

## ***Interactive comment on “MSWEP: 3-hourly 0.25 global gridded precipitation (1979–2015) by merging gauge, satellite, and reanalysis data” by H. E. Beck et al.***

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### **Short Comments**

I concur with previous reviewers that the paper is well written and highly of interest for the hydrological community. I believe that the idea of merging satellite-based, gauge-based and reanalysis precipitation data for taking advantage of the benefits of each product is good, and surprisingly not largely investigated so far. I have only two short comments that, in my opinion, should be addressed.

1) The gauge-based evaluation of precipitation datasets is carried out by using the GHCN –D database. I am fully aware that it is difficult to determine the quality of precip-

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itation datasets, but I have not seen in the paper any comments about the reliability and accuracy of the gauge-based dataset. For instance, the spatial representativeness of point measurements might be low even when the average of multiple stations is done. This is particularly problematic at 0.5° resolution. For instance, if satellite datasets were compared with gridded-based dataset (just for checking, not for the merging procedure), what are the results? I believe that a different picture can be obtained (but I could be totally wrong). Can the authors add some additional discussions on this aspect?

2) As hydrologist, I was very interested from the analysis for evaluating MSWEP dataset through hydrological modelling. Particularly, Figure 9a highlights that the overall performance of satellite-only MSWEP dataset is significantly lower than the reanalysis-only and gauge-only MSWEP dataset. Do the authors have an explanation for these large differences? In Figure 8b, satellite-only performance are better than the reanalysis in the tropical region, but (nearly) always lower than the gauge-based product. As the paper represents also one of the first studies performing a comprehensive assessment, on a global scale, of the three sources of precipitation (satellite, reanalysis, raingauge), it would be interesting to extend the discussion of the obtained results through hydrological modelling. I believe it would be highly of interest to the HESS readership.

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