



Analysing flow and suspended sediment dynamics at the event scale in a small Mediterranean mountain basin (Vallcebre, Eastern Pyrenees).

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The Vallcebre experimental catchments were set up in 1990 for studying hydrological and erosion processes in an area in the headwaters of the Llobregat River, located between 1,100 and 1,500 m a.s.l. in the Catalan Pyrenees. The bedrock consists mainly of red clayey mudstones with some gypsum and sandstone layers. Annual precipitation is about 925 mm and mean annual temperature is about 9°C. Can Vila is a 0.56 km² sub-catchment characterised by the presence of meadows on abandoned agricultural terraces and sparse vegetation (66%), pine woodlands (33%) and severely eroded areas (1%), located in the headwaters. Discharge, turbidity and suspended solid content data have been obtained by means of sensors and automatic samplers located in a gauging station at the outlet of the catchment. The characteristics of the events occurred in the last 5 years have been analysed in order to infer the acting processes. Runoff coefficients were independent on precipitation characteristics but were higher in winter whereas precipitation intensities were higher in summer. Peak discharges were related to the precipitation volumes but not to their intensities, whereas peak sediment concentrations were related to precipitation intensities and short response times. Suspended sediment concentration peaks usually preceded discharge peaks, although sediment peaks were delayed during some short events produced by high intensity storms in the equinoxes. These results confirm that the saturation mechanisms are responsible for the main floods, which transport most of the sediments, whereas intense rainstorms during the warmer months produce small floods and active erosion in the degraded areas.