

# ***Interactive comment on “Required sampling-density of ground-based soil moisture and brightness temperature observations for calibration/validation of L-band satellite observations based on a virtual reality” by S. Lv et al.***

## **Anonymous Referee #1**

Received and published: 24 July 2019

This paper uses a model based virtual reality to determine the number of in-situ stations required to assess L-band soil moisture data. The paper is well written and is easy to read. There is a strong story through the paper leading the conclusions.

There are some minor technical revisions required (provided on the pdf) as well as three other revisions which would help to improve the quality of this already strong paper:

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- It would be interesting to see the comparison to actual in-situ soil moisture data to answer the question: is the theoretical number of stations ok when faced with real in-situ measurements? For this you would need to have a study area containing a high density of in-situ stations covering the SMAP period. I think it is worth checking if such a comparison could be done or if not recommending it for future research.

- I would have expected a little more discussion on the impact of topography as well as the sand and clay fraction. There seems to be some spatial patterns in the results which correspond to these.

- The study is currently done over a small area in Germany. More information on why this site is chosen is required and more, importantly, the applicability of the results of this study to other areas would be useful for the reader.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2019-192/hess-2019-192-RC1-supplement.pdf>

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-192>, 2019.

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