

Interactive comment on “Characterisation of interferences to in-situ observations of $\delta^{13}\text{CH}_4$ and C_2H_6 when using a Cavity Ring Down Spectrometer at industrial sites” by Sabina Assan et al.

Anonymous Referee #3

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AMTD 2016-261 Assan et al.

My overall impression is that this paper talks around the subject too much, resulting in a paper that is too wordy. In essence these authors have demonstrated that by measuring the interferences between three analyte gases in a CRDS instrument, they can correct the concentration measurements of the ^{13}C isotopologue of methane, as well as the unphysically negative concentrations (reported by the instrument) of ethane, to produce improved measurements of both concentrations. The abstract needs to say little more than this; perhaps giving just the magnitude of the corrections and a

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sentence announcing the field tests. An abstract does not serve to introduce a subject as this one does.

This notwithstanding, the work as a whole is quite well done and is likely to prove useful to others using these instruments.

I would however like to point out some ambiguities in the language used; in the abstract the sentence that begins "Here we present ..." is actually ambiguous. It reads as if there might be cross-sensitivities between the instruments rather than the measurements of concentrations of two molecular species. The last sentence of the first paragraph of section 4.1.2 is also ambiguous - beside the time stamped measurements as well as beside one another?

In the second paragraph of section 3.5, do you really mean a correction factor of the square root of two?

I found the second sentence of section 3.1.4 to be unclear.

In the last sentence of section 3.1.2, one number doesn't constitute a range! The ends of the range should be specified or you should say "at a level near 400 ppm".

In section 4.2, the reader needs some extra evidence that there were cattle in the vicinity. Where were they in relation to the inlets, and what was the wind direction?

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