

Editor review of "Performance evaluation of multiple satellite rainfall products for Dhidhessa River Basin (DRB), Ethiopia" by G. Wedajo and co-authors

The manuscript on the evaluation of various satellite precipitation products in the DRM in Ethiopia provides a contribution to the existing large body of precipitation validation papers. Its novelty consists of the dual approach of SRE-gauge comparisons and SRE-hydrological model comparisons. Moreover, the manuscript presents the first-time evaluation of IMERG6 for Ethiopia.

The authors have (sometimes rather briefly) addressed all reviewer comments, but I would have liked to see more changes made to the manuscript. For this reason, I decided to submit an editor review with the explicit request to address all comments listed below. Moreover, I urge the authors to submit their replies in a structured way, clearly describing their arguments and the proposed changes to the manuscript in a single document, for example by using color- or font-coding. If the authors are uncomfortable using Latex, writing in (e.g.) Word, converting to a pdf, and subsequent uploading as a supplement to the comment may be a good alternative.

In the following, my comments are written in black, direct citations from the revised manuscript in blue, and my recommendations in red.

General comments

Abstract: You might want to add the interesting aspect that rainfall estimation and streamflow estimation capability depend on season, because this is an important piece of information for algorithm and model developers.

Your conclusions section is mostly a repetition of results. Recommendations to "research communities and decision-makers", who you say benefit from your study, are completely missing. Some ideas for further research, possibly at shorter time scale, or, conversely, on longer time scale (e.g. for climate change studies) would also be of interest here.

Specific comments

Line 43: communication -> commercial

Lines 45-54: Please rephrase these statements and separate gauges from radar, as they have very different characteristics: gauges are (as you state) point measurements, but radars can sense rain over a large area, unless topographic features block the view. Of course both are sparse, but for good coverage one requires a lot more gauges than radars.

Line 73-74: Scale mismatches (...) observations -> Scale mismatches between area-averaged SRE data and point-like ground-based measurements is the most critical drawback.

Line 86: PERSSINN -> PERSIANN

Lines 175-181: Note that TRMM3B42 is succeeded by IMERG.

Line 199: Please do not mix satellite missions and algorithm names: GPM is a satellite mission, just like TRMM (TRopical Rainfall Measurement Mission). GPM is the follow-up mission to TRMM, IMERG is the successor algorithm of TMPA.

Line 247: through -> throughout

Table 2: I agree with referee 1 that POD, CSI, and FAR are not appropriate statistics for monthly means, as there will be few data points with monthly mean precipitation rate equal to 0. See also next comment.

Line 261: Please reply to referee 1's comment regarding categorical metrics: Why do you believe that non-zero/zero separation makes sense for monthly data? The author's reply is insufficient, and since this is a major comment by the referee, some changes to the manuscript should be made to clarify the issue.

Lines 345-346: This could be due (...) variability. More likely, the seasonal variability is much larger than the interannual variability. The seasonal variability is, apparently, captured reasonably well, causing a higher degree of correlation for monthly data.

Lines 414-416: The result shows (...) volume. -> The results show that the peak streamflow is underestimated for all rainfall products, including gauges, but the streamflow volume is generally overestimated.

Line 423: more devaite -> deviate more

Line 424: clsr -> closer

Lines 437: 3B43 product did not use adequate gauge data. What about spatial resolution?

Line 446: See comment to line 346

Line 456: differences in watershed characteristics. Please expand on this: do you mean different prevalent meteorological regimes?

Line 472-473: IMERG6 showed better rainfall detection (...) than 3B43 Of course, as IMERG is the successor to 3B42/TMPA

Line 483: stremflow -> streamflow

Line 486: guage -> gauge

Lines 508-510: Remove time and the results showed that the product better performed for the DRB in detecting and streamflow simulation performance, as it is redundant.

Line 543: "CHIRS2" -> CHIRPS2

Figure 1: What do you mean by gauging station? Is there only a rain gauge? And the weather station encompasses a rain gauge as well? What is the meaning of the green triangles?

Figure 1: A figure of the climatological seasonal cycle of precipitation would be helpful here.

Figure 3 caption: annual -> monthly

Figure 4 caption: monthly -> annual

Figure 5 legend: E -> monthly