

Atmos. Chem. Phys. Discuss., referee comment RC1
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Comment on acp-2021-1029

Anonymous Referee #1

Referee comment on "Towards sector-based attribution using intra-city variations in satellite-based emission ratios between CO₂ and CO" by Dien Wu et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-1029-RC1>, 2022

The paper of Wu et al. entitled '*Towards sector-based attribution using intra-city variations in satellite-based emission ratios between CO₂ and CO*' examines how to derive emission ratios of CO₂ and CO for cities using satellite data. This paper is an interesting piece of work focused on the sub-city scale and sector attribution, which is a relevant addition to existing literature. The paper presents a comprehensive description of the methodology, including many relevant figures detailing steps in the process. Clearly a substantial effort was put into the work. The presentation of the results (section 3.2) highlights interesting findings that underline the potential of the methodology, although this section is somewhat limited in depth compared to the rest of the study. There is a good discussion and consideration of the limitations. However, one potentially relevant limitation is not covered in the paper, namely the potential changes in actual CO and CO₂ emissions in the target area between different satellite overpasses. Overall, the paper is well written, but writing in some sections could still be improved by a thorough readthrough.

Further detailed remarks can be found in the supplement.

Please also note the supplement to this comment:

<https://acp.copernicus.org/preprints/acp-2021-1029/acp-2021-1029-RC1-supplement.pdf>