



The **HIRALD** working group and some preliminary results

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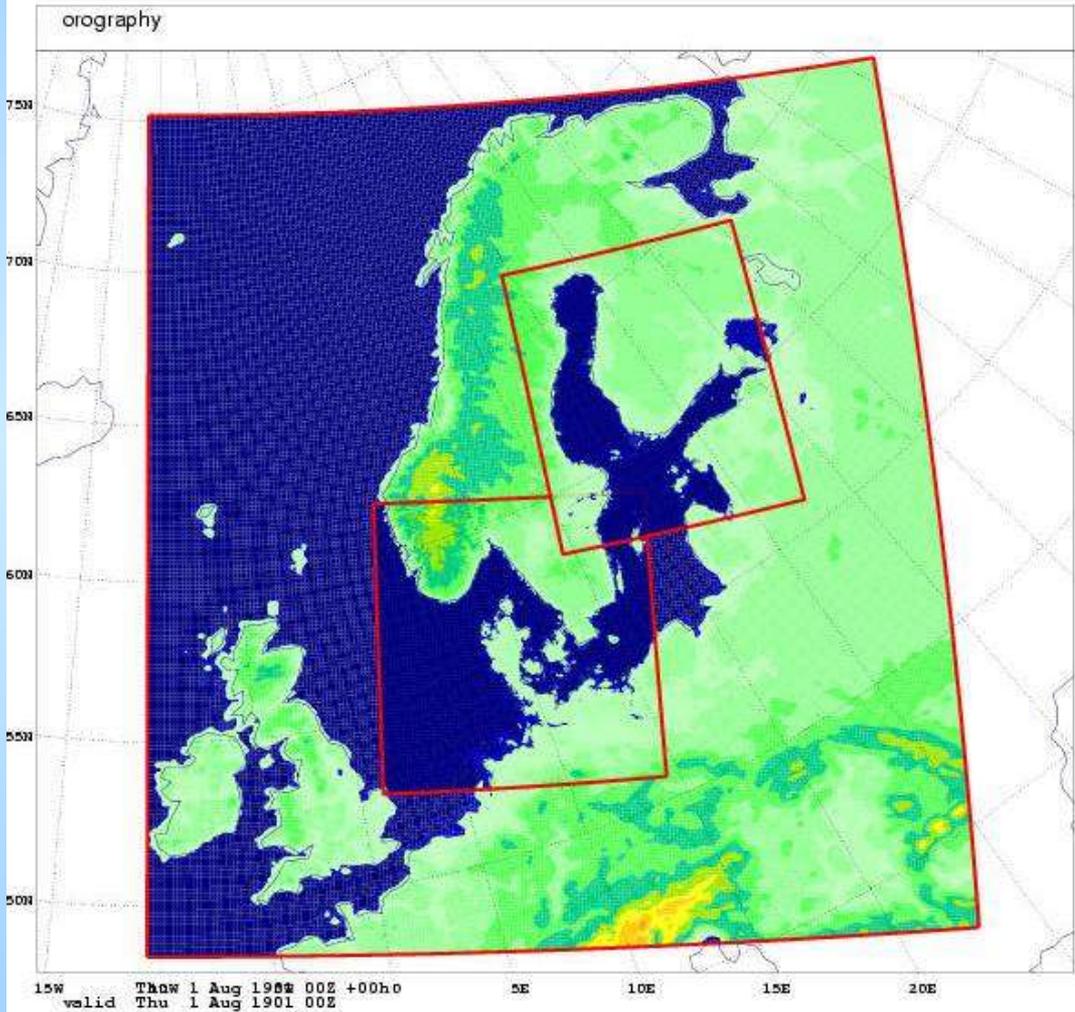
HIRALD website: <http://science.dmi.dk/hirald>

Thanks to people at Meteo France and the ALADIN countries for help with setting up the code and answering all our questions

Model domains



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HIRALD working plan (what have we done so far)



- **March 2004:** ALADIN-NH Training course at Meteo France.
- **July 2004:** Working week at DMI with Ryad El Khatib (ALADIN setup at ECMWF, CY26).
- **Autumn 2004:** setting up CY28T3 at ECMWF on HIRALD domains with a test period of the first week of July 2003 where there are some convective storm cases over Scandinavia.
- **November 2004:** Training course and working group on physical/dynamical interfacing in ALADIN, in Prague.
- **February 2005:** HIRALD working week at DMI to update and synchronise work plus making plans for future work.

