

#### Overview

Hirlam is used at Met Éireann to produce operational forecasts out to 54-hours. The model [version 7.2 with 4DVAR] is run four times per day using 128 CPUs on the stokes cluster at ICHEC [www.ichec.ie].

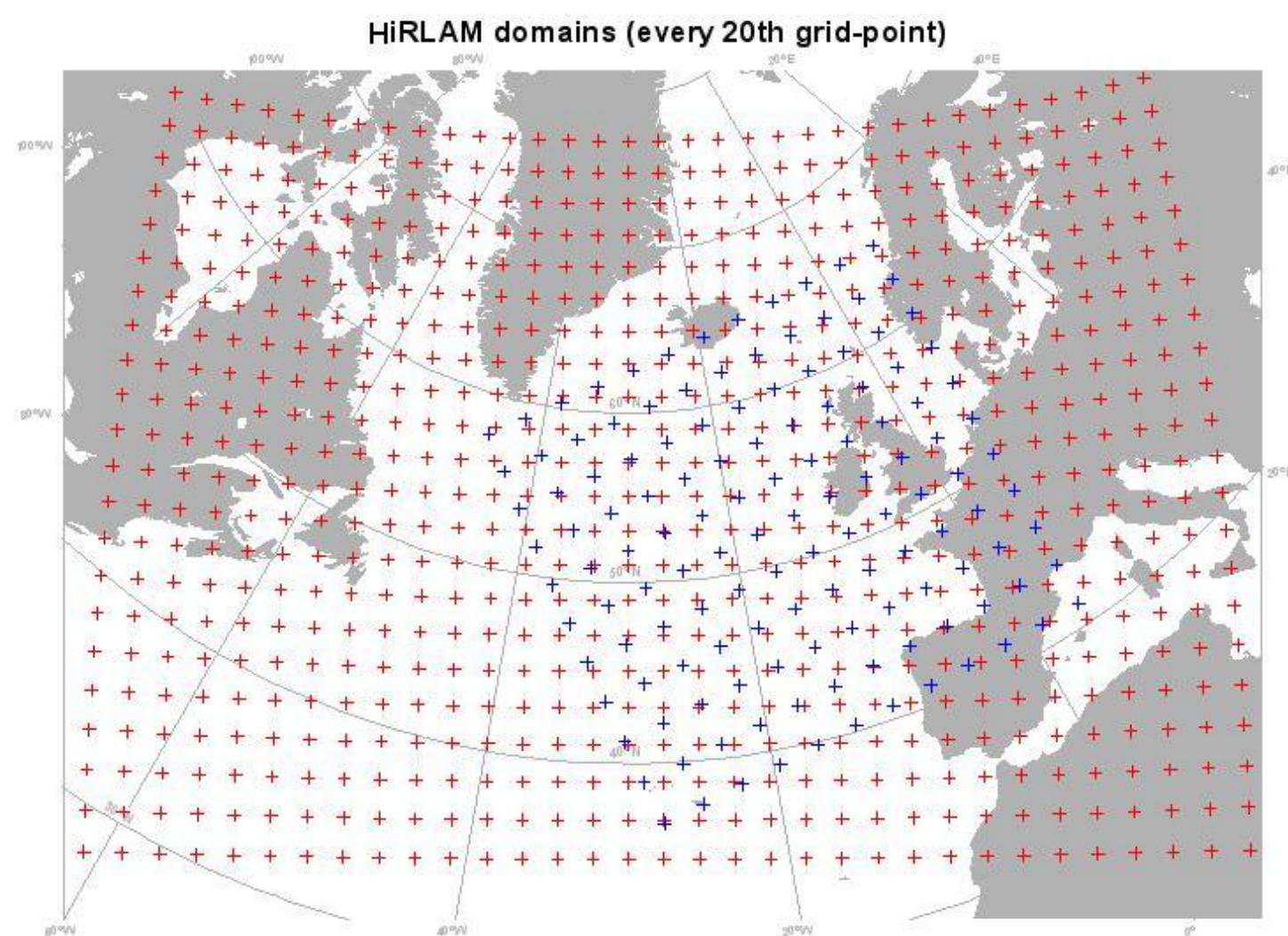
Met Éireann runs a suite of models on the ICHEC supercomputer, stokes, an SGI Altix ICE 8200EX cluster with 320 compute nodes. Each compute node has two Intel (Harpertown) Xeon E5462 quad-core processors and 16GB of RAM. This adds up to a total of 2560 cores and 5120GB of RAM available for jobs.

