Atmospheric Chemistry and Physics Discussions

Atmos. Chem. Phys. Discuss., referee comment RC2
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Reply on RC1

Anonymous Referee #1

Referee comment on "A comparative study to reveal the influence of typhoons on the transport, production and accumulation of O_3 in the Pearl River Delta, China" by Kun Qu et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2020-1286-RC2, 2021

This work is of heavy workload and detailed analysis. Effects of typhoon on the transport, production, accumulation of O3 are presented. Long time series of observations make the conclusions convinced. A series of sensitivity experiments are conducted to help understand how the differing location of typhoon would influence O3 pollution in the PRD. Specific comments are as follow:

1. As mentioned in line 127, the differing location of typhoon will have diverse effects on O3 pollution. In term of relationship between typhoon location and O3 pollution, in what condition will the transport dominate, and in what condition will the accumulation lead? Likewise, how typhoon location affects the promotion/reduction of O3 production? It would be better to summarize the general rule if possible, and show it in the conclusions.
2. In line 305-306, authors declare that vertical transport plays less significant role in the typhoon-induced O3 pollution in summer, however, as what has been shown in figure 9, vertical transport contributes significantly in O3 production. It makes me confused. Please give the explanation.