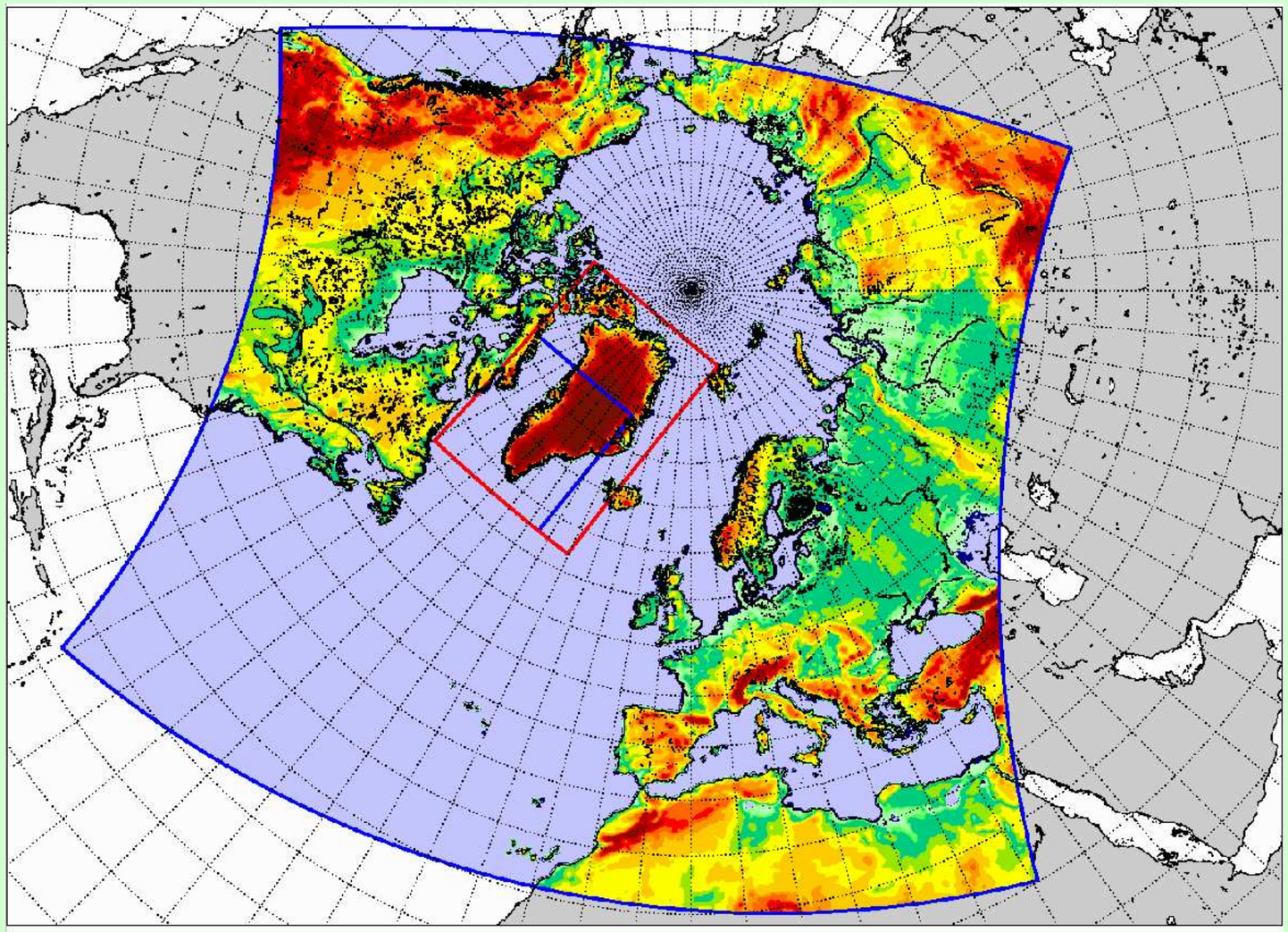
Operational activities and HIRLAM/ALADIN at DMI

