

Use of ECMWF products at AEMET regional office in Barcelona (Cataluña)

Gabriela Cuevas Tascón – Delegación Territorial de AEMET en Cataluña :: gcuevast@aemet.es

Use and Interpretation of ECMWF Products – Reading (UK), 3 - 7 February 2014

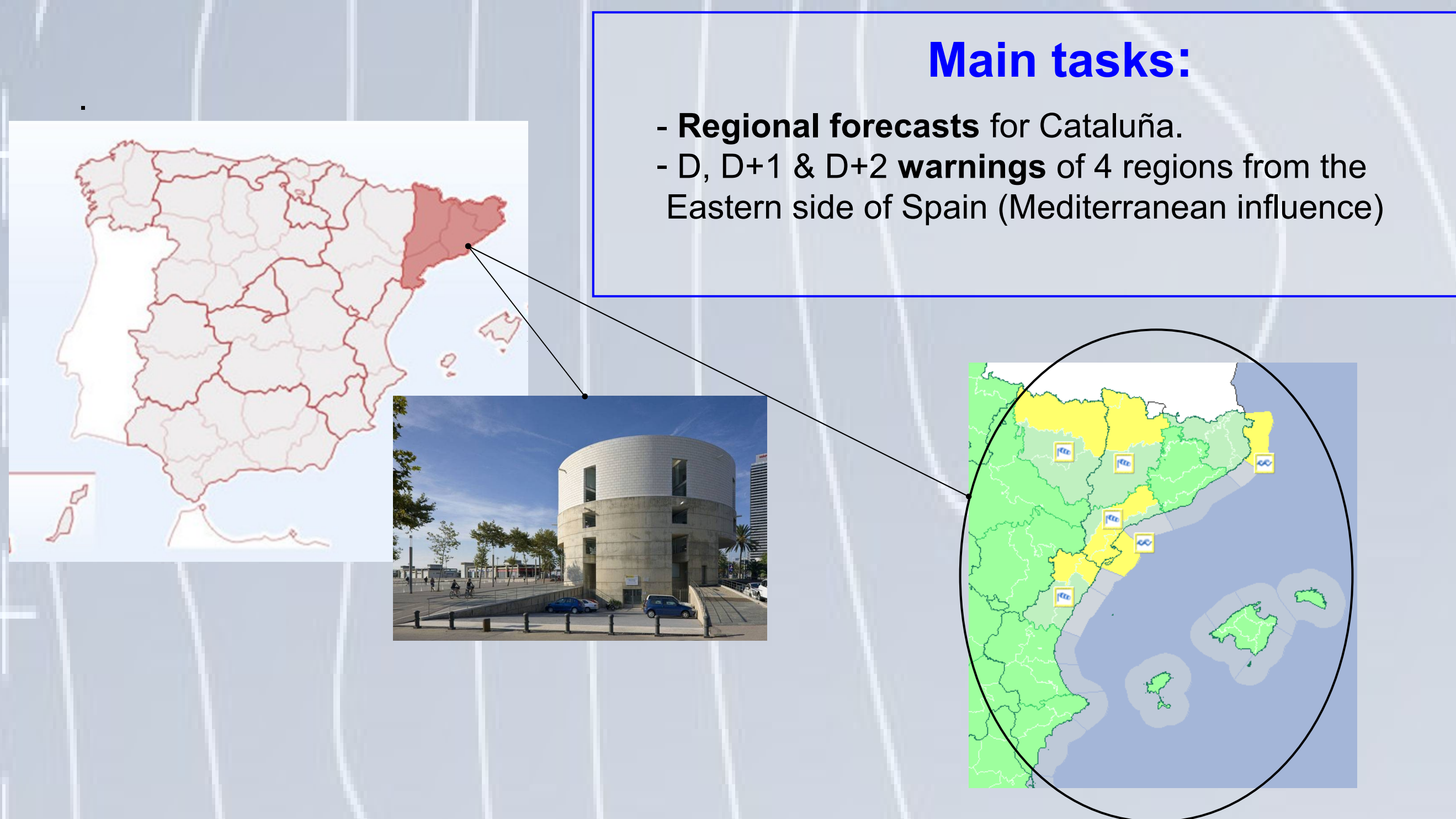
AGENCIA ESTATAL DE METEOROLOGÍA (AEMET)

AEMET is the Spanish meteorological authority whose main activities are to provide forecasts and extreme weather alerts for the society as well as meteorological support to aeronautical and maritime navigation.

