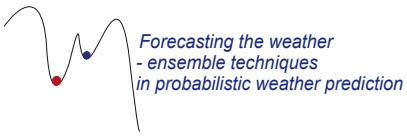
EMS Annual Meeting Abstracts
Vol. 8, EMS2011-219, 2011
11th EMS / 10th ECAM



Spatial control of rain gauge precipitations using radar data

F. Mounier (1), P. Lassègues (2), A-L. Gibelin (3), J-P. Céron (4), and J-M. Veysseire (5)

(1) Météo-France DCLIM France (flore.mounier@meteo.fr), (2) Météo-France DCLIM France (pierre.lassegues@meteo.fr), (3) Météo-France DCLIM France (anne-laure.gibelin@meteo.fr), (4) Météo-France DCLIM France (jean-pierre.ceron@meteo.fr), (5) Météo-France DCLIM France (jean-michel.veysseire@meteo.fr)

In the framework of the EURO4M project, the DCLIM department of Meteo-France intend to provide the following contribution:

- Development and test of methods to control the rain gauges recorded rainfall using the radar data.
- Provide to other EURO4M members series of observational data with a fine network density resolution and a mastered quality.

As regard to data control system exchanges that intend to cooperate them already exist between the different European climate services. Many countries have a control system whose general structure into 4 modules is quite similar to that proposed by the project NORDKLIM with: first lowest level controls in almost real time (range, temporal controls and of inter-parameter coherence), then spatial controls in a subsequent step with a system based on the automatic detection of suspicious values and on human expertise, and finally other time-deferred controls (slow drift of sensors, homogenization).
Meteo-France DCLIM is engaged in improving its quality system and a preliminary step was the analysis of defects that could compromise the quality of data by parameter or sensor type and in a historical perspective. Under the project EURO4M, Meteo-France DCLIM develops methods for monitoring precipitation using the radar data. In order to fulfil this task, the potential use of various radar products for control purpose was analysed while checking also to what extend those products are independent of these controlled rainfall data.
The performance of the estimation of rainfall by radar has been evaluated in different situations to have an appropriate monitoring interval. Additional information, which may come from models, have been tested to discriminate between situations and to refine the control interval (temperatures to discriminate between solid and liquid precipitation, atmospheric vertical instability index). The radar information was also used by itself to discriminate convective and non-convective situations.
A re-analysis efforts is in progress at Meteo-France; while finished it will allow to have series as homogeneous as possible for the period 1996 to present time. Control methods developed should be applicable over that period.
To test the methods a specific database, exempt from control, was carried out. The tested control methods has been compared with the operational system of control and to human expertise.