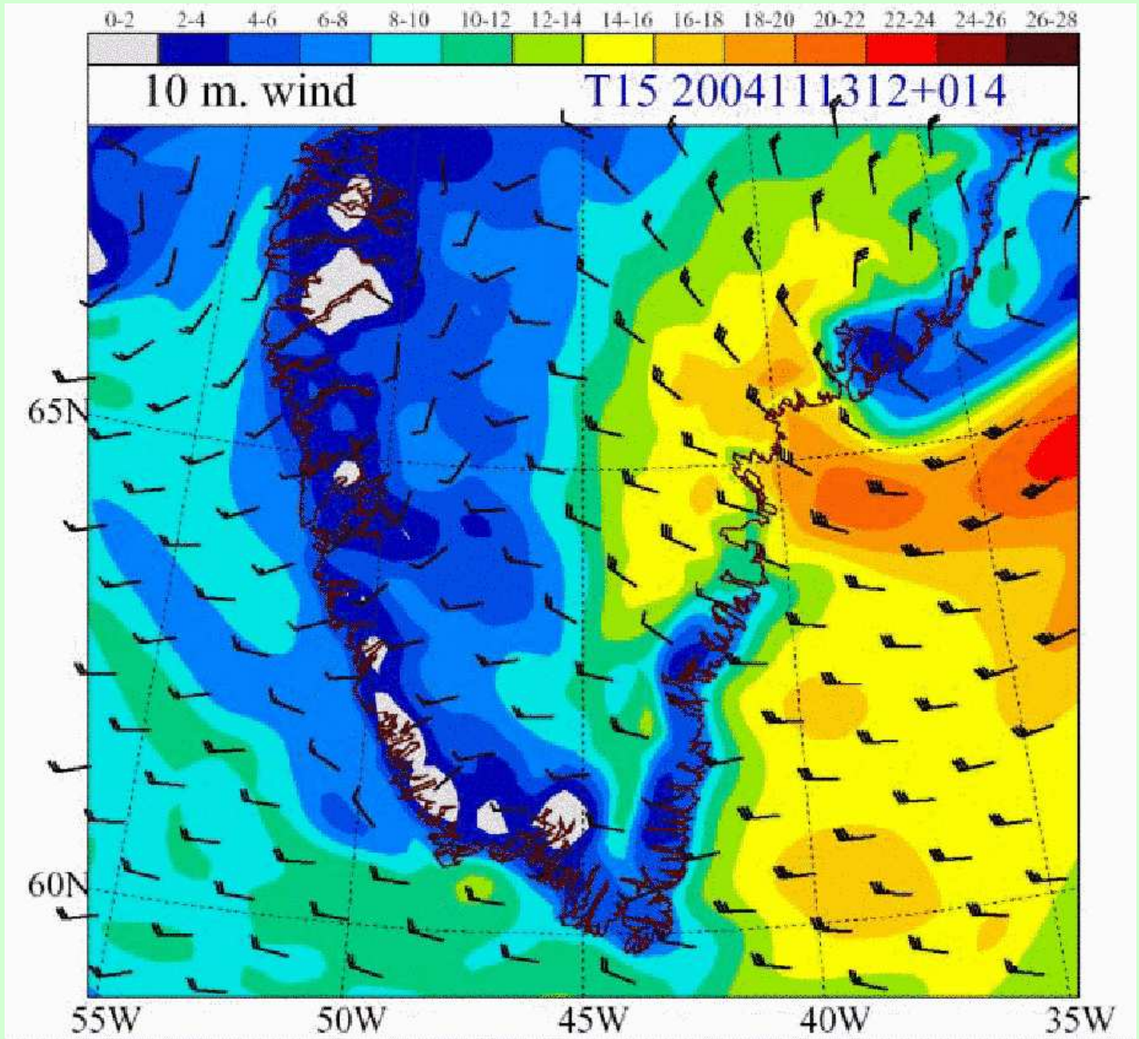
New DMI-HIRLAM for Greenland

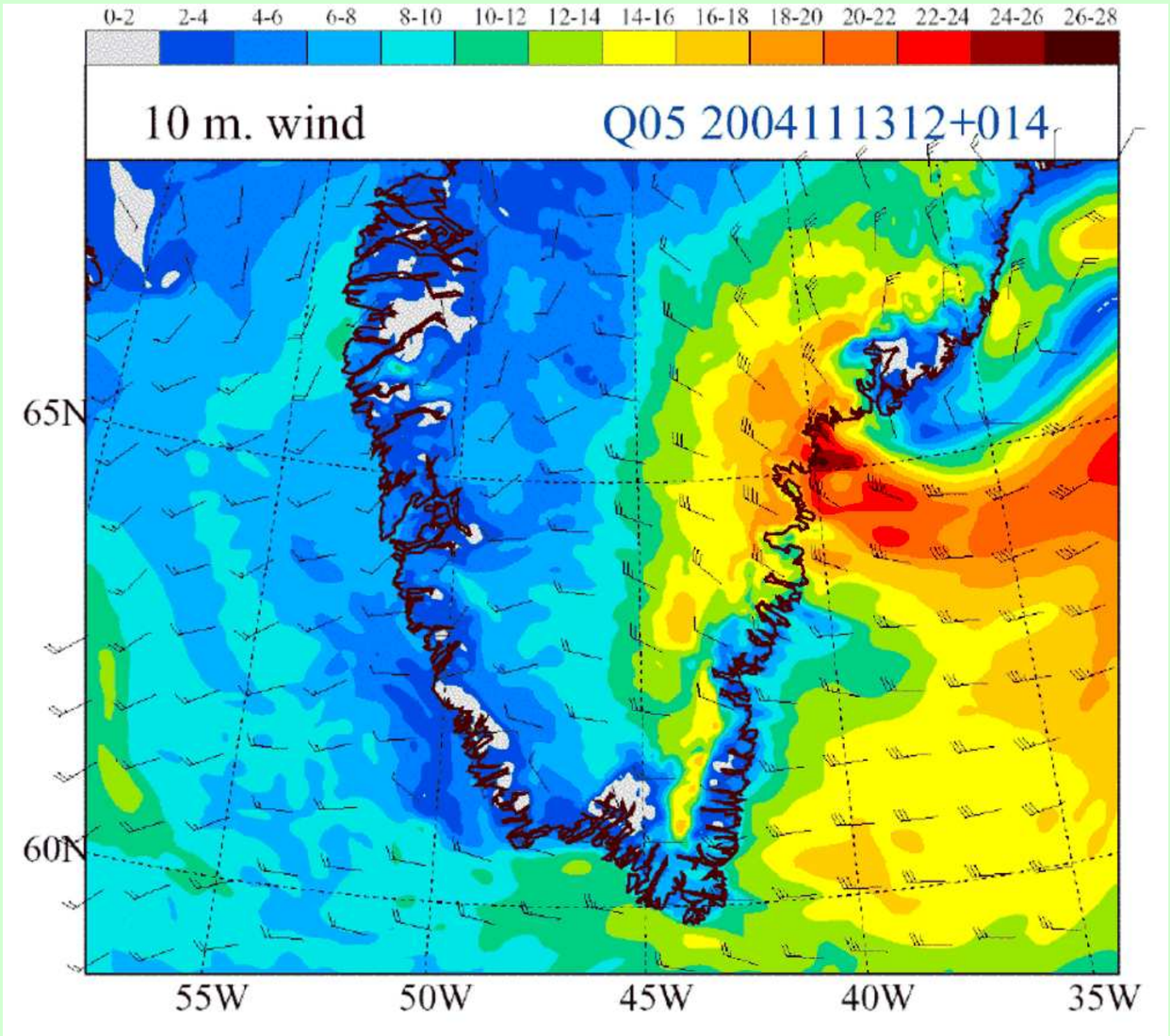


A new numerical weather prediction system for Greenland has become operational from June 2005 on the DMI super computer NEC-SX6. The focus of the new system is on more detailed and precise forecasts at a fine grid mesh of 5 km. The large model area T15 covers a major part of the North Atlantic, the Polar Sea and the surrounding land areas, and the detailed forecasts are produced with a double nested system. The preliminary model version Q05 covering the southern part of Greenland (also shown in the figure) has been extended in September 2005 to the full model domain (red).

Model identification	T15	Q05
grid points (mlon)	610	550
grid points (mlat)	508	378
number of vertical levels	40	40
horizontal resolution (deg)	0.15°	0.15°
time step	360s	120s
host model	ECMWF	T15

The *PITARAQ* over Greenland
T15 vs. Q05





