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Plot scale dynamics of soil moisture in a Mediterranean mountain area

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Soil water content has paramount importance in hydrology, influencing soil-atmosphere interactions as well as hydrological processes. Moreover, soil water content is characterized by a great spatio-temporal variability, which increases the non-linearity of the hydrological processes.
The Can Vila catchment (located in the Vallcebre research area, NE Spain) has been monitored since 1995 to better understand of the hydrological response of Mediterranean catchments as well as their internal hydrological dynamics. In this catchment, representative of the majority of the slopes in the area, original topography was modified in the XIX century by the construction of small agricultural terraces, nowadays abandoned.
To illustrate the local spatio-temporal dynamics of superficial (30cm) soil water content, an abandoned terrace (1000 m2) was monitored (2004-2006) with 128 automatic TDR probes, installed vertically along a regular grid.
The local soil water content variability and the effect of climatic and seasonal variability have been studied analysing different periods with contrasted hydrological characteristics (wet-dry periods). Soil water content variability has been evaluated using the relationship between mean soil water content and standard deviation, as well as by the temporal stability of mean soil water content. Besides, differences in the spatial organization of soil water content during contrasted hydrological conditions have been evaluated.