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Interactive comment on "An update on the RTTOV fast radiative transfer model (currently at version 12)" *by* Roger Saunders et al.

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Thanks for your comments which are much appreciated. Regarding your technical suggestions: (i) The plots shown in Figures 1 + 2 are assessing the ability of the fast model to reproduce the layer line-by-line transmittances that is all. In this case it was thought a surface emissivity of 1 would make it easier to assess the transmittances. We are not doing a full validation of RTTOV here that is done in the later figures. We agree that non unit emissivity will increase the st devs but that is not the purpose of the figure we think it best to keep it simple and just address the transmittance calculation here which is the core of RTTOV.

(ii) RTTOV raises flags if any of the profile variables are outside the range used in the

training and it is up to the user whether he uses RTTOV in these cases. Experience has shown that if the variables are up to 10% outside the limits there is not a significant degradation in the performance but beyond that there can be. I will add a sentence or two on this in the paper and if possible a reference to the assessment of this which has been done several times.

Interactive comment on Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2018-64, 2018.