

Response to Anonymous Referee #1 for EGUSPHERE-2025-4157 (ACROPOLIS: Munich Urban CO₂ Sensor Network)

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Anonymous Referee #1

General Comment

Overall this is very good work and consistent with previous findings cited here, that lower cost trace gas sensors have utility if properly calibrated and corrected, but each sensor must be independently corrected as they can vary in their usefulness.

- 5 *I think my only scientific comment (and I do not think it is required to be addressed for publication) is that PBL height was mentioned in passing in Section 3.7.2 e.g. "generally shallower boundary layers". If it's not too much trouble, and if the data exists, it may be good to show some PBL height observations from an urban and rural location nearby to strengthen this argument. It could be purely vegetation based in terms of the diurnal variation, but could it also be due to urban/rural PBL variations too? Just something to consider, overall very nice work!*

10 Response:

We sincerely thank the reviewer for the positive and encouraging feedback, as well as for the time and effort dedicated to reviewing our manuscript. We agree that differences in planetary boundary layer (PBL) height between urban and rural environments could influence the observed diurnal CO₂ variations and that this aspect would be valuable to investigate in more detail. Unfortunately, we are not aware of any PBL height observations for the general area of Munich that would allow us to
15 make this comparison. For this reason, we consider this analysis to be beyond the scope of the project. We will gladly take this aspect into account in future studies. We removed the statement from the manuscript.

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and generally shallower boundary layers.