

Operational HIRLAM - Met Éireann

ASM 2013 - Eoin Whelan

HIRLAM is used at Met Éireann to produce operational forecasts. The “Main” Atlantic domain configuration produces a 54 hour forecast four times per day. The “Hourly” Ireland & UK domain configuration produces a 6 hour forecasts every hour.

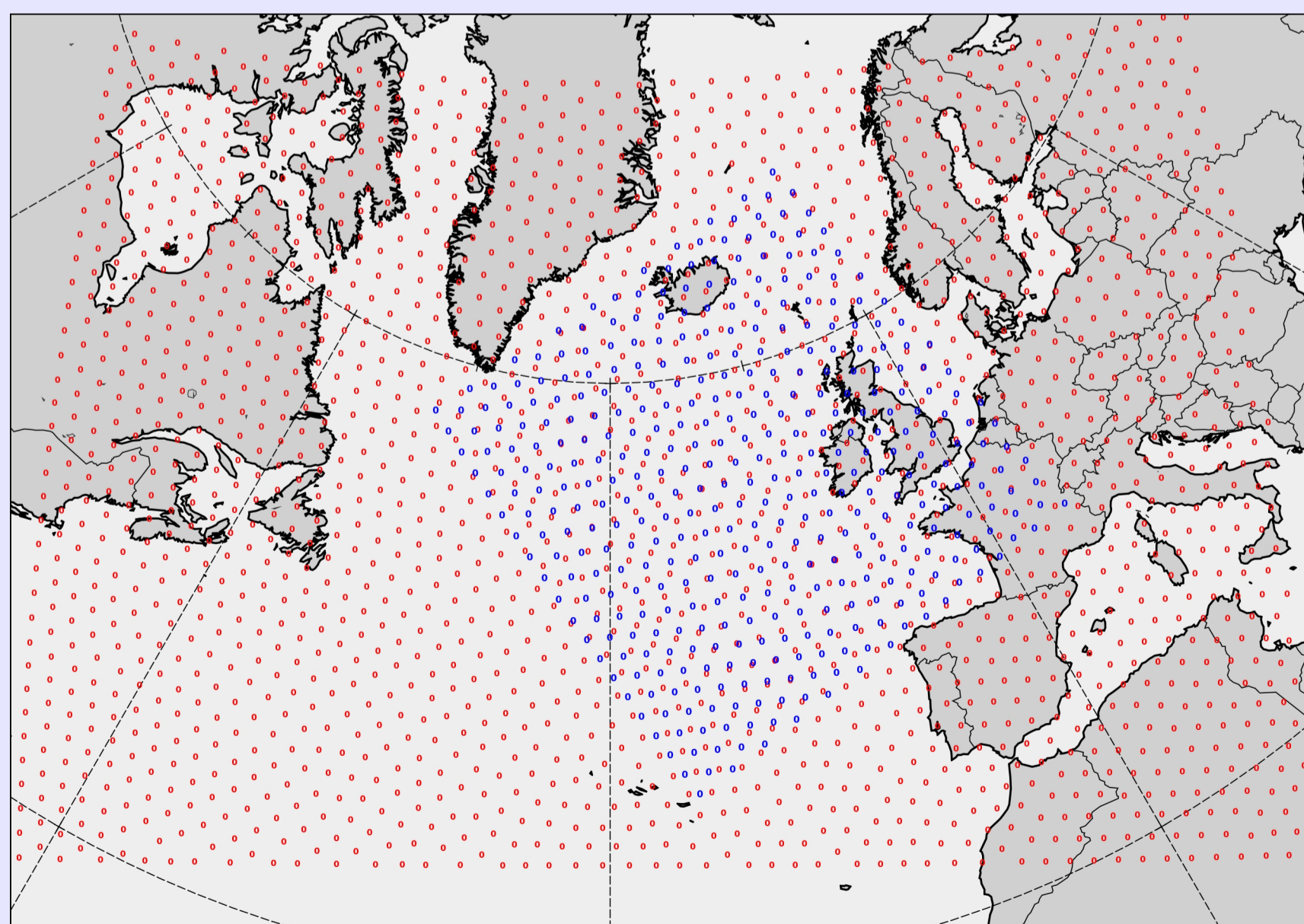
I10 “Main” Atlantic configuration

- HIRLAM version: 7.2
- Domain: 654x424 grid-points with 60 vertical levels
- Grid-spacing: $\Delta x = \Delta y = 0.1^\circ$
- Cut-off: 1hr 50min
- Observations: Conventional only
- DA: 4DVAR
- LSMIX: every cycle
- Forecast: 54 hour forecast at 00z, 06z, 12z & 18z

