

# ***Interactive comment on “Assimilation of SMOS soil moisture into a distributed hydrological model and impacts on the water cycle variables over the Ouémé catchment in Benin” by D. J. Leroux et al.***

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Thank you very much for your comment. Your remarks helped the authors to put this work in a different perspective. The operational point of view of this method is actually quite interesting and has been added to the study. The performances of the real-time precipitations, the assimilation of SMOS using the real-time precipitations, and the re-analyzed precipitations are compared. More specifically and as suggested, the following post-adjusted precipitations products have been used: PERSIANN-CDR, TRMM-v7 3B42, and CMORPH-v1 CRT. The study shows that SMOS assimilation can perform as good as the post-adjusted precipitation products (especially for PERSIANN, and a bit less for the other two products).

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In order to answer properly all the comments, a supplement pdf file is added to this reply to go through all the comments point by point. Moreover, two figures are added here: a table of performances of the streamflow simulations using RT precipitations alone, after SMOS assimilation, and using post-adjusted precipitations; and a Taylor diagram comparing the last two cases.

We would like to thank Marielle Gosset for her valuable comments which made this work more focused.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/hess-2015-548/hess-2015-548-AC2-supplement.pdf>

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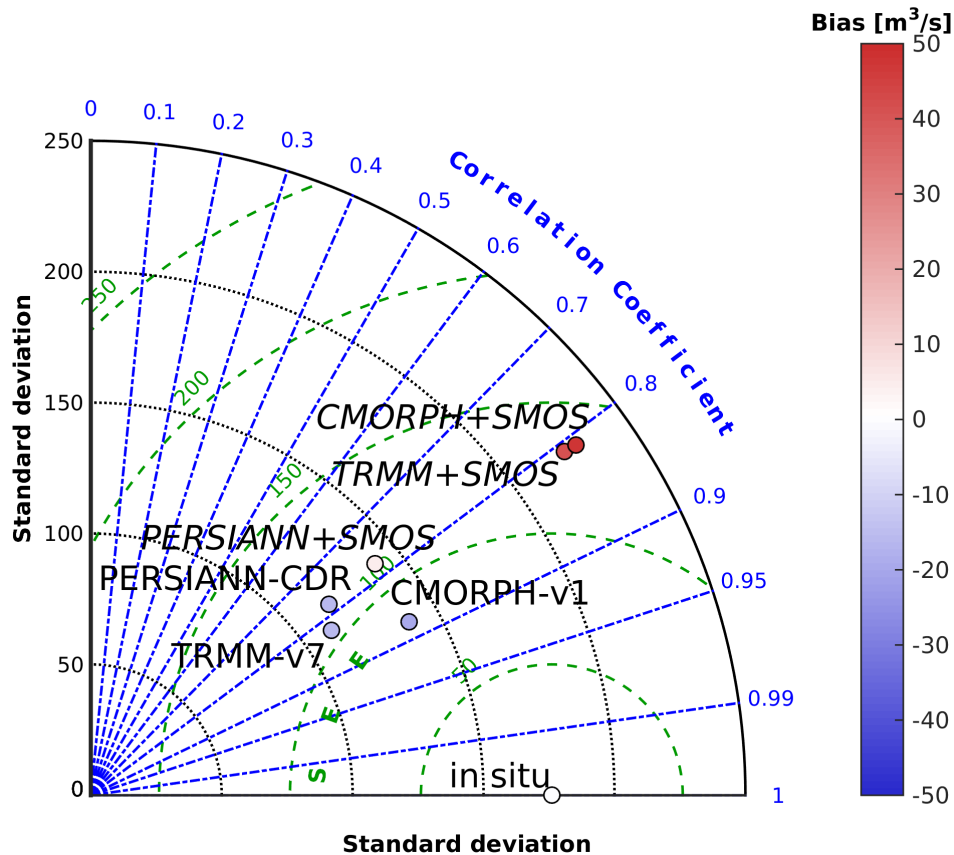
Precip. Product	R	sdd	bias	rmse	ME
PERSIANN	0.39	292.2	147.2	327.2	-2.45
PERSIANN-CDR	0.78	112.2	-15.6	113.3	0.59
Assim. SMOS	0.78	111.2	4.5	111.3	0.60
TRMM	0.86	120.3	44.4	128.3	0.47
TRMM-v7	0.82	105.2	-15.5	106.3	0.64
Assim. SMOS	0.81	131.4	40.9	137.6	0.39
CMORPH	0.64	356.6	214.6	416.2	-4.59
CMORPH-v1	0.88	85.8	-19.9	88.0	0.75
Assim. SMOS	0.81	134.2	47.8	142.5	0.35

**Fig. 1.** Statistic table of streamflow simulations using RT precipitations, SMOS assimilation, and post-adjusted precipitations

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**Fig. 2.** Taylor diagram of performances of streamflow simulations using post-adjusted precipitations and SMOS assimilation

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