International Collaboration:

- EUMETSAT/SAFNWC
- EUMETNET
- HIRLAM/HARMONIE
- CLIBER
- GEO
- AFRIMET, ACMAD
- ECMWF
- THORPEX

AEMET REGIONAL OFFICE IN CATALUÑA



FORECASTING SNOWFALL AT LOW ALTITUDES/SEA LEVEL IN CATALUÑA

Snowstorms at low altitudes in Cataluña are considered a rare event. It has a low frequency, but significant cases have been observed 4/5 times in the past 50 years. The estimation of the snowfall level is a difficult task, specially at coastal regions. Different criteria are used in AEMET depending on the region and the type of precipitation.

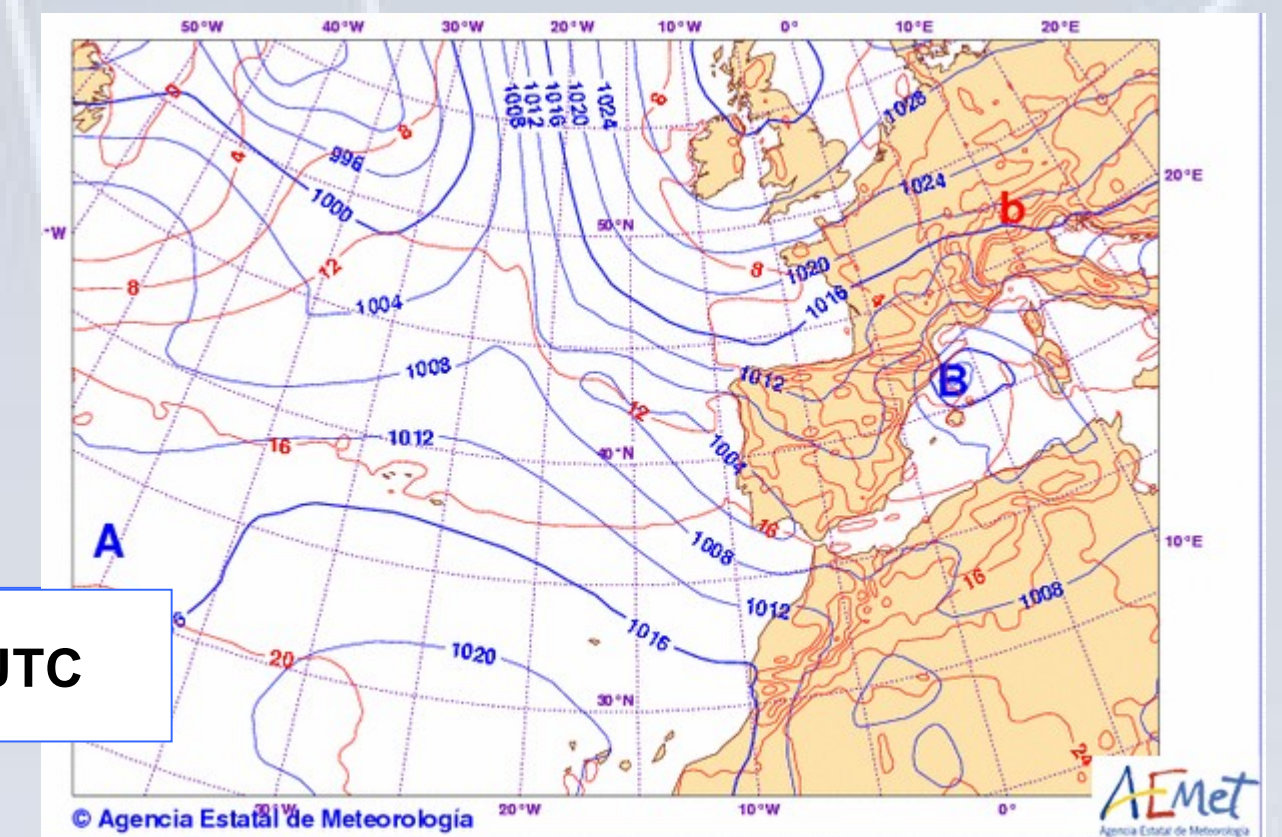
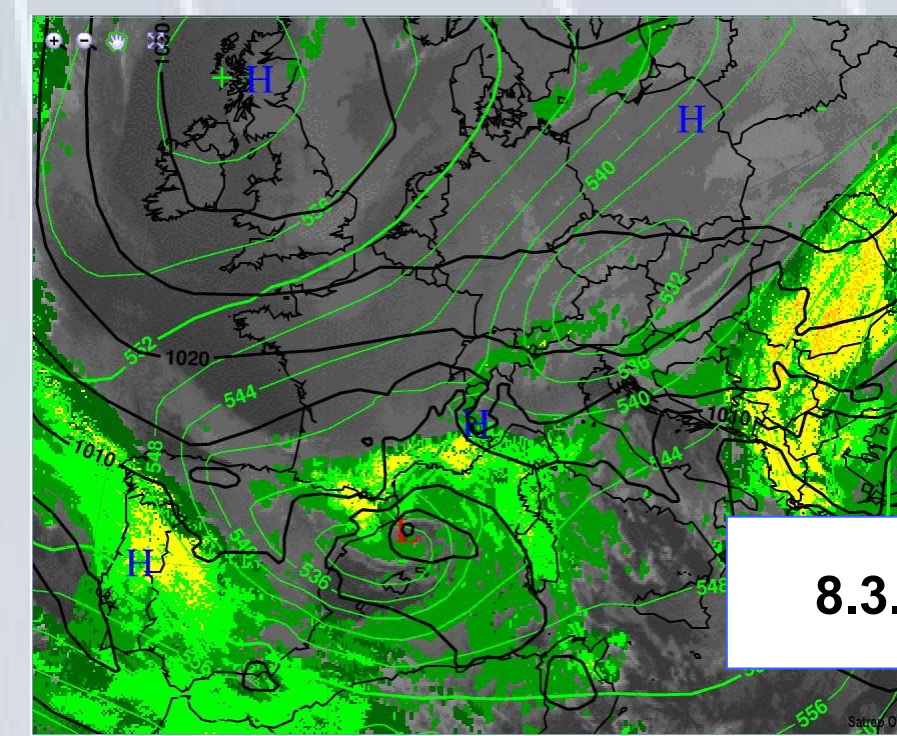
In AEMET Cataluña => empirical rule:

