

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2020-461

William Thomas Sturges (Referee)

Referee comment on "Testing the altitude attribution and vertical resolution of AirCore measurements with a new spiking method" by Thomas Wagenhäuser et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2020-461-RC2>, 2021

This is a clever and useful idea to improve data retrieval from AirCore sampling of the atmosphere, and will be of interest to the (currently small) community of practitioners. AMT is an entirely suitable medium for this report. This appears to have been a very carefully conducted piece of work. One would always like to see more data collected under a variety of conditions (only two flights in this case), but the results appear robust.

My only comment would be that, for the sake of anyone **not** working directly on AirCores, this would benefit from having a little more explanatory text. E.g. under Section 2.1, a clearer summary of these steps that does not require reference to Engel et al. would make reading/understanding much easier.

A few minor points:

L.15 add "positive" to "bias"

L.16 "shown" not "uncovered"

L.17 "to be represented by possible empirical"

L.19 is it +/- 120 m or +120 offset?

L.50 "needs to be attributed to positional data" – doesn't it just need altitudinal data? Lat/Long you'd get from GPS, wouldn't you?

L.90 what is the push gas made of?

Fig. 1 is quite tough to follow unless you have a little more background

L.102 what does "PG resp. a calibration standard" mean? I didn't understand this.

L104 I am not clear about "only tubing involved at the start of the AirCore measurement is coloured"; what is meant by "involved" – it's all involved isn't it?

L.117 not clear what "starting point in the analysis" refers to.

L.129 how high is high CO?

L.131 maybe explain how "Cal gas is used to distinguish between PG and FG"?

L.189 what does "fastening valve" mean? I've not heard of this before (shutoff valve?).

Fig. 8 It took a while for me to realise that the steps in the curve related to the three diameters of tubing - maybe point this out from the start?

