



Flash heat events: the case of 27th August 2010 in northeast of Iberian Peninsula

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According to the WMO, heat wave is a phenomenon in which the daily maximum temperature of more than five consecutive days exceeds the average maximum temperature by 5°C, with respect to the 1961-1990 period. This definition has slight variations in the values of the exceeded temperature with respect to the average temperature depending on the national weather service. However, in all regional definitions a common characteristic is found: it is necessary at least a duration of 2 consecutive days of abnormal values of temperature.

If a local scale is considered, the glossary of the American Meteorological Society defines a phenomenon called heat burst as a rare atmospheric event characterized by gusty winds and a rapid increase in temperature and decrease in humidity. Heat burst can last some minutes.

On 27th August 2010 an event associated to a large increase of temperature and decrease of humidity in an intermediate temporal and spatial scales between heat waves and heat burst, was produced in many areas in the Northeast of the Iberian Peninsula. This event which we propose to name “flash-heat” lasts 12 hours. From more than 8 hours the maximum temperature exceeds in more than 5°C the average daily temperature. At noon the temperature recorded was 39.3°C, the largest value in 250 years (1780-2012). The days before and after that day the values of temperature (and humidity) were the typically values for this period of the year. Thus, we cannot define this event as heat wave or heat burst.

By using MM5 model and data from a weather station placed in Barcelona this event is studied, and a flash heat definition is proposed, and some impacts produced on several fields (mainly in agriculture, energy demand, health and fires) are presented.

According to the simulation the cause of this flash heat event was as a consequence of an advection of the very warm and dry air accumulated for several days in the South and center of the Iberian Peninsula, affected by a heat wave.