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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Can global precipitation datasets benefit the estimation of the area to be cropped in irrigated agriculture?" *by* Alexander Kaune et al.

Anonymous Referee #2

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General Comments:

This paper presents a study on the usefulness of two global precipitation datasets (CHIRPS and MSWEP data) and in-situ data for the estimation of surface water availability for cropped area irrigation planning. A hydrological model forced by those datasets simulates river discharges which are then used to estimate potential irrigated/cropped areas and their relative utility values. The authors show by period-sampling from the available 30 years data the added value of having an extended data records from global datasets. They conclude that this approach permits better calibration of the hydrological model and hence reduces the spread of the so called

pooled relative utility value.

The paper is overall well-structured and represents a significant development effort. Nevertheless, I do see few points in the paper that prevent it from reaching its full potential. I therefore recommend publication of this manuscript with minor revision:

Being the main driver of the study, I would recommend developing more the hydro-meteorological data section with extended description/comparison of the two global precipitation datasets including an proven conclusion on their quality over the study area.

specific comments:

I see a direct link between the hydrological model parameter (evapotranspiration efficiency) and the reduction in evapotranspiration used in the FAO water production function (eq 6) I would recommend the authors to try to establish that link or at least to explain it better.

The authors tend to use long sentences, making it sometime hard to follow, I would recommend rephrasing long sentences into few smaller ones (ex in p3 lines1-3).

Figure S3: colour scheme should be revised

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