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Atmospheric Chemistry and Physics Discussions

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

Anonymous Referee #2

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This manuscript presents ambient aerosol concentrations of carbonaceous species and inorganic ions from a high-altitude site in the southern part of the Tibetan Plateau, revealing clear seasonal patterns. Biomass burning was identified as an important source of the measured species specifically in the pre-monsoon season, and an interesting mechanism for the pollutant transport was proposed based on local mountain wind systems. The paper is well written, requiring only a few minor technical corrections and some conceptual clarifications (pointed out below), and the presented results are valuable for a better understanding of the contributions to climate change in this important and environmentally sensitive part of Asia.

Specific comments

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)?

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.

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.

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.

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

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

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

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