

## **Climatic and Meteorological Thermic Anomalies analyzed from a long temperature data series on Western Mediterranean area, 1780-2010**

J. Mazón (1) and M. Barriendos (2)

(1) Applied Physics Department, Polytechnic University of Catalonia – BarcelonaTech. , (2) Department of Modern History, University of Barcelona, Spain (mbarriendos@ub.edu)

Scientific context of climatic change offer no optimistic aspects for temperature regimes on Mediterranean area. Increasing temperatures and more frequent presence of subtropical highs can produce a new scenario with climatic and meteorological events of anomalous high temperatures.

On this context, climatic modelling prepares new scenarios and administrations can prepare strategies to reduce impacts on population. Long data series can also help on this matter. A good knowledge of previous climatic patterns at high resolution can contribute to improve analysis of present events and climatic modelling.

Recent anomalous events are studied in this work. First, a climatic anomaly recorded during summer of 2003. Western Europe recorded an anomalous summer with high temperatures. Most evident element was, for example in Barcelona, a continuous record of minimum temperatures higher than usual, with values always higher than 20°C and frequently higher than 25°C. Data available for all 20th Century didn't have a similar summer hot conditions. However, 19th Century records show five similar events.

Second aspect to be considered are meteorological events, when hot air masses from Sahara are moved to Western Mediterranean basin by high pressures centred on mid Mediterranean. SW winds produce strong anomalies at hourly resolution. Last case of August 2010, analysed also using the MM5 simulation, produced increases of 12°C into periods of 6-8 hours. Study of historical series of Barcelona can also help to detect similar patterns in the past.

Objective of this work is a characterization of these climatic and meteorological anomalous events taking in consideration data series with enough duration, more than 200 years. Frequency and detailed characteristics of these events can be showed in order to a better analysis of them.