The potential of the new forecasting system is illustrated here showing an example of a PITERAQ. This name is used for a strong katabatic fall wind in Eastern Greenland. The actual example shown is from 13 November 2004 (14 hour forecast shown). The figure shows gale force wind up to storm speed along the east coast of Greenland between 64 N to 66 N. The cold air from the ice cap is accelerated through the valleys to the coastal area as a low pressure system travels along the coast towards the northeast. The actual prediction was verified by observations from the area showing strong gale wind speeds from a north-westerly direction. The upper figure from T15 with a coarser resolution shows weaker winds than the lower figure from Q05.

HIRLAM/ALADIN activities (HIRALD)

High resolution ALADIN setup (cycle 29t2) named HIRALD has been established at the hpcd computer at ECMWF

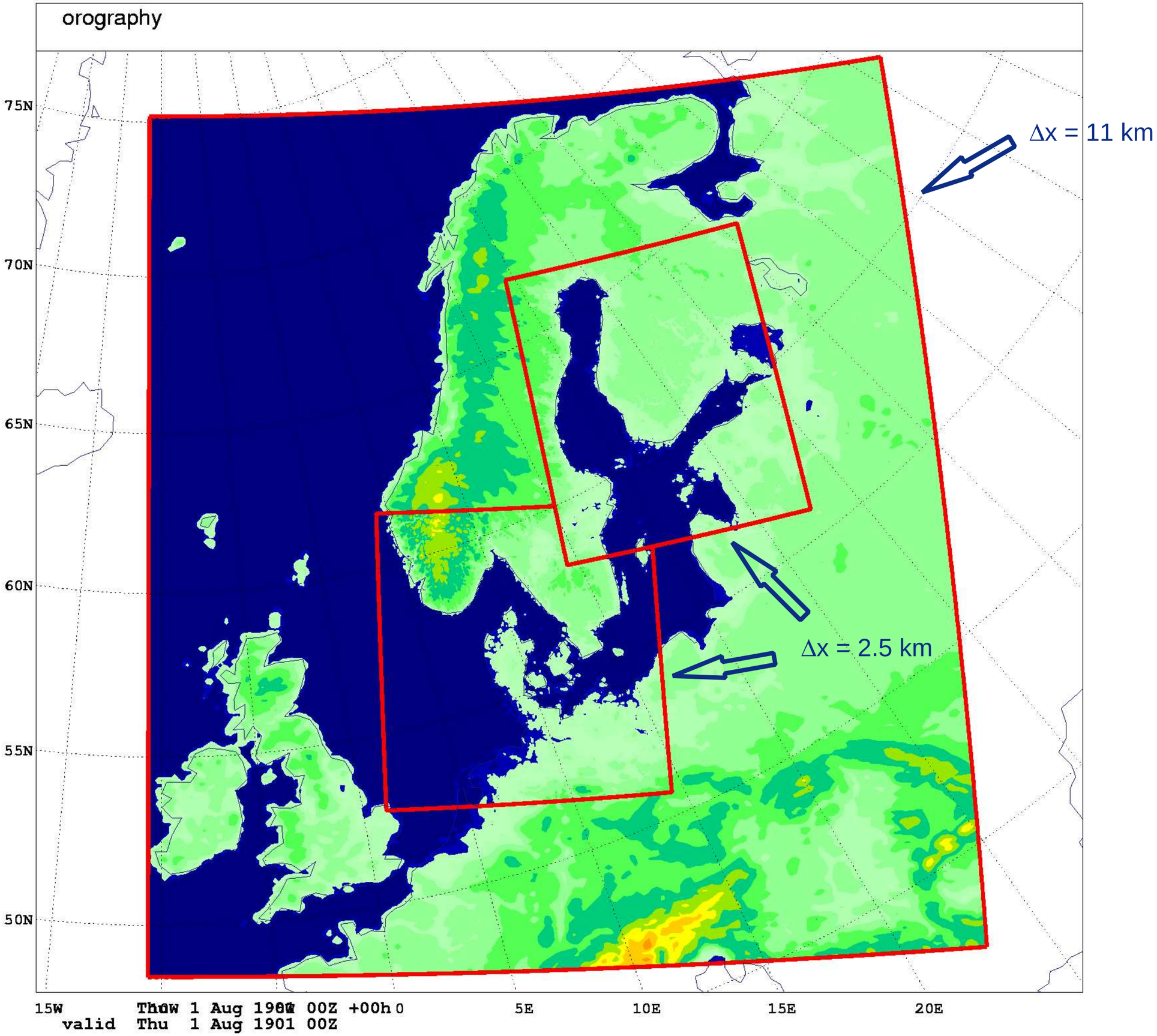
Climate system for generation of new areas is now also available (implementation by Meteo-France)

