

Interactive comment on “Tropospheric column ozone response to ENSO in GEOS-5 assimilation of OMI and MLS ozone data” by M. A. Olsen et al.

Dr. Nassar

ray.nassar@canada.ca

Received and published: 29 January 2016

“Tropospheric column ozone response to ENSO in GEOS-5 assimilation of OMI and MLS ozone data” by Olsen, Wargan and Pawson is a nice study that investigates the impact of ENSO on ozone in both the tropics and midlatitudes, making use of a 9-year GEOS-5 assimilation and a 22-year CTM simulation.

One point that I would like to dispute, however, is the claim in the abstract of “a newly-identified two-lobed response symmetric about the equator in west Pacific / Indonesia region consistent with large scale vertical transport.” Section 4.1 mentions that in Oman et al. (2013) the structure was observed by TES, but not in the model and Lines 492-496, goes on to conclude that this symmetric two-lobed response of ozone in the region is a “novel” finding.

C1

Since they already provide one example of evidence of the two-lobes observed in TES O₃, use of the phrase “novel” should be avoided. Two other examples of studies that found these two lobes are Chandra et al. (2009) and Nassar et al. (2009), both of which they have failed to cite anywhere in their manuscript. These studies showed the two-lobe pattern in ozone anomalies by taking the difference of 2006 and 2005 tropospheric ozone. Chandra et al. (2009) used OMI and MLS data along with the GMI model, while Nassar et al. (2009), used TES and GEOS-Chem. In Nassar et al. (2009), we identified that a two-lobe pattern symmetric about the equator, most evident in December anomalies, is primarily of dynamical origin, while fire emissions (via CO oxidation) contributed a single-lobe pattern primarily in October and November (see figure 8). I would suggest updating the manuscript by removing the word “novel” and the phrase “newly-identified” as well as adding a very brief description of the two studies mentioned here.

References

Chandra, S., et al. (2009), Effects of the 2006 El Nino on tropospheric ozone and carbon monoxide: Implications for dynamics and biomass burning, *Atmos. Chem. Phys.*, 9, 4239– 4249.

Nassar, R., J. A. Logan, I. A. Megretskaia, L. T. Murray, L. Zhang, and D. B. A. Jones (2009), Analysis of tropical tropospheric ozone, carbon monoxide, and water vapor during the 2006 El Nino using TES observations and the GEOS-Chem model, *J. Geophys. Res.*, 114, D17304, doi:10.1029/2009JD011760.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, doi:10.5194/acp-2015-958, 2016.

C2