

## ***Interactive comment on “Measurement report: Quantifying source contribution and radiative forcing of fossil fuel and biomass burning black carbon aerosol in the southeastern margin of Tibetan Plateau” by Huikun Liu et al.***

### **Anonymous Referee #1**

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General comments: In this manuscript, the sources of BC aerosols over the Tibetan Plateau and their radiative effects were investigated. BC aerosols were distinguished into fossil fuel combustion source and biomass burning source. Regional transport of source-specific BC was further explored by models. On this basis, the radiative effects caused by BC from different sources were evaluated. Overall, the manuscript is well structured, the methods are technically sound, and the main findings presented seem to be reasonable and be of general interests to the Tibetan Plateau ecosystem and climate stability study. I think the topic fits within the scope of ACP. I would

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recommend acceptance of this manuscript for publication pending the following revisions: Specific comments: 1. Please spend time picking through the manuscript and check for spelling and grammatical errors, especially the tense, prepositions and articles. For example, 'BC on the TP' should be replaced with 'BC over the TP', 'transport to TP' should be replaced with 'transport to the TP'... 2. Section 1, this part should introduce the research background and significance, current status, concealed problems, as well as research mentality and content of this study. Please highlight the innovation and importance from another angle and reduce describing the deficiencies of previous research appropriately. 3. Please try to avoid expressions like 'our study', which seems not to be objective. Technical corrections: 1. P1, Line 24, 'reveal' should be changed to 'revealed'. 2. P1, Line 26, add 'which' before 'can explain'. 3. P2, Line 1, delete 'and' before 'heating rates of'. 4. P2, Line 1, 'The glaciers on the TP recently shows are rapidly retreating' should be revised. 5. P2, Line 4-8, Please cite these literatures, doi:10.1093/nsr/nwz191, doi.org/10.1016/j.atmosenv.2020.117583, doi: 10.1016/j.atmosenv.2019.04.001. 6. P2, Line 8-10, Please cite these literatures, doi.org/10.3390/rs12020231, doi:10.1002/joc.6430. 7. P2, Line 16, 'the atmospheric BC studies on the TP' should be changed to 'studies on the TP atmospheric BC'. 8. P2, Line 16-18, Please cite the literature, doi: 10.5194/acp-15-12581-2015. 9. P2, Line 24, 'the other is based on the field observations to apportion BC into different sources through a certain data analytical method.' Please add appropriate literature. 10. P2, Line 25, 'transport to TP' should be changed to 'transport to the TP'. 11. P3, Line 5, 'are advantageous to capturing' should be changed to 'are advantageous to capture'. 12. P3, Line 10, 'cross-section (MAC) used in the model.' Please add appropriate literature. 13. P4, Line 11, 'on the rooftop of' should be changed to 'at on the rooftop of'. 14. P4, Line 15, 'the radiative effect' should be changed to 'the radiative effects'. 15. P5, Line 4, 'was resolved using' should be changed to 'was resolved by using'. 16. P8, Line 10, 'the number of the endpoints' should be changed to 'the number of endpoints'. 17. P9, Line 8, 'model is elaborated in Ricchiazzi and Yang, (1998)' should be changed to 'model was elaborated in Ricchiazzi and Yang (1998)'. 18. P10, Line 15, delete 'which

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is' before 'within a relative boarder range'. P10, Line 18, delete 'which was' before 'over two times'. In addition, it is necessary to pay attention to the tense errors, which often appear throughout the manuscript. 19. P10, Line 19, Line 85, the comma before '(2006)' should be deleted. 20. P11, Line 5, 'may be relation with' should be changed to 'may be related with' or 'may have relation with'. 21. P12, Line 26, 'This suggests and' should be changed to 'This suggests that'. 22. P14, Line 12, 'the mainland China' should be changed to 'mainland China' or 'the mainland of China'.

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