

Trends in Extreme Indices for Israel based on a new daily homogenized database

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Abstract:

This study examines the 1950-2017 temporal changes in temperature and precipitation climate extremes over Israel, which is located in the East-Mediterranean region. This region suffers from scarcity of long and reliable datasets. A thorough homogenization routine, which involves some of the state-of-the-art methods, was developed in order to detect and adjust artificial shifts due to changes in the measurements conditions such as: station relocation, instrumental modification and local environmental changes). As a consequence, a new daily adjusted dataset that contains 34 temperature and 60 precipitation stations was generated. Based on this new daily homogenized dataset, extreme indices recommended by the Expert Team on Climate Change Detection and the Expert Team on Sector-specific Climate Indices were calculated. Results showed highly significant changes in temperature extremes associated with warming, especially for those indices derived from daily minimum temperature along a reduction in the total precipitation amount and a tendency toward more intense wet days. The homogenization process, followed by some of the changes observed in the extreme indices of Israel will be presented.