

Interactive comment on “Reference quality upper-air measurements: GRUAN data processing for the Vaisala RS92 radiosonde” by R. J. Dirksen et al.

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This paper describes important work. Formal reviews have highlighted any technical issues. Here I limit myself to questions of user comprehension. These are enumerated in the order they arise. I hope they are of some use to the authors in revising the text.

1. In the abstract the discussion in the final two sentences around the humidity product performance is a little confusing. The number 15% is given in two distinct contexts but could very easily be conflated by the unwary non-expert. Bearing in mind that many readers get little further than the abstract the mis-impression that this gives should be

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rectified by nuancing this segment of the abstract for clarity.

2. On p. 3729 ln. 13 this very limited set of references may cause some to look somewhat askance. There are many efforts that have been undertaken upon the homogenization of radiosonde temperature and humidity records many of which are better known than these. Consideration should be given to either a more holistic set of references which I could provide the authors upon request or referencing in addition some review paper or assessment product such as IPCC where these are discussed.

3. On p. 3729 ln. 16 consider referencing the GCOS ECV paper in press in BAMS by Bojinski and colleagues when mentioning ECVs to provide an easy reference for the interested reader.

4. It seems odd that in the paragraph starting ln. 16 of p.3729 no explicit reference is made to the GUM and this only arises for the first time instead in Sect. 2. To the metrologically conversant reader it would seem worth making the point in the introduction section that what is outlined here is consistent with this best practices guidance documentation.

5. p. 3731 ln 28 onwards this paragraph could more directly address that measures of the same measurand by a second method allows a degree of verification of both the processing and the uncertainty quantification. That information is in there but its not as clear to the reader as it could be.

6. p.3732 ln 11 is it worth making the point that the ground system can cope with more than one instrument at a time? This may help later on.

7. p. 3734 lines 18-25 you could make the point that collection of such data and metadata is essential to enable future reprocessings of the data stream.

8. p. 3741 ln 11. Either you are missing the word 'not' somewhere here or I am failing to follow the logic that underlies this conclusion. Either way clarifying this text would seem advisable.

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9. In several places mention is made of a next product version. A reader may logically infer that you should wait for that to write your paper so you may wish to reduce their propensity throughout.

10. p. 3747 ln. 20 - or sondes to other measurement systems capable of measuring temperature profile data (although few can measure with anywhere near the vertical fidelity).

11. p. 3765 ln. 2 and traceability to calibrated measures I think?

12. Section 10 feels like it ends very abruptly. I thought I had lost a page. Perhaps thought could be given to ending in a slightly less abrupt manner with a more uplifting and definitive concluding paragraph that perhaps reminds readers of the essential GRUAN measurement characteristics and points them to where they can actually get hold of and play with the data.

I did not review the appendicies due to closeness of deadline.

Figure 12 the left hand panel the key overlaps the y-axis making it hard to read. Consider changing the layout somehow to avoid this.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 3727, 2014.

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