Atmos. Chem. Phys. Discuss.,
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Strong Light Absorption Induced by Aged Biomass Burning Black Carbon over the Southeastern Tibetan Plateau in Pre-monsoon Season" *by* Tianyi Tan et al.

Anonymous Referee #2

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This work observed size and mixing states of black carbon aerosols over a site on Yulong Mountain in southwestern China. With the monitoring data, authors calculated absorption of black carbon.

However, the observation duration is very short, about two weeks. Authors separated the duration to three time intervals. The background duration only covered 4 days. I don't understand why 4 days can represent a background, thus general conditions on the site.

Period I, which was defined as biomass burning event, covered 6 days. Comparing the 6-days data to the 4-days background, authors make results and conclusions. such

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as; Resulted from both increase of BC loading and aging degree, the transported BB plumes eventually enhanced the total light absorption by 15 times, in which 21% was contributed by the BC aging and 79 % was contributed from the increase of BC mass.

With those very limited data output, authors claim this study revealed the impact of transported aged BB plumes on the atmospheric environment over the TP, which can serve as constraints for climate models to help with improving our understanding how human activities affect the global climate change.

I can not believe such short observation can have us a verified result.

Moreover, the biomass burning source identification is not well supported with tracer or receptor model methods, which should be typically applied for source identification.

My evaluation is that current observation is not enough verification to be published on ACP. Authors should extend observation for several repeats of events and longer background condition. Chemical analyzing should be useful for identification of sources before the definition of biomass events.

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2020-1150, 2020.

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