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Assessing the effect of land-use changes on streamflow: floods under different plant cover in the Central Spanish Pyrenees.

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Plant cover is increasingly considered as one of the most important factors in explaining streamflow and, specially, the temporal evolution of discharge. Three small experimental catchments have been monitored in the Central Spanish Pyrenees, in order to assess the hydrological response as well as sediment transport according to different plant covers. The first catchment, Arnás, was cultivated until the middle of the 20th century, and later abandoned; it can be considered as representative of intensively human-disturbed environments, with the oldfields subject to a process of plant recolonization. The second catchment, San Salvador, is covered by a dense forest and represents a non-disturbed landscape. These two catchments located on Flysch substratum. Finally, the third one is a badland area affected by intense and fast erosion processes, thus representing extreme of degraded environments. The three catchments are subject to the same rainfall characteristics. The study of different floods and the factors that explain their variability allows us to underline the role of plant cover on the variability of peak flows.