Work in progress and (near) future plans

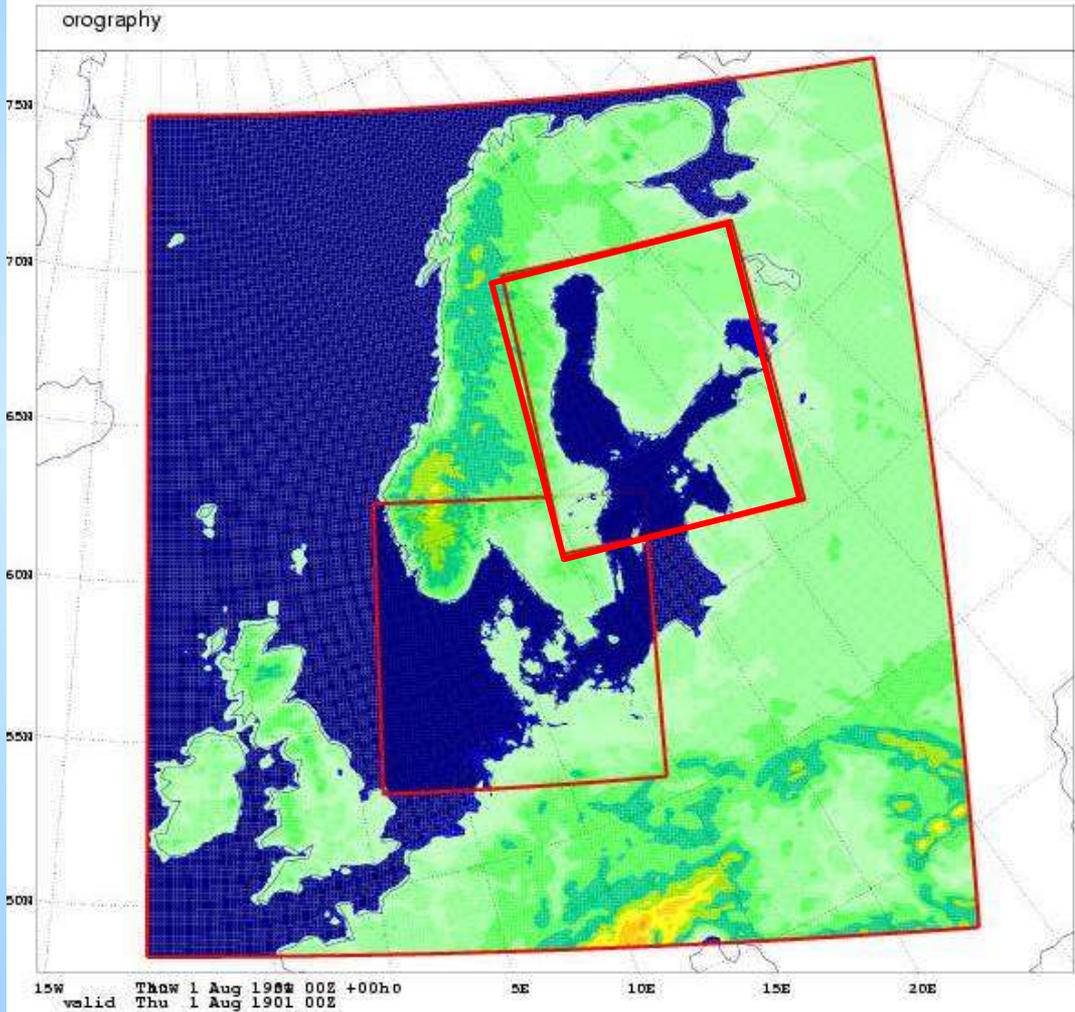
- Boundary preparation so can use HIRLAM boundaries (preliminary version working on IBM at ECMWF)
- Testing of ALADIN(NH) vs HIRLAM on longer periods
- Integration of HIRLAM physics into the ALADIN system
- Setup on Linux (SMHI) and NEC (DMI) to run operational test setups in parallel on a daily basis

Some preliminary tests of NH-ALADIN
over the Finish area
by Sami Niemelä (FMI)

Model domains



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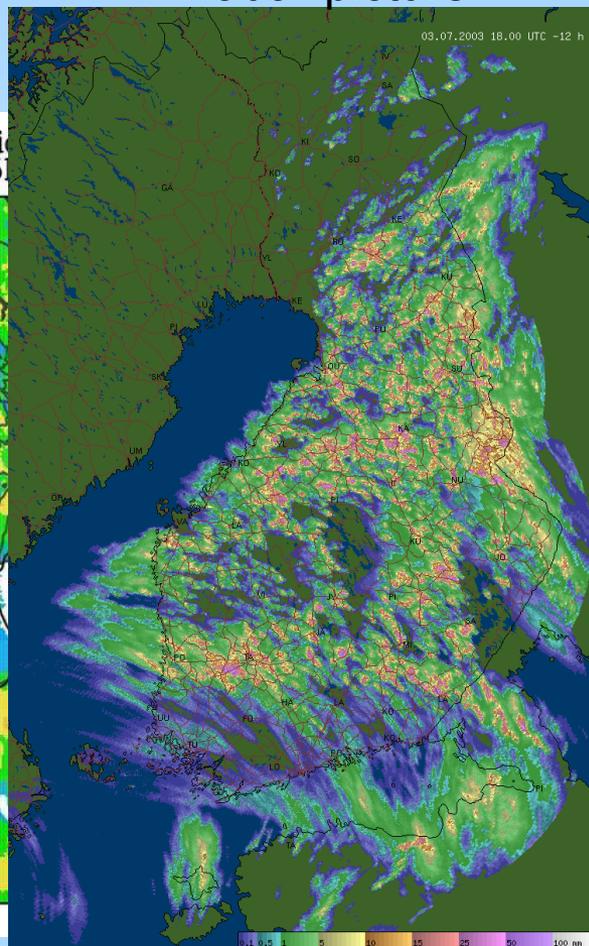
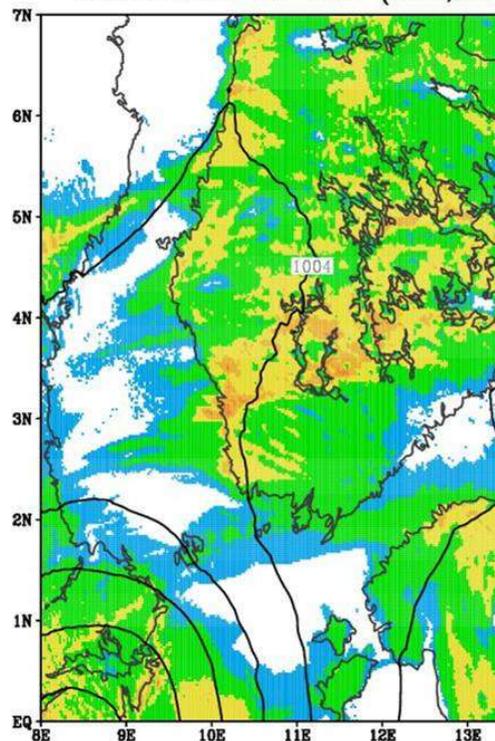
Precipitation event