- Wet bulb freezing height-200 m (ISOW-200): most of the cases.
- Wet bulb freezing height-300 m (ISOW-300): warm front, or situation of cold air trapped after several days of cold advection.

SNOWFALL FACTORS AND COMMON ASPECTS

- Existence of a cloud layer (thick and cold enough: $T < -10\text{ }^{\circ}\text{C}$).
- Cold and wet air at low levels.
- Tsurf usually in between 0 and 5 °C.
- Wet snow (high density) => high accumulation & overloads.
- Iso-0°C at 850 hPa over the region.
- Typical synoptic environment:

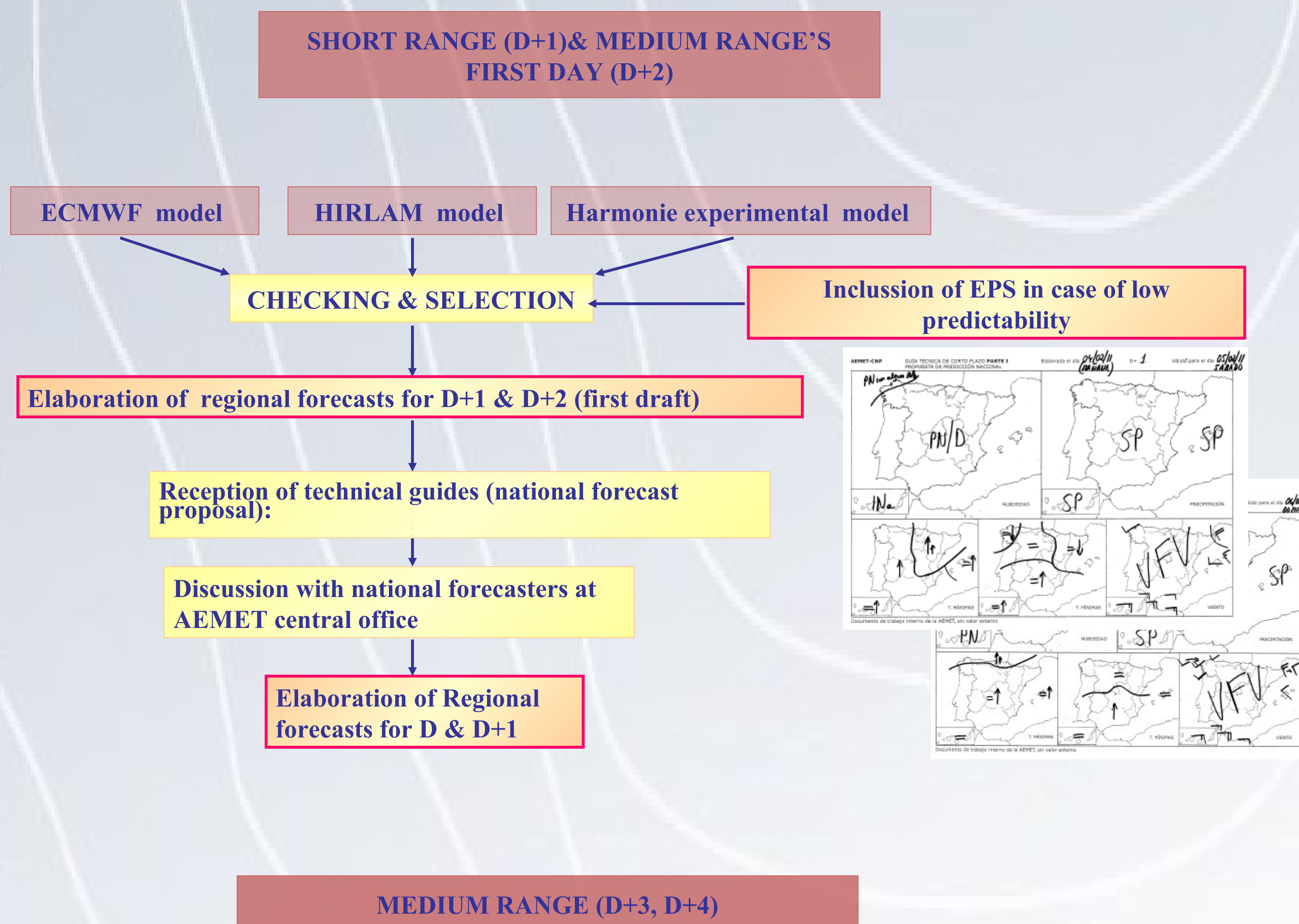
- North Atlantic High.
- West Mediterranean /Balearic Sea Low: nearly bomb cyclogenesis ($\downarrow P$ of 15hPa/24 h).
- Upper N/NE flux (continental cold air advection)
- E/NE winds.



