Response to "Interactive comment on 'Insights on organic aerosol aging and the influence of coal combustion at a regional receptor site of Central Eastern China' by W. W. Hu et al."

The authors wish to thank the referees' valuable comments and feedback on our manuscript. We have endeavored to address referee's suggestion and comments. A detailed response to the comments is shown below. We welcome any further feedback that the editor and/or referees may have.

Response to Referee 1#

1. Line 15： … the season of spring monsoon at a receptor site， why do the authors use spring monsoon?

Response: Thank you for the referee's suggestion. We have modified the "the season of spring monsoon" into "March-April".

2. What kind of reference volume is used when the authors report the concentration? The concentration could be different when using different reference volume.

Response: The reference volumes used in this manuscript are all referring to ambient air.

3. Line 390，The diurnal variations of OM/OC and elemental ratios(O/C and H/C) are shown in Fig. 10b.， please check the figure order. Are OM and OC both from AMS measurements or OC from Sunset measurements? From the supplement material, we could see the slope of 1.52 for OC from AMS vs. OC from Sunset online EC/OC analyzer.

Response: Sorry for the mistake. It should be figure 9. So we corrected sentences to be "The diurnal variations of OM/OC and elemental ratios (O/C and H/C) are shown in Fig. 9." The OM/OC in the Fig. 9 are both from AMS measurement, which was calculated from the elemental analysis (EA) technique [Aiken et al., 2007]. After relative masses of the elements that carbon (C), hydrogen (H),

Nitrogen (N), and Oxygen (O) in organic mass spectra being recognized, then OM/OC can be calculated by following equation:

$$OM/OC = (M_C + M_H + M_O + M_N)/ M_C$$

4. Line 542, and followed by nitrate, sulfate, ammonium, nitrate, black carbon and chloride (in that order). There are twice nitrate, should delete one of them.
Response: Sorry for the mistake. We deleted the second "nitrate". The sentence should be "…and followed by nitrate, sulfate, ammonium, nitrate, black carbon and chloride" .

5. Line 766, what kind of time resolution data are used in Table2?

Response: The time resolution for all the species is 4 min. We added this information in the caption of Table 2.

6. Line 775, In Figure1, the fraction of PM1 of BC is much higher than 6% by naked eyes, please check to make sure the figure is correct.

Response: Thank you for referee's suggestion. After checking the Figure 1. I apologize that the time series of black carbon ratio in figure 1 was multiplied a factor of two by my mistake. Other black carbon value in the other tables and graphs of this manuscripts is right. The black carbon (BC) accounted for 5.6% of total PM_1 during our observation period. The BC concentration at Changdao site ranged from 0.1 to 32.0 μg/m^3, with an average value of 2.5 μg/m^3.

7. Line 788, in Figure2c， how many bins are used for probability, why the Probability density of PM1concentrations (right) is so low?

Response: 100 bins are used for the calculation of probability And the width of each bin is 2 μg/m^3. The sum of the probability density multiply the bin width equals to 1.

8. In supplement Table S-1, there is no Sunset EC/OC instruments, but you showed the results in Figure S-3

Response: We have sunset OC/EC instrument, and its corresponding information was added to the Table S-1 following the referee's advices.

References

Aiken, A. C., P. F. DeCarlo, and J. L. Jimenez (2007), Elemental analysis of organic species with electron ionization high-resolution mass spectrometry, *Anal Chem*, *79*(21), 8350-8358.