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Integrated Meteorological Observation Network in Castile-León (Spain)

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In the region of Castile-Leon, in the northwest of Spain, the study of weather risks is extremely complex because of the topography, the large land area of the region and the variety of climatic features involved. Therefore, as far as the calibration and validation of the necessary tools for the identification and nowcasting of these risks are concerned, one of the most important difficulties is the lack of observed data. The same problem arises, for example, in the analysis of particularly relevant case studies.

It was hence deemed necessary to create an INTEGRATED METEOROLOGICAL OBSERVATION NETWORK FOR CASTILE-LEON. The aim of this network is to integrate within one single platform all the ground truth data available. These data enable us to detect a number of weather risks in real time. The various data sources should include the networks from the weather stations run by different public institutions – national and regional ones (AEMET, Junta de Castilla y León, Universities, etc.) -, as well as the stations run by voluntary observers.

The platform will contain real or cuasi-real time data from the ground weather stations, but it will also have applications to enable voluntary observers to indicate the presence or absence of certain meteors (snow, hail) or even provide detailed information about them (hailstone size, graupel, etc.).

The data managed by this network have a high scientific potential, as they may be used for a number of different purposes: calibration and validation of remote sensing tools, assimilation of observation data from numerical models, study of extreme weather events, etc. An additional aim of the network is the drawing of maps of weather risks in real time. These maps are of great importance for the people involved in risk management in each region, as well as for the general public.

Finally, one of the first applications developed has been the creation of observation maps in real time. These applications have been constructed using NCL (NCAR Command Language), because it is a robust tool especially designed for the treatment and visualization of scientific data.

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