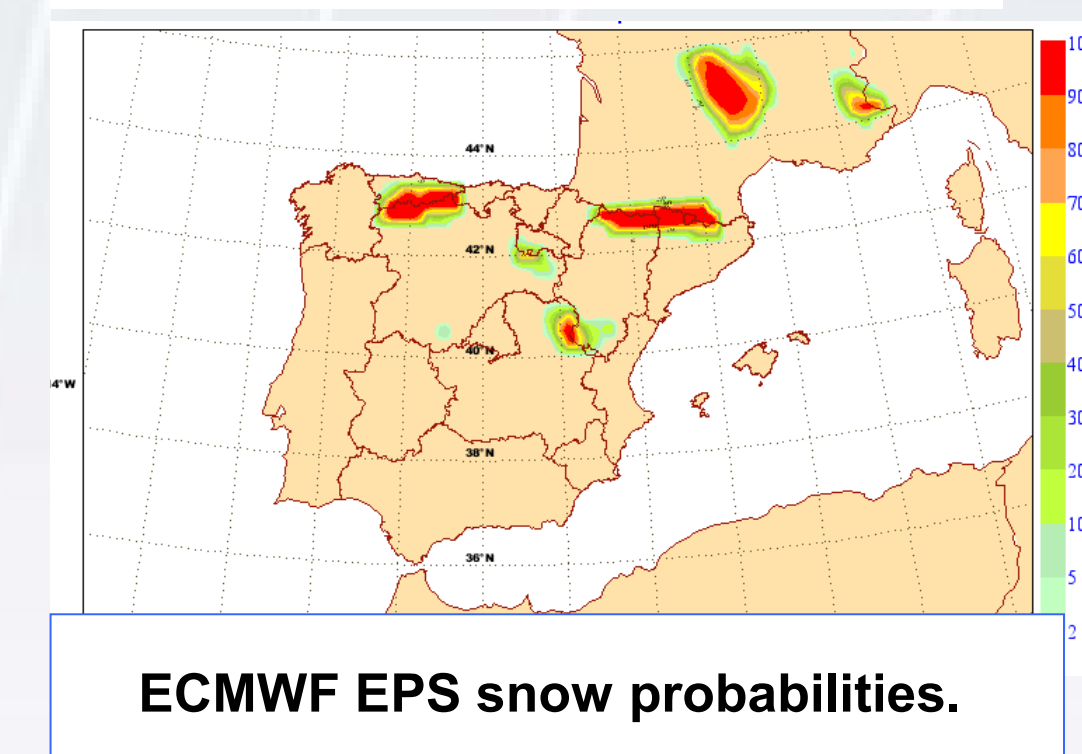
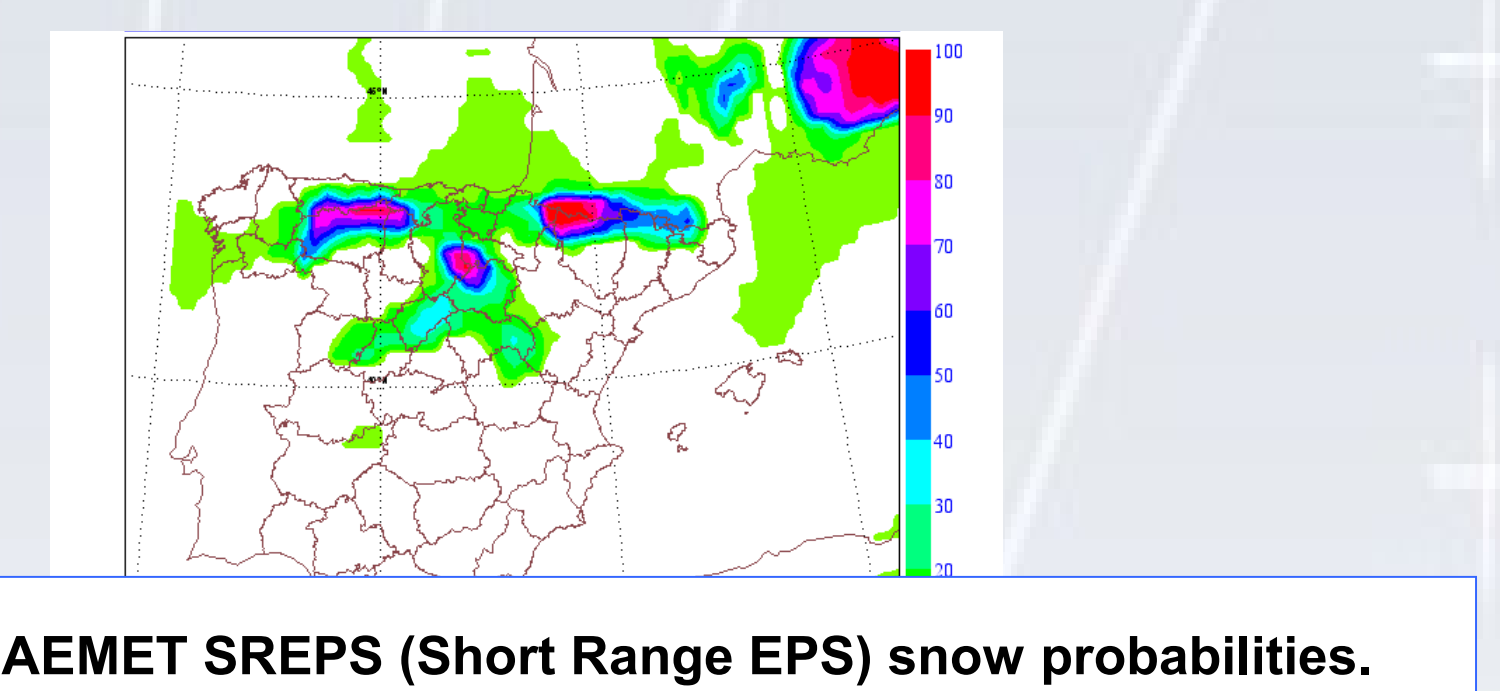
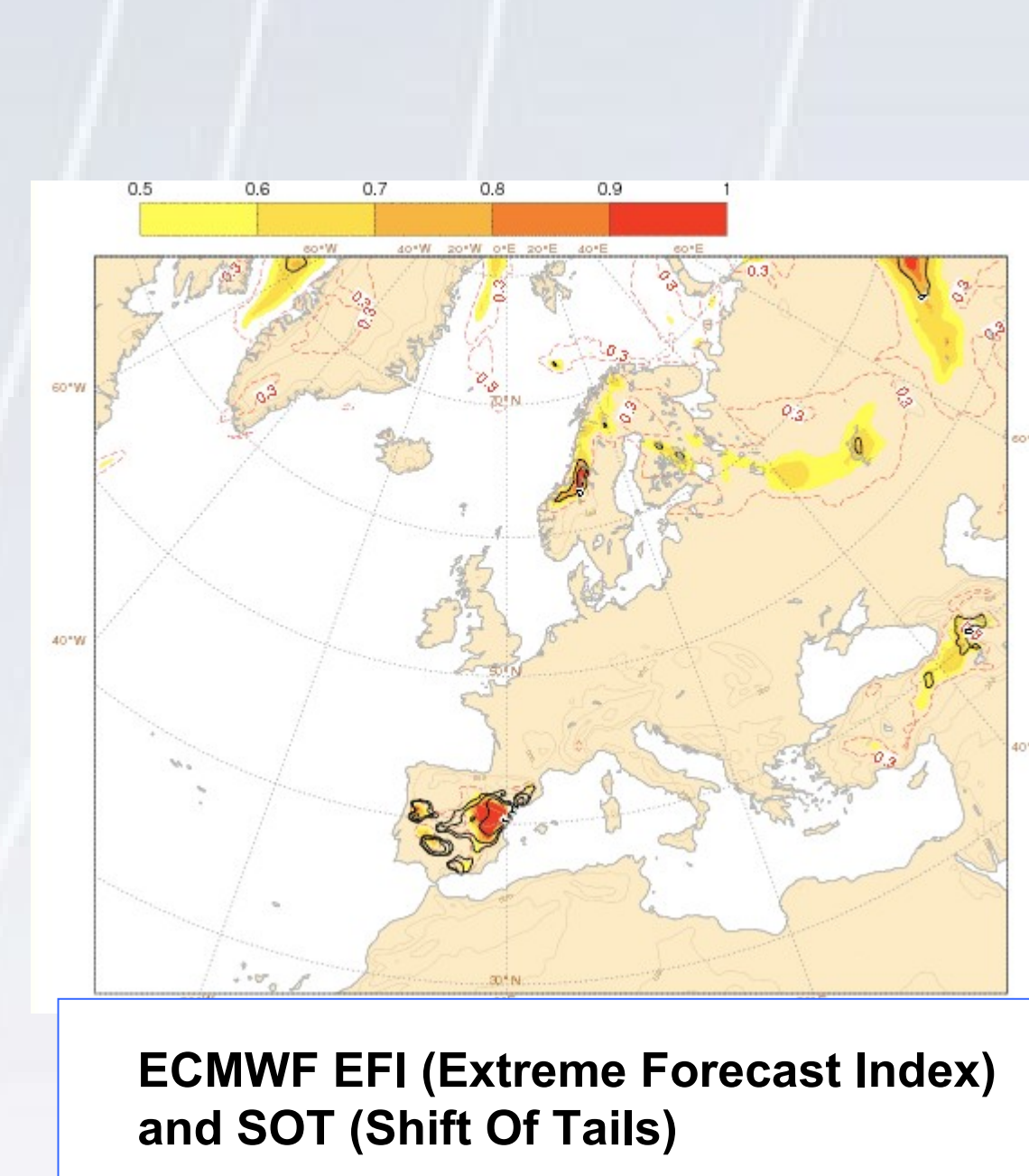
MSG IR 10.8 /NWCSAF Precipitating Clouds; green lines: ECMWF ATP500; black lines: ECMWF MSLP

Blue lines: HIRLAM MSLP; red lines: HIRLAM T_{surf}

HOW PREDICTION IS MADE IN AEMET



USE OF ECMWF/OTHER PRODUCTS (not always helpful)



LAST SIGNIFICANT SNOWFALL CASE IN CATALUÑA: 08/03/10

Recent snowstorm with great impact in Barcelona city, affecting 2/3 of Cataluña territory. Thunderstorms with heavy snowfall were reported in coastal areas as a result of an intense cyclogenesis.

