



## **Analysis of an episode of heavy rainfall with flooding in Kadagua watershed. 29-31 January 2015 case.**

Joseba Egaña (1,2), Santiago Gaztelumendi (1,2), Olatz Principe (1,2), Maialen Martija (1,2)

(1) Basque Meteorology Agency (Euskalmet), (2) Tecnalia - Energy and Environment Division - Meteorology Area.

In this work we present an analysis of the 29-31 January 2015 heavy rainfall and flooding episode case in Basque Country focusing in Kadagua river area. The synoptic situation during this event is marked by a northwest flow generated between the Azores anticyclone centered in the Atlantic, and a deep depression situated in northern Europe. Several frontal systems and a line of instability affect the Basque Country, leaving persistent and heavy rainfall for several days, with strong northwest wind. In high layers, cold air arrives causing increased instability, leaving storms with hail. The air mass is cold generating snowfall in middle heights.

Therefore, the Basque Country suffers a heavy storm of rain, snow and wind, also the sea conditions worsen significantly. The accumulated rainfall is important. The 30th is the wettest day with accumulated over 100 mm in different points of cantabrian slope. This causes a significant rise in river levels in all watersheds of the Basque Country, and especially in Kadagua, where towns such as Zalla suffered one of the worst floods episodes since 1983.

In this study synoptic and mesoscale features of this situation are analyzed, looking for the key factors that led to these serious flooding episode in Kadagua area.