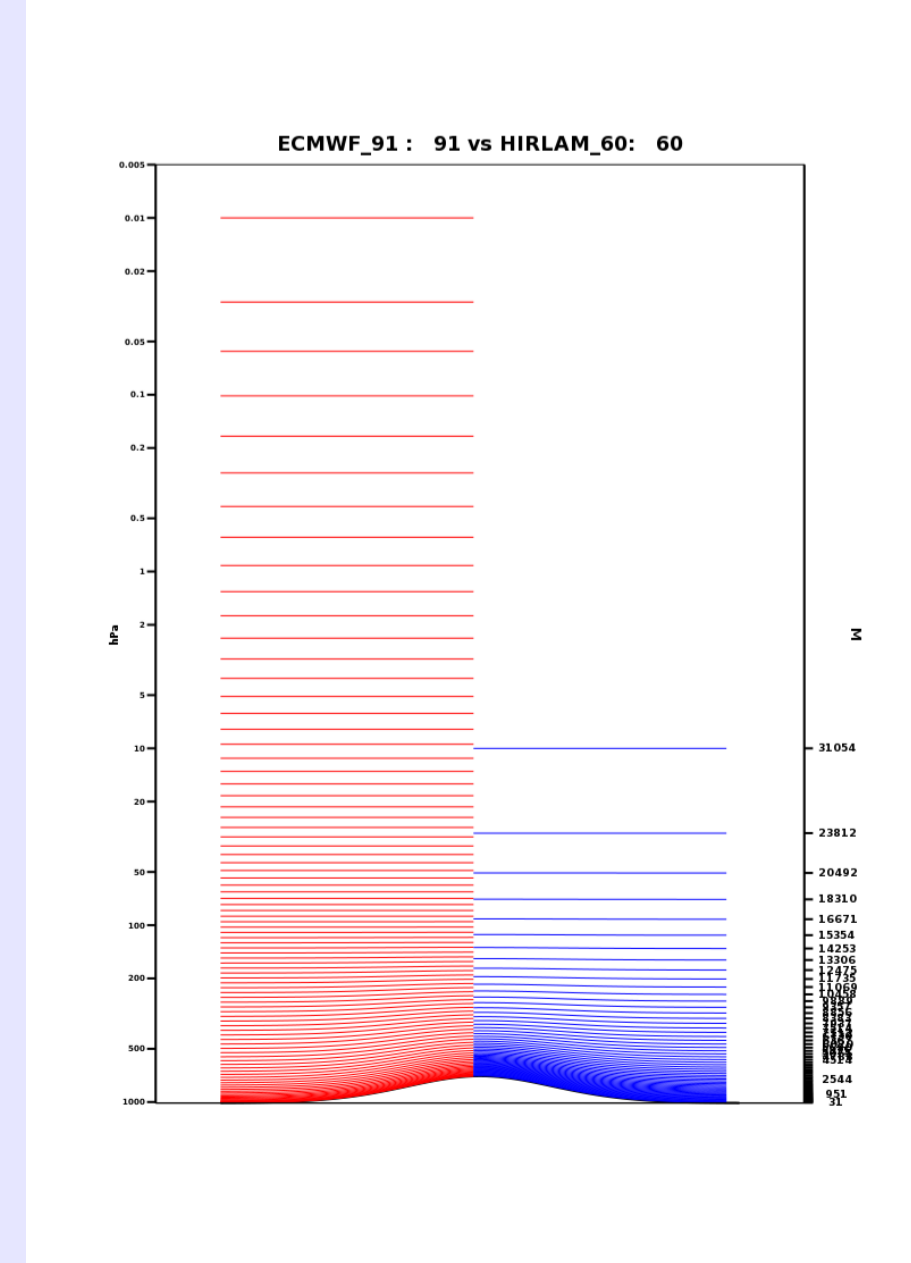
HHH “Hourly” Ireland & UK configuration

- HIRLAM version: 7.2
- Domain: 166x163 grid-points with 60 vertical levels
- Grid-spacing: $\Delta x = \Delta y = 0.15^\circ \rightarrow 0.07^\circ$ before end Q2 2013
