

# Conference on European Tornadoes and Severe Storms

## CAPE Values and hailstorms in Northwestern Spain

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Hailstorms are frequently observed in Spain during summer. The important damages to the crops have led the public authorities to promote research on hail climatology. One of these research projects is being carried out since 1985 in the province of León, in the northwest part of the Iberian Peninsula.

The occurrence of hailstorms in the study zone (more than 6000 km<sup>2</sup>) in the province of León is determined by means of a dense network of observers (one observer every 17 km<sup>2</sup>). There are 250 hailpads homogeneously distributed in a smaller area of 1000 km<sup>2</sup> within this study zone. These hailpads are used to measure the physical characteristics of the hailstones. The data about the vertical profile of the atmosphere are provided by a radiosounding launched early every morning. Apart from obtaining a daily updated prediction from this radiosounding, it also provides certain variables that are used to characterize the atmospheric instability and the intensity of the precipitation.

One of the variables used more frequently to analyse the convective potential of the atmosphere, and thus the intensity of thunderstorms, is the CAPE (convective available potential energy). This variable represents the buoyancy of an air parcel, and it has been used before as a thunderstorm and hailstorm predictor. The summer values of CAPE in León were determined and put into relation with the hail risk.

The CAPE value registered on days where hail was observed on the ground was compared with the value on days with thunderstorms but no hailfalls. The possible relationships between the CAPE and the physical parameters of the hailstones registered by the hailpad network have also been analysed, especially with reference to the velocity of the updrafts inside the stormcell.