



- Title: Observed Abrupt Changes in Minimum and Maximum Temperatures in Jordan in the 20th Century
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- Abstract: This study examines changes in annual and seasonal mean (minimum and maximum) temperatures variations in Jordan during the 20th century. The analyses focus on the time series records at the Amman Airport Meteorological (AAM) station. The occurrence of abrupt changes and trends were examined using cumulative sum charts (CUSUM) and bootstrapping and the Mann-Kendall rank test. Statistically significant abrupt changes and trends have been detected. Major change points in the mean minimum (night-time) and mean maximum (day-time) temperatures occurred in 1957 and 1967, respectively. A minor change point in the annual mean maximum temperature also occurred in 1954, which is essential agreement with the detected change in minimum temperature. The analysis showed a significant warming trend after the years 1957 and 1967 for the minimum and maximum temperatures, respectively. The analysis of maximum temperatures shows a significant warming trend after the year 1967 for the summer season with a rate of temperature increase of $0.038^{\circ}\text{C}/\text{year}$. The analysis of minimum temperatures shows a significant warming trend after the year 1957 for all seasons. Temperature and rainfall data from other stations in the country have been considered and showed similar changes.