



## **A dynamic approach for evaluating coarse scale satellite soil moisture products**

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Validating coarse scale remote sensing soil moisture products requires a comparison of gridded data to point-like ground measurements. The necessary aggregation of in situ measurements to the footprint scale of a satellite sensor ( $> 100 \text{ km}^2$ ) introduces uncertainties in the validation of the satellite soil moisture product. Observed differences between the satellite product and in situ data are therefore partly attributable to these aggregation uncertainties. The present paper investigates different approaches to disentangle the error of the satellite product from the uncertainties associated to the up-scaling of the reference data. A novel approach is proposed, which allows for the quantification of the remote sensing soil moisture error using a temporally adaptive technique. It is shown that the point-to-area sampling error can be estimated within 0.0084