

## Relation of runoff and soil erosion to weather types in the Mediterranean basin

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Erosion processes and land degradation are recognized as one of the most significant environmental problems worldwide. In the Mediterranean region, intense erosion processes occur as a consequence of complex interactions between environmental conditions (e.g. climate, lithology) and human-related factors (e.g. history of human activity, land use changes) (García-Ruiz et al., 2013).

Precipitation has been recognized as one of the main factors driving soil erosion. In climatology, one of the most common approaches in analyzing spatial and temporal precipitation variability is the circulation of weather types (WTs), which categorize the continuum of atmospheric circulation into a small number of classes or types. Flood generation and soil erosion are associated with specific weather conditions. Previous research in the Iberian Peninsula has analyzed the relationship between precipitation and specific WTs, demonstrating that specific WTs are the main drivers of precipitation and soil erosion in the different areas (Cortesi et al., 2014; Nadal-Romero et al., 2015).

In this study, we present a preliminary analysis of WTs and runoff and soil erosion data from 50 study areas in the Mediterranean basin including different land uses. To do so, we have collected and jointed different research groups cross the Mediterranean Basin, and combined different databases (plots and small representative catchments) with the WT classification calculated using the NCEP/NCAR 40-Year Reanalysis Project. This pioneer research will be a valuable tool in understanding the relationships between weather types, precipitation and soil erosion dynamics.

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