

Response to comments from reviewers on “Modeling simulation of aerosol light absorption over the Beijing-Tianjin-Hebei region: the impact of mixing state and aging process” by Huiyun Du et al.

We thank the reviewers for their valuable comments and constructive suggestions. We have revised the manuscript according to the suggestions and responded to their concerns below (in blue).

Reviewer #1

I am generally satisfied with the responses and the revised manuscript. After clarifying the following minor concerns, it should be publishable. Page numbers mentioned below are for the PDF file “Reply to RC1” .

1. Why did the POC vs. CO plots shown in Pages 5 and 6 look different?

Response: Sorry to make the reviewer confused. The two figures are based on the same dataset, but the x-axis and y-axis in two figures are reversed. Specifically:

The figure in Page 6 shows POC vs. CO, while the figure in Page 5 shows CO vs. POC.

For consistency, we have retained the POC vs. CO plots in the supplement file.

What’s more, we have corrected the unit error in the FigureS1b.

Change in the manuscript:

Please refer to FigureS1 in the supplement file.

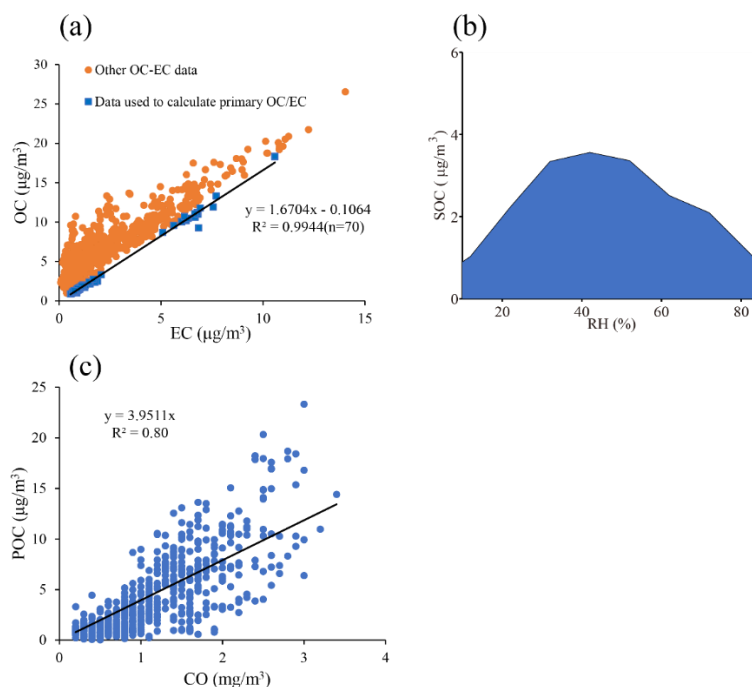


Figure S1 Evaluation of SOC formation and POC. (a) Estimation of SOC with EC-tracer method. Blue squares indicate data used to calculate primary OC/EC, while orange-filled circles indicate other OC/EC data. (b) Change in SOC with RH. (c)

Relationship between POC and CO.

2. Page 6, Figure S1 (b), suggest investigating the dependence of SOC to EC ratio on RH, and checking whether the related statements still held.

Response: We examined the dependence of SOC to EC ratio on RH (Figure 1a). It reveals that SOC/EC levels also initially rise with increasing relative humidity and subsequently decline with RH. And there exists another little peak of SOC/EC when RH is about 62%.

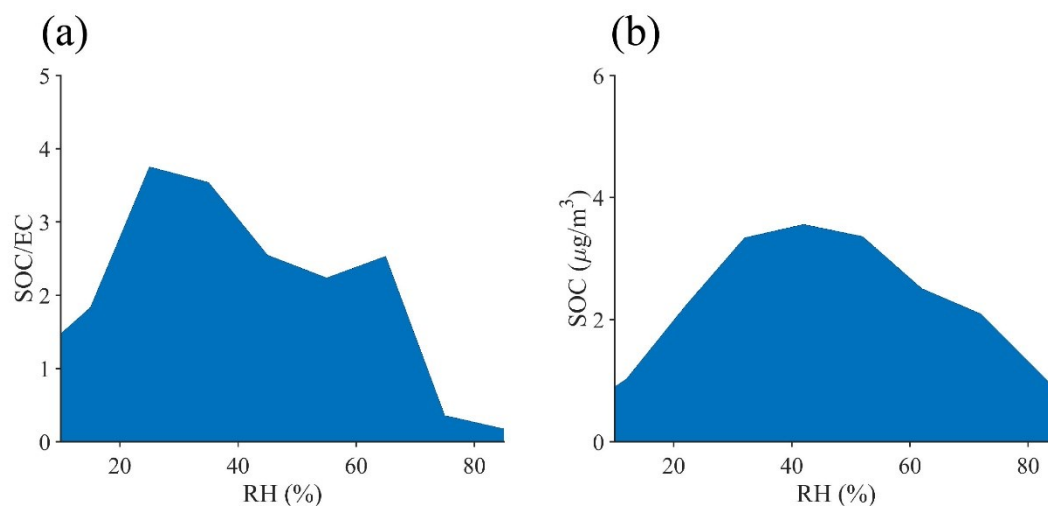


Figure 1 Dependence of (a) SOC to EC ratio and (b) SOC on RH