Analysis of a heavy storms episode in Basque Country: the 19-20 jul 2013 case.

Santiago Gaztelumendi
Tecnalia - meteo area / Basque Meteorology Agency, Spain

Egaña, Joseba (Tecnalia - meteo area / Basque Meteorology Agency, Basque Country, Spain)
Principe, Olatz (Tecnalia - meteo area / Basque Meteorology Agency, Basque Country, Spain)
Palacio, Virginia (Tecnalia - meteo area / Basque Meteorology Agency, Basque Country, Spain)
Maruri, Mercedes (Tecnalia - meteo area / Basque Meteorology Agency, Basque Country, Spain)

E-mail: santiago.gaztelumendi@tecnalia.com

The 19-20 July 2013 strong thunderstorms occur in the Basque Country. In this paper different aspects of the storms are analyzed using weather radar Kapildui from Basque Meteorology Agency (Euskalmet). This radar, sited in Kapildui mountain (around 1200 m altitude) is a polarimetric Doppler weather radar operating in C-band.

During the event Basque Country is in a synoptical situation of barometric swamp with high pressures at latitudes further north of Britain. In middle and upper troposphere layers, circulation undulates, forming a trough that favours dynamic instability. At mesoescale local breezes regime is present. Stability index during those days, specially during evenings, are very high, with TTI and LI around 55 and -6 respectively well-matched with severe weather thresholds for Basque Country Area.

In this environment convective cells are formed and produce very heavy showers and strong wind gusts. During the evening of 19 and 20 july different storms cells are formed specially in the interior of the country with a general NE movement. Observed reflectivities over 55 dBz, and echotop(15dBZ) over 13 km are present. Lighting activity and high wind gust are also observed. On the other hand rain over 10mm in ten minutes and over 30 mm in one hour are registered in different Automatic Weather Stations (AWS) in the area affected by thunderstorms.

In this work the characteristic of different storms cells are discussed, analyzing different parameters, based on the available data in Basque Country area (MSG, sounding, AWS, lightning detection system, etc) and specially focusing on the interpretation of the different imagery products available from the Euskalmet Radar.