- Cut-off: 20min
- Observations: Conventional only
- DA: 3DVAR
- LSMIX: every 6 hours
- Forecast: 6 hour forecast every hour

I10 and HHH Domains



IFS L91 vs HIRLAM L60

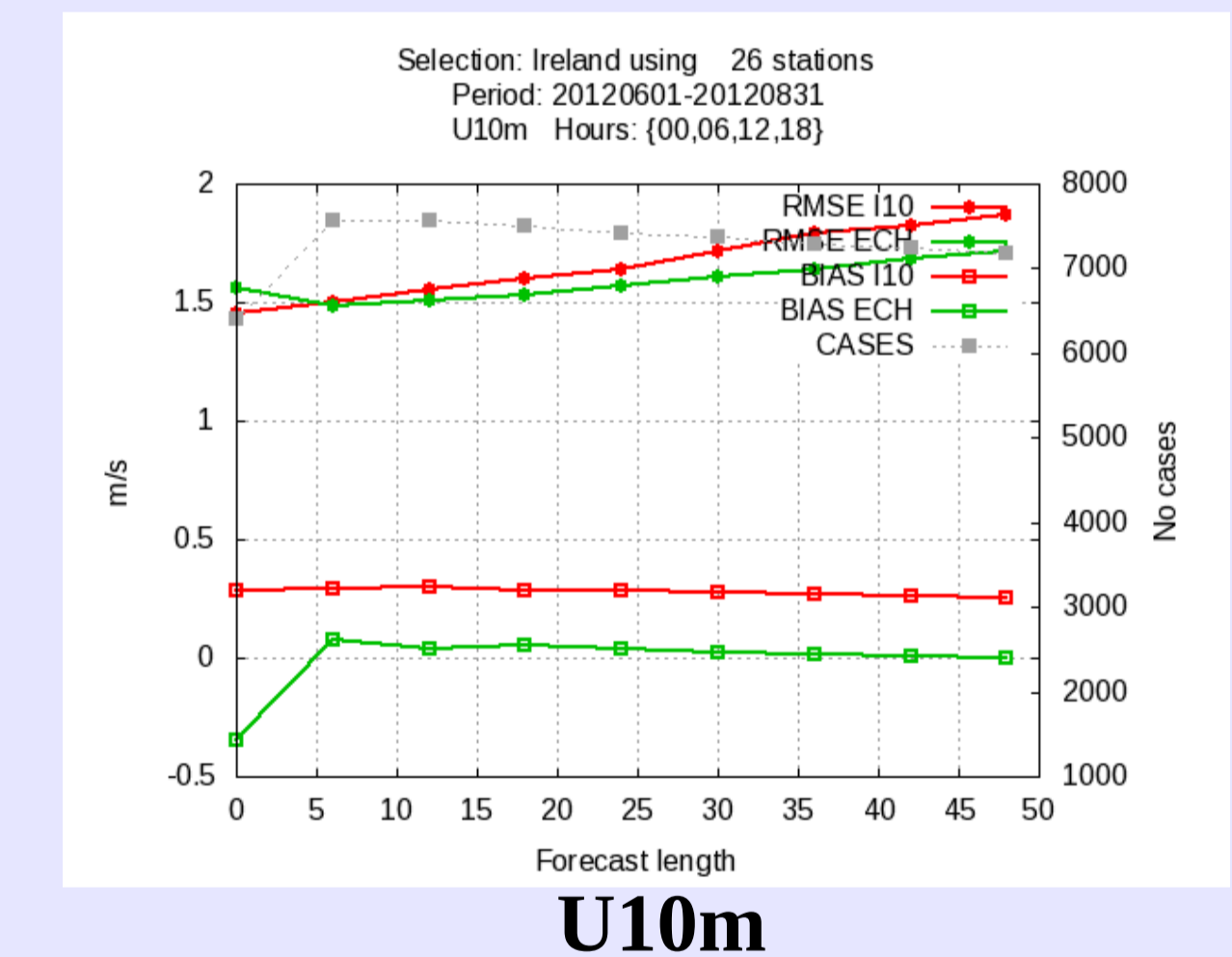
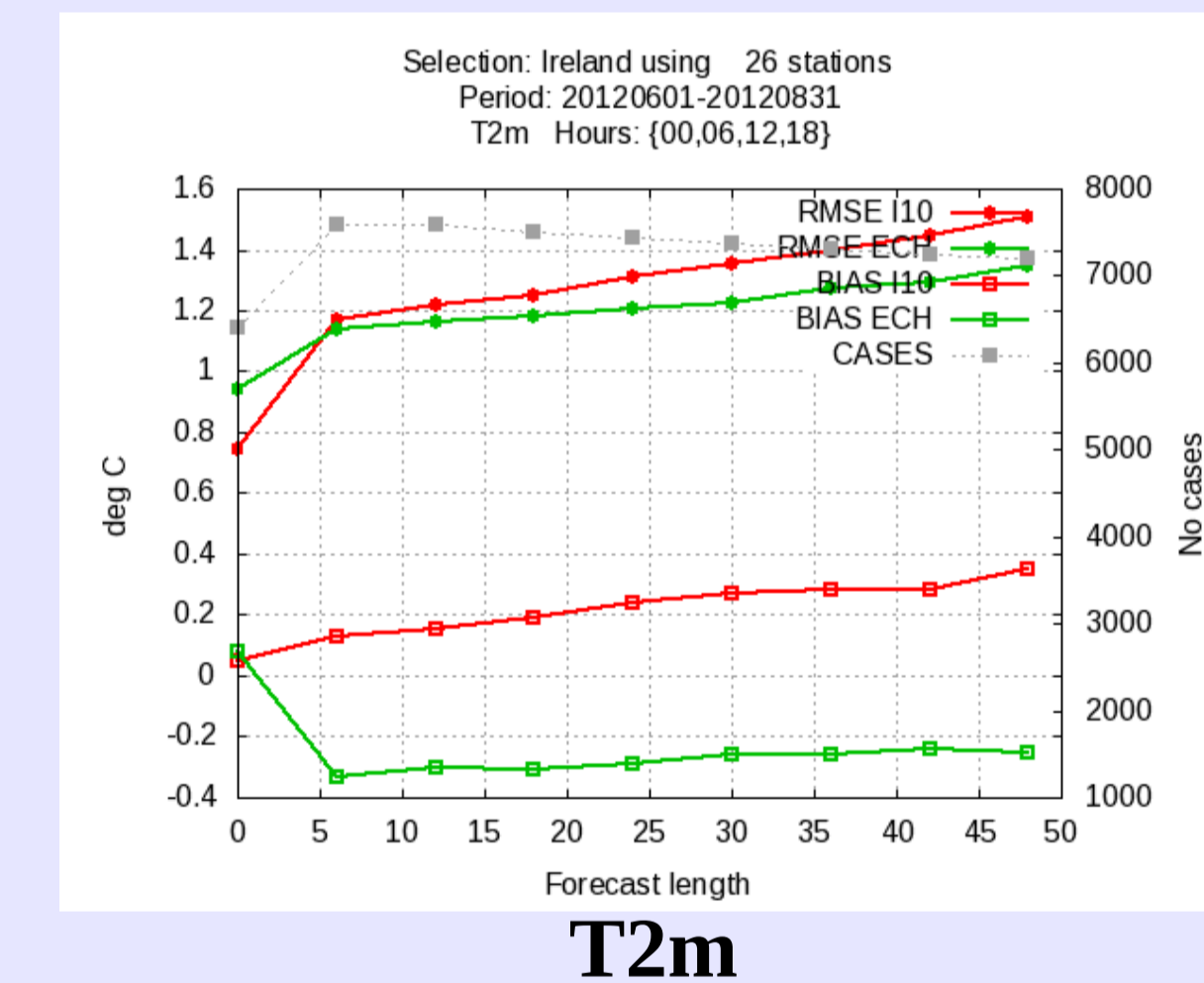


