



Frost days and tropical nights in the Iberian Peninsula, 1929-2005

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Seasonal changes of extreme daily temperature indices (frequency of frost days, and tropical nights) of 25 stations in the Iberian Peninsula from 1929 to 2005 are investigated. Cluster analysis is used to identify homogeneous groups of stations with similar thermal regimes. The Mann-Kendall test is applied to look for statistically significant trends. The results shows a significant decreasing trend (-0.6 days/decade), especially from 1965 onwards, in the frequency of frost days for coastal stations, and significant increasing trends, from 1980 onwards, especially important to the southeast of the Iberian Peninsula (+3.8 days/decade) for summer tropical nights. The behavior of winter frost days index is related to the evolution of winter NAO and EA patterns (with increasing trends in the last decades of the 20th century). Although multiple regression models establish a relationship between summer indices and the SCAN pattern, the behavior of residuals indicates that summer indices must be explained by other causal mechanisms.