Development of tools for evaluating rainfall estimation models in real-time using the Integrated Meteorological Observation Network in Castilla y León (Spain)

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The integration of various public and private observation networks into the Observation Network of Castile-León (ONet_CyL), Spain, allows us to monitor the risks in real-time. One of the most frequent risks in this region is severe precipitation. Thus, the data from the network allows us to determine the area where precipitation was registered and also to know the areas with precipitation in real-time. The observation network is managed with a LINUX system. The observation platform makes it possible to consult the observation data in a specific point in the region, or otherwise to see the spatial distribution of the precipitation in a user-defined area and time interval.

In this study, we compared several rainfall estimation models, based on satellite data for Castile-León, with precipitation data from the meteorological observation network. The rainfall estimation models obtained from the meteorological satellite data provide us with a precipitation field covering a wide area, although its operational use requires a prior evaluation using ground truth data.

The aim is to develop a real-time evaluation tool for rainfall estimation models that allows us to monitor the accuracy of its forecasting. This tool makes it possible to visualise different Skill Scores (Probability of Detection, False Alarm Ratio and others) of each rainfall estimation model in real time, thereby not only allowing us to know the areas where the rainfall models indicate precipitation, but also the validation of the model in real-time for each specific meteorological situation.