EMS Annual Meeting Abstracts,
Vol. 6, EMS2009-617, 2009
9th EMS / 9th ECAM
© Author(s) 2009

9th EMS Annual Meeting
9th European Conference on Applications of Meteorology
High resolution meteorology
- applications and services

Downscaling of MOS forecasts

F. Bijlsma
Meteogroup, Wageningen, The Netherlands

The downscaling system makes it possible to create a weather forecast at all possible locations in the world, for all elements and all time steps until 15 days ahead.

Meteogroup has developed an elaborate system for MOS-based weather prediction. MOS means Model Output Statistics. For every meteorological observing station several years of historical observations are collected, together with interpolated model data of different numerical weather prediction models. The system combines both datasets and performs a regression analysis in order to find the statistical correlations between the model output and the observed values. This results in specific MOS equations for each station, each element and each forecast period.

This MOS method can only be applied if historical observation data are available. In order to fill up the gaps for missing elements, time steps or locations, the downscaling system is developed. With this system a forecast can be created for each location in the world and each element and time step. The system uses information of available surrounding stations, so no historical observations are needed. A topographical data set at 1 km resolution is used to have information about orography and topography. An advanced method is developed for selecting the surrounding stations and assign weight factors to them. Criteria are for example the height, the type of station (sea, land, etc.), the distance to the sea, and the orographical situation (same valley for example).

One of the applications of this system is the ability of Meteogroup to make a weather forecast for every location in the world. Furthermore, the output of the system can be used to create a gridded output, comparable to the resolution of a mesoscale model.