

Response to Reviewer #1

We thank the reviewer for their additional review and comments on the manuscript. We have addressed these comments as described below. All reviewer comments are presented in italic font while the author responses are displayed in standard font. Specific text that was added to the updated manuscript is provided in blue text.

Thank you for addressing my comments. I appreciate you adding a section comparing with TROPOMI, I believe it makes the paper stronger. All amendments to the figures look good. I am also glad to see the OMI HCHO drift has been discussed, because I was also unaware.

Some further technical edits to the new Section 3.6:

Line 410: I believe the version number of the L2 TROPOMI NO₂ dataset is incorrect. Currently only up to version 2.4 is available. And which institution KNMI/ESA or NASA? NO₂ products from both are available for this timeframe.

We thank the reviewer for catching this incorrect information. We have corrected the version numbers for NO₂ and HCHO. We now introduce the TROPOMI data in the revised manuscript as: “For this purpose, we applied TROPOMI operational Royal Belgian Institute for Space Aeronomy (BIRA) L2 HCHO version 2.4.1 and Dutch OMI NO₂ data products of KNMI for OMI (DOMINO) NO₂ version 2.4 retrievals interpolated to a standardized 0.1° × 0.1° grid format.”.

Line 413 (also Line 540): What do you mean by “more accurately”? AQS is a surface-based ratio, so it’s not an identical inter-comparison. If you are indeed referring to “better agreement with the AQS ratio” please explicitly state it as such.

The reviewer is correct, we have updated this sentence to read: “TROPOMI was able to reproduce the inter-city variability in normalized AQS FNRs with better agreement compared to OMI...”.

Line 416: Modify “accurately” —> “correctly” or eliminate the word altogether. I think of “accurate” as being close to a certain value, not predicting the sign of the value.

Agreed. We now use “more closely” instead of “accurately” in this sentence.

Line 421: TROPOMI observational record begins 2018, even though launch was in 2017. Modify to 2018.

This has been corrected.

I approve of publication after these technical edits are addressed.