#### Data Assimilation

Observations used: SYNOP, SHIP, BUOY, AIREP, AMDAR, ACARS, TEMP, TEMPSHIP, PILOT

Analysis: 4DVAR.

Assimilation Cycle: Six-hour cycle using the forecast from the previous cycle as a first-guess. LSMIX is used. A re-forecast is carried out every cycle.



#### Forecast Model

Grid: Rotated lat-lon 654x424 0.1 grid with 60 levels  
 No deviation from default settings  
 No local adaptations have been made to forecast model

#### Lateral boundaries

Latest available ECMWF frame files are used. Frames are received on same 0.1x0.1 rotated lat-lon grid as the HIRLAM grid with 60 levels.

#### Nested HIRLAM

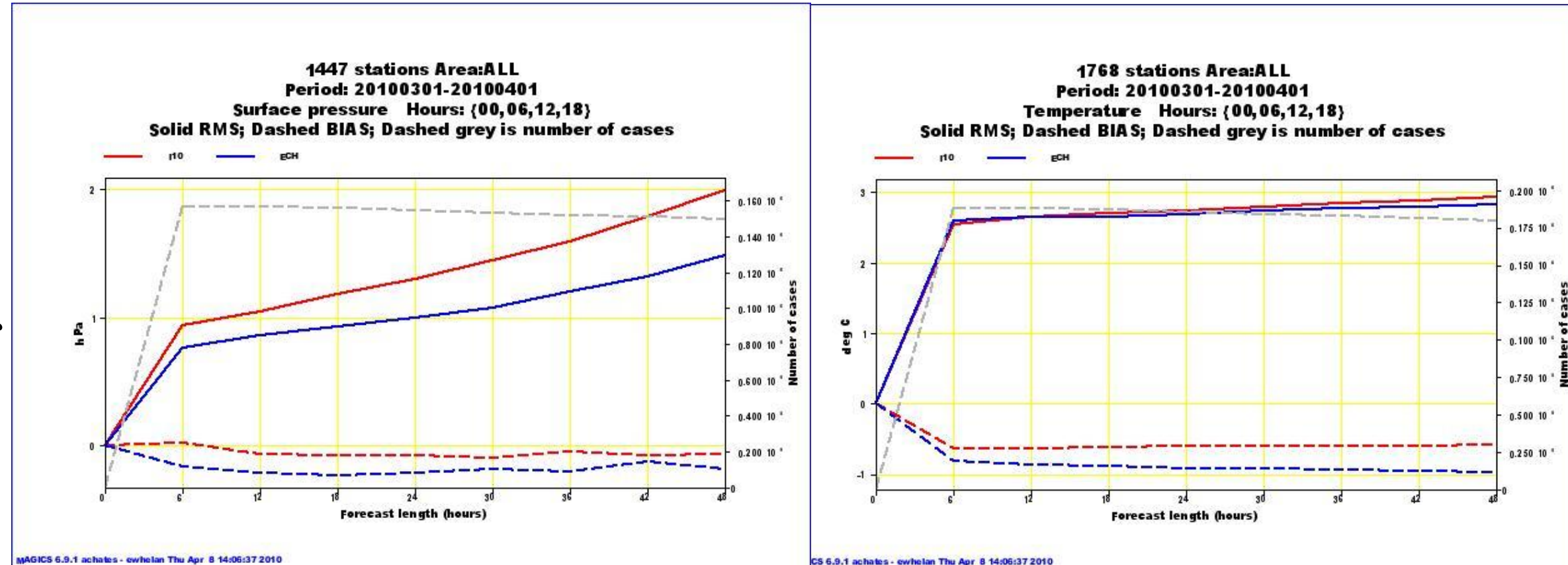
A nested version of HIRLAM is also run after the main run has finished and produces 30-hour forecasts 4 times per day.  
 Grid: Rotated lat-lon 438x395 0.05 grid with 60 levels

#### Nested Hourly HIRLAM

An hourly nested version of HIRLAM produces a 6-hour forecast every hour.  
 Grid: Rotated lat-lon 166x163 0.15 grid with 60 levels

