Interactive comment on “Transpacific transport of ozone pollution and the effect of recent Asian emission increases on air quality in North America: an integrated analysis using satellite, aircraft, ozonesonde, and surface observations” by et al.

Anonymous Referee #3

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This paper examines transpacific transport of ozone by combining aircraft, satellite, and modeling in a very convincing way. It was a pleasure to read. I recommend publication with a few minor modifications.

1. page 8150, line 17. The TES profiles are filtered out for poor sensitivity using the diagonal term of the averaging kernel below a certain threshold. One of the papers cited by the authors (Luo et al. 2007) discusses using the degree of freedom (DOF)
to examine the influence of the a priori. What is the difference between the two approaches?

2. page 8155. What are the implications of the model \( \sim 30\% \) overestimate of OH for the paper? The authors only discuss the impact on CO, as it is most obvious in the comparison to aircraft and ground-based observations. Such a large overestimate would likely impact the top-down estimate of NOx emissions (underestimate of NOx lifetime and thus the inferred NOx emissions could be overestimated). How would the paper conclusions regarding Asian impact on ozone over North America be affected? A brief discussion addressing these issues would be useful to the reader.

3. page 8156, section 4 lines 17-20. It would be useful to include the percentage increase in PAN for the 2000-2006 rise in Asian anthropogenic emissions. This would allow a comparison to the observed 22\% increase in PAN cited in the paper.

4. section 7.1. PAN was also measured at MBO during INTEX-B (Wolfe et al., 2007). How do the model calculations compare to observations at the site?

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