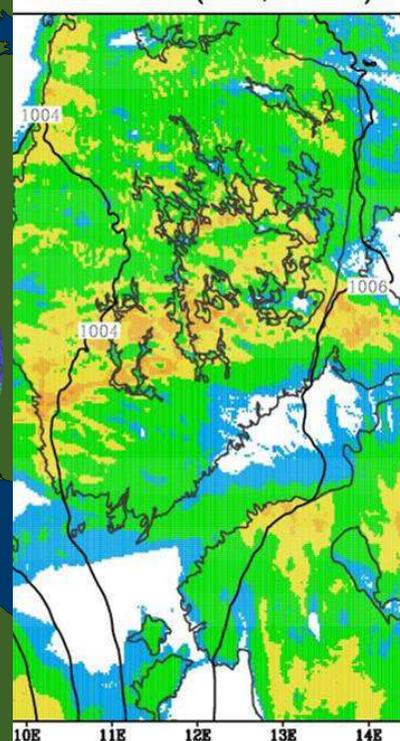
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Radar picture

ALADIN 03JUL2003 00 UTC Forecast. Precipitation
03JUL2003 18 UTC (ALN,2.5)



ALADIN 03JUL2003 00 UTC Forecast. Precipitation [mm 12h⁻¹]
03JUL2003 18 UTC (ALH,2.5km)

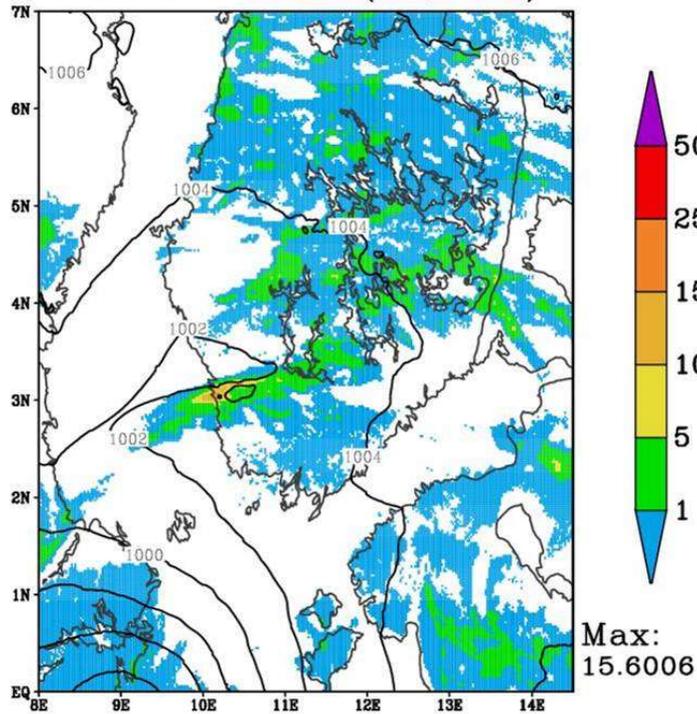


ALADIN Non-hydrostatic 12.5km resolution

ALADIN Hydrostatic 2.5km resolution

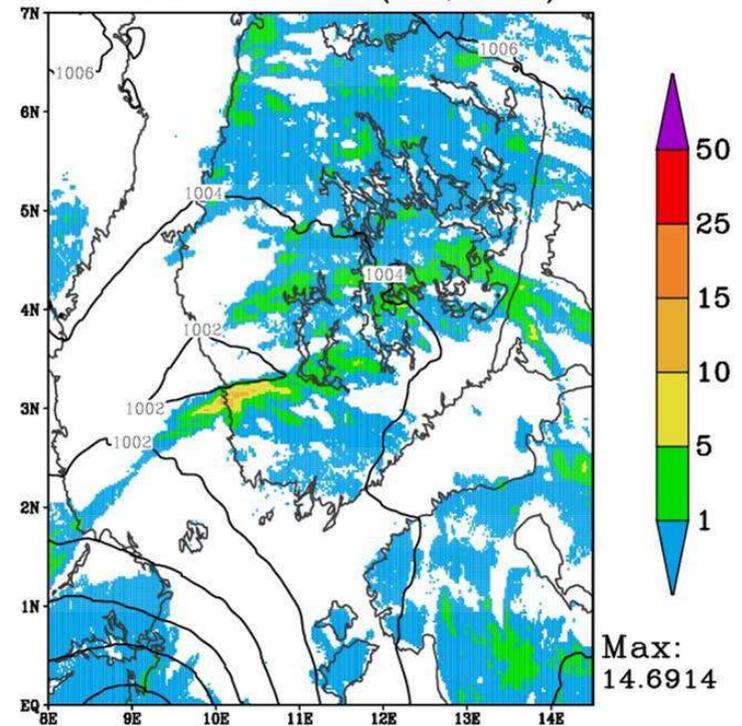
1 hour precipitation

ALADIN 03JUL2003 00 UTC Forecast. Precipitation [mm 1h⁻¹]
03JUL2003 12 UTC (ALN,2.5km)



