

Interactive comment on “Annual variations of carbonaceous PM_{2.5} in Malaysia: influence by Indonesian peatland fires” by Y. Fujii et al.

Anonymous Referee #4

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The authors collected samples in Malaysia and analyzed OC components and biomarkers for biomass burning, focusing on the influence of Indonesian peatland fires (IPF). Biomass burning from IPF is of interest to the community but not yet well documented. The authors identified IPF events/days using tracers C27-alkane, levoglucosan, and diagnostic ratios (vanillic acid/syringic acid, OP/OC4 fraction ratio during OC analysis, as well as levoglucosan/mannosan). They found that IPF affected the sampling site seasonally, with elevated organic compound levels in September 2011 and June 2012. The paper is well structured.

Specific comments:

1. On the application of OP/OC4 index.

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It seems that OP/OC4 is the most reliable index for identifying IPF in the results. Is the index specific for IPF, or it is also applicable to distinguish biomass burning from other PM sources (such as biogenic and fossil fuel emissions)? It would be quite interesting to the readers if the authors could provide more information/discussions.

In the Experimental method section, more details on how the OC components were determined, and what is the difference between OP and OC4 could be provided.

2. On the source apportionment.

The authors used two datasets, the whole samples (PJ_A) and those excluded typical biomass burning days (PJ_S). The initiative to conducting such separating analysis could be provided. As well, the resulting differences in the PM sources between using these two datasets could be discussed, which may provide information about the PM sources to the site with and without influences of biomass burning/IPF.

3. On the sources of biomass burning.

The authors focused on the influences of peatland fires on PM in Malaysia. Their results about OC components (Figure 3) and biomass burning tracers (Figure 7) showed similar seasonal trend. They attributed the biomass burning sources mainly to peatland fires. On point the authors are suggested to consider is that there are other biomass burning sources, such as from forest fires/deforestation in the region. As was shown in Figure 7 and in P22431, L25-P22432, L5, the levoglucosan could be originated from other biomass burning sources. How about these other sources? Are they contributing to a large fraction to PM in the South Asia region, or Malaysia?

4. Similar to comment #1, is C27-alkane a specific tracer for IPF, or it is applicable for other biomass burnings?

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