

Interactive comment on “A Joint data record of tropospheric ozone from Aura-TES and MetOp-IASI” by H. Oetjen et al.

M.-Y. Lin

meiyun.lin@noaa.gov

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This is an interesting paper. The join record of tropospheric ozone from TES and IASI presented in the present paper will be very useful for understanding tropospheric ozone variability and evaluating models.

Please consider discussing and citing the findings from the following papers in your literature review on the drivers of observed tropospheric ozone changes, including the influence of decadal circulation shifts [Lin et al., 2014; *Nature Geosci*], rising Asian emissions [Lin et al., 2015a; *GRL*], and stratosphere-to-troposphere ozone transport [Lin et al., 2015b; *Nature Communications*].

These paper are also highly relevant to your discussions of western US tropospheric

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ozone time series (Figures 7 and 8). Is inter-annual variability of springtime free tropospheric ozone over western N. America measured by TES and IASI consistent with those presented in Figures 2, 5, and 6 of Lin et al. (2015b) based on in situ measurements and model hindcasts?

I also believe that it will be extremely helpful, particular with regard to the credibility of the TES/IASI record, if you can conduct comparisons with the in-situ free tropospheric ozone record at Mauna Loa Observatory . If the TES/IASI record is good enough, it should be able to see the influence of large-scale circulation variability as measured at Mauna Loa [Lin et al., 2014].

References:

Meiyun Lin, L.W. Horowitz, O.R. Cooper, D. Tarasick, S. Conley, L.T. Iraci, B. Johnson, T. Leblanc, I. Petropavlovskikh, E.L. Yates (2015a): Revisiting the evidence of increasing springtime ozone mixing ratios in the free troposphere over western North America, **Geophysical Research Letter**, 42, doi:10.1002/2015GL065311

Meiyun Lin, A.M. Fiore, L.W. Horowitz, A.O. Langford, S. J. Oltmans, D. Tarasick, H.E. Reider (2015b): Climate variability modulates western US ozone air quality in spring via deep stratospheric intrusions, **Nature Communications**, 6, 7105, doi:10.1038/ncomms8105

Meiyun Lin, L.W. Horowitz, S. J. Oltmans, A. M. Fiore, Songmiao Fan (2014): Tropospheric ozone trends at Manna Loa Observatory tied to decadal climate variability, **Nature Geoscience**, 7, 136-143, doi:10.1038/NGEO2066.

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