

We thank the reviewer for their comments and address them below

## Reviewer Comments

Authors suggested a framework for the eastern US simulation in order to achieve the O<sub>3</sub> criteria of the National Ambient Air Quality Standard (NAAQS), with the consideration of two independent OMI-retrieved data (KNMI and GSFC NO<sub>2</sub> columns). The revised manuscript is acceptable for the final publication in ACP with following minor corrections.

1. In Abstract (p. 4428, lines 22-23), it is not the ‘ratio of urban to rural NO<sub>2</sub> column’. It may be the ‘ratio of model to satellite NO<sub>2</sub> column’ as presented in Fig. 8.

This is actually correct. The ratio of urban column NO<sub>2</sub> to rural column NO<sub>2</sub> within the model framework (4.6 for the base model) decreases by about 50% when all of the changes to the model framework are considered. However, to avoid confusion, the text has been modified as follows:

“...the CMAQ run using all three of these changes leads to considerably better simulation of column NO<sub>2</sub> in both urban and areas, ...”

2. In the CMAQMGN simulation using the latest MEGAN data, the CMAQ-calculated NO<sub>2</sub> columns over the entire domain increase as shown in Fig. 7. It was also discussed in p. 4440, lines 23-25. However, authors still described the directly-opposite result (i.e., decrease in the CMAQ NO<sub>2</sub> columns over the domain) in Conclusions (p. 4445, line 12). This was not properly corrected in the revised manuscript. Again, authors have to check out this point.

This text has been corrected to state

“Use of the latest MEGAN emissions for VOCs, v2.10 (Guenther et al., 2012), increases NO<sub>2</sub> throughout the domain and further improves ...”

3. p. 4428, line 12, ‘under estimate’ → ‘underestimate’

This has been corrected