HIRLAM work has made it possible to run the system using boundary forcing from HIRLAM instead of ARPEGE

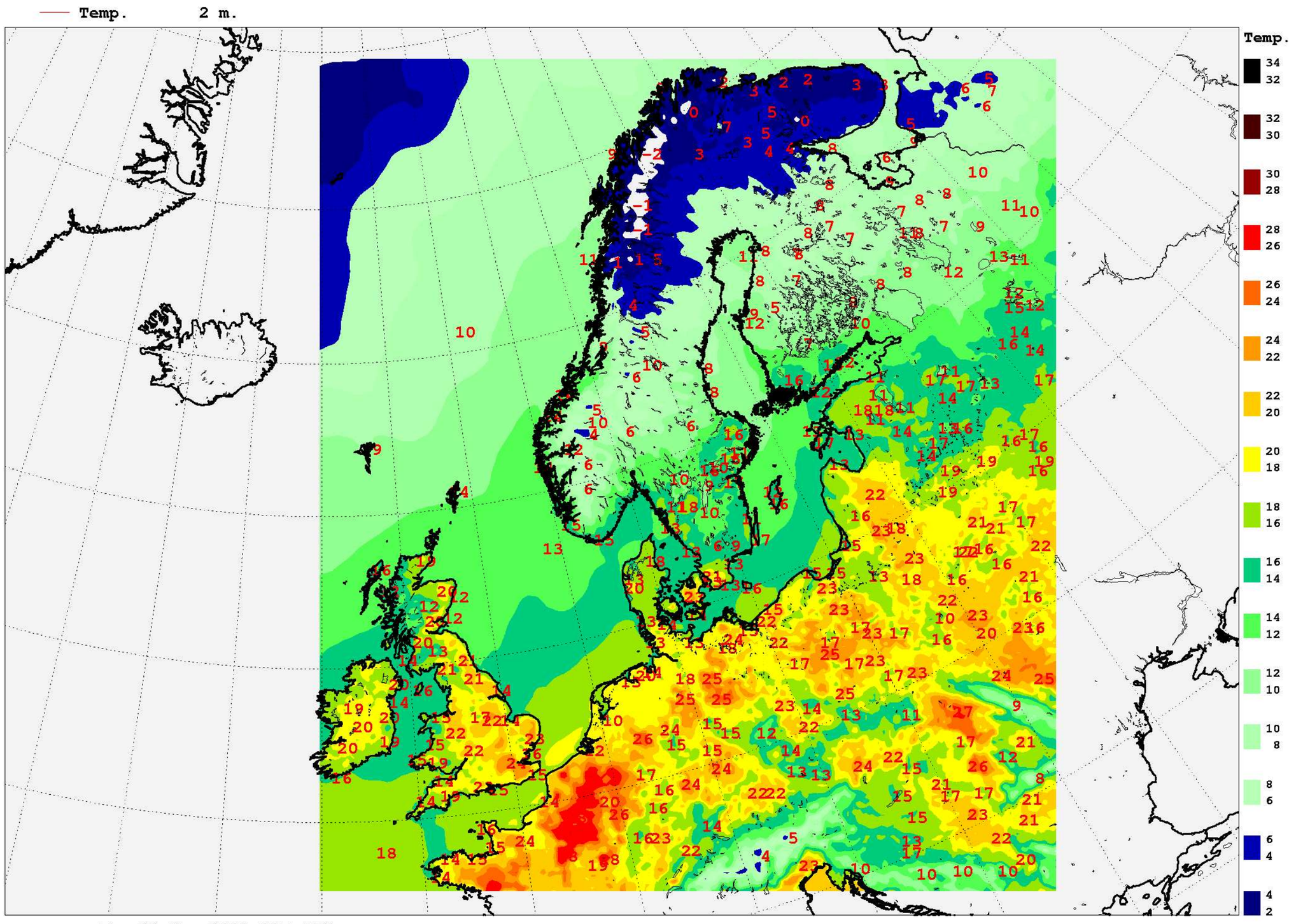
A double nested HIRALD system is run daily on a test basis at DMI on NEC-SX6. The physics are from standard ALADIN. The innermost model covering southern Scandinavia has a grid size of 2.5 km. The setup in non-hydrostatic

