

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2021-573

Anonymous Referee #2

Referee comment on "Positive and negative influences of typhoons on tropospheric ozone over southern China" by Zhixiong Chen et al., Atmos. Chem. Phys. Discuss.,
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Comments on "Positive and negative influences of landfalling typhoons on tropospheric ozone over southern China" by Zhixiong Chen et al.

The authors present that 17 landfalling typhoons impact on surface ozone and tropospheric ozone over southern China. Using the MERRA-2 reanalysis data, IAGOS and ground-based ozone measurements, the authors report that surface ozone is enhanced by 9-20 ppbv and tropospheric ozone below 12 km enhanced at radial distances of 400-1500 km away during the initial stages of typhoons. When typhoons are landing, surface ozone decreases and tropospheric ozone reduces by 14-25 ppbv.

Impact of such typhoons on ozone is welcome and, indeed, it is important to characterize the physical linkages between typhoons, meteorological conditions, and ozone variations. In that respect, the datasets used are appropriate, the texts are well organized, and English need to be improved. Overall, the manuscript well fits into the ACP scope and I recommend its publication after revisions.

Specific comments:

Line18: ...ranging between -12 % ~ -17 % relative to the background ozone level.

How about using ppbv for ozone decrease?

Line44-45: Line 55-58: ... in right format.

Line53: ...wind speeds exceeding 37.2 m/s. □...wind speeds exceeding 37.2 m s⁻¹.

Line76: ...the role of typhoons in cleansing the air and reducing...□...the role of typhoons in cleaning the air and reducing...

Line79: Nara □ Naha

Line113-116: m/s □m s⁻¹

Line165: For O3□For O₃

Line190-192: A total of 9 landfalling typhoons developed into the super typhoon intensity, 4 of which persisted their severity beyond the 24-h warning line when they moved westward. Fig. 1 shows the tracks of the 17 landfalling typhoons. Here, the authors show 9 landfalling typhoons. Not clear, the left of the 17 typhoons?

Line215: for Figure 2, the surface data from the China National Environmental Monitoring Centre? Add the data source.

Line258: for Figure 4, Same as Fig. 3b-c...

Line293, Line295: m/s □m s⁻¹

Line317: for Fig. 6c. recommend to add the temperature lapse-rate tropopause.