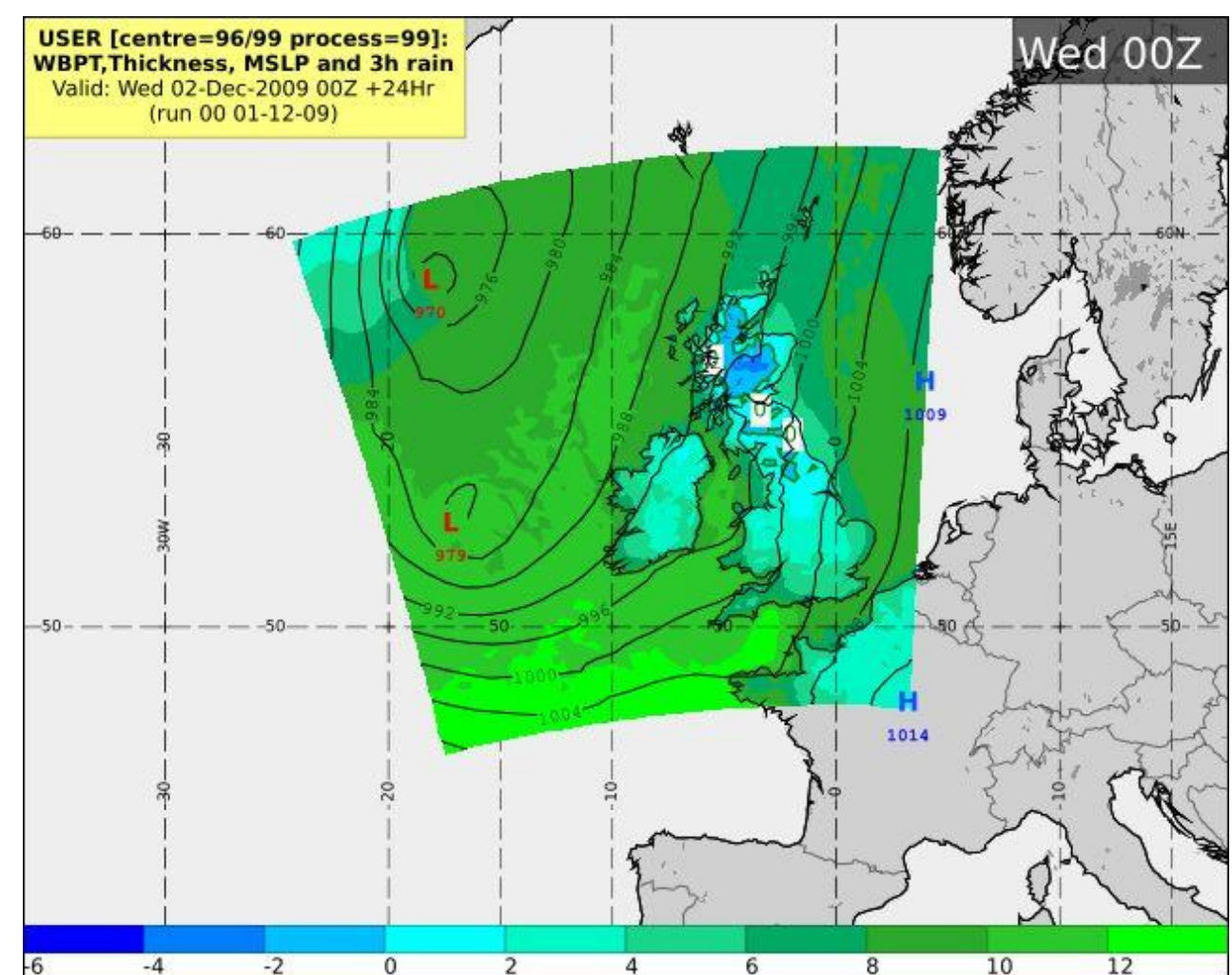
#### Verification

Verification statistics are calculated using WebgraF software. Below are some verification plots for Hirlam compared with ECMWF for March 2010.



#### Harmonie Plans

It is planned to replace the current "hirlam" setup with a new version of Harmonie using ALARO physics on a 5.5km grid. The domain will include Ireland and the UK.



#### WMO Station Height Corrections

Work to detect and correct inconsistencies in WMO station catalogue is ongoing. The aim of this work is to improve pressure observations used in Hirlam data assimilation.