Preparations for parallel daily runs with HIRLAM physics is in progress

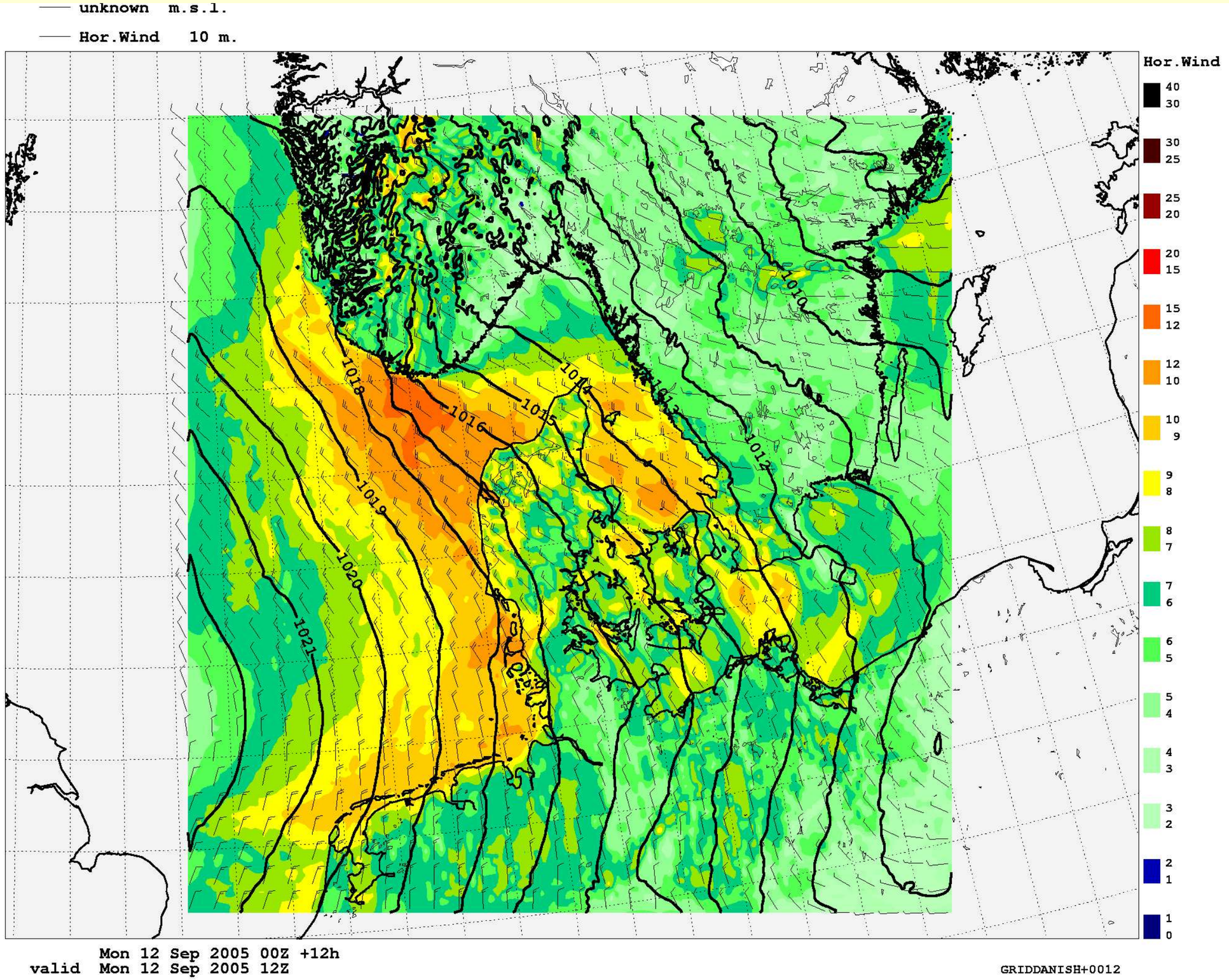
The current status connected to HIRALD including relevant documents can be seen on http://science.dmi.dk


orography
75N
70N
65N
60N
55N
50N
15W
5E
10E
15E
20E
Δx = 11 km
Δx = 2.5 km
valid Thu 1 Aug 1901 00Z

