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# *Interactive comment on* "Global component analysis of errors in five satellite-only global precipitation estimates" *by* Hanqing Chen et al.

**Anonymous Referee #2**

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Although many publications already exist in the literature, errors and uncertainties associated with global satellite precipitation products are still difficult to characterize. Thus, I believe this work could be of interest to the HESS readership and worth publication. However, I have a few comments that I would like the authors to consider before accepting the manuscript for publication.

First off, I recommend revising the language, since there are a few grammatical mistakes.

Second, I suggest clarifying the main goal of this work. There are currently 5 goals mentioned at the end of the Introduction that read more like tasks. I think that a more focused article would be more effective. In other words, is the goal to validate the SPPs? Is it to model their errors/uncertainties? Is it to investigate what are the factors

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causing more errors/uncertainty in one location/product/season vs. another? Is it to inform users and algorithm developers on how to use/improve such products?

In this regard, the abstract should be more concise and highlight the main goals and findings of this work.

Is including both IMERG Early and Late really necessary? The algorithm is same and – as expected – their performance very similar. Same goes for GSMaP-NRT and GSMaP-MVK. This may help with my comment above of a more focused article.

The section on "transferability of the regional assessment results to other areas" is weak and not well justified. However, this part of the study is also one of the most interesting, since improving our knowledge of how SPPs perform in regions of the world where no ground observations are available can be extremely useful (e.g., hydrologic applications). Ground observations are mainly available in plain areas (and sparse vegetation). Thus, how can we generalize such results to densely vegetated and highly complex regions? It would be useful to see how many gauges are available for each st dev class shown in Fig. 10.

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