

Interactive
Comment

Interactive comment on “Carbonaceous aerosols on the south edge of the Tibetan Plateau: concentrations, seasonality and sources” by Z. Cong et al.

Z. Cong et al.

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We thank the referee for the recognition on our work and the constructive review.

1. On what basis do the authors assume that the positive artifact due to VOC adsorption on the quartz filters was negligible (page 25056, lines 18-20)?

Response: Thank you for pointing it out. Now we modified the expression. It should be noted that there are possible sampling artifacts by the adsorption/ evaporation of gaseous organic materials on/from the quartz membrane. However there is no quantitative information available on such positive/negative artifact in this study, therefore,

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no correction was made for the data of carbonaceous components. These points were added in the revised MS.

2. The suggested causes for the high OC/EC ratios during the monsoon season (page 25060, lines 1-7) are reasonable, but it would be good if the authors could show some evidence for the intensive photochemical processes. Perhaps, aqueous-phase chemistry is even more significant during this wet season for SOC formation, while primary biogenic emissions are likely important during the warmer (and wetter) season as well.

Response: Regarding this point, Referee #1 also raised similar concern. After checking the OC/EC and WSOC/OC ratios in Table 1, we think, based on the current dataset, that it is hard to quantitatively attribute the high OC/EC to the different sources or formation process. Now we modified the expression into "The relative importance of different sources and/or formation process merits a further study."

3. "polycyclic aromatic hydrocarbons (PAHs)" should be removed from this listing (page 25061, line 8), as they are non-polar, while other organic compound classes, such as resin acids, methoxy phenols, or methyl nitro catechols, could be added here.

Response: Changed.

Technical comments

1. The first 3 sentences of section 2.1 (page 25054, lines 19-25) need some rewording and corrections. For example "continues" (line 21) should be changed to "continuous", and the phrase "the Mt. Everest region (QOMS) is a typical representative of the middle Himalayas" is not logical.

Response: Changed. As to the phrase the reviewer mentioned, this argument is based on previous studies. More information could be found in the references we cited here.

2. The first two sentences of the last paragraph of section 3.4 (page 25062, lines 6-9) could benefit from some re-wording, e.g., changed to something like this: "The seasonal variation of biomass burning ions (K⁺) coincided with that of ions associated

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with fossil fuel combustion ..." or something similar.

Response: Changed as suggested.

3. The verb "deliver" is not fitting here (page 25062, line 26), and should be changed to "are derived" or "are advected".

Response: Changed.

4. The altitude numbers in Figure 1 are difficult to read.

Response: Changed. The altitude information has been moved into the figure legend now.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 25051, 2014.

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