



Spatial and temporal changes in precipitation in Tuscany

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Climate change implications and detections are becoming an important field of research, and climate change science interests not only scientists and specialists but also national governments and common people. An important issue related to this science is covered by the modification of precipitation regime and their repercussions in term of drought periods, water resources availability or flood risk modification. The general lack of long sequences of data increase the difficulties in analyze long periods of climatic events. Here the authors provide a spatial analysis of trends in 6 indexes of precipitation regime. Through spatial interpolation techniques, a specific methodology is adopted to use more data than usual, which include the gauges with very short time series, even only 1 year long. The six indexes are: Total Annual Precipitation (TAP), the number of wet days (precipitation > 1 mm), the Precipitation Concentration Index (PCI), the number of days with more than 10 mm of precipitation, the maximum number of consecutive dry days (precipitation < 1 mm) and the Standardized Precipitation Index (SPI). The analyzed region is Tuscany, in the central part of Italy, with a dataset of 785 recording rain gauges, covering mainly the second half of 20th century. The Mann-Kendall test, modified to take into account the autocorrelation on the data, is employed for the distributed trend analyses. The results do not show any clear signal of changes in the precipitation in Tuscany during the last century. Effects of climate modifications in the analyzed region are not significant through the precipitation.