



A study of the 6 January 2018 snow event in the Basque country.

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For a relevant snow event to occur in the Basque Country, different atmospheric conditions must be present, usually including a general context where we are affected by a cold air mass from very high latitudes. In the case study we present in this work (6 January 2018) the air mass that affects us is not excessively cold (-1 / -2 °C at 850 hPa level). The meteorological situation presents a cut off low in the Iberian Peninsula and the formation of a depression on the surface. A warm front associated with this depression generates persistent and abundant rainfall in the Basque Country.

Under these conditions, the typical calculation (based on general conditions) of the snow level would indicate around 700 meters snow level, but the reality is that the snow level descends to 100-200 meters in the east part of the territory, something that cannot be explained just considering the synoptic characteristics of the air mass that affects us during the event. This is a special situation in which a warm front generates persistent precipitations that change locally the vertical temperature profile. In this event cooling due to melting is a critical factor in determining precipitation type.

In this work the synoptic, mesoscale and local characteristics of the situation of snowfall near sea level that occurs on January 6, 2018 are analyzed. For this purpose we use data from the automatic weather stations network and on the basis of other available data including analysis, modeling, Radar, MSG, and other sources.