

The revised manuscript is significantly improved, compared with the last version. The manuscript presents a study based on the concurrent observations of volatile organic compounds (VOCs) at three supersites sites in Shanghai during the first three months of 2019. The characteristics of VOCs (chemical composition, weekend effects and discrepancy of clean and polluted days), ozone formation potential, secondary organic aerosol formation potential and emission sources are discussed. Moreover, the authors have added detailed discussions about the influence of different land use type on the VOC characteristics. This paper can bring new insight to the VOC study in the developed region in China. However, the paper still needs grammatical revisions and corrections of writing errors in its present form. The paper could be accepted after minor revisions.

Specific comments:

Line 14: VOCs is precursor of SOA, which is accounted for large proportion of aerosol. It is Aerosol that have great impacts on climate change. I think the expression that VOCs have important impacts on climate change is not appropriate here.

Line 61-62: Should be: “similar as/in agreement with the finding of Tang et al. (2008)”.

Line 174: Why do the author set the EF to be 0.1, same for all VOCs species used for PMF? And there are two and after $Q_{\text{true}}/Q_{\text{robust}}$.

Line 212: ΔO_3 should be $\Delta PM_{2.5}$.

Line 226: $\ln(\Delta PM_{2.5}/BVOCs)$ should be $\ln(\Delta PM_{2.5}/B PM_{2.5})$

Line 246: There was two prominent peaks of VOCs concentration at JS, which is attributed to the elevated traffic and industrial VOC emissions and stagnant synoptic conditions. How about the VOCs concentration at the other two sites during the same period? Comparison during high VOCs concentration episodes can reflect whether the different influence of land use is the key factor on VOCs concentration (or synoptic condition?).

Line 249: should be 38.85%.

Line 252: should be “there were pronounced enhancement or increase in the industrial

production....”.

Line 251: The Spearman correlation coefficient between VOCs and PM_{2.5} at QP was low (0.34) and was much lower than the other two sites. It was not proper to make the conclusion that the elevated VOCs lead to the elevation of PM_{2.5} at QP site, or VOCs and PM_{2.5} at QP have similar emission sources.

Line 322: The author suggested that ethyl toluene, ethylbenzene and trimethyl benzene at JS and PD was related with vehicle exhaust. However, the PMF results indicated that the contribution of vehicle exhaust to these VOCs is quite minor. Please check.

Line 327: The author suggested that the main source of n-hexane was vehicle exhaust and fuel evaporation in QP, which is not consistent with the results shown in Figure 6c. The PMF results suggested that vehicle exhaust contributed almost zero to n-hexane, while fuel production and evaporation and paint solvent usage was the main sources.

Line 373: Miss a period.

Add explanation of the figure 7 in the caption: what the contour means in the left panel? How did the author calculate P_TVOCs of each cluster?

Line 485-Line 488: Alkenes (mainly ethene and propene) were the main contributor of OFP at the three sites. What's the source of these reactive VOC species at the three sites?