Second Review of 'Evaluating the diurnal cycle in cloud top temperature from SEVIRI' by Taylor et al.

The authors have made a good effort to address the points raised in the initial review. I particularly appreciate the additional information concerning the data algorithms and processing used to perform the study. There are one or two minor issues that still remain but I think these can be fixed quickly without the need for a subsequent review.

NB. Line numbers below refer to the tracked changes version of the manuscript.

Introduction:

In their efforts to make this more general some of the consistency in describing cloud regimes has been lost – for example the majority of the references in line 32 on page 2 are, I think, referring to a phasing in convective cloud, not all cloud types, a suspicion reinforced by the next sentence. Please check carefully that simply removing the word 'convective' or 'convection' is appropriate on each occasion that this has been done.

Just for info, the implications of Pearson's two studies is that it is the scale at which a convective parameterization scheme is employed **and** the mechanism used to represent convection, rather than spatial resolution per se, that is key for improving the representation of the diurnal evolution and growth of tropical convective systems. This is a little contrary to what has been written.

Page 4, line 5, SEVIRI will underestimate CTH and overestimate CTP. It can't do the same thing for both ☺.

Page 8, line 21, …(Benas et al., 2016),…

Page 16, line 17. Appreciate the effort to clarify what is meant but the sentence is weak. Possibly better: 'We believe that biases that fall outside of both the 3-20 K range and the region of subsidence in the southeast Atlantic Ocean are most likely the result of other, as yet undiagnosed, errors in the SEVIRI retrievals. However, it is not….'

Appendix A:

I think your 60 minute window should be +/- 30 minutes not 15? Actually, the first para of the appendix is a little repetitive with the additional information. Although the authors state that they find the insensitivity surprising they actually provide several sensible reasons why it may, on further reflection, not be. It's a very minor point but perhaps relate the final para back to the initial expectation? Suggest:

'The insensitivity of the calculated bias in SEVIRI CTT to a change in the collocation window used for matching to CALIOP may initially seem surprising. We collocated SEVIRI and CALIOP CTTs, for the full year of 2007, using both 60 minute (+/- 30 minutes of CALIOP overpass) and a 15 minute (+/- 7.5 minutes of CALIOP overpass) collocation windows. This amounts to an extra 22.5 minutes between CALIOP and SEVIRI retrievals in the 60 minute window case, as compared to the 15 minute case.'

And (less necessary)…

'On reflection, there are many reasons….'