Author's response

Dear Editor,

Thank you for your time and effort in handling and editing our manuscript. Here we submit a revised manuscript entitled "*Climate-driven biogenic emissions alleviate the impact of man-made emission reduction on O3 control in Pearl River Delta region, southern China*" for further consideration of publication in **ACP**.

We have improved the manuscript by taking into account the reviewer's minor comments.

Thank you again for your time in editing our paper. Please feel free to contact me for any questions related to this manuscript.

Yours sincerely,

Wang Nan on behave of co-authors

Response to Reviewer 1

Reviewer's Comments:

I appreciate the authors' efforts to address the reviewers' comments and the manuscript has been much clarified compared to its previous version. Recently this topic has drawn a lot of attention and several important papers were published (see the following examples), especially on how the temperature would affect not only biogenic VOCs emissions, but also anthropogenic VOCs emissions and its consequences on urban ozone pollution. This effect seems not considered in this study and these references were omitted in the manuscript. Therefore, I would strongly suggest the authors to have some discussions on this somewhere before Figure 6.

Response to Reviewer 1: Thank you very much for your valuable comments and suggestions. We have taking into account the suggestion by adding the related discussion in the manuscript, "It should be noted that recent studies have demonstrated that certain anthropogenic VOCs, like emissions from gasoline use and volatile chemical products, show temperature-dependent increases in their emission rates (Pfannerstill et al., 2024; Wu et al., 2024). These enhancements are particularly pronounced during high-temperature and heatwave conditions, and could also contribute to elevated O_3 levels (Qin et al., 2025). Therefore, the observed fluctuations in summertime O_3 concentrations may also result from sources other than BVOCs. Though the present study did not consider these temperature-responsive anthropogenic emission mechanisms, the conclusion that temperature-induced increases in biogenic emissions amplify O_3 pollution remains valid, as it is supported by rigorous computational analysis conducted in this study."

Reference

Pfannerstill, E. Y. et al. Temperature-dependent emissions dominate aerosol and ozone formation in Los Angeles. Science 384, 1324–1329 (2024).

Qin et al., Increased Urban Ozone in Heat Waves due to Temperature-Induced Emissions of Anthropogenic Volatile Organic Compounds. Nature Geoscience, 2025, https://doi.org/10.1038/s41561-024-01608-w.

Wu et al., Temperature-Dependent Evaporative Anthropogenic VOC Emissions Significantly Exacerbate Regional Ozone Pollution, Environ. Sci. Technol. 2024, 58, 12, 5430–5441