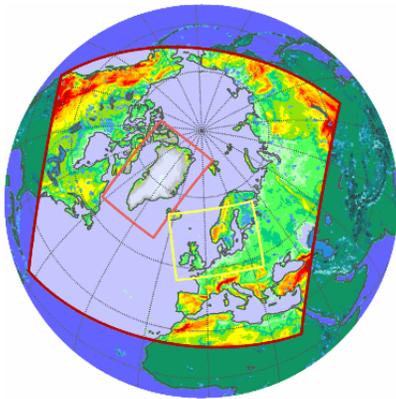


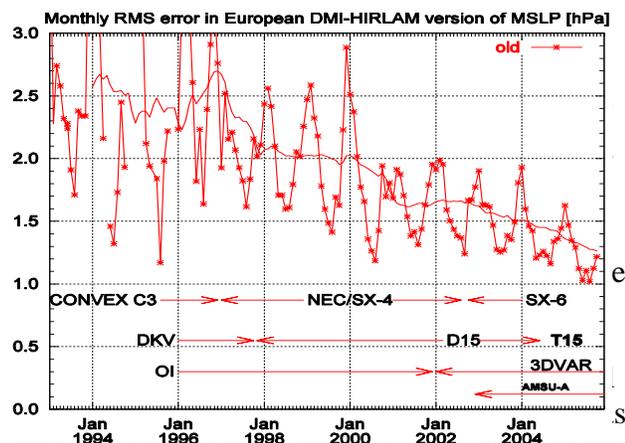
## Progress of the limited area NWP forecasts at DMI

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DMI's operational NWP system consists of a main forecast model with a grid-spacing of 0.15 degree and 40 vertical levels. The model domain covers an extensive area of northern hemisphere (see the figure to the left). The model is run 4 times a day with 60 h lead time. In addition, two nested high resolution model runs with 0.05 degree grid-spacing, centered around Greenland and Danish territories, respectively, are performed for up to 54 h forecasts. The NWP system (DMI-HIRLAM) used in DMI's operational suite is based on the HIRLAM forecast system. HIRLAM, High Resolution Limited Area Model, is a 9-nation European research cooperation project started in 1985.



Substantial progress in short-range the last decade, both in terms of an events, and in daily forecasts of the the forecast quality in DMI-HIRLA which the monthly averaged root-n forecasts during the past decade is forecast skill. Observation verificat forecast skill of up to 48 h for sree global model (such as ECMWF) an model upgrades were made, in whi been improved with a goal to take better into account the large scale information from the global model. The DMI-HIRLAM assimilation modules have been extended to assimilate Meteosat-8 AMV wind and Ocean Sea-ice SAF data for SST. Tuning of physical parameterizations and of the background error structure function in 3D-VAR analysis contributes significantly to the overall improvement of the model skills. During 2005, the resolution of the model for Greenland area has been increased to 0.05 degree spacing, which has been appreciated greatly by duty forecasters at DMI.



Work is in progress to start pre-operational test of a NWP system based on 4D-VAR. Research and pre-operational activities have also been intensified in the area of meso-

scale forecasts. During 2005, near-real time nonhydrostatic meso-scale forecasts have been started at DMI with a horizontal grid-spacing of 0.025 degree. The efforts in the meso-scale modeling is carried out through code collaboration between HIRLAM and ALADIN consortia. The physical parameterizations developed in the HIRLAM project have recently been ported to the non-hydrostatic model environment and will be tested in daily runs for areas of interest including Denmark and selected parts of Greenland.

References:

DMI Technical reports 05-10, 05-15.

[Available from DMI]