Compute Resources

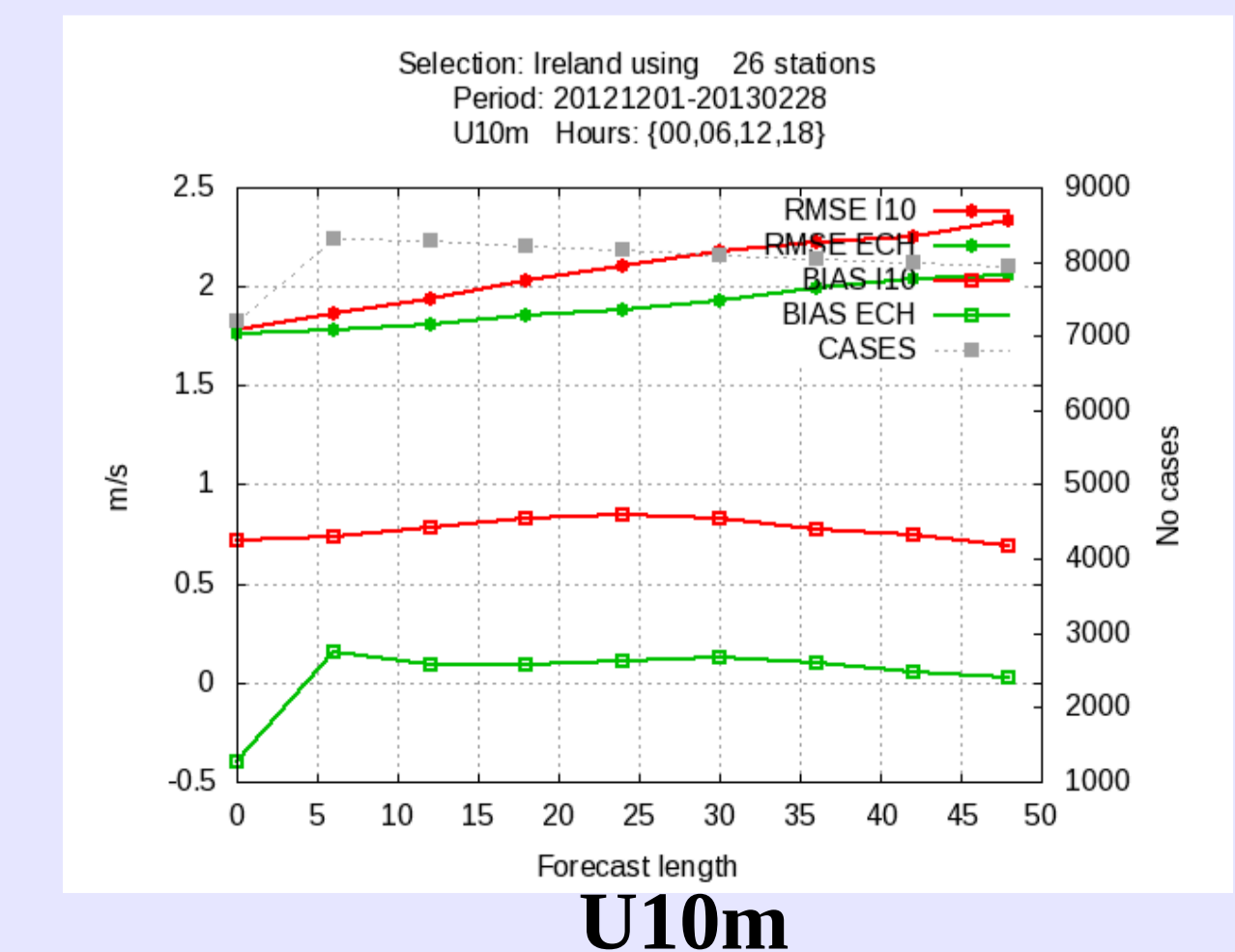
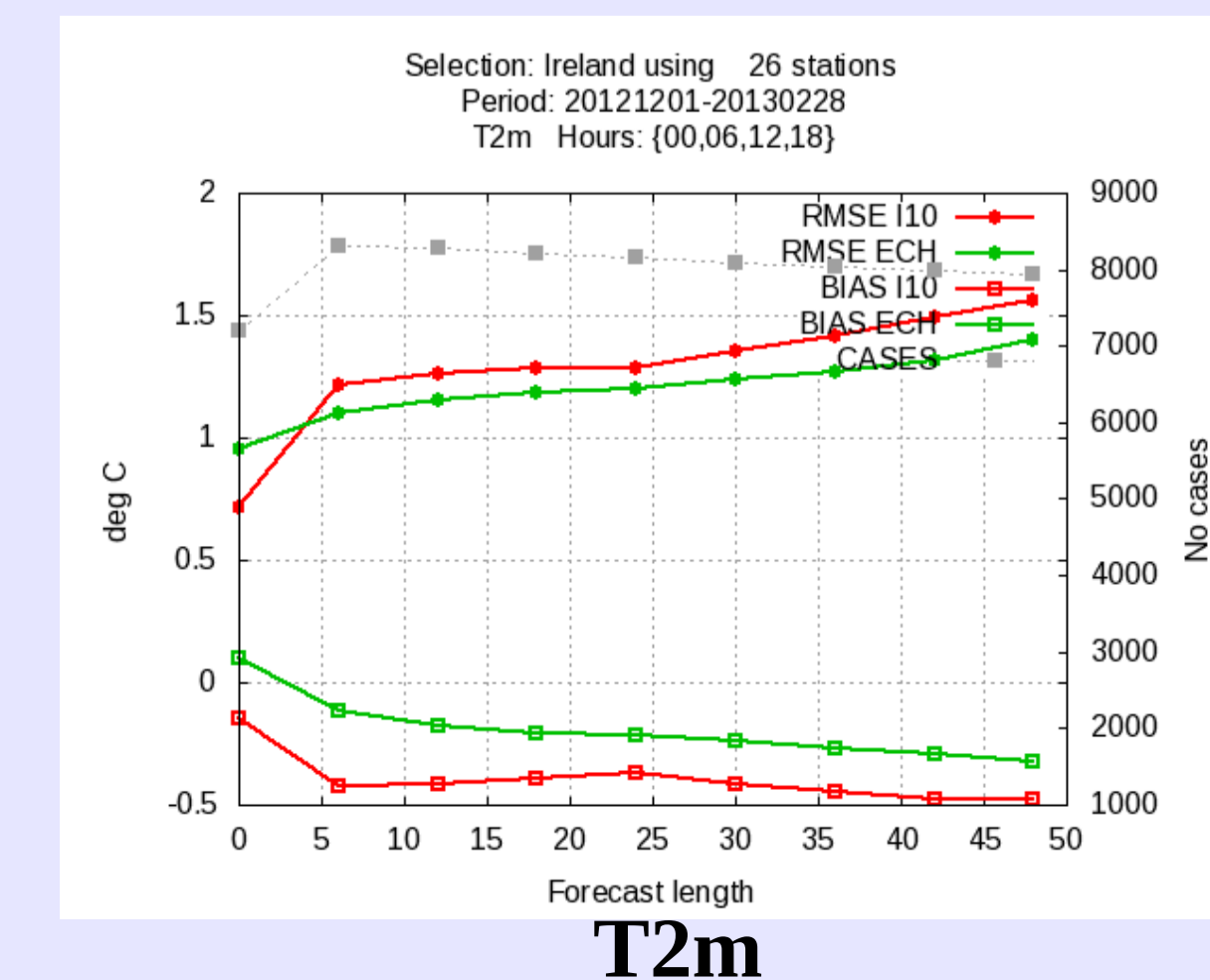
- **Stokes (operational):**
- SGI Altix ICE 8200EX cluster
- 320 compute nodes with two Intel (Westmere) Xeon E5650 hex-core processors
- Total of 3840 cores and 7680GB of RAM
- Met Éireann uses 16 nodes with a login node
- **Stoney (backup):**
- Bull Novascale R422-E2 cluster
- 64 compute nodes (two Intel (Nehalem EP) Xeon X5560 quad-core processors)
- Total of 496 cores and 2976GB of RAM
- Met Éireann uses 16 nodes plus login node



