Geophysical Research Abstracts
Vol. 15, EGU2013-10237, 2013
EGU General Assembly 2013

Nowcasting of meteorological risks during the winter season using the "Integrated Meteorological Observation Network in Castilla y León, (Spain)"

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The location of Castilla y León within the Iberian Peninsula and its territorial extension make its meteorological risks diverse. The integration of various observation networks, both public and private, in the Observation Network of Castilla y León, allows us to follow the risks in real-time. One of the most frequent risks in the winter season is snow precipitation. In the present paper, we compared WRF numerical model predictions of snowfall for Castilla y León with data from the meteorological observation network and observations from the MSG satellite. Furthermore, frosts were more frequent in the area, to the point that there are parts of the study area with frost during the entire year. Thus, the data from the network allows us to determine the area where frost was registered. Finally, the situations with fog, especially with advective and radiative characteristics, are frequent in the center and south of the plateau, especially in the winter season. Additionally, the Observation Network allows us to know the areas with fog in real-time.

The Observation Network is managed using a new platform, developed by Group for Atmospheric Physics, known as MeteoNet, which allows for the prompt extraction of a concrete parameter in a specific location, or, the spatial representation of a parameter determined for the entire study area. Furthermore, the management system developed for the data allows for the total representation of data from the WRF prediction model, with satellite images, observation network, radar data, etc., which is converted into a very useful tool for following risks and validating algorithms in Castilla y León.

Acknowledgements
The authors would like to thank the Regional Government of Castilla y León for its financial support through the project LE220A11-2.