

Spatial distribution of soil moisture at different soil depth

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The study of the soil moisture variability represents an important tool for understanding the dominant flow dynamics on the basis of the runoff mechanism generation during the flood events. Soil moisture data were collected during a period of 10 months using the Time Domain Reflectometry (TDR) technique. The study area is located on a hillslope of the Fiumarella of Corleto River catchment, monitored since different years by three hydro-meteorological stations and a stage-discharge apparatus. Soil moisture is measured along a transect of 11 sample site at two depths (30 and 60 cm), with a total of 22 probe that covered a length of about 60 m. The datalogger acquires in continuous at hourly scale and transmits the data in real time by GSM network. The purpose of this study is to analyze, from a statistical point of view, the acquired data highlighting the different behaviour between the temporal variations of the water contents measurements at 30 cm and 60 cm of depth. The precipitation registered from a rain gauge, sited near the TDR station, were taken in consideration to define the site wetness condition. Further investigations were conducted on the soil moisture spatial variability with particular emphasis to the morphological parameters influence: the topographic attributes, in fact, show their influence on the soil moisture spatial distribution in different way according to the wetter or drier climate conditions.