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A study of Meteorological conditions during the historical August 1983 Basque Country floods.

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This paper presents a review of the 1983 floods that affected much part of the northeast of the Iberian Peninsula and in particular the Basque Country during late August. Bizkaia and particularly Bilbao are the most affected areas in the Basque Country. Available weather stations at that time register more than 500 mm in 24 hours in Bilbao, accumulating 600 mm in 3 days. As a consequence of generalized floods, during the episode 34 fatalities and economic losses for more than 800 million euros are produced.

This work focuses on the analysis and description of the most relevant characteristics of the meteorological situation that caused these floods. It is a singular situation in which different ingredients join in to produce a truly explosive situation generating torrential rainfall in a relatively large area. In fact they are the most important floods that the Basque Country has suffered in its recent history.

In medium and high levels of the atmosphere, the undulating zonal circulation breaks and a large cut-off low forms in the south of France with a certain retrograde movement that deforms the cold air bagging (-13 ° C at 500 hPa level) in an east-west direction. The interaction of a warm advection through the Mediterranean with a polar air mass in high layers, generates a great instability and convective nuclei that move retrograde reaching the Basque Country. These convective systems interact with each other forming a mesoscale convective system (MCS), which is responsible for the unusual abundant and intense rainfall and historical floods.