ECH: IFS forecast I10: HIRLAM forecast Verification Summer (JJA) 2012



Verification Winter (DJF) 2012/13



Operational Harmonie - Met Éireann

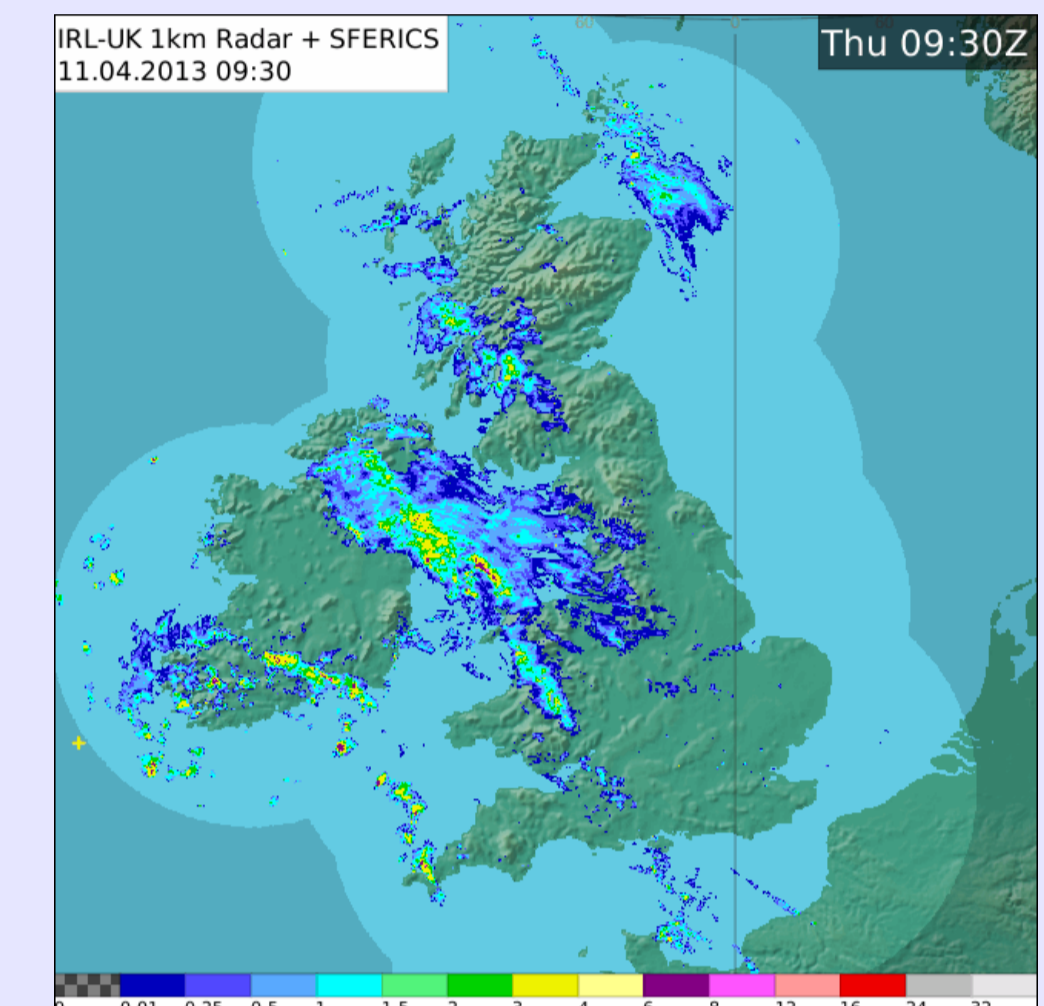
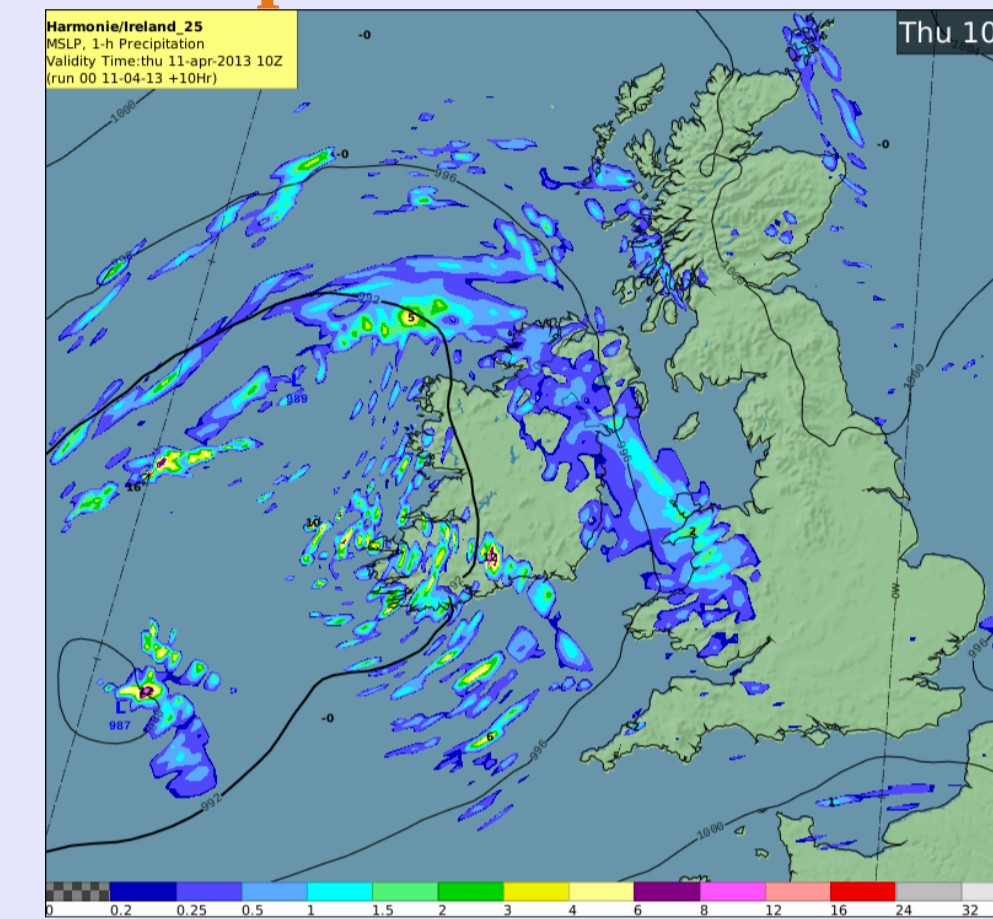
ASM 2013 - Eoin Whelan

Harmonie is used at Met Éireann to produce operational forecasts. The “Ireland25” Ireland & UK domain configuration produces a 30 hour forecast four times per day. Harmonie was first made operational by Met Éireann on July 11th 2011. Harmonie 37h1.1 was introduced on January 31st 2013.

