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Forecasting the weather
- ensemble techniques
in probabilistic weather prediction

Total Lightning Detection in the Basque Country

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In this work we will focus on the process followed in order to set up the total lightning detection system in the Basque Country. Total lightning detection in this region has been performed since November 2008. Nowadays, the Basque Meteorology Agency (Euskalmet) counts on two independent lightning detection networks. The combination of a four LF/VHF sensor network and four LF/VLF Linet sensors provides two independent sources of information for cloud-to-ground and intra-cloud lightning discharges. The detected events are located, measured and then correlated in order to obtain an accurate dataset of validated data.

The purpose of total lightning detection is twofold: real-time monitoring of severe weather episodes and offline studies of certain thunderstorms that may be of special interest for research. Professionals working in weather surveillance need the information provided by the lightning detection networks together with the data provided by other real-time information systems, such as weather radars, satellites and the automatic weather station network. This combination allows a perfect monitoring of severe episodes that leads to quick decisions under dangerous situations.

Research of past thunderstorms is also a necessary task to be performed in order to better understand electrical development of storms in the Basque Country and study affected areas and damages to structures and/or people. Lightning detection in the Basque Country is a perfect and accurate complement to the everyday surveillance and weather monitoring tasks, and the maintenance and improvement of this service is a must for the operational work of Euskalmet.