Soil moisture variability correlation with remotely sensed GLDAS Data using SWAT-model output data for Upper Godavari River basin.

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Abstract

Monitoring of temporal and spatial soil moisture variability of different layers at different depths is important to understand surface water and groundwater hydrology of the region. The objective of this study is to analyze the spatial variability of soil moisture at different depths. The study has been performed for the Upper Godavari river basin of India. The monthly observed data of soil moisture has been taken from Global Land Data Assimilation System (GLDAS) NOAH model of 0.25^0 spatial resolution at different depths of 0-10cm, 10-40cm, 40-100cm, 100-200cm and at the root zone depth. The soil moisture anomalies were calculated for available observed monthly data sets and correlated with derived soil moisture from SWAT model output. The Pearson Product-Moment Correlation and Spearman's rank correlation coefficient have been used for establishing the spatial correlation between soil moisture and SWAT model output of the region. The results of the study indicate that correlation of soil moisture and output soil moisture from SWAT of the study area harmonize well with each other.

Keywords

Soil Moisture, GLDAS NOAH, SWAT