Non-hydrostatic

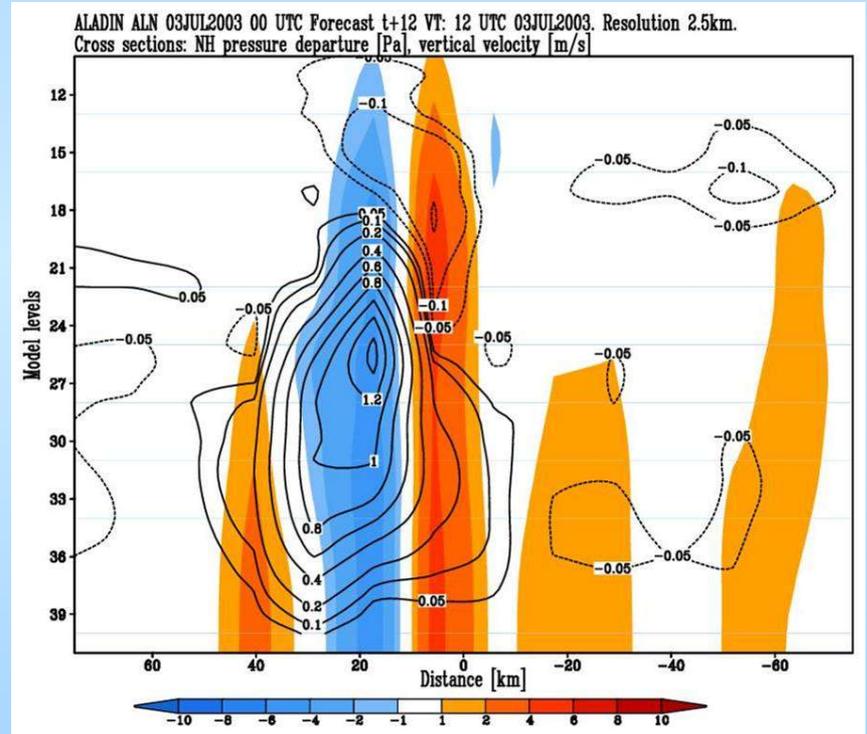
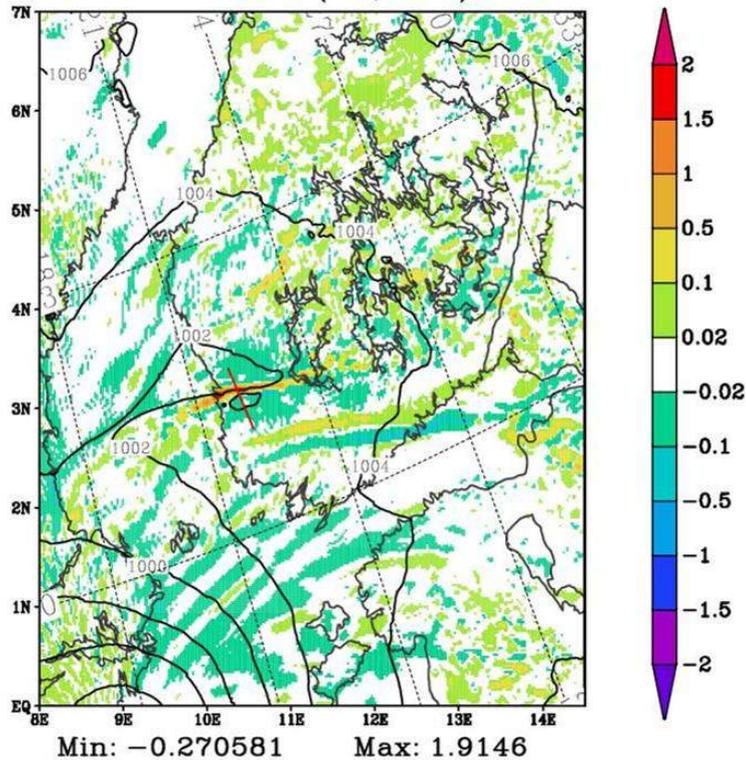
ALADIN 03JUL2003 00 UTC Forecast. Precipitation [mm 1h⁻¹]
03JUL2003 12 UTC (ALH,2.5km)



Hydrostatic

Vertical velocity within precipitation cells

ALADIN 03JUL2003 00 UTC Forecast. Vertical velocity [m s^{-1}]
03JUL2003 12 UTC (ALN,2.5km). ML:25

