

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2021-1095

Anonymous Referee #2

Referee comment on "Joint occurrence of heatwaves and ozone pollution and increased health risks in Beijing, China: role of synoptic weather pattern and urbanization" by Lian Zong et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-1095-RC2>, 2022

While the health influences of deteriorated air quality and extreme weather have been assessed extensively, this work took a step forward to assess the lumped effects under the joint occurrence of both contributors and distill the relative significance of synoptic weather and urbanization in these key patterns that we concern. The results provide new information that fills gaps in the understanding of integrated impacts of ozone and heatwave on public health in Beijing. However, several important issues need to be clarified and addressed before its publication.

Major comments

- This work would need a professional edit before the final publication. The content is basically understandable but with a significant number of grammatical errors. Some terminology seems to be inappropriate such as "public mortality risk", "compound risk", "urban hyperthermia", "ozone aggravated" etc. All these make it tough to read through in particular the introduction and discussion.

- Some previous works are not properly referred at the introduction. For example, some cited literature in lines 39, 43, and 46 is not supportive of the corresponding

statements.

- Scientific theories and existing evidence should be referred to and expressed more precisely. For example, in line 59, "39.6% increase in premature mortality" is in against to the annual mortality in Beijing or other value? More statements can be refined for lines 37-38, line 39, and lines 166-167.

- The introduction is not very organized and the overall logic flow is not fluent. The authors should further polish this section.

- Although involved in the previous work, the weather type classification method should be at least briefly described to improve the integrity of the paper.

- The first paragraph in section 3.1 (line 142-160) took efforts to presents the relationship of ozone concentration with different meteorological indicators, which however have been systematically studied already. I recommend simplifying this part.

Other comments:

- Line 116, β is the coefficients of the exposure-response function rather than the exposure-response function itself,
- In Table 3 and Tale 4, what does the red color represents?