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## Improving our understanding of sediment and dissolved solids export in Mediterranean croplands: comparative analysis of the response of watersheds with contrasting characteristics

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Adequately assessing the export of sediments and dissolved solids at the outlet of representative watersheds provides extremely interesting information on the behavior of these watersheds, with important environmental and management implications. To this end, the Government of Navarre (Spain) began to implement in 1995 a network of five watersheds representative of different agricultural and forestry conditions in Navarre. La Tejería and Latxaga watersheds, occupy about 200 ha each in a humid sub-Mediterranean climate and are almost completely cultivated with winter grain. Oskotz Principal watershed comprises 1,688 ha under sub-Atlantic climate, most of it covered with forest (61%) whereas the remaining area is covered by pastures and arable land. Within the Oskotz watershed, a 434 ha sub-watershed almost fully covered with forest namely Oskotz Forested, is also monitored. Landazuria watershed covers an area of 480 ha being its climate dry Mediterranean. Over 88% of the watershed area is cultivated, with about 60% of the total cultivated area under pressurized irrigation systems. The rest of the cultivated surface is rainfed agriculture. Average anual suspended sediment concentration are 182 mg/L for La Tejería, and 38, 12, 12, and 30 (median) for Latxaga, Oskotz Principal, Oskotz Forested and Landazuria, respectively. Average anual exported sediment are  $4.3 \pm 3.7$ ,  $1.4 \pm 1.7$ ,  $1.2 \pm 0.9$ ,  $0.7 \pm 0.6$  and  $0.3 \pm 0.5$  Mg/ha for the same watersheds. The average annual export of dissolved solids for the same watersheds is 1.1, 1.1, 2.2, 1.9 and 2.2 Mg/ha.

As for 2010, the 5,500 ha Cemborain river basin (583 mm of precipitation at its outlet) has been incorporated into the monitoring, with the intention of understanding the behavior of a much larger and more complex basin. The dominant land uses are forestry and scrubland (70% of the basin), while cultivated soils cover about 25% of the surface area. The data corresponding to this basin, still very preliminary, are presented for the first time and contextualized in this work. The mean suspended sediment concentrations in Cemboráin are 120 mg/l, with a great temporal variability, increased by suspiciously high values in summer, possibly due to the presence in the samples of various residues instead of sediments. The average sediment export at the outlet of the basin is 3 kg/ha/day in the winter months (January to March), which is 5.0 and 2.8 times lower than those found in La Tejería and Latxaga watersheds (the most similar in terms of climate and soils) for the same period. The average export of dissolved solids was 2.2 kg/ha/day, a figure 3.7 and 4.6 times lower than those found in La Tejería and Latxaga watersheds, respectively.

Practically all exports in Cemborain have occurred between December and March. The low sediment export figures are consistent with what is to be expected given that the soil is much more protected than in the cereal basins.