

Comments on the manuscript by Singh et al. (acp-2018-446)

In this work, the authors carried out a quite comprehensive research on the biomass burning emissions during post-monsoon in South Asia (Indo-Gangetic Plain), involving aerosol composition, transport and radiative forcing. The topic is interesting and important. However, currently the manuscript has some critical problems. The relevant discussion appears just be piled up and superficial. For example, the results of mass concentration, BC, ions, levoglucosan, as well as satellite remote sensing and source areas are already well known in this region. Each subtopic mentioned above actually has already been presented in the literatures. So the authors need to point out what is the new finding from this work. Otherwise, it will undermine the novelty of this study.

Specific comments:

1. Page 5, Line 22-26, here the authors did not mention Ca, K, Na in the analysis, although they are presented in Figure 3 and related discussions. So how did you measure these major elements? For the trace elements, the information of data quality control is also lack. It is well known that the quartz filters have high blank values for some trace elements.

Actually, according to the discussion (In section 3.2.2), the contents regarding trace elements is not closely related to the theme of this work (i.e. biomass burning). So I suggest to delete this part.

2. For the organic compounds, similarly, I can not judge the quality of the analysis in this work. What is the recovery, accuracy or precision of the organic compounds?
3. Page 12, Line 15-16, reference is needed here. And it's better to give more explanation.
4. Line 31-32. Yes, PAHs is important for the study of emissions from biomass/fossil combustion. However, if you can not give proper interpretation of PAHs results, I suggest to delete it.
5. In this work, many items (organic tracers, major ions) were determined in the

laboratories. However, organic carbon and elemental carbon (OC/EC) was not included. Obviously, it is very vital to interpret the results of organic tracers combined with OC/EC, considering the focus of this work is biomass burning.

6. Section 3.5, here levoglucosan was introduced in details. Actually it already been presented in section 3.4. (Page 12, Line 33). So some changes are needed for a better logic.
7. Page 13, Line 23, here you mean the ratio is $L/(M+G)$?
8. Page 14, Line 8, it is common to see potassium occurs in crustal minerals
9. Page 16, Line 12. I do not think so. The variations of CO and NO₂ shown in Figure 7b did not reflect the influence of intensive biomass burning.