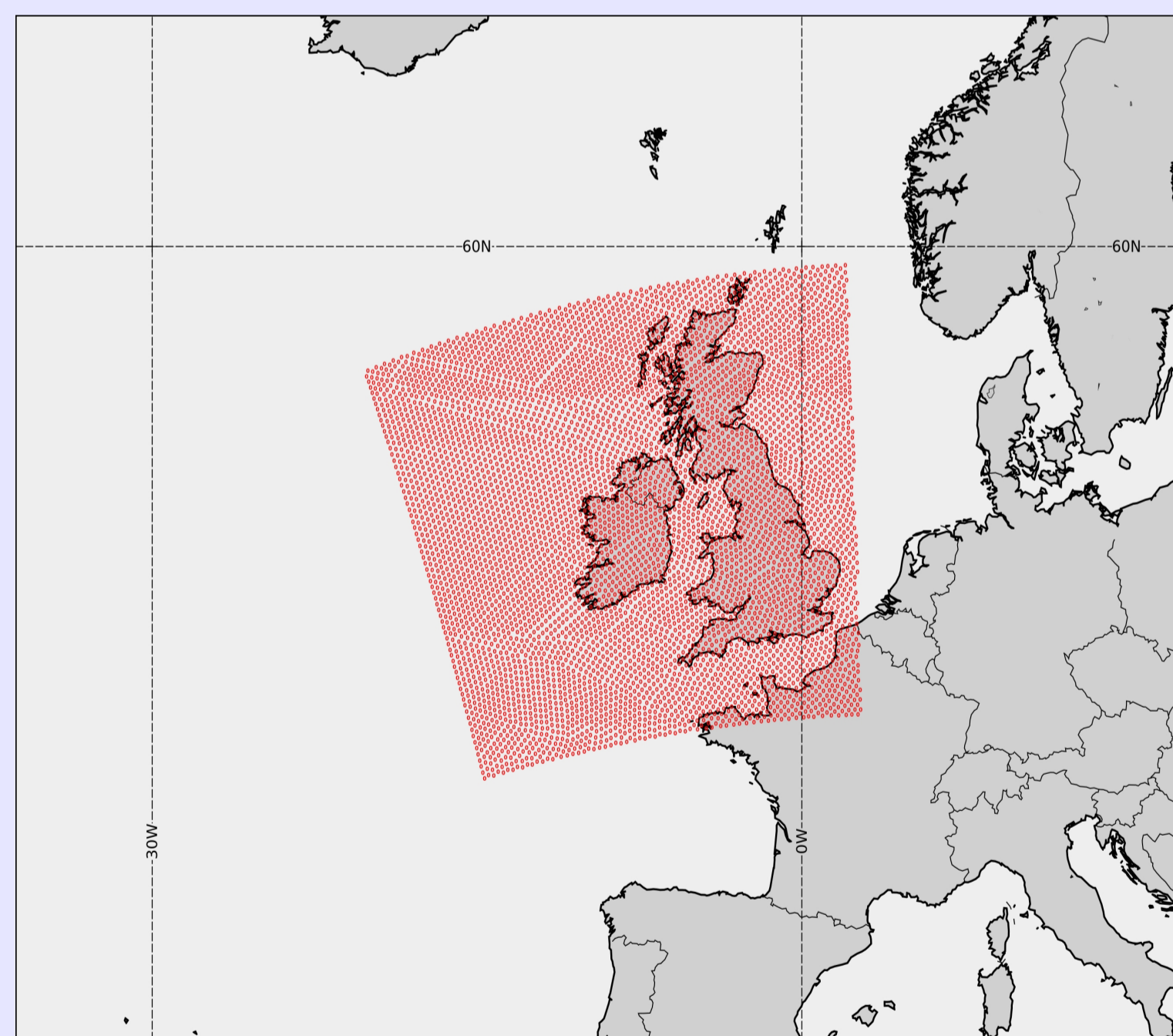
Harmonie - Ireland & UK domain

- Harmonie version: cy37h1.1 (METIE branch)
- Domain: 540x500 grid-points with 65 levels (top@10hPa)
- Grid-spacing: $\Delta x = \Delta y = 2.5\text{km}$
- Cut-off: ca. 2h 40min (When “Main” HIRLAM finishes)
- Observations: Conventional only
- DA: Surface analysis only with Blending
- Forecast: 30 hour forecast at 00z, 06z, 12z & 18z
- Aladin-NH dynamics and AROME physics
- Boundary conditions: IFS

