

Atmos. Chem. Phys. Discuss., referee comment RC1  
<https://doi.org/10.5194/acp-2021-942-RC1>, 2022  
© Author(s) 2022. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## Comment on acp-2021-942

Anonymous Referee #1

---

Referee comment on "Impact of eastern and central Pacific El Niño on lower tropospheric ozone in China" by Zhongjing Jiang and Jing Li, Atmos. Chem. Phys. Discuss.,  
<https://doi.org/10.5194/acp-2021-942-RC1>, 2022

---

In this manuscript, the authors gave a very details study of middle to lower tropospheric ozone column (LTO) interannual variations induced individually by Eastern Pacific (EP) and Central Pacific (CP) El Niño. Due to the climatic factors (temperature, relative humidity, general circulations etc.) impact by CP&EP ENSO are varied much in regions of mid-latitude and uncertainties in extent, this kind of topic is of much difficulty to get solid conclusions. While this kind discussion is necessary. The analysis of the manuscript is mostly sound, but the scientific significance and basis of this study need emphasize and restate, and some details need clarify. My specific comments and suggestions listed below.

Specific comments:

1. I suggest to give an introduction on the relative accumulative variance (in percentage) that contribute to the climatic factors (T, RH, circulations etc.) impacted by CP&EP ENSO on the basis of previous studies. It's the scientific basis of this study.
2. In line 236, "over the west Pacific retreats"?
3. In line 303, I suggest "suppressed " replace "exceeded".
4. In line 313, why is "chemistry still contributes positively over eastern China (Figure 6c)" oppositely corresponding to "reduction of SR in spring" in line 307.
5. In line 338, " the western Pacific warm pool begins to shrink with the building of La

Niña (Johnson and Birnbaum, 2017).” is opposite to the reference in title “As El Nion builds, Pacific Warm Pool expands, ocean gains more heat”.

6. In around line 343, related to ozone transport, please denote the upwind regions were in high ozone or low?