

Interactive comment on “Matching radiative transfer models and radiosonde data from the EPS/MetOp Sodankylä campaign to IASI measurements” by X. Calbet et al.

Anonymous Referee #2

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Review of Calbert et al., "Matching radiative transfer models and radiosonde data from the EPS/Metop Sodankyla campaign to IASI measurements"

This paper is within the scope of AMT, mostly technical in nature, but does not contain sufficient discussion of the results. Therefore it needs a major revision before it becomes suitable for publication.

Abstract is poorly written. It does not say anything about the results. It has to be rewritten.

Under polar conditions, can one discard contribution from low clouds and surface com-
C2506

pletely? Any sensitivity studies have been done to check this?

Figures 6-8 do not contain simulations for RS92 flown together with CFH. Why is it not shown?

Higher variability in OBS-CALC for smaller wave numbers and vice versa: Any reasons?

Did you take the closest pixel to the station? To see how inhomogeneous the scene for each wave number you can calculate variance of pixels within a circle around station with certain radius and it can be plotted also in Figures 6-8. The radius of the circle can be determined from sonde track. Use the maximum distance it has drifted from the station.

What are the legends in Figure 2 (e.g., 2007.61.5)?

Time interpolation does not seem to have much influence. Bias for corrected RS92 -5 min is close to the interpolated profile.

CFH and uncorrected RS92 launched 5 minutes before show similar magnitude of bias. For wave numbers which are sensitive to lower stratosphere, CFH should show good agreement. Make a plot for OBS-CALC for only such frequencies.

Figures 9-12 can be combined to one figure. In present form it is hard to understand the differences, e.g., what is the difference between two versions of LBLRTM? And this is only a qualitative analysis. More quantitative analysis should be done. What is the reason for using 3 RT models? Why a fast RT model better than a line-by-line model? There is no systematic approach here. Why should a correction method depends on the RT model to get a better fit?

Why does 2007-07-25 (Fig. 14) profile show larger bias compared to others?

Interactive comment on Atmos. Meas. Tech. Discuss., 3, 4497, 2010.