

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2021-372

Anonymous Referee #2

Referee comment on "Performance characterization of low-cost air quality sensors for off-grid deployment in rural Malawi" by Ashley S. Bittner et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-372-RC2>, 2022

Improved semi-conductor technology has made possible the significant evolution witnessed around the development and use of low cost air quality sensor in the last couple of years. The increased use of low-cost air quality (LCAQ) sensors in Africa, especially Sub-Saharan Africa has been brought about by its affordability and relative ease of deployment. However, the accuracy and quality of the measurement have been questionable and hugely debated in the scientific community. If the quality of the data from the sensors are improved, LCAQ sensors would bring a great revolution to air quality monitoring globally and enhance the our understanding of the problem, especially in low and middle income countries (LMICs) where the problem of air quality is endemic but reference grade instrument are not available.

General Comments

The study discusses an approach to enhance the quality of data obtained from units of LCAQ sensors (O_x , NO, NO_2 , CO and PM) in Malawi by calibration using pre- and post-deployment collocations and five model approaches. The structure and layout of the manuscript makes it very difficult to follow through and understand. The language also needs adequate tone up to enhance the flow. The materials in the manuscript should be arranged as much as possible in the way they are referred to in the manuscript. This makes it easy for the reader to follow the manuscript and supplementary material together without having to flip through pages of the supplementary material haphazardly. Some of the figure (I have indicated these in the annotated version of the manuscript) are difficult to understand in their present form. Some sub-sections could be further divided into sub-sub-section to improve the organization and readability of the manuscript.

Overall, the manuscript needs serious reorganization, restructuring and editing to enhance its understanding.

Specific comments

I have included the specific comments in the annotated version of the manuscript.

Please also note the supplement to this comment:

<https://amt.copernicus.org/preprints/amt-2021-372/amt-2021-372-RC2-supplement.pdf>