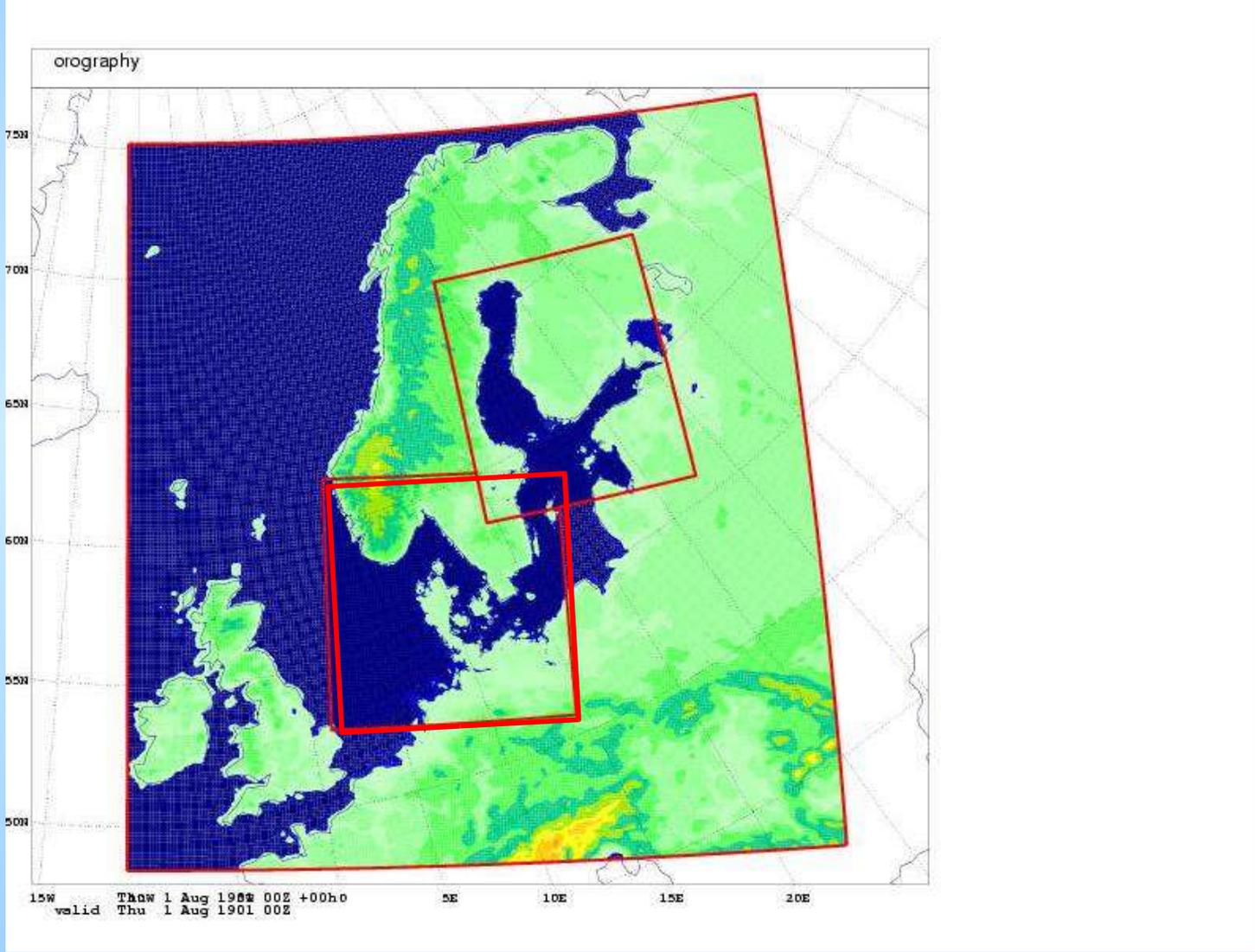


Danish precipitation case (Karina Lindberg, DMI)

