



Fire impacts on water repellency of sandy soils in SW Spanish coast

Antonio Jordán (1), Lorena M. Zavala (1), Ángel J. Gordillo-Rivero (1), Miriam Muñoz-Rojas (2,3), Saskia Keesstra (4), and Artemi Cerdá (5)

(1) MED_Soil Research Group. University of Seville, Seville, Spain, (2) The University of Western Australia, School of Plant Biology, Crawley, WA, Australia, (3) Kings Park and Botanic Garden, Kings Park, Perth, WA, Australia, (4) Soil Physics and Land Management Group, Wageningen University, Wageningen, The Netherlands, (5) SEDER Research Group. University of Valencia, Valencia, Spain

Although water repellency of sandy soils from dune areas and their consequences (irregular wetting front, preferential flow pathways) are well studied, there is not much information about the effect of fire on hydrophobicity and its consequences in these areas. In this paper we study the in-depth variation of water repellency of burnt sandy soils from south-western Spain.

Generally, it was observed that water repellency from unburnt forest soils is relatively higher than in shrublands and grasslands (where the lowest values were observed). However, the impact of fire caused a strong increase of hydrophobicity in the first two cases, with no major differences between them. This study confirms the presence of natural water repellency in sandy soils, as well as some of its consequences (irregular infiltration or increased surface water flow) depending on the type of vegetation, although the differences observed in burnt soils suggest that, although the composition of vegetation is important in the formation of natural water repellency, organic matter content is much more important in the case of burnt soils.