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## ***Interactive comment on “Assessing the regional impact of Indonesian biomass burning emissions based on organic molecular tracers and chemical mass balance modeling” by G. Engling et al.***

### **Anonymous Referee #3**

Received and published: 29 April 2014

#### General comments

This manuscript provided detailed measurement of TSP and its source characterisation in Singapore during both haze and non-haze periods. The results are interesting in indentifying a major PM source of biomass burning from peat fires in Indonesia over polluted days, which will be significant for the local authorities to implement air quality strategies in the region. I would suggest for acceptance and publication after completing the following corrections.

#### Specific comments

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In Section 2.3, it is useful to state the original references for each source profile and the fitting species used in the CMB model.

In Section 3.4 on source apportionment with CMB, it would be better to add a table showing the actual figures of the modelled results for the individual source contribution estimates, as the relative contribution in Figure 4 may mislead the results sometimes. As biomass smoke markers, levoglucosan in this study showed the highest elevation during haze days among all species measured, but in comparison potassium did not show much increase, why?

The total Cu concentration during haze period is about 30 times the value on clear days, but water soluble Cu only showed a factor of just over 4 for days of haze/clear. The authors argue that this may be due to that Cu oxides formed under high temperature combustion are less soluble. On the contrary, metal Al showed a factor around 30 for days of haze/clear for water soluble fraction, whereas similar values were observed for total Al. Explain.

The author needs to check the references in both the text and the reference list as there are quite a few number of references in the text are not shown in the reference list, and vice versa.

P. 2775, line 11: Check the year in the reference “Heil and Goldammer, 2002/2001”??

P. 2779, line 2: change “quipped” to “equipped”

P. 2780, line 20-21: Rewrite “some of the air masses arriving at Singapore arrived from” as “some of the air masses arrived at Singapore from”

P. 2782, line 22: Change “Hannigan et al., 2010” to “Hennigan et al., 2010”

P. 2783, line 20: Specify in the reference “Zhang et al., 2010” as a or b

P. 2785, line 16-17: Rewrite “The low solubility of this metal could be due to the chemical form in which it exists, for example, as metal oxides are produced during high-

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temperature combustion; a metal oxide is in general less soluble as compared to metal nitrates/sulphates.” as “The low solubility of this metal could be due to the chemical form in which it exists, such as metal oxides produced during high-temperature combustion is in general less soluble as compared to metal nitrates/sulphates.”

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Interactive comment on Atmos. Chem. Phys. Discuss., 14, 2773, 2014.

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14, C1930–C1932, 2014

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