

Interactive comment on “A study of the effect of aerosols on surface ozone through meteorology feedbacks over China” by Yawei Qu et al.

Anonymous Referee #3

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The current paper studies the effect of aerosol feedback on O₃ concentration in China specifically through ADE-POL and ADE-MOI mechanisms. The paper is well written and results have been adequately discussed. I have some comments which if included will further bolster the manuscript.

1. The increase in RH in PBL due to reduced vertical transport of water vapor results in reduced cloud cover and hence resulting in higher short-wave radiation reaching ground surface. On the contrary increased RH in PBL will result in higher aerosol hygroscopic growth thereby resulting in further increased aerosol concentration which will result in higher extinction of short-wave radiation. Can the authors address this in the manuscript?
2. The authors mention that the surface pollutant concentrations increase due to re-
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duced shortwave radiation, however the authors exclude any discussions on VOC concentrations. Do the VOC concentrations too increase due to reduced shortwave radiation? In that case both NO_x and VOC concentration being the major precursors for O₃ increase, what explains the decrease in O₃ concentrations?

3. The authors are suggested to either use the words reduced and increased or use symbols – and +. Refrain from using both.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-727>,
2020.