

Response to Dr. Lin

We thank the additional references suggested by Dr. Lin and have made changes to the manuscript accordingly. Please see below our responses in blue.

1. Lines 93-100, Page 3: Regarding Asian influence on US ozone trends, please consider citing the following papers and discuss their findings:

Lin, M., 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

Lin, M., W. Horowitz, R. Payton, A.M. Fiore, G. Tonnesen. US surface ozone trends and extremes over 1980-2014: Quantifying the roles of rising Asian emissions, domestic controls, wildfires, and climate. *Atmos. Chem. Phys. Discuss.*, doi:10.5194/acp-2016-1093, 2016

You cited Cooper et al. (2010, *Nature*). But Lin et al. (2015 *GRL*) investigated the representativeness of ozone trends derived from sparse measurements reported by Cooper et al. They found that sampling biases can substantially influence calculated ozone trends.

Both papers are now cited in this paragraph. We do agree that the observation sampling methods affect the calculated pollution trends and SR relationships, and related discussions have been included in several places in Section 3, e.g., comparing R values averaged over all grids and only sampled at the CASTNET sites.

2. The multi-model results presented in this article are based on the spring of 2010 following strong El Nino conditions. I think it would be useful to the readers if you can discuss the representativeness of your results on inter-annual context. There are studies showing that long-transport transport of Asian pollution is stronger during El Nino springs due to the eastward extension and equator-ward shift of the subtropical jet stream (e.g., Lin et al., 2014, *Nature Geoscience*).

We agree that discussing the results on inter-annual context is important. Interannual differences of LRT of Asian pollution due to the impact of atmospheric circulation v.s. anthropogenic emission changes are briefly discussed in Sections 2 and 3.2, and are highlighted in the abstract and conclusions. A sentence has been added to Section 2.1 mentioning the findings in Lin et al. (2014): “This is consistent with the findings by Lin et al. (2014) that the El Niño conditions during the 09/10 winter strengthened the trans-Pacific transport of Asian pollution in spring 2010.”