AUTOMATIC WEATHER STATIONS NETWORK (XEMA) OF THE METEOROLOGICAL SERVICE OF CATALONIA (SMC)

Aleix Serra *, Mercè Barnolas and Roger Vendrell
*Corresponding author: aserrai@meteo.cat
Meteorological Service of Catalonia, Barcelona, Catalonia

SITUATION AND HISTORY
Catalonia is located in the NE of the Iberian Peninsula, between the Pyrenees and the Mediterranean Sea. About half of the 7.5 million population lives in the metropolitan area of Barcelona.

The Meteorological Service of Catalonia (SMC) manages a network of 185 Automatic Weather Stations (AWS). In a country that covers 32,000 km², a dense network such as this one is able to provide a precise description of the land's climatic diversity.

Since 1988, the stations that have been added to the network have served a variety of purposes, such as agrometeorology, nivology, or weather surveillance. There is a wide variety of locations, from the coastal line to 2,500 metres high.

Characteristics of the Network

XEMA stations meet most of the WMO standards in location, measurements, quality control and technical equipment.

Data are collected every 30 minutes, although precipitation offers a 1-minute resolution. Real-time data are published on the website (www.meteo.cat/observaciones/xema) and stored in a database, where quality control procedures are implemented.

Regular maintenance is critical to guarantee the quality of the data, and it is especially needed in the higher altitudes (2,000–2,500 m), where the snow lasts for more than 6 months and its depth can reach up to 4 meters.

Having obtained ISO 9001:2008 certification in 2015, a new calibration plan is being implemented.

In February 2011, the station of Bonaigua (2,266 m) measured a snow depth of more than 4 meters.