

## ***Interactive comment on “Trends in concentrations of atmospheric gaseous and particulate species in rural eastern Tennessee as related to primary emissions reductions” by R. L. Tanner et al.***

**Anonymous Referee #2**

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Overall Comment and Recommendation:

Although this well-written manuscript only analyzes historical data from the Look Rock, TN, monitoring site, it provides a lot of important insights into how emission changes have affected the gas- and aerosol-phase species loadings. Importantly, the authors find that emissions reductions from electric generating units (EGUs) have tracked the observation of reducing primary pollutant levels. Secondary pollutants (e.g., sulfate and ozone) have changed at a smaller rate as compared to primary species. Organic aerosol still remain the most dominant fraction to fine particulate matter at this site. The detailed analyses of historical observations presented here will be of great importance

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to those groups involved in the 2013 Southern Oxidant and Aerosol Study (as recently reported for Look Rock by Budisulistiorini et al., 2015, ACPD, <http://www.atmos-chem-phys-discuss.net/15/7365/2015/acpd-15-7365-2015.html>) as well as those groups involved in the 1 year of continuous measurements made at Look Rock using the Aerodyne ACSM instrument. The authors cite Budisulistiorini et al. (2015) but this paper does not exist in the literature yet and has not even been submitted. This needs to be corrected in the revised submission. Overall, this will be an important paper to have published in the literature as it will help to put results obtained from 2013 SOAS into better context; specifically, how have anthropogenic emissions impacted biogenic SOA formation and are lowering levels of anthropogenic emissions also lowering biogenic SOA loadings? Except for the minor comments I have below and the comments made by the first reviewer already posted online, this manuscript should be accepted with minor revisions noted.

Minor Comments:

1.) Page 13213, Line 11: The Budisulistiorini et al. paper cited here is not published yet or even submitted. I recommend for now that the authors cite instead the published Budisulistiorini et al. (2015, ACPD, <http://www.atmos-chem-phys-discuss.net/15/7365/2015/acpd-15-7365-2015.html>) paper here.

2.) Page 13215, Lines 5-17: In this section here, the authors should cite the published paper from 2013 SOAS at Look Rock - specifically Budisulistiorin et al. (2015). The link to this study is:

<http://www.atmos-chem-phys-discuss.net/15/7365/2015/acpd-15-7365-2015.html>

3.) Page 13235, Lines 7-9: The authors should add a citation here to Budisulistiorini et al. (2015, ACPD):

<http://www.atmos-chem-phys-discuss.net/15/7365/2015/acpd-15-7365-2015.html>

4.) Figure 2: For me, the labels were small on this Figure. Can you make the text on

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the Figure a little bigger?

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 13211, 2015.

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