



Surface temperature from remote sensing observations and energy budget hydrological model for soil moisture retrieving

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The paper analyses the potentiality of the use of remote sensing observations of surface temperature (Ts) in hydrologic models for the soil moisture retrieving, comparing field data, modelling simulations and satellite remote sensing information. Due to the poor apparent link between remote sensing of Ts and surface soil moisture, the link between moisture and surface temperature is investigated through hydrologic model which considers energy and mass balance. The analysis of surface temperature through an energy budget model helps in improving the understanding of the possible use of Ts in an operative mode considering geometric and radiometric characteristics of the sensor, spatial variability of vegetation, soil properties and soil moisture (Detto et al., 2004; Kustas et al., 2004).

Two Italian study cases are presented, the Mulargia river basin and the Landriano experimental field that explain two very different situations from topography, climate and land cover. The first is a typical hilly basin with natural vegetation cover while the second is a plain area with intense agricultural practice.