



Combining hydrometric, geochemical and modelling approaches to evaluate baseflow contribution in a Mediterranean catchment

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This work presents the results obtained through three different approaches, used to characterize baseflow contribution in the Can Vila catchment (0.56km²) located in the Catalan Pre-Pyrenees. The first approach is purely hydrometric, and makes use of the observed relationship between water table depth and discharge during recession periods. The second approach relies on geochemistry and used DOC as a conservative tracer. Finally the third approach derived from an application of TOPMODEL (conditioned on the master recession curve and on the relationships between recession discharge, water table depth and the extension of saturated areas). All of these three approaches establish a 2 components separation of the hydrograph, between “storm runoff” and “baseflow”. The study period is a sequence of 4 successive floods of late 2003 (illustrating the typical autumn transition from dry to wet conditions) that allow characterizing changes in the runoff generation dynamics. Results show a relatively good coherence between the different approaches, concerning the relative contribution of subsurface flow during floods. However each of the methods suggests a somewhat different within-flood dynamics of the subsurface contribution and illustrates the necessity to complete this analysis with internal information of the catchment in order to draw a more detailed picture of its hydrological functioning.