Model domains

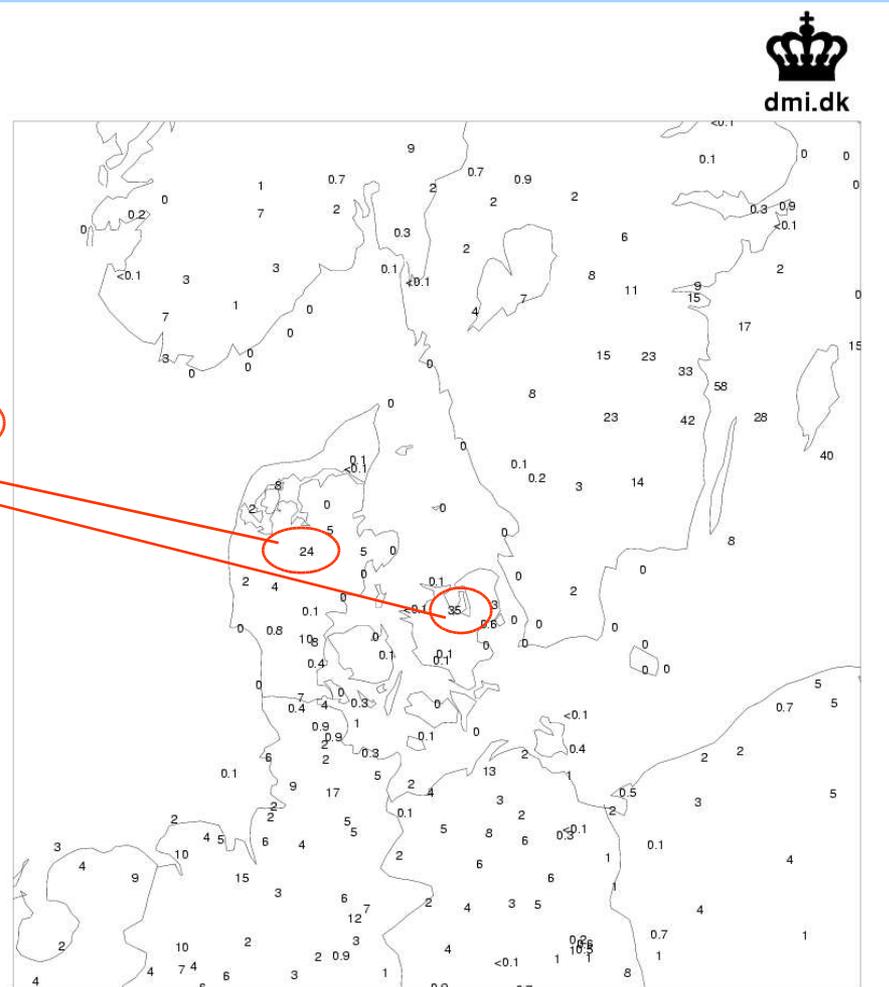


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Precipitation observations

Intense precipitation

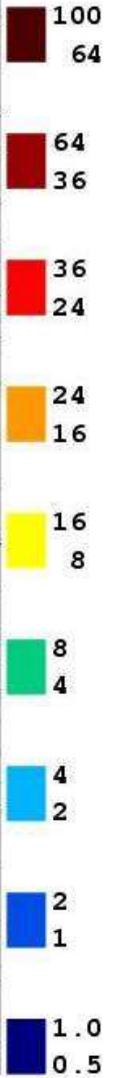
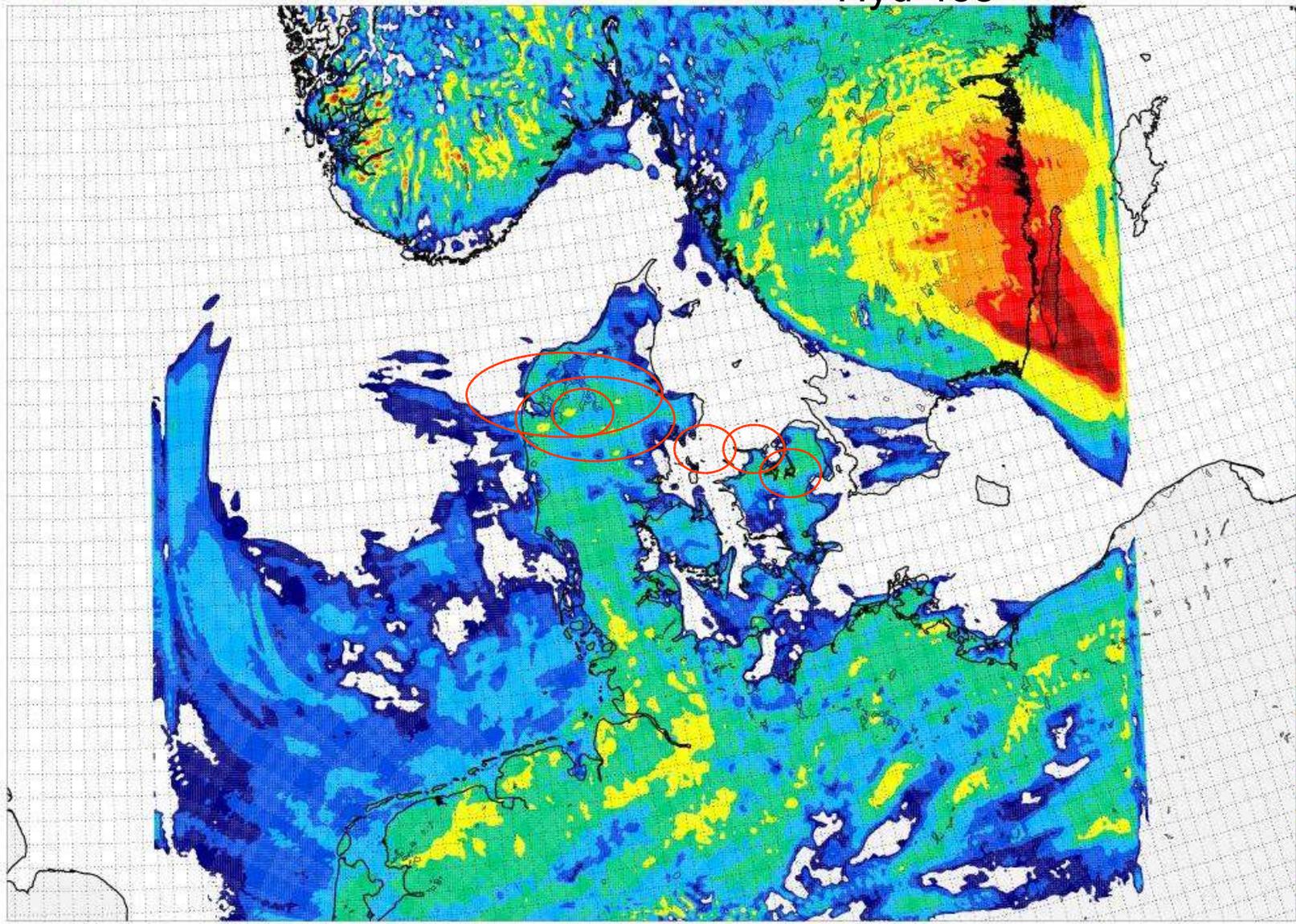


2. juli 2003, 18:00 UTC
Nedbør 12 timer,

111000

Hyd 300s
Hyd 450s

12-hr Tot.Prec +18h - +06h



valid Wed 2 Jul 2003 00Z +18h - Wed 02 Jul 2003 00Z +06h
 valid Wed 2 Jul 2003 18Z

GRIDBIZARRE+0018

valid

Some preliminary tests comparing HIRLAM
and ALADIN
by Ulf Andrae (SMHI)

Verification of ALADIN 1st-20th of April 2005



- **ALD**: ALADIN hydrostatic 11 km
- **D11**: HIRLAM hydrostatic 11 km
- **RCRa**: HIRLAM hydrostatic 22 km (boundary for ALD and D11)

Conditions: One 36h run each day with boundary update every third hour. Initial data is interpolated RCRa forecasts, i.e. "cold start" every time (no data assimilation).

