

Atmos. Meas. Tech. Discuss., referee comment RC2 https://doi.org/10.5194/amt-2021-400-RC2, 2022 © Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.

Comment on amt-2021-400

Anonymous Referee #2

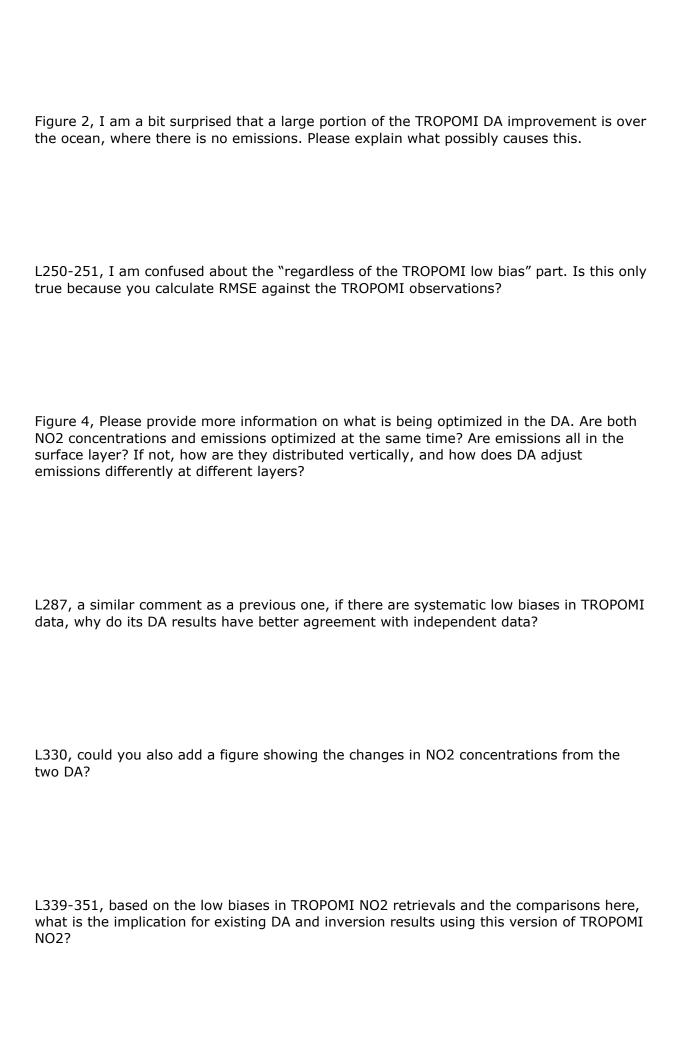
Referee comment on "A comparison of the impact of TROPOMI and OMI tropospheric NO₂ on global chemical data assimilation" by Takashi Sekiya et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-400-RC2, 2022

The manuscript by Sekiya et al. compared the global chemical data assimilation results when using NO2 retrievals from TROPOMI and OMI. The TROPOMI posterior NO2 shows better agreement with NO2 observations and smaller magnitude than the OMI one. The manuscript is generally well-written. The topic fit the scope of AMT. The result is important in interpreting existing NOx data assimilations. I suggest publication after addressing the following comments.

L7, if TROPOMI NO2 is biased generally low, would the comparison with independent data improved for the wrong reason?

Figure 1. Please provide the resolution these data are gridded to in the figure description. How much do precision error and the number of observations in the super-observation grid each contribute to the smaller super-observation errors in TROPOMI data?

Line 221-222, it would be clearer to first explain what the range of chi-square is, and what do values larger and smaller than 1 generally mean.



L446-447, would you expect th new product, and by how much	ne low biases in TROPON n?	MI NOx emissions reduce using this