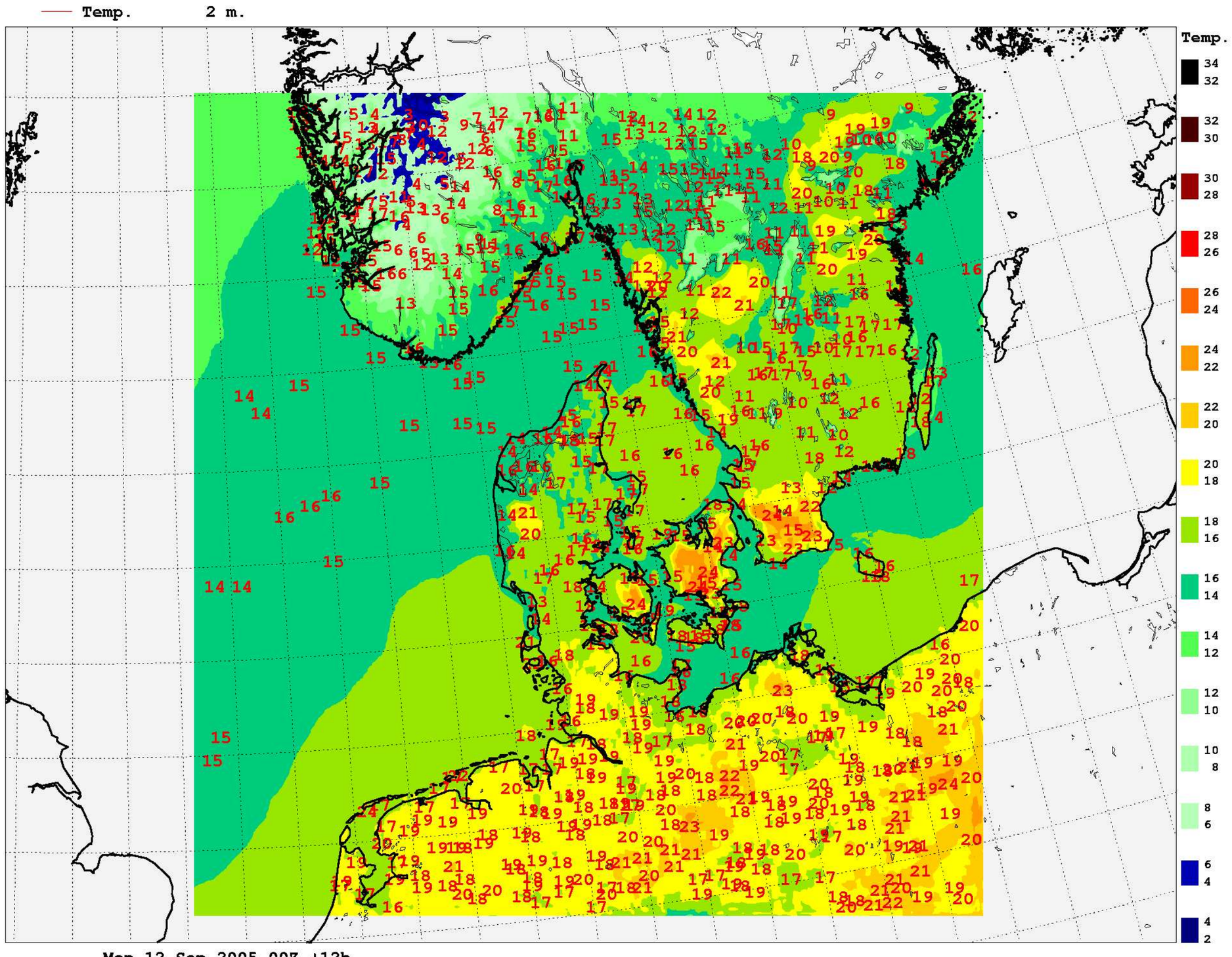
First Results from HIRALD: 2m temperature



