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Estimation of the Degree of Saturation of Shallow Soils from Satellite Observations to Model Soil Slips Occurred in Emilia Romagna Region of Northern Italy

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ABSTRACT

For the development of alert systems for soil slip occurrence, it is important to evaluate the degree of saturation of shallow soils (Sr) over wide areas. Taking into account the possibility to estimate spatial and temporal variation of soil moisture using remote sensing techniques, a possible correlation between Sr and the daily output of a sequential data assimilation system called ACHAB (Assimilation Code for HeAt and moisture Balance) has been studied. ACHAB is based on integrated use of remotely sensed land surface temperature (LST) and common data on meteorological forcing such as air temperature, wind-speed and incident solar radiation. The aim of this study is to understand if it is possible to use ACHAB output (a daily value of evaporative fraction for the whole Italian territory) to define the parameter Sr that could be introduced in a simplified model for the description of soil slip triggering mechanisms on territorial scale.

KEYWORDS

Degree of Saturation, Soil Slip, Satellite Observations

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