



Analysis of changes in heavy precipitation in Italy and connection to atmospheric circulation

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In this study we present results from a comprehensive analysis of the changes in precipitation extremes in Italy carried on using long term time series recorded at an high number of ground stations in the Country in the period 1971-2009. The precipitation time series has been checked for inhomogeneities and spatial and temporal pattern of changes in the extreme events of precipitation are evaluated considering the ETCCDMI – Climate core precipitation indices. In addition, precipitation extreme events have been correlated with large scale circulation patterns leading to intense events over the region in order to better understand the mechanisms leading to intense daily precipitation. Although the complexity of the national territory acts directly on the precipitation regime and a coherent pattern of change all over the Country cannot be clearly detected, however, some trends in the temporal evolution of a number of indices has been detected as illustrated in this paper.

In order to increase the significance of the results and to explore more in detail the extreme precipitation trends, the national territory has been divided into climatically homogeneous regions and spatial and temporal patterns of changes for each region are presented.