Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11452, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11452
EGU General Assembly 2008

Geographical Variation of the Predicted Forecast Skill

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All meteorological forecasts and all derived products based on meteorological fields are produced using complex meteorological models. Model input errors as well as model uncertainty lead to model results which are uncertain, too. While model input errors are known to a certain extent (e.g. measurement errors) model uncertainty is accessible only via model output statistics. In the case of the German Weather Service (DWD) local model (LM), which is used for the purposes of the Bundeswehr in a modified version, this is done for the area of Central Europe. Since the Bundeswehr is using the LM in operational areas worldwide the uncertainty of the model forecasts for all of the operational areas but Central Europe is mostly unknown. The aim of this study is to quantitatively assess the forecast quality using an objective method for each possible operational area worldwide based on the ERA-40 data set. The measure must be available for both every operational area and at least for a short range forecast period up to 36 hours. To achieve a clear cause-effect relationship it must be related to real synoptic structures. Further, the derived information is intended to be used to identify model deficiencies with respect to geographic location and synoptic situation, and to retrieve climatologies for each operational area under consideration. The explanation of the general methodology will be followed by the presentation of results from three years routine simulations.