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Atmospheric Measurement Techniques Discussions

Interactive comment on "Integration and calibration of NDIR CO_2 low-cost sensors, and their operation in a sensor network covering Switzerland" *by* Michael Mueller et al.

Anonymous Referee #1

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The authors present here an excellent evaluation and use-case demonstration of a low-cost CO2 sensor platform and an observing network comprised of said sensors. I think the work presented here is very thorough and covers all the bases needed to determine the usefulness of data archived by this network.

I have no major issues/concerns or comments but I have a couple of small things that I would like the authors to think about / comment on in a response:

1) You mention how important pressure measurements are, eg. in the description of how the ideal gas law is used to get CO2 mole fractions. While the methodology of using adjusted sea level pressure from a nearby meteorological station and interpolat-

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ing from the CO2 sensor height above ground level is probably sufficient, I can't help but wonder why air pressure measurements are not made as part of the sensor package? There are multiple small, low-cost pressure sensors that would be by far the most accurate measurements in the package (sub 1 hPa accuracy). Perhaps something to include in the second-generation of the instrumentation package.

2) What are the theories / reason(s) for why there are sudden large jumps in the reported CO2 values from the sensors? Is it degradation in the IR lamp/sensor? I would think generally that would be more gradual than seemingly instantaneous. Or are there other failures that still allow for usable observations, but need that offset correction?

Overall, I think this is an excellent study and look forward to the final published version soon.

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