



## **Land Surface Modeling and Satellite Passive Microwave Monitoring: a Comparison of Top Soil Moisture Estimates and the Impact of Temporary Inundation**

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Near surface soil moisture content inferred from remotely sensed passive microwave emissions can improve hydrological and meteorological modeling, but the interpretation and assimilation of estimates is complicated by the large observation footprint and shallow signal source depth. Here, some aspects are discussed that refer to the sub-grid lateral variability of soil moisture content, more specifically the impact of temporary inundation on the satellite derived estimate.

For the regional subset of Oklahoma, West South Central USA, surface soil moisture estimates obtained with a retrieval algorithm, developed jointly at the Vrije Universiteit Amsterdam and NASA/GSFC, from the Advanced Microwave Scanner Radiometer (AMSR) on board NASA's Earth Observing System (EOS) Aqua satellite are evaluated against model output of the Community Noah Land Surface Model and Community Land Model (CLM2) operated within the Land Information System (LIS) forced with atmospheric data of a variety of sources, i.e. the NCEP Global Data Assimilation System (GDAS), the European Centre of Medium Range Weather Forecast (ECMWF) and the North American Data Assimilation System (NLDAS). The surface soil moisture retrievals and LSM output are further evaluated against point measurements from the Mesonet observational grid in Oklahoma.

Research results presented here indicate methods to screen data influenced by temporary inundation is a significant way to improve the accuracy and usefulness of satellite derived surface moisture estimates.