



The super-ensemble technique applied to a mesoscale multianalysis-multimodel ensemble

P. A. Chessa (1), C. Dessy (1), G. Ficca (1), C. Castiglia (1), M. Marrocu (2), I. Di Piazza (2), S. Federico (3), E. Avolio (3), R. Ferretti (4)

(1) Servizio Agrometeorologico della Sardegna - Sassari - Italy, (2) Center for Advanced Studies, Research and Development in Sardinia - Cagliari - Italy, (3) Consorzio per la Ricerca e le Applicazioni di Tecnologie Innovative - Rende - Italy, (4) Università dell'Aquila - Italy

A pre-operational mesoscale ensemble has been set up and run for period of six months for a Euro-Atlantic domain. It has been build using three different limited area models (BOLAM, MM5 and RAMS) fed with two set of analysis and boundary conditions obtained from the ECMWF and NCEP General Circulation Models. As a first step in the investigation of the forecast performances, a deterministic approach known as super-ensemble has been tested. Two super-ensembles have been devised and assessed: one based on a multilinear regression of the ensemble members and the other obtained through a suitable kalman filtering. Their deterministic outcomes have been compared to the single model forecasts both before and after a bias removal, achieved using the same technique employed to build the super-ensembles. The forecasts have been verified with respect to the ECMWF analysis for several variables and pressure levels and against a set of ground station data draw from a high resolution network placed in Sardinia (Italy). The results show a quite clear improvement (that increases with the forecast time range) of the super-ensembles and the ensemble means with respect to the single deterministic forecasts. A complete set of results will be shown in this talk and some potential use of this technique in the context of a probabilistic framework will be highlighted.