Analysis of the Trends in Observed Extreme Temperatures in Mainland Chile Between 1966 and 2015 Using Different Indices

Meseguer-Ruiz, Oliver

Corvacho, Oscar

Tapia Tosetti, Alejandro

López-Cepeda, José F.

Sarricolea, Pablo

Air temperature records provide strong evidence of change and variability in the climate system. The sensitivity of temperature to changes throughout the year renders it an ideal object of study when seeking to identify trends and changes in the frequency of extreme events. This study analyses temperature records from 18 stations in mainland Chile. By applying Mann?Kendall?s non-parametric test to the data series and calculating specific extreme temperature indices, it is possible to identify significant trends in the series recorded from 1966 to 2015. The results show positive trends for both the minimum and maximum temperature series, although they are more marked for the former, especially during the warm months. The trend analysis of the extreme indices proposed by the Expert Team on Climate Change Detection and Indices, when applied to the data from the stations studied, suggests that there has been an increase in the frequency and intensity of warm extremes, whereas cold events manifest a negative trend, revealing differences between meteorological stations located in the north of mainland Chile and those in the centre and south.