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Synoptic atmospheric patterns expressed as weather types and their relationships with runoff and erosion around Mediterranean basin

Dhais Peña Angulo, Estela Nadal Romero, and the Weather Types and Soil Erosion Team

Departamento de Geografía, Instituto Universitario de Ciencias Ambientales (IUCA), Universidad de Zaragoza, Zaragoza, Spain

As a consequence of international collaborative efforts around the Mediterranean basin, this contribution presents some initial results of different research groups related to the analysis of climate and soil degradation by water, following the weather types approach. This global research has been possible after the compilation of the most complete database of runoff and soil erosion and sediment yield data around the Mediterranean basin, including records from 68 locations and with 22458 events recorded between 1985-2015.

Previous analysis has shown promising results about the relationships between weather types and rainfall, runoff and sediment yield, providing a specific spatial classification. In this contribution, we investigate the specific weather types that produce the maximum daily records in each site to compare these results with the global classification previously established1. In addition, given that rainfall patterns in the Mediterranean are becoming more erratic, these results could offer important clues for hydrologic planning and soil conservation measures.

1 Nadal-Romero, E., et al., 2017. Spatial variability of the relationship of rainfall, runoff and sediment yield to weather types around the Mediterranean basin. Environmental Research Letter. Submitted