Atmospheric Chemistry and Physics Discussions

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Comment on acp-2020-1302

Anonymous Referee #1

Referee comment on "Unexpected enhancement of ozone exposure and health risks during National Day in China" by Peng Wang et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2020-1302-RC1, 2021

General:

The manuscript presents a topical research, i.e. to understand the elevated O3 issue in China due to the holiday impact. This study reported that the drastically rising MDA8 O3 were observed during the CNDH with the increasing rate up to 120% even in some pristine regions, which also induced 33% additional deaths through China. It was shown that

increased precursor emissions and regional transport were corresponding to the O3 elevation. This is the first comprehensive study to investigate O3 pollution during CNDH at national level and could provide useful suggestion for the policy makers. The manuscript is easy to follow and fit to the scope of ACP very well. I have some minor comments below for the authors to address.

Minor comments:

Line 90~91: Could the author explain more for the IPR and PA tools in the CMAQ model?

Line 135~136: as readers may not be familiar with West China, please add a reference to show that West China has less anthropogenic impacts.

Line 147~148: it should be mentioned that MDA8 O3 in Shanghai during the CNDH slightly decreased compared with that before CNDH.

Line 188: could the author explain more about meteorology impacts such as the variation of the temperature on the O3 during the CNDH?

Line 195: Could the author discuss how will the coefficients from the AMAP be applied in the emission inventory?

Line 228: please label the key cities in the PRD in the Figure 4