



Comparison of soil hydraulic properties determined from multiple Earth observation datasets

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Soil properties play an inevitable role in hydrological modelling and there by affecting the quantification of energy and water fluxes both regionally and locally. However, estimating soil properties through field experiments is still a challenge and the literature values do not represent the regional or local areas. The Earth observation datasets can provide the soil surface information. However, the current datasets are at coarse resolution and cannot be utilized for field level agriculture. This study inversely derives the soil hydraulic properties at 30 m resolution by downscaling various microwave Earth observation datasets. The downscaling of soil moisture is achieved with utilization of LANDSAT land surface temperature and normalized difference vegetation index. This product will help in better estimation of hydrological fluxes and also soil management for various hydrological applications and site-specific studies. The accuracy of the algorithm used in the present study is validated at the test site. The method proposed in this study can be implemented in regions where in-situ acquisition of soil properties is not feasible.