

In my judgment the paper is suitable for publication when some further minor revisions are made.

I. In accord with Review #1, I think that some of the discussion is overly speculative, and thus does not add to the paper. Generally, removal of some material, rather than additional discussion is required. Specific suggestions follow.

Lines 422-424: I suggest eliminating the last sentence. It may well be correct, but that correctness is not demonstrated in this paper, so it can simply be removed.

Lines 477-479: I suggest eliminating the phrase in yellow, i.e., ", which is due to the increased atmospheric oxidation capability caused by elevated O₃ concentrations during summertime." I do not believe that it is well established that elevated O₃ concentrations cause high SOA. Rather I think that both high O₃ and high SOA are products of the oxidation processes.

Line 505: Should be: "... condensable gases do not change, more organic condensable gases **partition** into the ..."

Line 514: eliminate " deliberate"

Lines 515-528: These sentences give plausible explanations for the interactions determined from the analysis, but the explanations are speculative. These sentences should be greatly shortened, limited to reporting the magnitude of the emission interactions.

Lines 562-575: This discussion is also largely speculative, and in some instances, may not be correct. For example, Mexico City does have substantial industrial emissions. It may be useful to point out that a comprehensive model comparison of summertime pollution in Mexico City and Beijing could be illuminating, but the present discussion is too speculative; please shorten.

Lines 576-589: This material has been added in response to a Reviewer's comment, but I do not think that it is well done. It would be improved if shortened to something like:
"This study mainly aims at providing a quantification of the effect of trans-boundary transport on the air quality in Beijing. It demonstrates that the effective approach to improve air quality in Beijing is to reduce both local and non-Beijing emissions in BTH. Further sensitivity simulations of different emission reduction measures are needed to design the most efficient emission control strategies."
Further, even this paragraph is somewhat duplicative of the final paragraph, so the best approach is to combine the final two paragraphs of the revised manuscript into a single paragraph that concisely and clearly combines the short paragraph suggested above with the paragraph on lines 590-600.

II. In general I think that the English usage in this paper is quite good. However, in many places there is confusion of present and past tenses and singular and plural. Some examples from the Introduction and the Summary and Conclusions Sections, with suggested changes indicated in yellow are given below. I suggest that the paper be edited throughout for consistent use of these issues.

Line 53: "summertime O₃ mass concentrations **reached high levels** in 2014 in Beijing,"

Line 55: " maximum daily O₃ concentrations were higher than 150 µg m⁻³ during the summer in 2015"

Line 60: " daytime average O₃ concentration still increased rapidly (Tang et al., 2009;"

Line 74: " the transport from the environs of Beijing contributed about 55%"

Line 77: " (hereafter referred to as APPCAP) has been implemented, which was released"

Line 532: " and PM_{2.5} is simulated using ..."

Line 535: " concentration in the afternoon has increased by ..." (been eliminated)

Line 536: " and Beijing still has experienced high O₃ and/or PM_{2.5} concentrations frequently during"

Line 547: " included in model simulations, the O₃ and PM_{2.5} concentrations in Beijing still remain high"

Line 548: Eliminate "levels"