

Interactive comment on “Concentration, temporal variation and sources of black carbon in the Mount Everest region retrieved by real-time observation and simulation” by Xintong Chen et al.

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We greatly appreciate the reviewers' valuable and constructive suggestions concerning our manuscript (ID: acp-2018-183). The point-by-point reply to the comments are as follow:

Response to Referee's Comments 1

The manuscript investigated the seasonal and diurnal variations of BC and its potential source regions in the Tibetan Plateau. It is significant to research the effect of pollutant aerosol on the Tibetan Plateau. But there are some comments to improve the

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manuscript. 1. Merge Table 1 in Figure 1. So the reader can directly see the distribution of BC in the Tibetan Plateau. Author response: Thanks for the reviewer's advice. We have merged Table 1 in Figure 1 and supplemented sites information in Table S1.

2. Figure 2 and Figure 6 are redundant. The weather data is not significant in the research. Author response: We have put Figure 2 in the supplement materials. Because the diurnal variation in BC in the pre-monsoon season showed obvious high values, we presented the wind direction frequency at QOMS in the pre-monsoon season (Figure 6, but in the new revision it was changed to Figure 5) to help us better understand the sources of BC during this period.

3. Add some important references to compare with the results, e.g. Xin et al., BAMS, 2015. Author response: According to the reviewer's suggestion, we have now added some important references (e.g., Xin et al., 2015) and compared them with our results in the revised manuscript. Please see Lines 228-229 and 235-237.

4. Compare the BC concentration of WRF-Chem with the observation in the Tibetan Plateau. Author response: Thanks for the reviewer's advice. We have compared the simulated BC concentrations with the observations at QOMS during the four heavy pollution episodes. The WRF-Chem model could capture the variation trends of BC concentrations at this sampling site, with correlation coefficients all above 0.8 for these four pollution episodes as shown in Figure S3. The relevant statement has been added in Lines 284-287.

Please also note the supplement to this comment:

<https://www.atmos-chem-phys-discuss.net/acp-2018-183/acp-2018-183-AC1-supplement.pdf>

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-183>, 2018.

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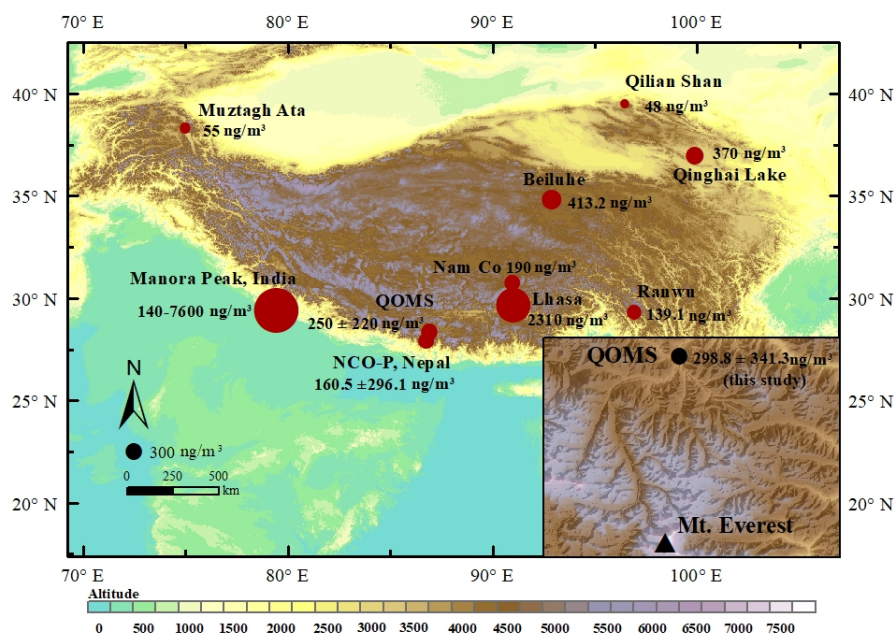


Fig. 1. Distribution of BC concentrations over the TP based on the observed values at QOMS in this study (black circle) and from previous studies (red circles), i.e., at QOMS (Cong et al., 2015a), Nam Co (Wan

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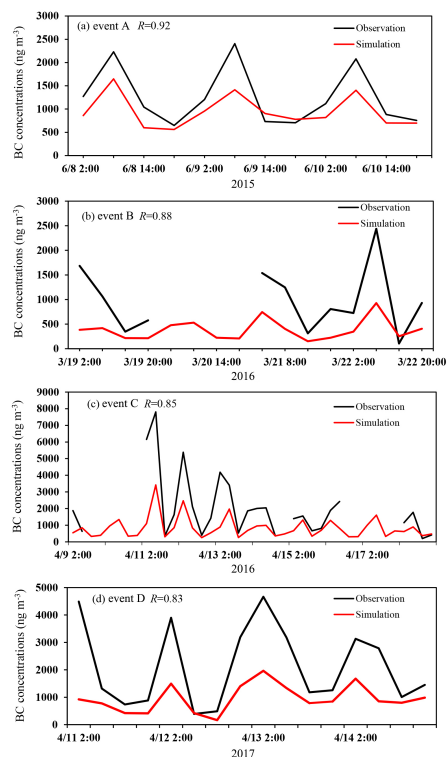


Fig. 2. Comparisons between simulated BC concentrations and the observation at QOMS during the four pollution episodes: (a) event A, (b) event B, (c) event C, and (d) event D.

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