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The suspended sediment response of different land uses to rainstorm events: Time compression in the Aísa Valley Experimental Station

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Many studies on soil erosion underlined the importance that a few daily erosive events are the responsible for a high proportion of geomorphological work and sediment load. This connects with the concept of Time compression. In the Aísa Valley Experimental Station time compression is analysed in order to analyse the effect of the largest events on suspended sediment load. The problem is focused on the response of different land uses, typical from both the traditional and present land management in Mediterranean mountain areas, including dense shrub cover, grazing meadow, abandoned field, cereal cultivation, in-fallow land and both active and abandoned shifting agriculture. 649 rainfall events were recorded since January 1995.

The results obtained confirm the importance of the largest events for explaining the geomorphological work during a few events. The three largest events range between 22 and 75% of the total accumulated suspended sediment load, whereas the five largest events range between 33 and 79%. In all the land uses the 25 largest events represent more than 80% (and even more than 90%) of the total suspended sediment load recorded since 1995. Although differences were observed between the different land uses, no statistical significant differences were recorded; the dense shrub cover and the grazing meadow plots show a moderate response against the most intense rainstorm events; and the fallow land, abandoned shifting agriculture and active shifting agriculture plots show a high "time compression", with most of sediment yielded during few events.