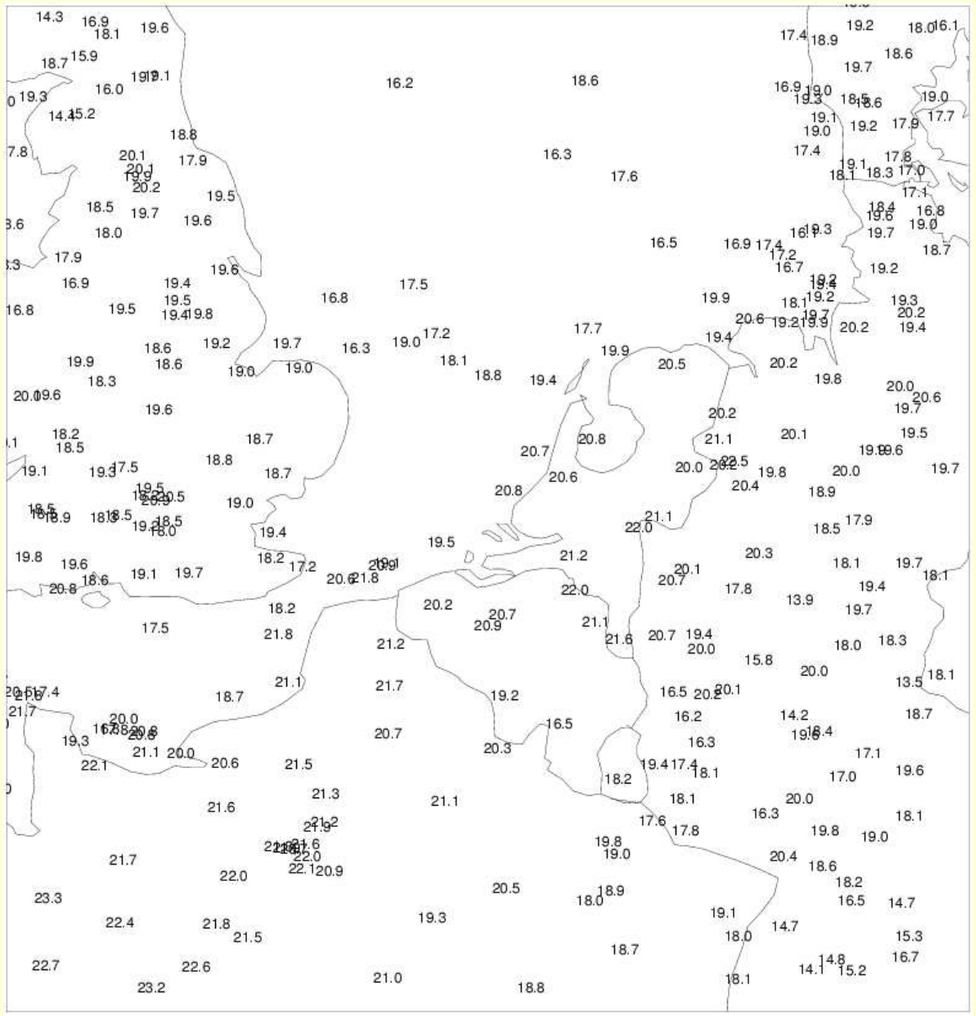
First Results from HIRALD: 10m wind



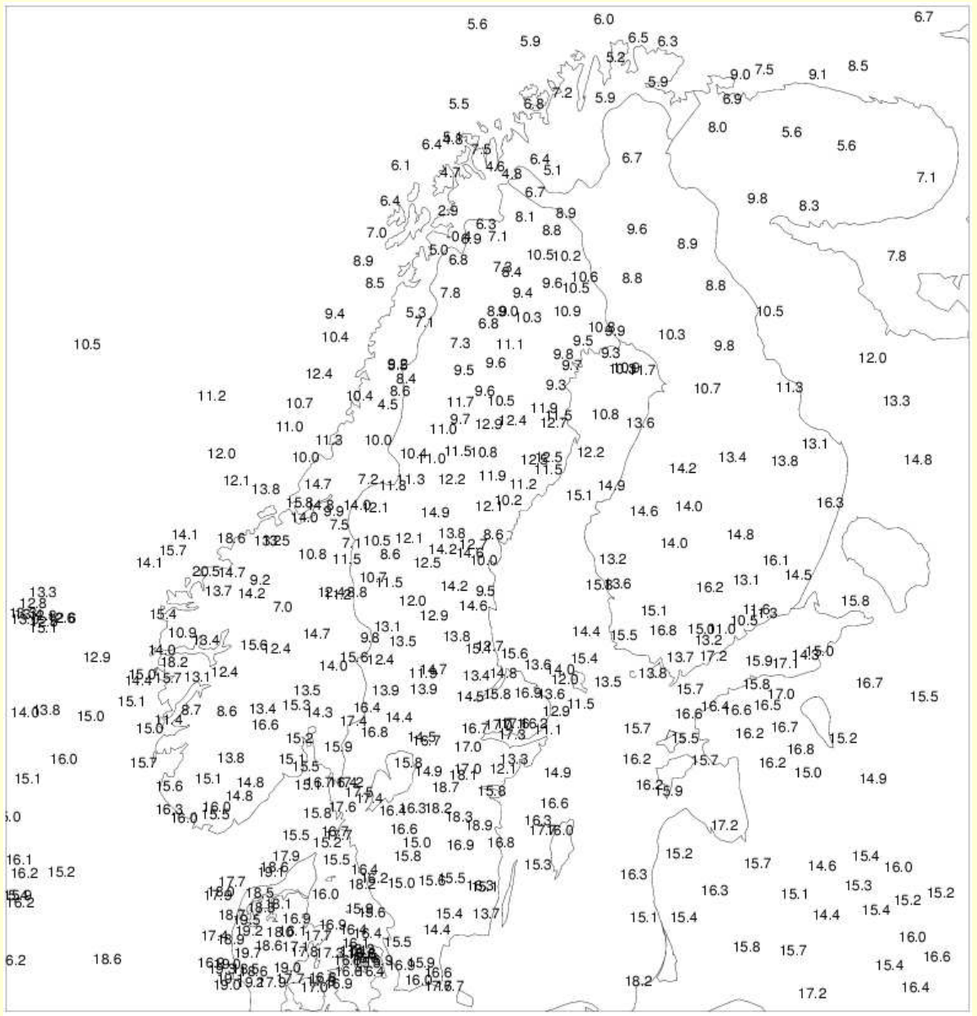
First Results from HIRALD: 2m temperature



