We thank Anonymous Referee #1 (AR1) for his/her comments which help us to improve this paper. We appreciate his/her concerns and hope we have addressed them satisfactory.

In *italics*, comments by AR1,
In **bold** proposed additions/changes to text by authors.
In "normal" text with grey background original text from manuscript.
In "normal" text response to the comments of AR1.

Major issues

1) The study tells us that TRMM performs best above Indonesia, compared to the two other products. However, what can we as a hydrological community deduce from this in general? Is TRMM better for the whole globe between -60 and 60 degrees? Is it better in Monsoon areas or tropical regions? No general conclusions can be drawn from this study as to why TRMM does better and what this means to other areas. Without such an analysis the paper does not further the hydrological knowledge in a significant manner. The authors should pay much more attention to the general implications of their result for them to be of more general value, as is expected from research published in HESS.

>> We appreciate the concern of AR1, however the aim of this paper is to evaluate satellite rainfall retrievals for an operational drought early warning system in Indonesia, a country currently lacking sufficient and/or timely ground observations for such a purpose. We assume that the approach described in this paper could also be used in other tropical areas but, unfortunately, since no other observations were available to us (apart from the Australian Darwin data), we could not further test this assumption.

Considering the size of the country and the water resource management issues which Indonesia is facing today and in the future we believe our current work will contribute to enhanced and improved water resource management in the near future. By reading this paper readers of HESS know the quality of the TRMM 3B42RT product over Indonesia as well as how it relates to the CMORPH and PERSIANN products.

Close cooperation with BMKG and PusAir (the Indonesian Research Centre for Water Resources) both of whom will collaborate on the DEWS development will ensure further use and possibly publications based on this work.

2) I find the reported decrease in bias and accuracy between bias-corrected and noncorrected rather marginal (Table 4), and for the Darwin validation not improving the results.

>> We appreciate the comment of AR1 and on an annual basis the improvement is indeed small. On the other hand however, on a dry season basis (Table 5) the period of most interest for drought monitoring, improvements are larger. In addition, we would like to stress that the purpose of the correction was to achieve an overall improvement for all areas. This consequently resulted in more improvement of corrected TRMM 3B42RT estimates in some areas compared to others. Also, a relatively small correction during periods of little rainfall can yield important

improvements in estimates of water deficits during drought monitoring. We have tried to address and discuss these differences in the first two paragraphs of Section 3.2.

Furthermore, we have proposed some additions and changes to the text which relate to this question in the answer to Specific Comment No. 7 of Anonymous Reviewer #2.

3) The bias-correction formula is quite weird. It is a power law that only guarantees that P has the right unit if the prefactor a has the unit mm^(1-b). What does that mean. Also, I would like to see a plot of the bias against P to see why this relationship fits so well. Would a simple monthly correction of both mean and standard deviation not be much simpler? Justify why this did not work.*

>> We thank AR1 for these questions which we are happy to be able to clarify. The power law type equation used for the correction is commonly used to derive rain rates from radar signals. Based on the comment of AR1, we propose to adjust the sentence on page 5976 (Section 2.4):

"A non-linear power function was applied in which each average monthly rainfall amount (P) is transformed into a bias corrected amount P* using:"

as follows:

"**A non-linear power function, commonly used to derived rain rates from radar signals (Uijlenhoet, 2001), was applied in which each average monthly rainfall amount (P) is transformed into a bias corrected amount P* using:**"

and consequently add the reference:

Uijlenhoet, R.: Raindrop size distributions and radar reflectivity-rain rate relationships for radar hydrology, Hydrol. Earth Syst. Sci., 5, 615-627, 2001, http://www.hydrol-earth-syst-sci.net/5/615/2001/.

In addition we will also include a Figure with two subplots showing on double-logarithmic axes P obs vs P TRMM 3B42RT prior to and after the correction, illustrating why this power law transformation performs so well (R2 from 0.78 to 0.93).

We are not quite sure if we understand the part of AR1's question with respect to the correction on a monthly basis of both mean and SD. Precipitation is not normally distributed and we don't see how a monthly correction of both mean and standard deviation could be carried out.

Small remarks:

a) page 5972, lines 19-22: why two months? What is a high likelihood? Quantify!

>> We thank AR1 for this remark and agree that the sentence on quality controlling could have been phrased more specifically. A similar remark has been made by AR2 as well. We propose to change the sentence on page 5972:

"Subsequently, all periods of 2 months or longer in which rainfall clearly deviated from all neighbouring stations, and from the pattern of the remainder of the station record, were excluded from further analysis as having a high likelihood of being incorrect."

as follows:

"**Subsequently, the data were checked for consistency, deleting unreasonable values such as 0 entries in the wet season.**"

b) Section 2.3: you cannot say that CMORPH or PERSIANN underestimate/overestimate compared to TRMM. TRMM itself has errors too, so one should say something like: compared to TRMM estimates of CMORPH are higher along the coast… etc.

>> We agree with AR1 and thank AR1 for pointing this out to us. We will change the sentence "Near the coastlines, CMORPH underestimates precipitation by up to 50% (decreasing with distance from the coast), as compared to TRMM 3B42RT, whereas further inland CMORPH overestimates precipitation by up to 50% (especially in the mountainous area of Papua, Fig. 5a)."

into:

"**Compared to TRMM 3B42RT, estimates of CMORPH are up to 50% lower along the coast (decreasing with distance from the coast), whereas further inland CMORPH is up to 50% higher (especially in the mountainous area of Papua, Fig. 5a).**"

and we will change the sentence "It appears that PERSIANN greatly overestimates rainfall in Sumatra when compared with TRMM 3B42RT, whereas difference patterns elsewhere appear to be almost random."

into:

"**It appears that PERSIANN has much higher rainfall amounts in Sumatra when compared with TRMM 3B42RT, whereas difference patterns elsewhere appear to be almost random.**"