Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2020-326-RC2, 2020

Atmospheric Measurement Techniques Discussions

Interactive comment on "Performance of open-path GasFinder3 devices for CH_4 concentration measurements close to ambient levels" *by* Christoph Häni et al.

Anonymous Referee #2

Received and published: 16 November 2020

This manuscript focuses on the evaluation of biases and precision in GasFinder GF3 open path methane sensors, a commercially available sensor currently utilized by multiple organizations for emission monitoring. Multiple GF3 units were compared over multiple field intensives by comparison with both each other and an in situ analyzer. The manuscript represents a substantial scientific contribution that is within the scope of AMT and utilizes valid scientific approaches and methods. I recommend that the manuscript should be accepted following address of the below minor issues, primarily concerning the justification for the statistical methods used.

âĂć Abstract, line 18: precision at 1 sigma?

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âĂć Section 2.1, Line 69: even though details are described in reference, there should be a brief further description as to how concentrations are calculated and how the calibration waveform is measured. Otherwise, it is more difficult to understand the metrics discussed in this paragraph.

âĂć Section 2.2, Line 80: how was the QCL instrument calibrated? How often? What scale was the calibrant traceable to (e.g. WMO)?

âĂć Section 2.3, paragraph 2: I do not feel there was sufficient justification for the use of median based statistics over Gaussian, especially when the result was to use Gaussian assumptions to convert the median statistics to Gaussian ones. There should at least be a discussion as to why the outliers are expected to be as prevalent in a non-Gaussian manner as to justify this approach.

âĂć Section 2.3, line 120: I don't understand the propagation justification to add the sqrt(2) factor. It seems to me that there are some math steps or justification missing to explain how the error is being propagated.

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