

***Interactive comment on “Sources and physicochemical characteristics of black carbon aerosol in the southeastern Tibetan Plateau: internal mixing enhances light absorption” by Qiyuan Wang et al.***

**Anonymous Referee #4**

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The author has made a sincere effort to improve the manuscript relative to the previous version. However, there is still a scope to correct it grammatically, the tenses and apt usage of phrases. Below are the primary comments both technical and non-technical which the author can address to enhance the quality of the manuscript.

Page 3 Line 13: It is not clear what high resolution measurements the author is talking, is it about time, space?

Page 6 Line 18-19: Section 2.3.1 requires more justification how evaluation of surface

C1

flux intensity is an indication of regional transport

Page 8 Line 31: Please elaborate few difficulties in obtaining scaling factors

Page 9 Line 1: i) “Fig 3 (a-c) shows the diurnal variations of rBC mass...” Please specify it as the averaged values over the entire campaign. ii) “PBL height” or “PBL depth”, check and change throughout the manuscript iii) “wind speed during the (not over the) entire campaign – check grammatical errors

Line 17: “As shown in Fig. 3 (a–b), the rapid morning increase in rBC was accompanied deepening of the PBL, and therefore, regional transport maybe an important influence on the aerosol populations.” The meaning of this sentence is not clear. Reframe the sentence, and what is aerosol populations?

Line 21: “After sunrise, as the PBL starts to deepen, strengthening thermals lift and eventually break the nighttime inversion, and this can lead to the transport of pollutants to the southeastern TP.” Reframe the sentence, as PBL expansion is one of the important factor, but not the only factor

Line 30: In this sentence, “The decreasing trend in the late morning...” this change in rBC can well explained using wind direction. Was there any change in wind direction?

Page 12 Line 13: “Fig. S1 shows that rBC core size distribution was well represented by a mono-modal lognormal fit, which is consistent with previous SP2-based observations made across the globe, including urban, rural, remote areas”. Consistent with respect to what? Can you further elaborate?

Page 13 Line 1-3: “In contrast, smaller rBC MMDs were found when the polluted air masses came from North India (Cluster #1, 173 nm) or central TP (Cluster #3, 177 nm). Moreover, more aged particles in the plumes tend to be larger than fresher particles from close to the source (Moteki et al., 2007)”. So what is the significance of this? Yes aged particle will grow and will be typically larger than fresh ones... What is the std deviation of these mean value? The stated differences are hard to justify (meaning not

C2

significant) without the variation in the mean value?

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