

Second Review of “2013-2019 increases of surface ozone pollution in China: anthropogenic and meteorological influences” by Li et al. submitted to Atmospheric Chemistry and Physics.

The authors did an excellent job addressing my comments from the initial submission. I have a few minor (mostly technical) edits below and I recommend the paper for publication once these have been addressed. One thing that hit me as I read toward the end of the paper was whether or not the authors have looked into the emission sectors. They suggest that VOC emissions need to be reduced but are these coming from a different sector than the NO_x emissions (and what has led to a reduction in PM_{2.5}). It would be interesting to note it at the end of Section 3.3 or in Section 4 Conclusions (Pg 9 Lines 1-6) if there was more guidance on where targeted efforts need to be made to reduce VOC emissions.

Minor comments:

Pg 1 Line 20-22: Suggest changing “flat” to “constant” and maybe removing the comma after ozone. The “and flat emissions of volatile organic compounds” seems disconnected from the “NCP data show” at the start of the sentence.

Pg 2 Line 16: Space before “OH”

Pg 3 Line 18: I think remove the “for”. It ends as “2018-2019 for (De Smedt et al., 2018).” and I think that “for” is left over.

Pg 4 Line 3-11; Pg 9 Line 8: Each MERRA-2 data collection has its own DOI that can be referenced. The website address to the MERRA-2 webpage is not where you accessed the data, and the Gelaro et al. paper is sufficient a reference for MERRA-2 on Page 4. If you downloaded the MERRA-2 data yourself, you likely downloaded from the GES DISC (<https://disc.gsfc.nasa.gov>) and there are details there on how to properly cite the data in publications and that is what should be referenced in the text and in the Data availability section.

Pg 4 Line 27: remove “also”

Pg 5 Line 8: Remove one of the two instances of “mean” (likely the first).

Pg 5 Line 12: a semicolon is used after NCP while only a comma after the other three region abbreviations.

Pg 5: Line 18: Are you sure the mean is not lower because of lower ozone from NO_x titration?

Pg 6: Line 7-9: Can the last two sentences focus on the results from Figure 3 and not stress that a finding is seen in a supplemental figure “As shown in Figure S2”.

Pg 6: Line 14-15: Since sentence starts out with ozone increases in all the megacity clusters, why is only the NCP trend highlighted at the end of the sentence. Maybe give a range for the three clusters (except the PRD).

Pg 6 Line 15: What does this sentence mean “if only continuous records since 2013 are used in the analysis”? There is nothing in Section 2.1 about missing data or data prior to 2013. Figure 2 caption says “includes sites with partial records” but this detail should be in the main text too, not just in a caption. Pg 7 Line 17 mentions “including sites with partial records”.

Pg 6 Line 20-29: Are any of these numbers from the tables either inset in Figure 2 or from Table 1? No table or figure is referenced except Figure 4 for the temperature trends. At least the 3.3 ppb a-1 is from Table 1/Figure 2 but if these numbers are otherwise new, would another table be helpful?

Pg 6 Line 29: move “2013-2019” out of “large increase” and move to “in temperature for 2013-2019 in June”

Pg 7 Line 5: add commas after conditions and the (Chen and Lu, 2016) reference

Pg 7 Line 9: how many days or percentage of days during the period are foehn vs no-foehn conditions? Are the composites for one heavily weighted over the other? It is hard to interpret what an 85% increase is without knowing the base number of days in June that were foehn conditions.

Pg 22 Line 8-9: Could include the contour line colors (and style for the dashed line for surface NOx) for panel b in the figure caption