



Heavy rain events in the Western Mediterranean: an atmospheric pattern classification

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Western Mediterranean areas are sometimes affected by High Impact Weather, that could produce severe damages with both economic and social consequences. Due to their importance, special attention has been deserved to Heavy Rain events. The present study is devoted to improve the knowledge of the atmospheric patterns that lead to Heavy Rain events in the Western Mediterranean regions.

Heavy Rain events are collected from the MEDEX database for the Spanish and French Mediterranean regions, from January 1997 to May 2004. The atmospheric patterns classification is made from the analyses of HIRLAM-INM-0.5, in detail, from the geopotential heights at 1000 hPa and 500 hPa, and the temperature at 850 hPa.

First of all, the number of variables is reduced by means of a Principal Components Analysis (PCA). After that, the Cluster Analysis (CA) is applied on this new variables, and finally, eight atmospheric patterns are obtained. Results show that the atmospheric patterns discriminate among the heavy rain affected regions.