



Analysis of precipitation in Cyprus for trends or changes

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Statistical analysis of precipitation in Cyprus reveals a decrease of precipitation amounts in the last 30 years. The objective of this paper is to analyze recorded precipitation over the island Cyprus in search for trends or changes.

There are many different ways in which changes in hydrometeorological series can take place. A change can occur abruptly (step change) or gradually (trend) or may take a more complex form. A climatic change is often recognized as a progressive trend. Also, there are many approaches that can be used to detect trends and other forms of non-stationarity in hydro-meteorological data. In deciding which approach to take, it is necessary to be aware of which test procedures are valid (i.e. the data meets the required test assumptions) and which procedures are most useful (likely to correctly find a change when it is present).

The present study makes use of the annual and monthly precipitation records. The statistical analysis of the records available over the period 1917-2000 demonstrates that the precipitation time series presents a step change or shift around 1970 and can be divided in two separate periods. From 1917 to 1970, the precipitation records do not show any trend. From 1971 to 2000, the data show a slight decrease in the precipitation but this trend is not significant compared to the variations from year to year.

The shift in mean precipitation is larger in the central mountainous sector than in other areas. The mean of the annual precipitation of the recent period is 100 mm or more lower than mean of the older period at almost every location of elevation higher than 500 m. This decrease ranges from 15% to 25% of the mean precipitation of the first period. The decrease of the annual precipitation is essentially due to a decrease of the precipitation during the months of December, January and February.