

CHECK-DAM FAILURES AS SEDIMENT SOURCE DURING AN EXTREME EVENT

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During the so-called Biescas campsite disaster (August, 7, 1996), occurred in the Central Spanish Pyrenees, a peak flow between 300 and 500 m³ s⁻¹ was caused by a very intense rainstorm. The total precipitation estimated for 1 hour is around 200 mm, with an intensity of more than 400 mm hour⁻¹ during 10 minutes. During the flood, 31 of a series of 36 check-dams located in the final stretch of the Aras ravine were destroyed, as well as the canalization works built during the first half of the 20th century. As a consequence of the break-down of the check-dams, a large volume of coarse, heterogeneous sediment was mobilized and partially deposited in the alluvial fan. The rest of the catchment, except for the channels, did not supplied large quantities of sediment, in spite of the high runoff coefficient (more than 80%). Fluvial and hyperconcentrated flows (almost debris flows) covered the alluvial fan in a relatively organized manner. Total sediment has been estimated in 130,000 tons, that is, a rate of 72 tons ha⁻¹ during one extreme event.