

Interactive comment on “Rainfall estimation over the Wadi Dhuliel arid catchment, Jordan from GSMaP_MVK+” by E. Abushandi and B. Merkel

K. Zeleke

ketematilahun@yahoo.com

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This study is very significant in that it addresses the estimation of precipitation in areas where rainfall data from met stations is not available/limited. Rainfall in arid and semi-arid regions (as in the study area-Jordan) exhibits high spatial and temporal variation which is difficult to handle only with ground measurement. The use of RS techniques is, therefore, very helpful. The manuscript is well written with extensive literature review, clear methodology, and sound discussion of results. The authors attempt to use MLR to relate measured rainfall, GSMaP MVK+ estimated rainfall, and other weather data is an innovative approach in the event the GSMaP MVK+ was not able to agree with measured data. Some comments: 1. In the Conclusion "Overall, GSMaP MVK+ showed the best performance in comparison with other satellite products". Are you

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referring to work done elsewhere? I couldn't see this comparison is done in this paper. 2. As shown in Table 5, GSMaP MVK+ overestimated measured data in about 80% of the cases. This overestimation is sometimes several order of magnitude which is not acceptable in arid areas where the annual rainfall is small. Can this systematic (non random overestimation) be explained and corrected. The attempt to use MLR to estimate the spatial trend is fine but absolute rainfall values estimation is more important. May be local calibration of GSMaP MVK+ is required. 3. In the conclusion, some recommendation like "...the calibrated (adjusted) model might have to be further tested before..." might be useful.

Finally, I would say that this innovative paper is worth publishing in HESS.

Regards Ketema Tilahun Zeleke

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