



Flood events in small mountain catchments : observations and results from the Draix experimental basins (French South Alps)

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The floods generated in small mountains basin are flash floods often devastating. Predicting runoff, erosion and sediment yield within mountainous catchments presents a strategic interest due to the consequences which arise from these phenomena and the need for natural hazard mitigation engineering. The need to quantify the phenomenon and the effect of the restoration strategies led the Cemagref to monitor a group of little basins in the Southern French Alps : the Draix field Observatory on hydrological and erosional processes in mountain areas. The main goal of this laboratory is to improve the prediction of the runoff and erosion response of small mountain catchments to climatological inputs (precipitation and temperature), particularly for extreme events. A focus is given on the spatial and temporal variability of rainfall at the scale of a small mountainous catchment, on the hydrological response of these small catchments to this input, on the role of the vegetation cover in these processes.

The experimental basins of Draix are located 200 km South of Grenoble, near the little town of Digne. Five basins have been equipped since 1982 for the measurement of rainfall, liquid discharge and solid transport, which can be both bedload and suspension. These basins have different areas, from 1300 m² to 1 km². Four are located in denuded areas with vegetation cover ranging from 21 % to 56 %; the last one was reforested at the end of the last century, within the frame of restoration works. 87 % of its surface area is now covered with a pine forest. The paper will present a summary on the conditions of occurrence of the high floods for the different basin scale.

As two catchments of nearly 1 km², have homogeneous but different vegetation covers, a comparison can be made and highlights the effect of the vegetation cover on the flood generation.