



## **Comparative analysis of daytime and night-time extreme hot event processes in several Spanish observatories**

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This work aims, first, to analyze the observed change in summer maximum and minimum daily temperatures,  $T_x$  and  $T_n$  respectively, during the period 1950-2005, in seven Spanish locations, Albacete, Barcelona, Burgos, La Coruña, Madrid, Murcia and Sevilla, sited in highly different climatic regions inside the Iberian peninsula. Then, we focus on the analysis of their extreme hot events, heat waves for  $T_x$  and tropical night runs for  $T_n$ , defined simply as periods where the corresponding variable exceeds a given extreme threshold, the 95th percentile of daily data, from June to August, in the period 1971-2000. We study the extreme hot event processes from both maximum and minimum temperature series; an analysis of the relationship between their temporal occurrence is also performed.

Finally, we characterize the extreme hot event behaviour by means of a statistical model, see Abaurrea et al (2006), consisting of a non-homogeneous Poisson process, for representing the occurrence, and three regression models, each one with an adequate non-Normal error distribution, to model severity properties such as length or intensity. The model parameters are allowed to depend on temperature mean values for taking into account the global warming influence in hot event generating processes. An evaluation and comparison of the resulting models for the maximum and minimum temperature series and for the different locations is performed.

### **References**

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