

Interactive comment on “Evaluation of TRMM 3B42 (TMPA) precipitation estimates and WRF retrospective precipitation simulation over the Pacific-Andean basin into Ecuador and Peru” by A. Ochoa et al.

Anonymous Referee #1

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—General comments—

The manuscript evaluates the latest two versions of the TRMM product 3b42, and rainfall estimates from a RCM, for an extent mountainous area in South America. Special focus is put on the regional differences in the performance of the products and the possible explanations. In general I find the work presented in the manuscript useful, well presented and discussed, and the methods are performed rigorously and described with sufficient detail. My most important recommendation is to densify the manuscript

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considerably: I find it's too much full of specific details. The key messages are there, but should not get lost due to the extensive explanation of results. When this is addressed, plus some other minor issues, I find this publication suitable and interesting for the HESS readers.

—Specific comments—

English is quite good in most sections of the manuscript, but in some specific sections it should be checked and rewritten. Phrases are sometimes too large, or consisting of different sub-phrases, which can be split. This will make the manuscript more readable.

Then, my main complaint about the manuscript is that in my view some sections are too dense. I strongly recommend shortening, highlighting only the main outcomes. My suggestion is to let the figures and maps tell more about some of the specific regional differences and numbers. Some of these differences are crucial in the paper, explaining key limitations that were detected or confirmed of the products, but others are less relevant for the public of HESS. My suggestion is to reduce especially the results sections, but also the discussion section can be somewhat shortened in my view.

In the first part of section 2.4 you argument why you chose to compare basin-wide averages of the precipitation fields. In my view, the reason for this is because the goal of the paper is to understand better the potential to use these products for hydrological applications in the different basins. And a second reason is that this way, it can be compared with spatially interpolated observations, which is how precipitation is commonly assessed over basins. So the first phrase (“reduce random errors” “appropriate scale”, etc), does not really apply. But I may have misunderstood this reasoning, could you please detail somewhat more? I think it is an essential decision in the methodology of the paper. (Also this section is somewhat poorer in English compared to the rest, please split some of the phrases in two, and use more common vocabulary)

—Technical corrections—

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- Title: I'd recommend changing "into" in "of", so "Evaluation of TRMM 3B42 (TMPA) precipitation estimates and WRF retrospective precipitation simulation over the Pacific-Andean basin of Ecuador and Peru" - Abstract, I16 'specific' -> 'limited' - P414, I6, 'evolved' -> 'improved' - P415, I5, 'Because ..' phrase too long, split in two. - P417, I10, 'All together' change to 'All this results in complex spatio-temporal rainfall patterns ..' - P 420, I 19 'the correlation ..' change to 'the performance of kriging.' - P420, I22, 'Also ..' this phrase is too long and not well formulated: 'for the interpolation ... for the calibration ...' - P420 I25, omit 'cost-efficient'. - P421, I24, the subscript of the variable Y_TRMM/OANOSA30, is quite long, maybe change subscript to 'PP', just like in eq 2-4? - P422, eq 1: insert between line 5 and 6. - P 423, I24, 'finding' -> 'deriving' - P 423, I25, 'Bias ...' I think the explanation of the normalization of the bias can be reduced or omitted by calling it the 'relative bias'. - I recommend an English check for the entire Results section: I haven't corrected everything. - P425, I 4, 'foregoing' -> 'this' - P426, I5, '..at high altitudes. This has implications ..' - P426, I5, 'These limitations are relevant for the results presented in the following sections' - P427, I9, omit 'the case' - P428, I1, 'use' -> 'used' - P429, I15 'even in the high altitude sub-catchment' - P431, first paragraph of the discussion: I'd recommend to include this paragraph later in the discussion, where this is actually discussed. So start the discussion section with the second paragraph. - P431, 'reports' -> 'shows' - P431, 'it does not explain the ..' - P432, I3 change to '(Bendix et al. 2006)' - P432, I4, 'in contrast to': not correctly used. Change. - P432, I8 'During..' very long phrase, hard to understand, rephrase. - P432, I17 'The largest deficiencies ..' this can be a new paragraph. - P432, I20 'not' -> 'no' - P432, I23, 'on' -> 'in' - P432, I23, 'What is ..' long phrase, should be split. - P432, I 23, omit 'i.e.' - P433, I3, 'considerable' -> 'reasonable' - P433, I4 'consideerable' -> 'relatively' - P433, I7, split phrase - P433, I16, 'for' -> 'by' - P433, I17, 'far from be' -> 'not' - P433, I22, 'The poor representation ...', 2x word representation used: rephrase. - P434, I5, 'in this and other investigations' -> 'for this model' - P434, I9 'nearly equally' -> 'well' - P434, I 14, -> 'Inland the differences of the two version of TRMM 3b42 are almost unnoticeable.' - P434, I17, 'less than 5mm day' – between brackets - P434,

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I27 -> 'In general the two TMPA versions perform ...' - P435, in first paragraph it says several times 'both estimates': it is better to specify, if not, not clear enough. - P435, I11, 'might be recommended to remove bias.' Omit the phrase after: 'Precipitation products are biased ..' - P435, I14, ->for operational purposes and could be an area of future research ...', not fruitful: this still has to be seen.

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