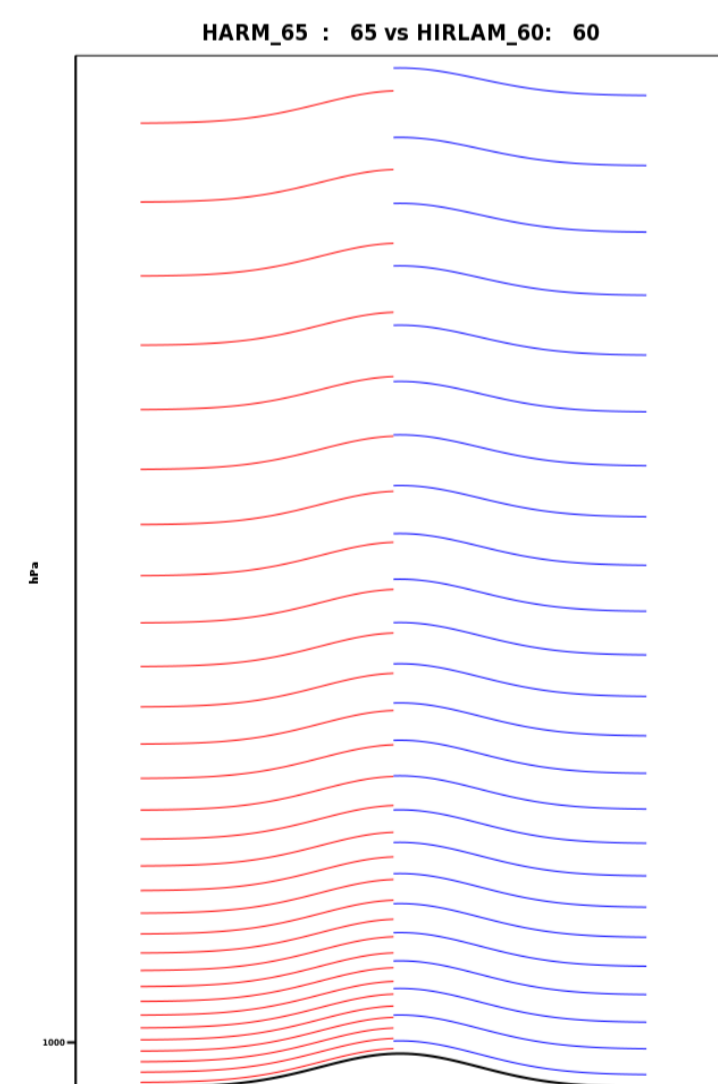
Forecast example



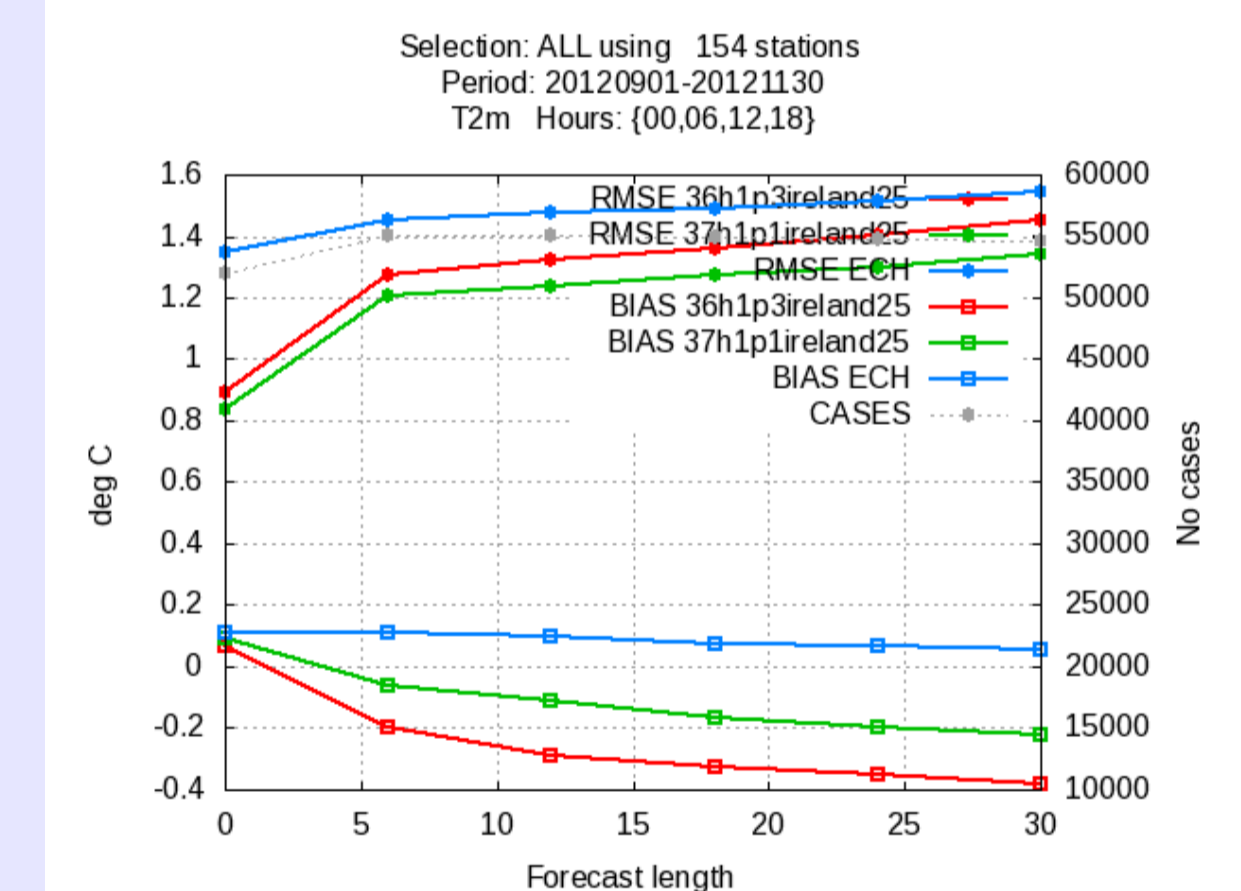
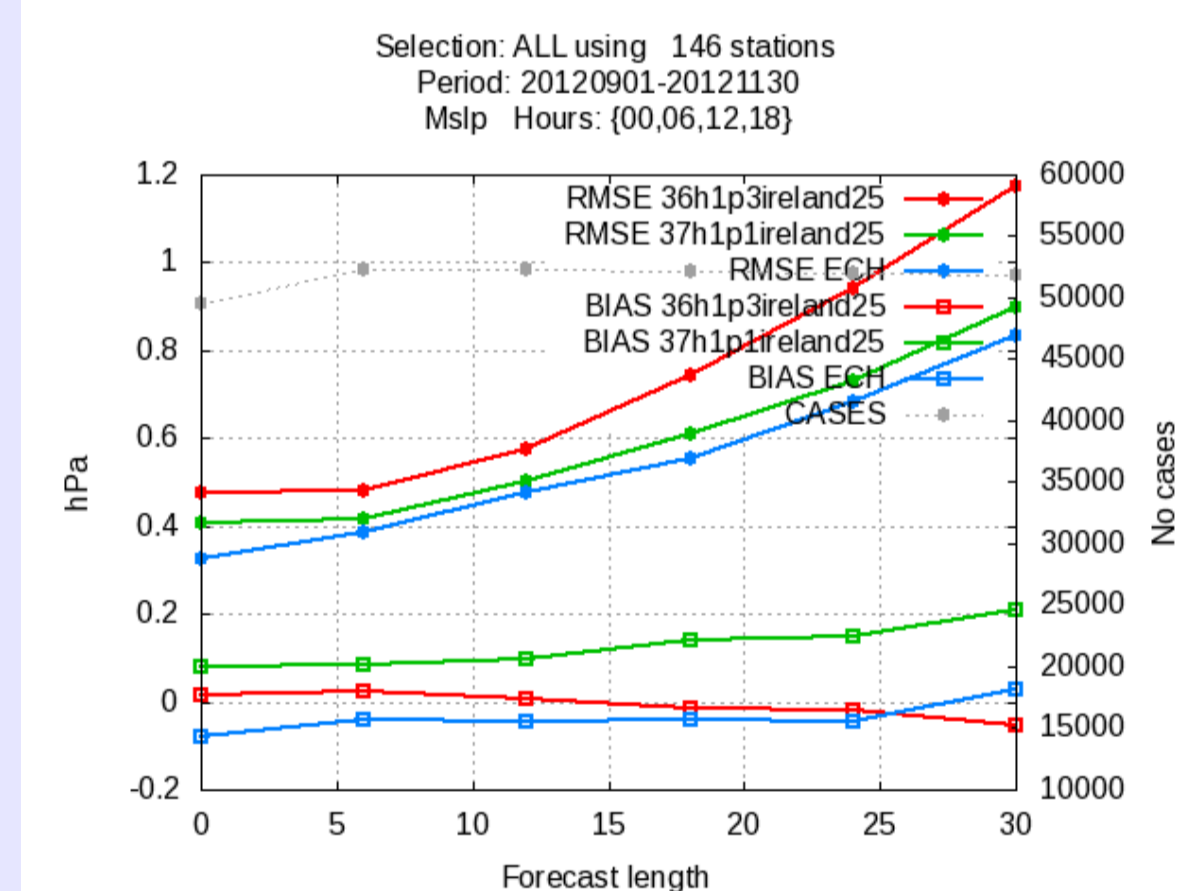
Harmonie domain