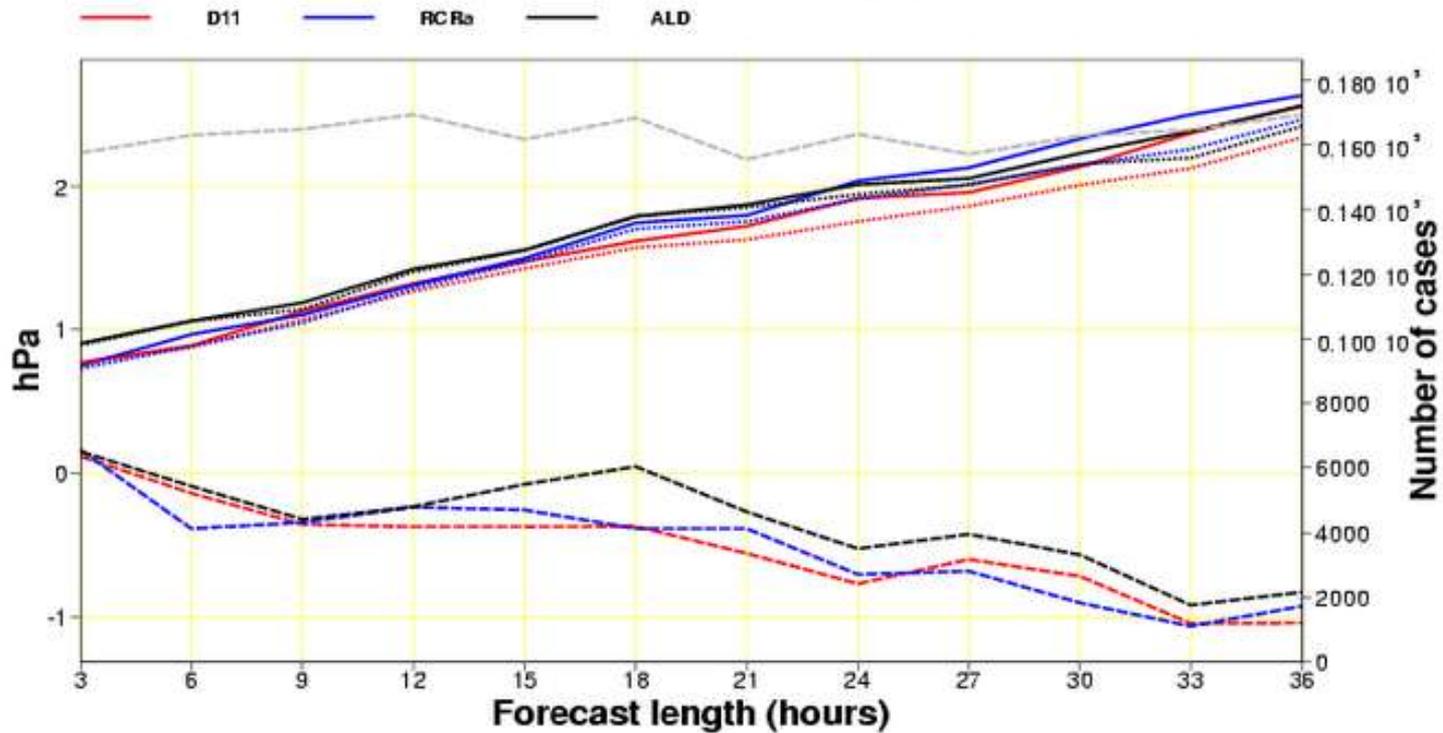
NB!! The difference in the surface parameters is probably due to an erroneous usage of soil moisture and canopy water from RCRa to ALD.

Surface pressure

Statistics for 1877 stations
Period: 20050401-20050420

Surface pressure

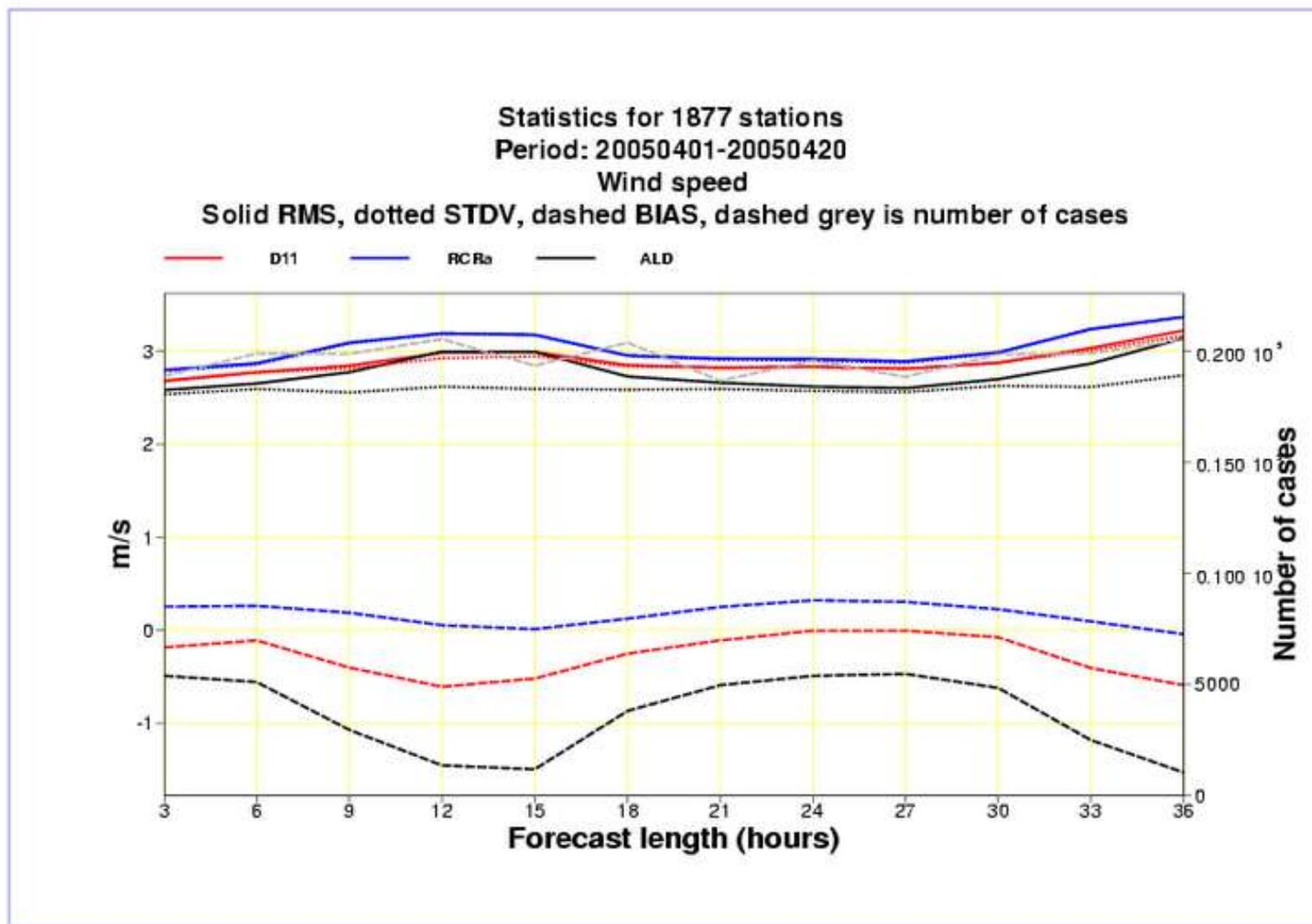
Solid RMS, dotted STDV, dashed BIAS, dashed grey is number of cases



