



Flash heat simulation events in the north Mediterranean basin

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According to the definition of flash heat event proposed by Mazon et al. in the European Meteorology Meeting (2011 and 2012) from the studied case produced in the Northeast of the Iberian peninsula on 27th August 20120, some other flash heat events have been detected by automatic weather stations around the in the Mediterranean basin (South Italy, Crete island, South Greece and the northeast of the Iberian peninsula).

Flash heat event covers those events in which a large increase of temperature last a spatial and temporal scale between heat wave (defined by the WMO as 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) and heat burst (defined by the AMS as a rare atmospheric event characterized by gusty winds and a rapid increase in temperature and decrease in humidity that can last some minutes). Thus flash heat event may be considered as a rapid modification of the temperature that last several hours, lower than 48 hours, but usually less than 24 hours.

Two different flash heat events have been simulated with the WRF mesoscale model in the Mediterranean basin. The results show that two different mechanisms are the main causes of these flash heat events. The first one occurred on 23rd March 2008 in Crete Island due to a strong Foehn effect caused by a strong south and southeast wind, in which the maximum temperature increased during some hours on the night at 32°C. The second one occurred on 1st August 2012 in the northeast of the Iberian Peninsula, caused by a rapid displacement of warm a ridge from North Africa that lasted around 24 hours.