

NWP developments at DMI

2008-2009

Current operational model areas of HIRLAM at DMI (october 2008):

Areas and model resolution

Big area **T15** including polar sea:

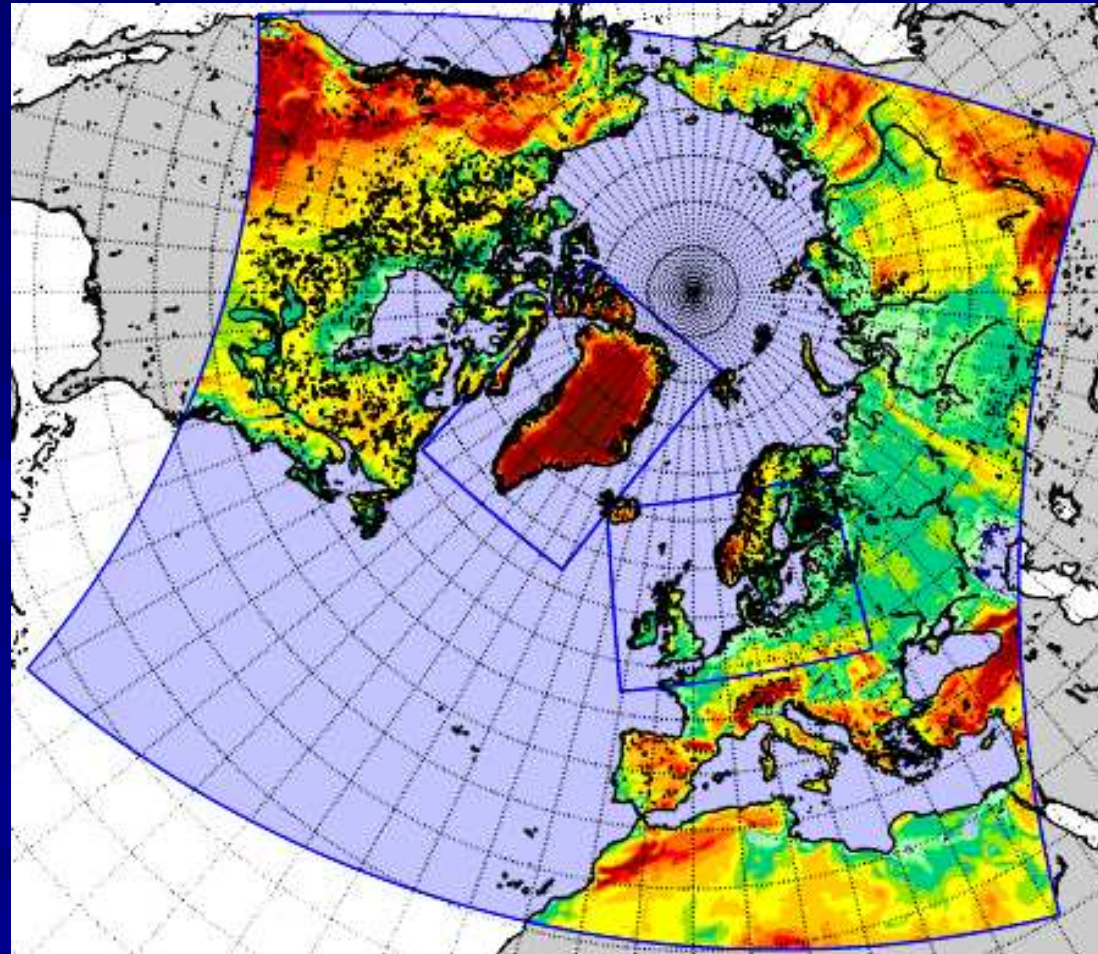
0.15 °, 40 vertical levels

High resolution Greenland **Q05**:

0.05 °, 40 vertical levels

'Northern Europe' model **S05**:

0.05 °, 40 vertical levels



New supercomputers at DMI

nec-SX6 is not used at DMI anymore

cray XT4 is used for operations from October 2008 - December 2008

cray XT5 will be used for operational NWP from January 2009

Super Computer

Cray XT5

- AMD Opteron Quad-Core Microprocessors
- Two identical systems
- Each system contains 256 compute nodes (8 cores), in total 4096 cores
- Peak: 38 Tflops
- Memory: 8.2 TBytes
- Disk: 110 TBytes



