ARTICLE

Long-term Evaluation [1] of Commercial Air Quality Sensors: An Overview from the QUANT Study

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GENERAL COMMENTS

This article provides an important contribution to the advancement of studies associated with air quality sensors. It provides a good overview and information about the QUANT study and some important results. Discussions associated with data quality add value in an important way to alert to errors and possible corrections associated with time and space. Shows the importance of using reference sensors in calibrations, detailing correct use and necessary considerations.

I recommend this publication. However, as this is an important study that can be reused or used as a basis for others, I think it is important to go into more detail, especially methodologically, so that it can be continued and used, as the authors suggest at the end.

SPECIFIC COMMENTS

SECTION 2

Section 2.1

As spatial analyzes are carried out, I consider the spatial description of the areas of the article to be important, such as distances and spatial layout. A spatial image would enhance spatial visualization and discussion. This arrangement is important in analyzing spatial differences and environmental conditions that influence the data.

Section 2.3

Line 135. The sensors were implemented according to the manufacturer's specifications. Was any standardization found in the logistics or studied at this stage? I think it's important to describe this stage, perhaps in supplementary material. The layout of the

sensors, whether it was completely open or needed some protection, ground height, proximity to the reference, obstacles, necessary infrastructure, etc. These are all factors that influence the data and are still the subject of much discussion when it comes to implementing the sensors.

Section about treatments, analysis, and metrics

It would be important to include a section describing the data analysis, treatments, and statistical metrics that were used for these specific analyses.

It would be important to include: data standardizations such as sensor frequencies for comparison with the reference, if there was a change in frequency, how the amount of valid data for the calculations was considered; a description of the calibrations or validations applied; statistical metrics used in analyzes such as RMSE, REU, etc., a simple description would add a lot to the article; Another point would be the pollutants used ($PM_{2.5}$, NO_2) and because these, if there are analyzes for the others, it would be interesting to mention

SECTION 3

Why were some analyzes used PM2.5 and others NO2? Would there be any explanation?

From section 3.4 onwards, sensors are no longer specified from which manufacturer. For example, in Figure 7, which sensors are being compared? Is it just from one manufacturer? Or multiple manufacturers? Is only one sensor from each manufacturer considered or multiple?

In figure 8, what would sensors A and B be, are they from the same manufacturer or different?

Figure 10. Is the analysis for NO2? If yes, specify in the legend. The companies are unidentified, wouldn't it be possible to associate them with each one?