



Hydrological response of a Mediterranean agricultural catchment on a Vertic soil

J.A. Gomez (1), E. Taguas (2), and F. Licciardello (3)

(1) CSIC, IAS, Cordoba, Spain (joseagomez@ias.csic.es, +34 957499252), (2) University of Cordoba, Rural Engineering Department. Campus Rabanales, 14071 Córdoba (Spain). , (3) University of Catania, Department of Agro-food and Environmental System Management. Via Santa Sofia, 100, 95123 Catania (Italy).

Hydrological response of vertic soils is strongly controlled by the modification of its hydraulic conditions by the shrinking and swelling cycles, which are controlled by the climatology of the year. This presents additional challenges to the already difficult task of hydrologic and erosion modelling at hillslope and catchment scale (Allen et al., 2005). However, there is limited experimental information on the hydrologic response of vertic soils at catchment scale.

This communications presents a preliminary evaluation of the hydrologic impact of an small, 8 ha, catchment in Southern Spain covered by olive groves on a vertic soil. This evaluation is made on the runoff and rainfall records measured at catchment scale from September 2006 to August 2011, and at runoff plot scale from September 2000 to August 2004 and September 2009 to August 2011. These results are analyzed following the same statistical analysis described by Taguas et al. (2009) enlarging this analysis with an evaluation of the correlation between the hydrologic response of the catchment, with the evolution of the soil water content in the orchard simulated using a conceptual soil water balance model, WABOL (Abazi et al., 2012)

The results of the analysis will be discussed in relation to the variability of the hydrologic response at different time and spatial scales (catchment and hillslope) and its implications for modelling and extrapolation to similar soils under different climate and crop conditions.

References

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