PLANS 2009

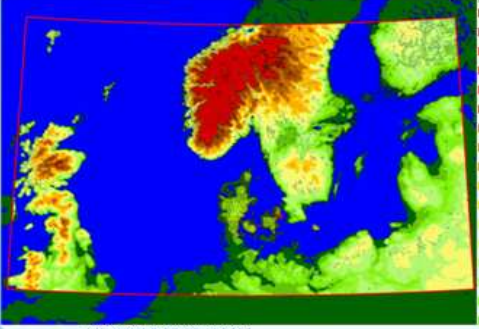
Operational models

New European model **E05** in 5 km resolution, based on HIRLAM – run every 6 hours - covering now also the mediterranean area will replace old **S05** model

A special HIRLAM model **R05** used for road-weather forecasting is run every hour, assimilating with a nudging method e.g. cloud mask data from MSG nowcasting SAF. The lateral boundary values will be provided by **E05** (same resolution)

NEW SETUP **R05**

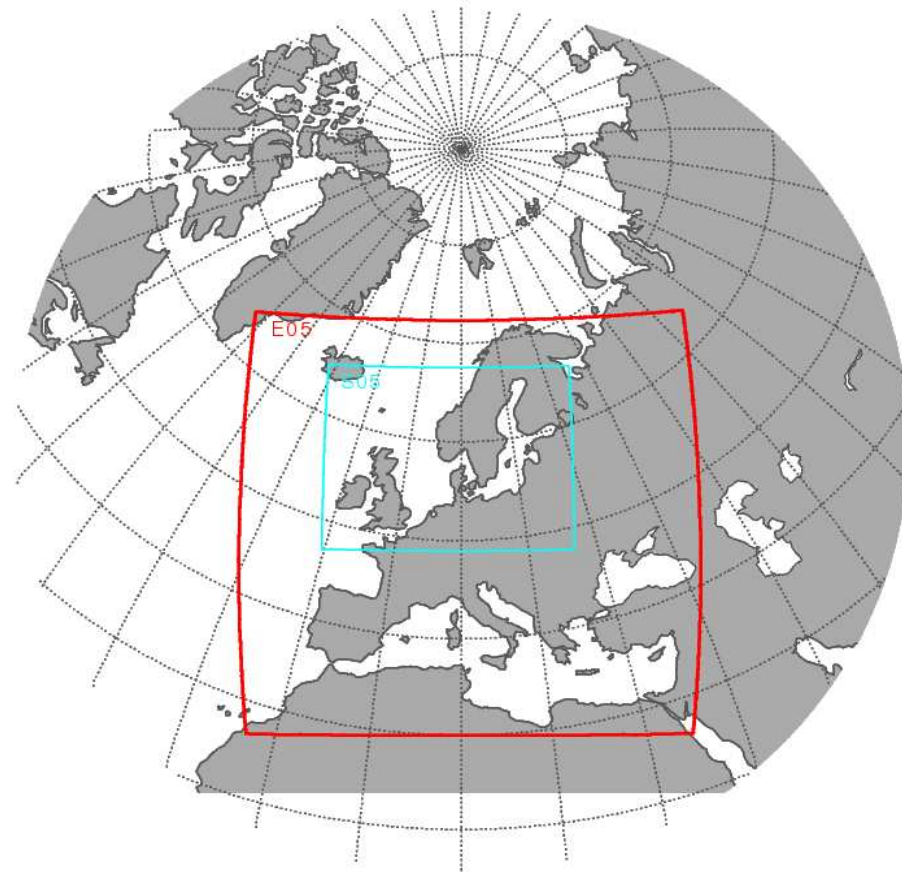
- FATGTBOX
- HIRLAM 7.1
- 0.05x0.05
- 40 LEVELS
- HOURLY
- 24 HOUR FORECAST
- SL
- CLOUD INITIALIZATION
- INLINE ROAD MODEL
- ROAD OBSERVATIONS