SYNOP observations: 2005-09-22



22. september 2005, 12:00 UTC
Temperatur,



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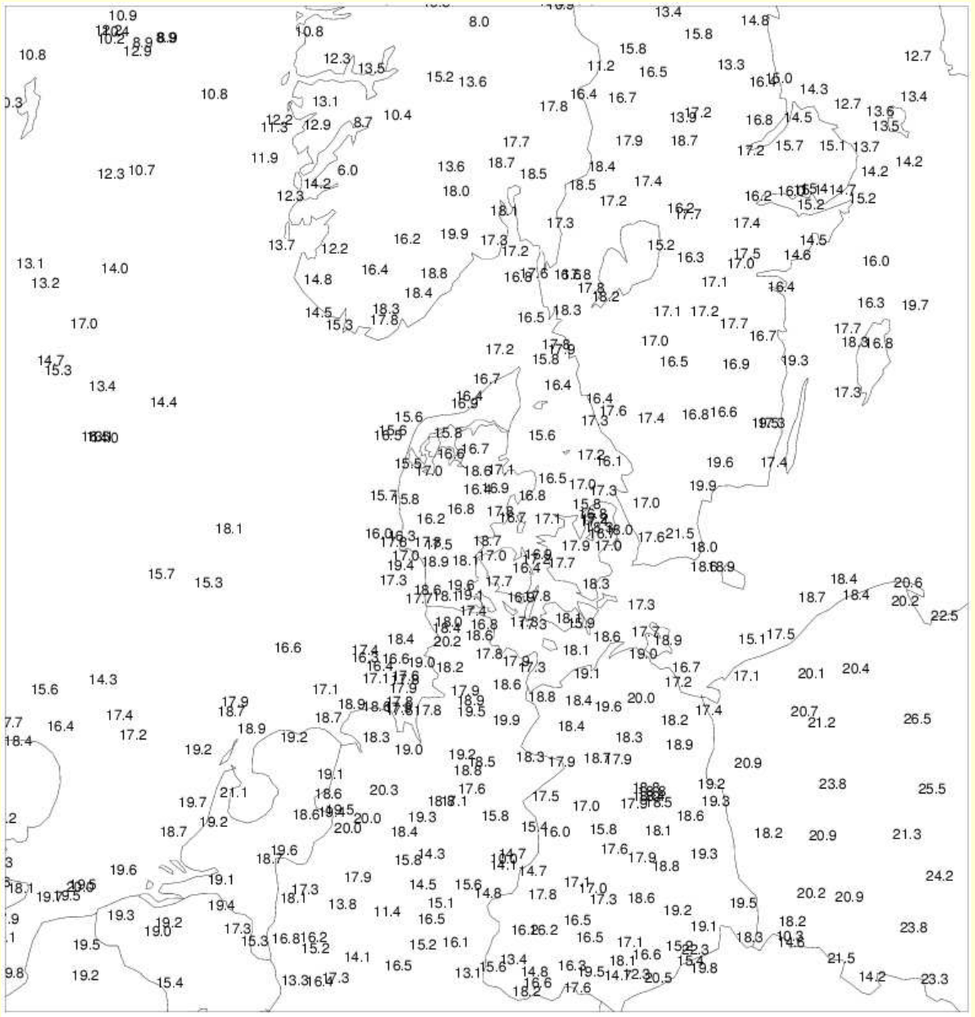
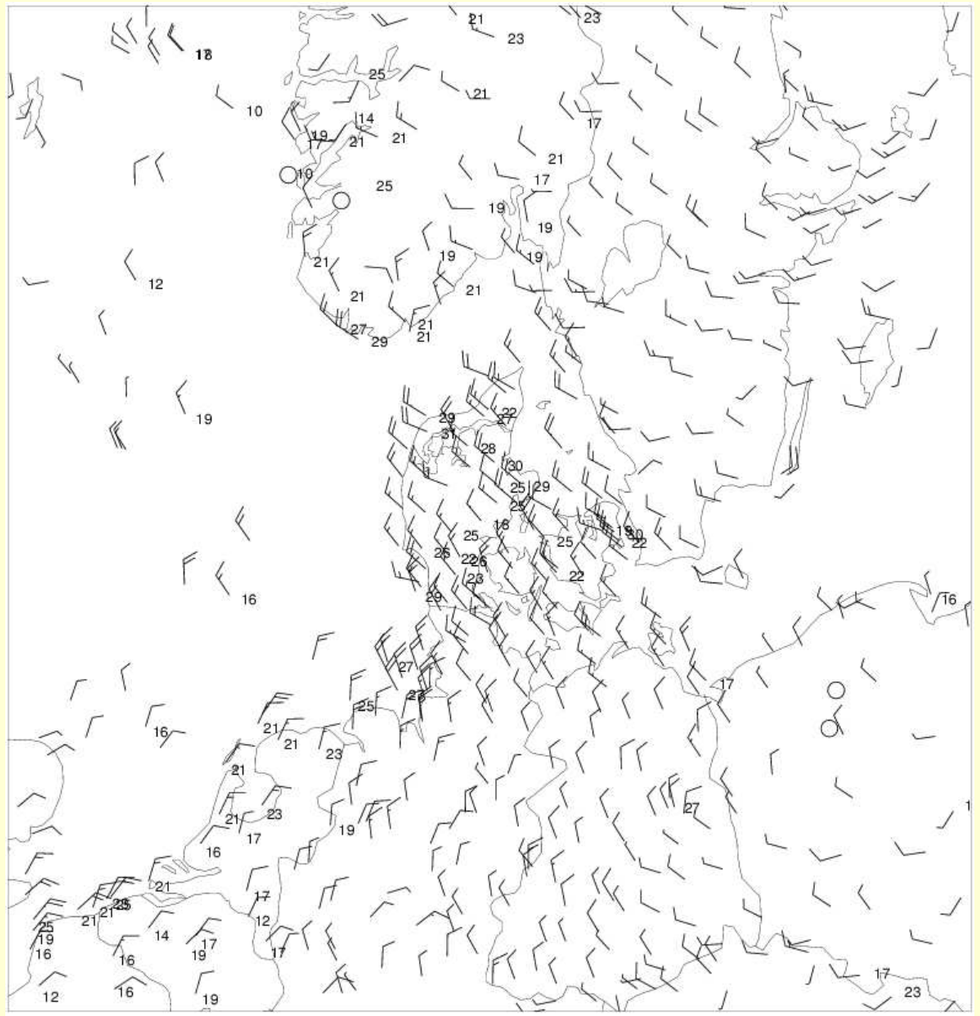
SYNOP observations 2005-09-12



12. september 2005, 12:00 UTC
Temperatur,



12. september 2005, 12:00 UTC
Vind, Vindstød,