

Interactive comment on “Precipitation fields interpolated from gauge stations versus a merged radar-gauge precipitation product: influence on modelled soil moisture at local scale and at SMOS scale” by J. T. dall’Amico et al.

Anonymous Referee #3

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dall’Amico et al. present in their manuscript a comparison of simulated soil moisture with precipitation inputs from a radar product and a rain gauge station network for the upper Danube. The model results are compared in a focus area to a remote sensing data set of brightness temperature.

The topic is relevant for HESS. But the manuscript has to be reorganised and rewritten. Title, abstract and introduction have to be improved. The actual manuscript gives the reader the impression that SMOS data sets are in the focus. Only a model study

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with two different precipitation inputs is presented and the link to SMOS is completely missing.

Chapter 2 should be reorganised and additional information have to be added. The radar product needs more explanation as T. Pfaff and reviewer 1 already mentioned. The study area of the upper Danube must be improved. It is not clear why they choose that size of catchment with that data set. The rain gauges cover only one federal state of Germany but the head catchments in Austria and in the Southwest of Germany are not incorporated. If they simulate the upper Danube, then they have to take as well stations from those areas into account.

The description of database for the used hydrological model is missing. Is the model complexity with 4 layers with that resolution realisable from the available soil data set for an area 77000 km²? The calibration method is unclear. There is no information about uncertainties. The authors just present simulated soil moisture data. The description of the EMIRAD method is too curse. What is the penetration depth under different vegetation conditions? The presented results give no additional gain in understanding and improvement. It is not surprising that the rain gauge network is not able to get local precipitation events compared to radar data. What is the benefit for SMOS from their results? That is not clear. The EMIRAD data set of brightness temperature is only compared to the synthetic soil moisture, but no ground truth is presented.

Specific Comments:

P3387, L25: Add the wave length of the L-band

P3387, L25: Add the observation depth of the soil moisture and information of the influence of vegetation.

P3399, L25-29: That is not comparable. The authors cannot compare synthetic soil moisture accuracy with the accuracy of soil moisture sensors.

Fig.1 Add geographic coordinates and a figure of Germany.

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