

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

Anonymous Referee #1

Referee comment on "The impact of peripheral circulation characteristics of typhoon on sustained ozone episodes over the Pearl River Delta region, China" by Ying Li et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-618-RC2>, 2021

In this manuscript, the authors gave a very details study of ozone photochemistry and the meteorology (weak wind deepening, WWD) induced by the periphery of typhoon circulations by statistical analysis from 38 case observations and one case model simulations. The topic is of great interesting to recognize ozone accumulation in daily scale from each processes of physics and chemistry. The analysis is mostly sound, but the presentation need substantial improve, and some details need clarify. I recommend a minor revision and my comments listed below.

Specific comments:

- The presentation of the manuscript is not concise, and many sentences are not well-structured. For example, in the abstract, the much long sentence from line 18- 22, is too long and not easy to grasp main points for readers.
- In abstract, IPR, ADV, HDIV etc. need define.
- In line 25, I suggest that "the decrease of advection outflow" replaces "the decrease of the negative ADV", making the presentation more direct and easy to understand.
- In line 30, I suggest delete " By using the mass continuity equation,".
- In line 33, "typhoon could also produce significant positive ADV" seems opposite to the means of "the decrease of the negative ADV" in line 25.
- The legends are much different in fig.2e-h, m/s and not easy to compare.
- In line 142, What is the "parcel traces"?
- In line 162-164, I am confused by the conclusion of "the TCs-Ozone episodes are not dependent on the enhancement of atmospheric thermal-dynamical stability and reduction of the PBL", because just in previous sentence in line 160, you say "TC causes descending air motions to force the aerosol particles into a very shallow layer," . The sentence in line 160 means "the enhancement of atmospheric thermal-dynamical stability and reduction of the PBL".
- In line 177, On the nightàat the night
- Define the parameters in table 2.
- In section 3.4, the presentation is not concise and I feel it's not necessary to introduce

equations 5, etc. Processes analysis is enough to explain the sustained processes of ozone in daily variations.