



## **Aspect and soil water repellency controlling water erosion in dry Mediterranean environment**

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Soil hydrological response in Mediterranean areas is usually highly complex due to the strong spatial variability. This fact is amplified by the marked seasonality of precipitations, which provokes dramatic changes in vegetation cover and soil properties, such as soil water content or soil water repellency (SWR). The goal of this study is to shed light on the relations between SWR, aspect and vegetation, determining the soil hydrological and erosive response throughout the rainy period in different microenvironments. Erosion plots were set up in the north- and the south-facing hillslope, in shrub-covered as well in inter-shrub patches, and rainfall, runoff, sediments and SWR were monitored. Soils showed water repellency at the end of the dry season in both microenvironments of the north-facing hillslope but only in covered patches of the south-facing one. With the onset of the wet season, SWR disappeared and runoff coefficients decrease dramatically in the north-facing hillslope, revealing the importance of SWR in the hydrological response. In the south-facing hillslope seasonal changes were less important and the hydrological behaviour was mainly modulated by the vegetation pattern. Sediment losses were also affected by SWR and it decreased in the wet season when repellency disappeared. Regarding precipitation, the main factor determining the hydrological and erosive response was rainfall intensity, regardless of the rainfall depth of the event.