10 meter Wind speed



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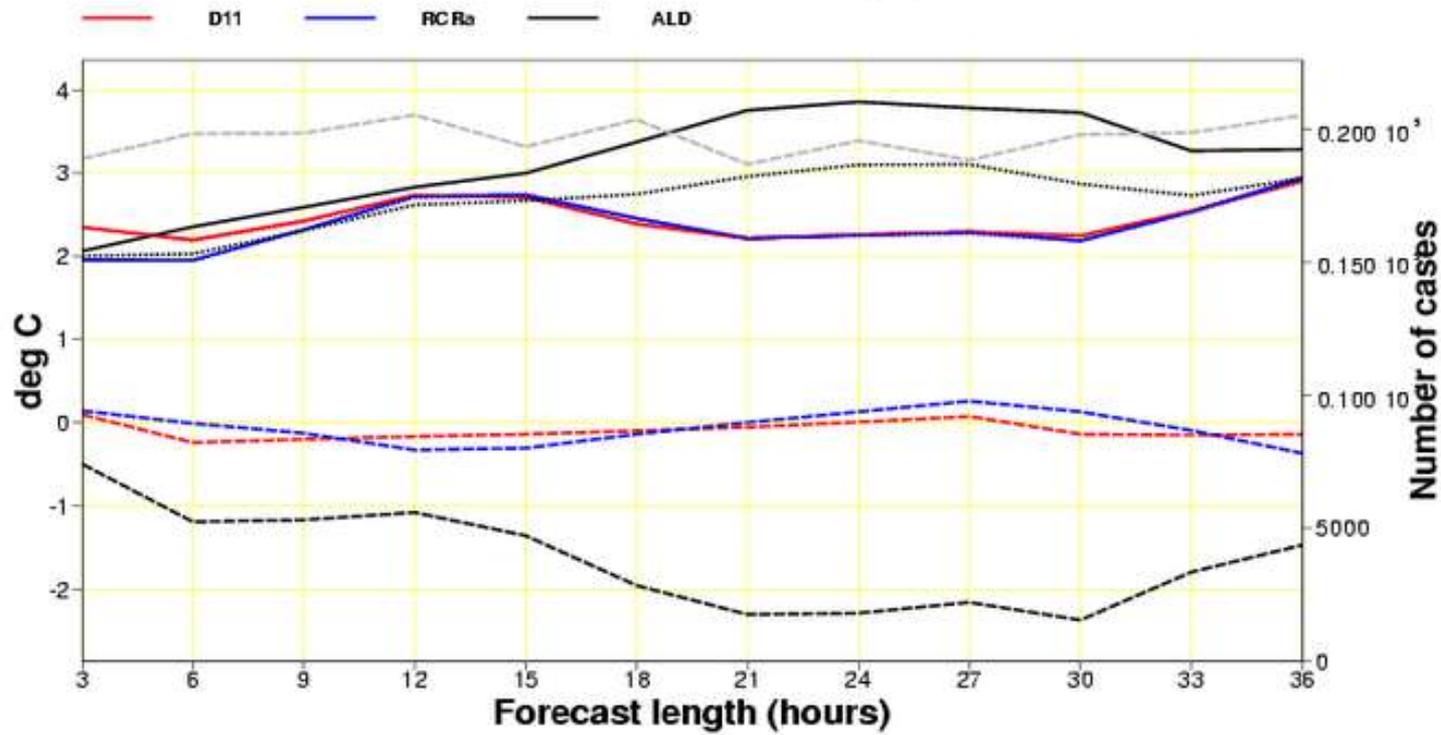


2 meter temperature

Statistics for 1877 stations
Period: 20050401-20050420

Temperature

Solid RMS, dotted STDV, dashed BIAS, dashed grey is number of cases



Future plans

- Parallel test setup of ALADIN (NH) with and without HIRLAM physics on a daily basis (with HIRLAM boundaries)

2006 and onwards

- AROME prototype (CY29T2, CY30 ...)
- Data assimilation