



## **Ability of the HIRLAM model to forecast severe meso- $\gamma$ -scale events.**

**M. Cobas, I. Sanz, I. Martinez, J.A. Garcia-Moya.**

Instituto Nacional de Meteorología (INM). Spain. (mcobas@inm.es / Phone: +34 91 5819 708)

The forecast of severe events is one of the most important applications of the atmospheric models, for it can help to minimize the damages and economical losses. Severe events in many cases have to do with sub-grid phenomena, for instance convective cells, that are poorly represented in current hydrostatic numerical models. We can improve this problem by increasing the resolution of the model, but there is a limit: for resolutions higher than 8-10 Km. the non-hydrostatic effects become relevant enough to reduce the performance of the model.

In this presentation we will study the behaviour of the HIRLAM Model at resolutions higher than those mentioned. We will compare the results with a non-hydrostatic model such as the MM5 and we will assess them using the Radar Simulation Model (RSM). RSM is a tool to generate radar reflectivity images from the output of a NWP model and the observed radar data. Both models were run for the case of a convective storm occurred on the night of the 10<sup>th</sup> of October in the South-East of Spain. During that night severe convective cells on the South-West Mediterranean coast were developed, giving rise to intense rains and large-size hail.