

Most of my comments have been addressed. I still have the following comments:

-Fig. 3 The meaning of the blue numbers at the top of each sub-figure is unclear.

Response: Thank you for the comment. The original explanation was in the caption and read as “The column-wise maximums to the precision of two decimal points are displayed above each column”. We revised it to “The blue number at the top of each column is the column-wise maximum to the precision of two decimal points” to make the meaning clearer.

-Figs. 6 and A13 were supplemented to address my concern about the variations and trends of the merged products. However, the supplemented figures are not sufficient to answer my question. By merging different datasets, the averaging effect (a high value of a year in a product may be offset by a low value of that year in another product) may make the variations and trends smaller than individual datasets, which has been reported by previous studies. Moreover, Fig. A13 clearly shows that some merged products underestimated the trends compared to the range of individual datasets. A more precise discussion about this point is suggested.

Response: Thank you for raising the comment. We apologize for having made a mistake in Fig. A13. In the plotting script, an error made the full range of the source datasets not displayed. We double-checked the related script for Fig. 6 and did not find any mistake. The correct figure shows that the merged products were within the range of the source datasets except for the EC ORS dataset, in 10-30cm in the Sahara and West Asia regions, and in 30-50cm in the Sahara region. We suspect that the few underestimations were due to the uncertainty in precipitation and temperature in these arid regions, and revised Sect. 3.5 to discuss the issue (lines 475-488 in the tracked revised manuscript, lines 474-485 in the un-tracked revised manuscript)

We also revised the first sentence of Sect. 3.5 from “... the variability of the merged products may be damped...” to “... the variability and trends of the merged products may be damped...”, to describe the phenomena more precisely.

- “Because of the incorporation of various quality-controlled observations in the merging process, the merged products would likely perform better than the SM in the original LSMs or ESMs while being gap-free in space and having long temporal and multi-soil-layer coverage.” Being gap-free is not an advantage of the merged products over LSMs/ESMs, because LSMs/ESMs do not have gaps in their simulation outputs.

Response: Thank you for the comment. We revised this sentence to read “Because of the incorporation of various quality-controlled observations in the merging process, the merged products would likely perform better than the SM in the original LSMs or ESMs, while keeping the benefits of being gap-free in space and having long temporal and multi-soil-layer coverage”. Hopefully this creates less confusion.