Vertical levels 65 vs 60



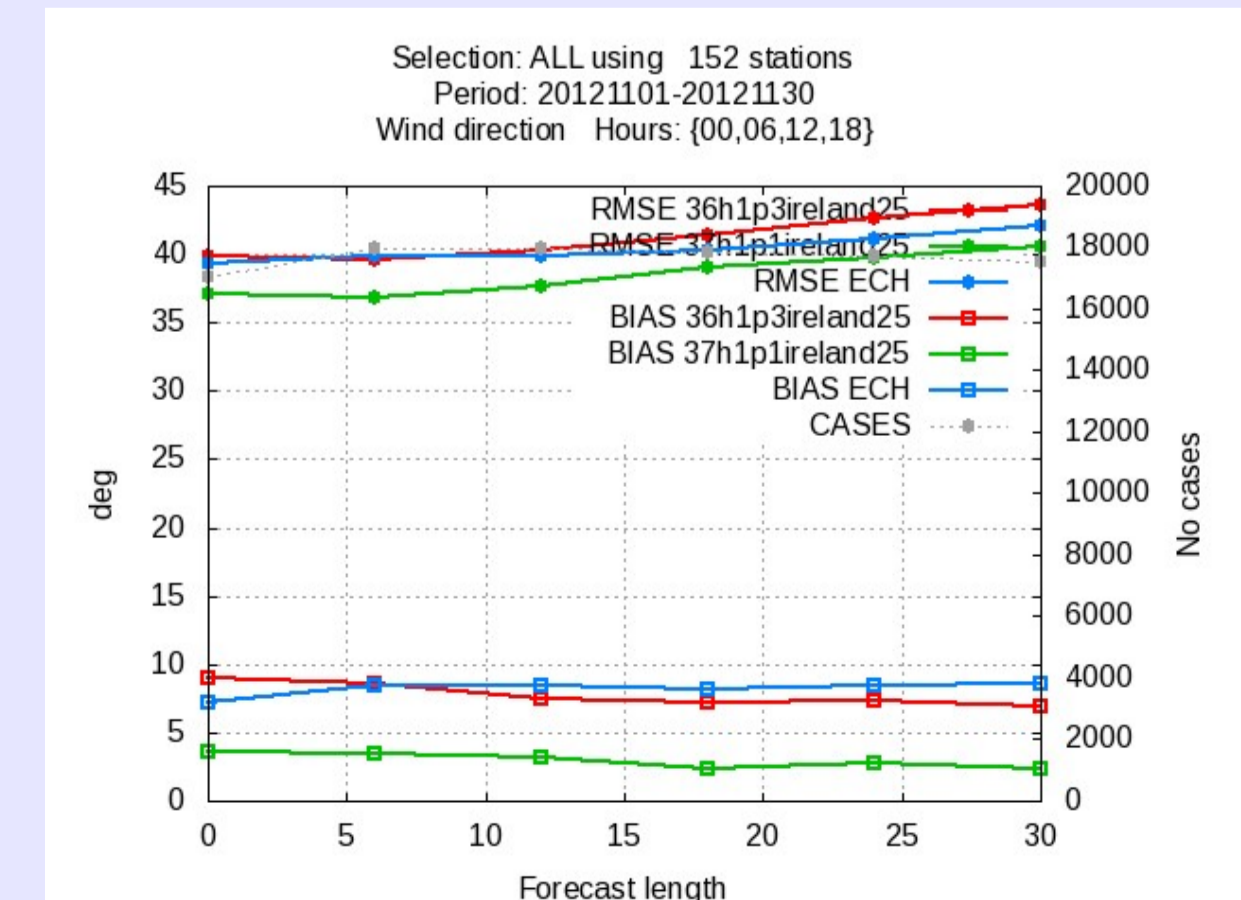
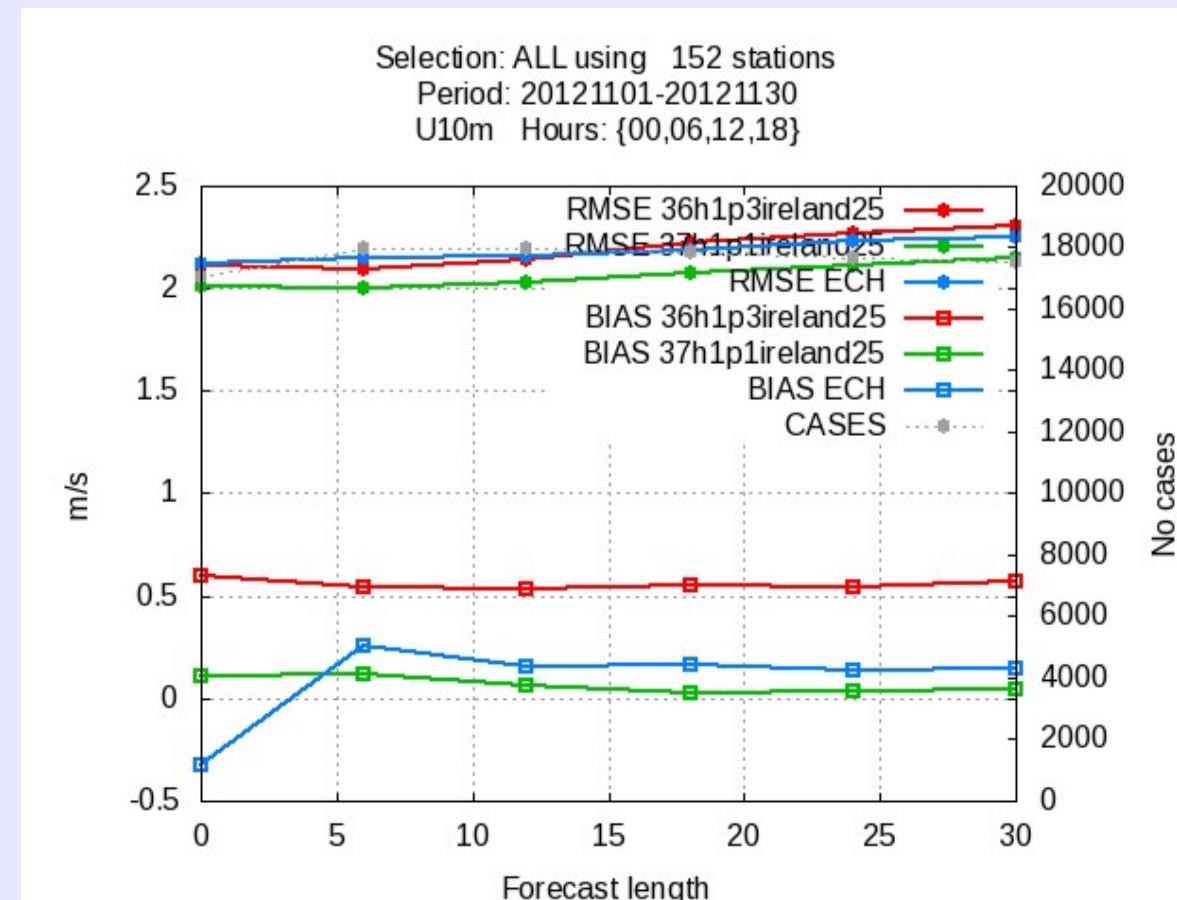
Verification: SON 2012 36h1.3 vs 37h1.1 vs IFS



PMSL

T2m

Verification: SON 2012 36h1.3 vs 37h1.1 vs IFS



U10m (speed)

U10m (dir)

Operational Timeline

