Atmos. Chem. Phys. Discuss., 15, C9648–C9649, 2015
www.atmos-chem-phys-discuss.net/15/C9648/2015/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Fine particulate matter associated with monsoonal effect and the responses of biomass fire hotspots in the tropical environment" *by* M. F. Khan et al.

Anonymous Referee #3

Received and published: 22 November 2015

M. F. Khan et al submitted the manuscript on Fine particulate matter associated with monsoonal effect and the responses of biomass fire hotspots in the tropical environment at ACPD. They have reported the PM2.5 mass, water soluble inorganic ions and trace metals, source apportionment using PMF, EF, etc during two monsoon events in Malaysia. The manuscript is well written and well-articulated.

The title is not appropriate. Title should include the terms "source apportionment" and also "health effect". As, authors one of the main conclusion is on the health impact -Overall, the associated cancer risk posed by the exposure of toxic metals in PM2.5 is three to four in 1 000 000 people in this location.

Authors used quartz microfiber filters for trace metals analyzer. Quartz microfiber filters are not the great filters for trace metals. They may have some influences on the trace metals content. Though they did blank correction for the filters.

Authors measured only water soluble inorganic ions and trace metals in PM2.5. But the main component of PM2.5 is organic (OC) and black carbon (BC or EC) and also water soluble organic ions are missing. Trace metals may be up to 1% and water soluble inorganic ions may be up to 20% but carbonaceous species may be up to 50% of the fine particles are missing in this chemical composition.

Author cut off point for EF is 1. Whereas Sun et al. (2006) suggested the threshold of EF > 5 to differentiate between sources from the Earth's crust and from anthropogenic sources. In contrast, Mohd Tahir et al. (2013) proposed the EF cut-off of ten to identify crustal and natural origin of heavy metals. What is the basis of their cut off point???

How did thy calculate EF? I mean whish for formula please refer that not my reference like Taylor (1964) but with formula or equation.

Figure caption is inadequate. E.g., Figure 3 should have the source (e.g., HYSPLIT,), backward or forward, starting and ending time etc. Though authors mentioned them in the text. They should also write in the figure caption.

Authors are using PM2.5 MC with equation 4. It would be great if they can discussion PM2.5 MC and PM2.5 mass.

It is kind of weird to discuss the carcinogenicity on the basis on of sources. E.g., if a metal Ni came from coal may be more carcinogen than if it is came from traffic. Please try to rewording then section Table 2 and discussion 3.4.

Overall: Abstract is not well written. Conclusion is okay. Authors spent more times on methodology not on the results and discussions.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 22215, 2015.