



Temporal variability of soil water repellency in field conditions under humid Mediterranean climate (South of Spain)

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Soil water repellency (SWR) has become an important field of scientific study because of its effects on soil hydrological behavior, including reduced matrix infiltration, development of fingered flow in structural or textural preferential flow paths, irregular wetting fronts, and increased runoff generation and soil erosion. The aim of this study is to evaluate the temporal variability of SWR in Mediterranean rangeland under humid Mediterranean climatic conditions ($T^a=14.5$ °C; $P=1,010$ mm y^{-1}) in South of Spain.

Every month from September 2008 to May 2009 (rainy season), soil moisture and SWR was measured in field conditions by means of gravimetric method and Water Drop Penetration Test, respectively. The entire tests were performed in different eco-geomorphological conditions in the experimental site: North and South aspect hillslopes and beneath shrub and bare soil in every of them.

The results indicate that: i) climatic conditions seem to be more transcendent than the vegetal cover for explaining the temporal variability of SWR in field conditions; ii) thus, SWR appears to be controlled by the antecedent rainfall and soil moisture; iii) more severity SWR were observed in patches characterized by sandier soils and/or greater organic matter contents; and iv) the factor 'hillslope aspect' was not found very influential in the degree of SWR.