

Evaluation of year 2007 operational WRF-NMM on Italy

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The verification of numerical weather forecasts is an essential part of every forecasting system especially when dealing with Civil Protection warnings. The LaMMA Consortium (Laboratory for Meteorology and Environmental Modelling) being the regional weather forecasting service of Tuscany Region (Italy) is responsible for issuing the meteorological warnings. To support this kind of activities LaMMA is running operationally the WRF-NMM model since 2005. The model configuration under investigation is running with initial and boundary conditions provided by the operational ECMWF deterministic model (T799, around 0.25 deg of resolution) at a resolution of 0,07 deg over a domain that covers Italy with Kain-Fritsch cumulus scheme parametrization.

Model verification has been made for the operational runs of year 2007 by means of the dedicated software MET (Model Evaluation Tools) by NCAR with the standard meteorological statistics (e.g. POD, FAR, BIAS and Threat Score). The model has been verified against the Italian network of SYNOP stations for what concerns the surface variables (e.g. 2 meters temperature and dew point, 10 meters wind) and against ECMWF gridded analysis fields for what concerns the upper air levels (e.g. geopotential, temperature, humidity and wind at 850hPa and 500hPa). For what concerns precipitation verification the model has been verified against the very high density (more than 300) regional network of rain gauges through conventional statistical indices (e.g. ES, TS).

This study makes part of a long term project of operational model verification in use at the LaMMA Consortium.