

Interactive comment on “Tropospheric Ozone Seasonal and Long-term Variability as seen by lidar and surface measurements at the JPL-Table Mountain Facility, California” by M. J. Granados-Muñoz and T. Leblanc

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1. Line 80-85: The discussions on the drivers of tropospheric ozone variability are somewhat incomplete.

Please consider adding a few sentences to describe the role of climate variability and associated changes in atmospheric circulation patterns in contributing to tropospheric ozone interannual variability and decadal trends, as found in the 40-year ozone record at Mauna Loa Observatory in Hawaii (Lin et al., 2014, Nature Gescience).

Meiyun Lin, L.W. Horowitz, S. J. Oltmans, A. M. Fiore, Songmiao Fan (2014): Tro-

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pospheric ozone trends at Manna Loa Observatory tied to decadal climate variability, *Nature Geoscience*, 7, 136-143, doi:10.1038/NCEO2066

2. In the Introduction section, you might also want to add a few overview sentences on the key role of tropopause folds on interannual variability of free tropospheric and surface ozone over the western US (e.g. Lin et al., 2015a, *Nature Communications*). The literature review will help in placing your Results Sections 3.2 and 3.3. into context.

3. Line 490-493: Regarding the influence of sampling biases on calculated ozone trends, it seems like that you are discussing the results from Lin et al. (2015b, *GRL*). But the paper is not included in the list of 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 (2015): 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

4. Line 500-503: Discussions here are somewhat awkward. Are you talking about long-term trends or seasonal variability? I don't believe anyone has suggested that the negative trends (if any) in wintertime ozone over the western US are due to a decrease in background ozone.

5. Line 510: None of the cited references has explicitly discussed the influence from stratospheric intrusions. You should cite other more relevant papers.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, doi:10.5194/acp-2016-70, 2016.