DMI logo

MG-meeting 25-26.11.2007

S05: 496x372; E05: 910x848



PLANS 2009

Operational models

Models for Greenland:

T15: The present operational model area (2008) , 0.15 ° , 40 levels
(runs every 6 hours)

Q05: The present operational model area (2008) , 0.05 ° , 40 levels
with lateral boundaries from T15
(runs every 6 hours)

AL1: NEW Aladin- nonhydrostatic model setup running daily
(every 6 or 12 hours)
with grid size between 1 and 2 km,
running for a Greenland Fjord area,
with lateral boundaries from Q05
(quality assessment by DMI forecasters)

PLANS 2009

Operational models

Afghanistan setup:

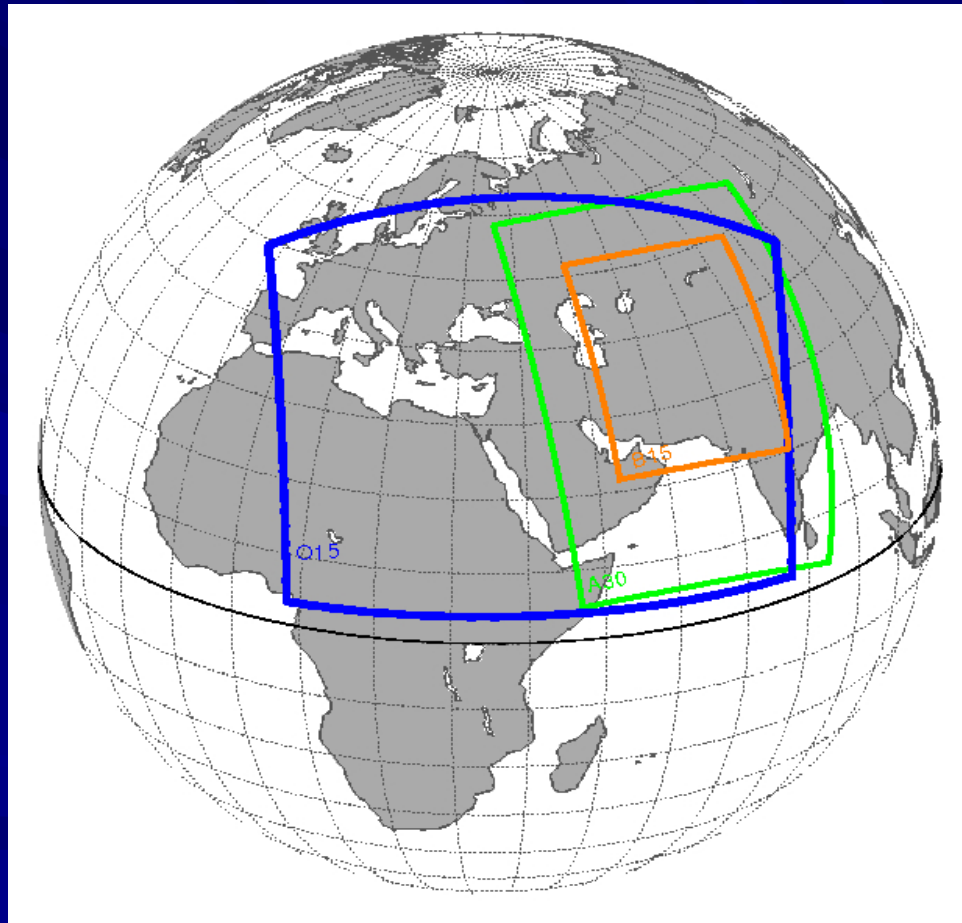
Old HIRLAM setup:

A30, B15 (green , orange frames).

New HIRLAM setup:

0.15 °, 40 levels, runs every
6 hours, normal
data-assimilation

O15: (blue frame)



test of new systems

- Pollen forecasts for Danish area (R05) based on tracer advection and source / sink modeling in Enviro-HIRLAM
- Test and verification of an ensemble prediction system
- Test of increased vertical resolution (60-70 levels) for operational use in 2010
- Aladin nonhydrostatic test runs for 'Danish' area on a daily basis, perhaps activating data-assimilation in 2009
- HIRLAM reference system runs with monitoring