

***Interactive comment on “Long term assessment of the CALIPSO Imaging Infrared Radiometer (IIR) calibration and stability through comparisons with MODIS/Aqua and SEVIRI/Meteosat” by Anne Garnier et al.***

**Anonymous Referee #3**

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**General Comments:**

This paper presented a detailed assessment of the IIR calibration that can be very important in many applications. Stability of the measurements over time, as well as consistency and agreement of multiple sensors are key elements in many fields of the atmospheric sciences from climate studies to weather forecasting.

My only major question is about the use of MODIS Collection 5 instead of the most recent C6. In Section 5.2.2 the authors report that the IIR-MODIS BTD increase when

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the scene temperature decreases. The MODIS Characterization Support Team has analyzed the differences in performances between C5 and C6. In general the differences for Aqua MODIS are small or negligible, but two notable exceptions are bands 31 and 32 when cold scenes are considered [1]. This alone is certainly not sufficient to completely account for the differences reported in Section 5.2.2 but it may contribute to the overall bias observed when cold and warm scenes are compared. Do the authors have any comment on this? Would it be feasible to compute the IIR-MODIS differences using the Collection 6 data for a single day to verify if the changes between C5 and C6 are relevant for the results of this paper? Given the stability over time of the IIR-MODIS differences, especially at the tropics, I don't think that more than one day would be needed.

Overall, the work is well organized and presents some important results. I recommend it to be accepted after the following comments are addressed or answered.

**Minor Comments:**

1. *page 8, lines 1-2:* Do the authors have any thoughts on why B32 differences with TIGR\_BT D are so large compared to the other bands?
2. *page 11, lines 14-15:* MODIS bands 29, 31 and 32 are calibrated for typical scene temperatures of 300 K. For extremely cold scenes such as those of the bottom panel of Figures 3-7 a lower SNR can be another factor that contributes to the increase of the standard deviations.
3. *page 12, line 15:* please change “pour” with “for”
4. *page 13, section 5.2.3:* Could the authors report the average uncertainties along with the average trends in the text?

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[1] <http://tinyurl.com/MODIS-CAL>

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