

Actual geomorphological processes on steep hillslope vineyards. A comparison of Ruwertal (Germany) with the Montes de Málaga (Spain).

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Nowadays, steep hillslope viticulture areas are one of the most complex agricultural eco-geomorphological systems in Europe. Precisely, the vineyards of the Ruwer-Mosel valley (Germany) and Montes de Málaga-Axarquía (Spain) are one clear example. Both regions are characterized by frequent heavy rainfall events, concentrated in summer (Germany) and autumn-winter (Spain), and intensive and not conservative land use managements on the soil (application of vine training systems, herbicides, non ecological amendments, anthropic rills generated by wheel traffic, footsteps in Germany and built by hoes or shovels in Spain).

The goals of this work were: i) to determine and to quantify the hydrological and erosive phenomena in two traditional hillslope vineyards in Waldrach (Ruwer-Mosel valley, Germany) and Almáchar (Montes de Málaga-Axarquía, Spain); ii) to compare the geomorphological and hydrological dynamics of these study areas during diverse seasons and under different management conditions (Mediterranean and Continental climatic contexts, application of machineries, traditional protection measures...). For this purpose, a combined methodology performed by Trier and Málaga Universities with soil analysis, sediment traps, rainfall simulations and Guelph permeameter were applied.

The main results showed high soil erosion and similar variations in the runoff and infiltration rates. In both study areas, geomorphological and hydrological dynamics registered several spatiotemporal variations along the upper, middle and foot slope, and during different seasons (before and after the vintage, and between the dry and humid period).