

## ***Interactive comment on “Using reference radiosondes to characterise NWP model uncertainty for improved satellite calibration and validation” by Fabien Carminati et al.***

### **Anonymous Referee #1**

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The paper is well written and of interest. I can only suggest minor added info as follows:  
- clarify the time range to match the raob and model fields, is it typically between 3-9h as currently done in NWP? It is said that only a small fraction is in slot 0-3-h. Is it then representative of 6-h forecast? I would think most of the time differences is in range 4-8 h? - clarify if the balloon drift is taken into account. This is important as shown, e.g. by Laroche and Sarrazin, *Weather and Forecasting*, 2013, 772-782. - Total uncertainty for ATMS channels 18-22 shown in Fig. 6 increases from about 1.5 (ch 18) to 2.5 K (ch. 22). However values obtained at NWP centers are significantly lower than this for observed minus background (O-B), i.e.  $\sim 0.4-0.8$  K lower (for observation accepted for assimilation). Perhaps adding such stats for the two NWP centers would

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be good, plus explain differences. - add basic info, reference on bias correction to radiosonde. It is said that the bigger part of the bias is linked to model error.

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