



The impact of an Upper Troposphere Teleconnection Pattern on precipitation extremes over Cyprus

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The Eastern Mediterranean Teleconnection Pattern (EMP) is an upper troposphere dipole (teleconnection pattern) that was identified in the geopotential height fields of 300 and 500hPa during winter, between Eastern Mediterranean and Northwestern Europe. This study investigates the impact of the EMP on precipitation over Cyprus, more specifically, how the phases of the EMP dipole are related to periods of prolonged precipitation extremes.

A standardised teleconnection index determining the phases (positive and negative) and the strength, as well as the time variation of the pattern was constructed. The identification of the precipitation extremes was performed with the aid of climatic indices. On a network of 8 rain gauge stations situated in Cyprus, various indices were selected and applied in such a way to best represent the duration and intensity of prolonged dry and wet periods in each station.

It was found that EMP has an impact on precipitation over the region examined. The two phases of the pattern have an inverse effect on the precipitation extremes. Some of the indices employed indicate some relationship between EMP and precipitation extremes. During the negative phase of the EMP, it was found that there is a decrease of precipitation and precipitation extremes over Cyprus, whereas, during the positive phase an increase of precipitation extremes is observed.