not local from the Figure 6. Obviously, the name should be modified. I suggest that long-range transport type should be clean air mass. Regional type should be polluted air mass. Local type should be mixed type of clean and polluted.

(5) L269-271 and L339-341 the result is not stable for temperature. The PM2.5 decrease is associated with air masses or wind direction. If the air mass was from northwest, the PM2.5 concentration decreased because it bring the clean air into Beijing. Also the temperature is decrease. As it is, you can make conclusion about the PM2.5 concentrion and oxalic formation? If the authors want to make such conclusion, you need to compare the PM2.5 and oxalic concentration at similar air masses such both from south.

In the context, the authors miss comma before and. Such L50 before-, during-, and after-APEC..

L216

L319, SO42-, NO3-, NH4+.

L293 North

L294 is – was

L341 not only, but also changed to by both the emission controls and the lower tem.;

C3