



Comparative analyses of factors determining soil erosion rates based on network of Mediterranean monitored catchments for the innovative, adaptive and resilient agriculture of the future

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In order to project the soil erosion response to climate change in the fragile Mediterranean region it is inevitable to understand its existing patterns. Soil erosion monitoring on a catchment scale enables to analyse temporal and spatial variability of soil erosion and sediment delivery, while the integrating study of different catchments is often undertaken to depict the general patterns. In this study, eight small catchments (with area up to 1,32 km²), representative for the western part of the Mediterranean region (according to climate, bedrock, soils and main type of land use) were compared. These catchments, grouped in the R-OS Med Network were situated in France (3), Spain (2), Portugal (1), Italy (1) and Tunisia (1). The average precipitation ranged between 236 to 1303 mm·a⁻¹ and mean annual sediment yield varied 7.5 to 6900 Mg·km⁻²·a⁻¹. The complex database was based on more than 120 years of hydrological and sediment data, with series between 3 and 29 years long. The variability of sediment data was described on annual and monthly basis. The relationship between the sediment yield and more than 35 factors influencing the sediment yield including the characteristics of climate, topography, rainfall, runoff, land use, vegetation and soil cover, connectivity and dominant geomorphic processes, was studied. The preliminary results confirmed the differences in rainfall, runoff and sediment response, and revealed both the similarities and differences in soil erosion responses of the catchments. They are further dependent on the variability of factors themselves, with important contribution of the state of soil properties, vegetation cover and land use.

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