REVIEWER#2

I have read the manuscript and i would like to make the following comments:

AUTHORS' RESPONSE: We would like to thank the reviewer for all comments and suggestions. We carefully addressed the comments and clarified obscure parts that we believe have improved the coherence of the manuscript.

Please find detailed responses to each comment below. Reviewer' comments are in black, authors' replies in blue and revised sentences in italics. We also provide a version of the manuscript with "Track Changes" where all changes and additions are easily discernible.

Since the modeling systems have different horizontal grid spacing, vertical layers and meteorological drivers, can the authors connect the differences in model performance to these variations in model configuration?
Authors' Response: This is a very interesting question. Through this investigation, no specific model was the "winner" in terms of performance. There was no apparent benefit that depended on grid spacing. The only thing that came up more frequently was that the meteorological driver plays more important role than the air quality model, without having indications of a "best" model among the participants. We expanded on this topic in the conclusions of the revised manuscript.

Lower correlations and high UT errors are shown for spring besides winter (Figures 5 and 6). It would be helpful if the authors provide similar plots with Fig. 7 with average ozone vertical profiles from all stations for spring. This would indicate any consistent model behavior in the vertical as with the winter case.
Authors' Response: Two new panels are added in Figure 7 with average ozone profiles from all stations for spring and summer. Discussion about the added profiles is included in section 3 of the revised manuscript.

How are the models performing in the meteorological fields for the stratospheric intrusion cases? Can that possibly explain the underestimation of the high ozone values in the upper layers of the atmosphere?
Authors' Response: Surface temperature, wind speed and wind direction and vertical profiles of temperature and wind speed for some stations in North America have been evaluated in the work of Solazzo et al. 2017. According to Solazzo et al. (2017), model performance in meteorological fields showed that temperature and wind speed were biased low and high. However, the differences in location of the sites used in this study compared to the ones in Solazzo et al. (2017) do not allow for a generalization of the conclusions. Our comparison of wind speed and temperature (Figures S3 and S4) are not conclusive on the type of influence exerted to the ozone vertical profiles from meteorological fields due to the inherent nonlinearity among physical and chemical processes. We added a new figure in the supplement that shows vertical profiles of ozone and potential temperature for Point Reyes for each modeling system (Fig. S7). A discussion on this issue is added in section 5.