Geophysical Research Abstracts
Vol. 16, EGU2014-133, 2014
EGU General Assembly 2014

Weather types, precipitation and soil erosion in the Iberian Peninsula

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For a long time, precipitation has been recognized as one of the main factors driving soil erosion and sediment yield. In climatology, one of the most common approaches in analyzing precipitation is the circulation of weather types (WTs), which categorize the continuum of atmospheric circulation into a small number of classes or types. In the Iberian Peninsula (IP), previous researches have demonstrated the usefulness of the WT approach in determining the behavior of rainfall, and its spatial and temporal distribution. These studies have shown that specific weather types are the main driven factors of precipitation distribution accordingly different areas, and shown that precipitations depends on more WTs to the west than to the east of the IP. In this study, we present an analysis of weather types and sediment yield data from different study areas in the Iberian Peninsula. To do that we have collected and joint different research groups spread along the national Spanish land, and combine different databases with the WT classification calculated using the NMC/NCAR 40-Year Reanalysis Project.
We discuss two main hypotheses: (i) there exist some links between weather types and soil erosion in the Iberian Peninsula, and then (ii) spatial patterns of sediment yield and erosion would be emerged in the Iberian Peninsula accordingly the spatial distribution of the relationship between WTs and sedimentary processes.
This pioneer research, with different areas across the Iberian Peninsula will be a valuable tool in understanding the relationships between weather types, precipitation and soil erosion dynamics.