

Interactive comment on “Validation of SMAP L2 passive-only soil moisture products using *in situ* measurements collected in Twente, The Netherlands” by Rogier van der Velde et al.

Anonymous Referee #1

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This manuscript developed a soil moisture dataset using *in situ* measurements and model simulations and then used the dataset to validate SMAP L2 product. In general, this manuscript is well written and easy to follow. It fits the scope of HESS. However, I have several concerns before considering to publish this work in HESS.

- 1) Validating satellite soil moisture product is necessary. However, this study focused on a very specific region (one SMAP pixel), which absolutely limits the value of this study. The authors need to clarify how such one-pixel evaluation can advance the understanding of satellite observed soil moisture.
- 2) If I understand correctly, the upscaling method used in this study is standardizing

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the model simulation by *in situ* observation. I would like to see how much improvement has been made by incorporating *in situ* values. If the improvement is tiny, then the contribution of *in situ* data is negligible. It doesn't make sense to assume model simulation as ground truth and to use it to validate other observations.

- 3) The authors keep using the model simulated root zone soil moisture. Please clarify why you don't use top 5-cm soil moisture from the model.
- 4) Please describe the uncertainties from *in situ* measurements and discuss how these uncertainties will influence the findings.

Other specific comments:

- 1) Title: “the Netherlands”. 2) Line 7: “RMSE”. 3) Table 2: what does “#” mean? 4) Table 3: reformat the table. 5) Figure 8: enlarge the temperature and precipitation.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-471>, 2019.

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