

Interactive comment on “Spatial patterns in timing of the diurnal temperature cycle” by T. R. H. Holmes et al.

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We thank the reviewer for the thoughtful comment. Below we respond to the comments as numbered in C3020.

1) The reviewer is right that the only direct way we limited cloudy days was for NWP and Ka-band to use the #2 criterion, and for IR to rely on the cloud mask as applied by LSA-SAF. We considered explicitly limiting NWP and Ka to the same days as IR, but that would limit our analysis to the Meteosat domain. Also, we feel that the effect on the uncertainty is acceptable when analyzing the annual average timing.

2) We think the heat-capacity of the model should be increased just enough for the timing to match that of the IR. The main reason for this is to better accommodate the

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assimilation of IR estimates.

3) The North-South transects of Fig 4d show for each latitude, the average timing between longitudes 10E and 30E. Within this transect the Kalahari desert has a big impact on the timing at 10S to 30S, see also Fig 5b. The reviewer is right that this is not a true desert though, and we change the word desert to 'outside desert and semi-desert areas'.

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