Reply on RC1
Leonardo Hoinaski et al.

Author comment on "Multispecies and high spatiotemporal resolution database of vehicular emissions in Brazil" by Leonardo Hoinaski et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2022-74-AC1, 2022

Dear Dr. Sergio Ibarra,

We thank you for providing us very constructive comments on our work. We have prepared a fully revised manuscript and a more accurate database to address all issues you have raised. We also have updated the code to include the area and timezone of each pixel. The new code also generates outputs ready to use in WRFChem.

Addressing point-by-point all major issues:
1- We have rephrased and reorganized the comparison with MERRA. Indeed, emissions cannot be compared straight-forward with concentrations. We have improved this discussion and reinforce the limitations when using this approach.

2- Yes, you are right. We have fixed this issue.

3- We have used the RCHO Emission Factor from CETESB to estimate the ALDX and ALD2_PRIMARY in our database. We have estimated the ALD2 emissions using speciation factors from Speciate. Therefore, users can compare ALD2_PRIMARY to ALD2, which are estimates using different approaches. We have performed the speciation using NMHC emissions. The NMHC also contains RCHO emissions. We have been working to provide the ETOH estimates derived from CETESB, to preserve the chemical composition signature in Brazil.

4- The new code will estimate area flux rates as you have recommended.

Minor issues:
We have revised the English in the manuscript.
We have tried to get the monthly-based fuel consumption. However, the National Petroleum Agency have not replied.