Atmospheric
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Discussions

Interactive comment on "Radiometric calibration of the in-flight blackbody calibration system of the GLORIA interferometer" *by* C. Monte et al.

Anonymous Referee #2

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The paper describes the radiometric characterization and calibration of the on-board calibration system of GLORIA and its traceability to the International Temperature Scale. To document the instrument calibration well is important to ascertain the quality of the atmospheric measurements. Therefore, I think this work fits well into the special issue about GLORIA. However, I have some comments and questions about the manuscript:

Questions and remarks concerning the content:

I think it should be underlined in which cases the target requirement and in which cases the minimum requirement is met. "fulfills the calibration uncertainty requirements" could be the both or only the minimum requirement e.g. at p 5264, l 21 and p 5267, l 13?

Maybe a table summarizing the achieved uncertainties and the requirements for different conditions (short-term stability, spectral radiance uncertainty, spatial homogeneity) could be provided or included in the table for the long term stability (Tab. 5)? As far as I understand it, the target requirement is met for short-term stability, spectral radiance uncertainty, and spatial homogeneity but for the long term stability some PTRs meet only the minimum uncertainty requirement?

In the Abstract, it says "with a standard uncertainty of less than 100 mK", in the Summary (and on p5264, l20) it says 110mK? This would also mean, that the requirement from Olschewski et al., 2013 "Standard uncertainty of surface radiation temperature less than 100 mK" (p 5256, l 26) is not met?

p 5253, l 15 I don't understand how the the relative standard uncertainty of the GBB of 0.67% follows from the target uncertainty of 1% for the radiance measurements of GLORIA?

p 5257, l 18 and p 5264, l 7 Why are there first 24 and later 10 PRTs for each GBB?

p 5265, l 23 To which of the three measurement campaigns belong the examples? How representative are they?

Fig. 12: Maybe all 10(?) PTRs could be shown?

Fig. 15–17. I don't see the advantage of showing the spline in addition? It seems to cause even some artifacts, e.g. in the corners of the right panel of Fig. 17?

Minor and technical issues:

Some sentences are rather long. It would increase the readability to split them into shorter ones. Such sentences are for example: p 5252, l 9–12, p 5253, l 1–4, and p 5264, l 12–16.

The punctuation differs between p 5252 l 2 and l 18 for the same expression?

p 5253, l 4 and p 5256, l 19 Maybe "cold" and "warm" (or hot?) should be explained

when the acronym is introduced for the first time?

p 5253, l 13, Comma after "Hence"?

p 5255, l 22, Comma after "Above all"?

p 5255, l 27, Comma after "built"?

p 5260, l 2, I don't understand the acronym "NETD"?

C1965