

Intense rainfall episode in Corsica: sensitivity study using a mesoscale model

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On September 14 2006, a heavy rainfall episode reached the eastern part of Corsica with accumulated precipitation higher than 400 mm which caused impressive material damage. This rainfall episode was quite well forecasted at large scale but neither the intensity nor the fine scale location of the heaviest rainfall were captured by operational numerical models.

In this study, two initial and coupling fields set (ECMWF and ARPEGE analyses) are used to run the French Méso-NH model so as to investigate the case study. Three interactively 2-way nested domains are used with horizontal mesh sizes of 50 and 10 km using a mass-flux convection scheme, whereas for the inner grid with mesh size of 2 km centred on Corsica, convection is assumed to be explicitly resolved.

If the increase of the simulation resolution and a better description of the synoptic environment of the situation allow a better forecast of the rainfall quantity, the localization of the most intense precipitation seems to be related to the precision of the description of the craggy relief. Sensitivity tests are presented to understand how the relief, the surface conditions and the high level dynamics are involved in this intense rainfall episode.