

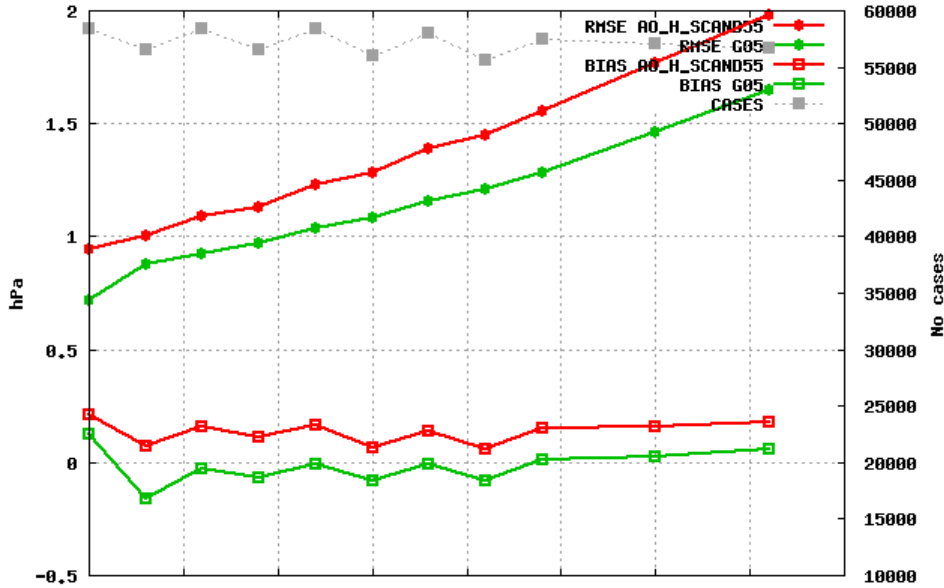
Verification Alaro

Karl-Ivar Ivarsson Budapest February 2010

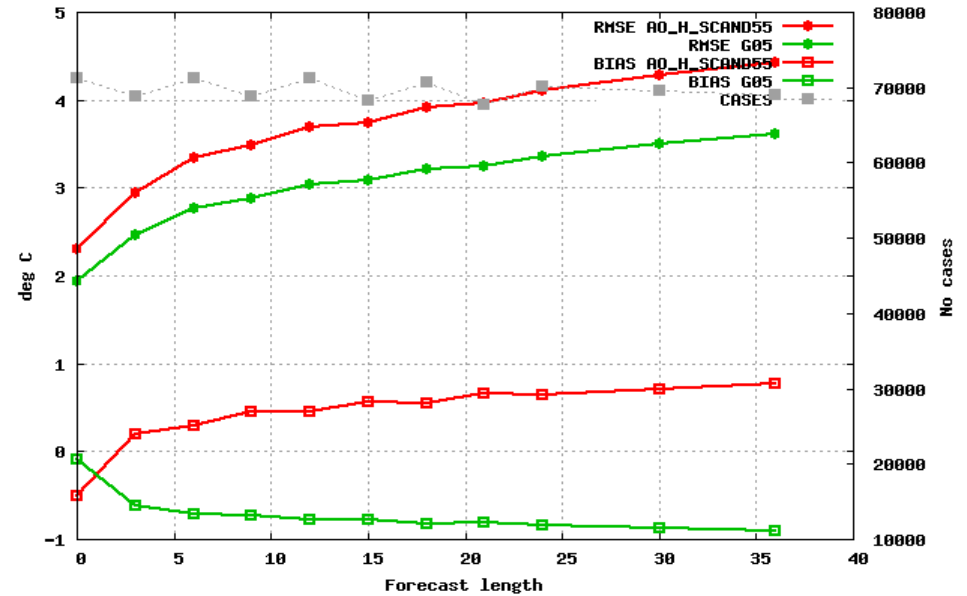
- Hirlam5km -Alaro5km Verification (January 2010)
- Hirlam5km-Alaro5km-UM4km verification (Oct -Jan)
- Case studies (Winter only)

Hirlam 05 - Alaro 05

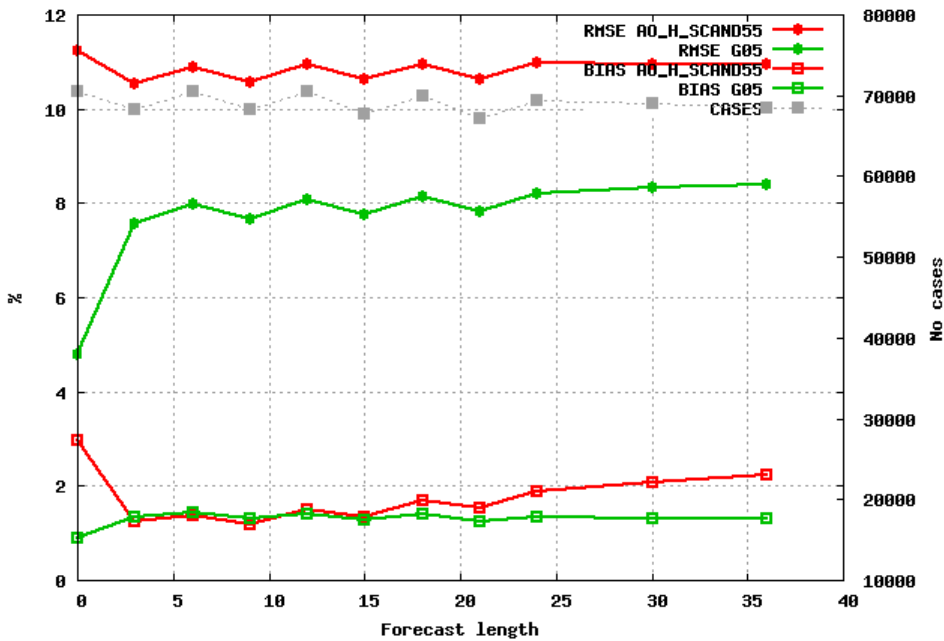
Area: ALL using 485 stations
 Period: 201001
 Surface pressure Hours: {00,06,12,18}



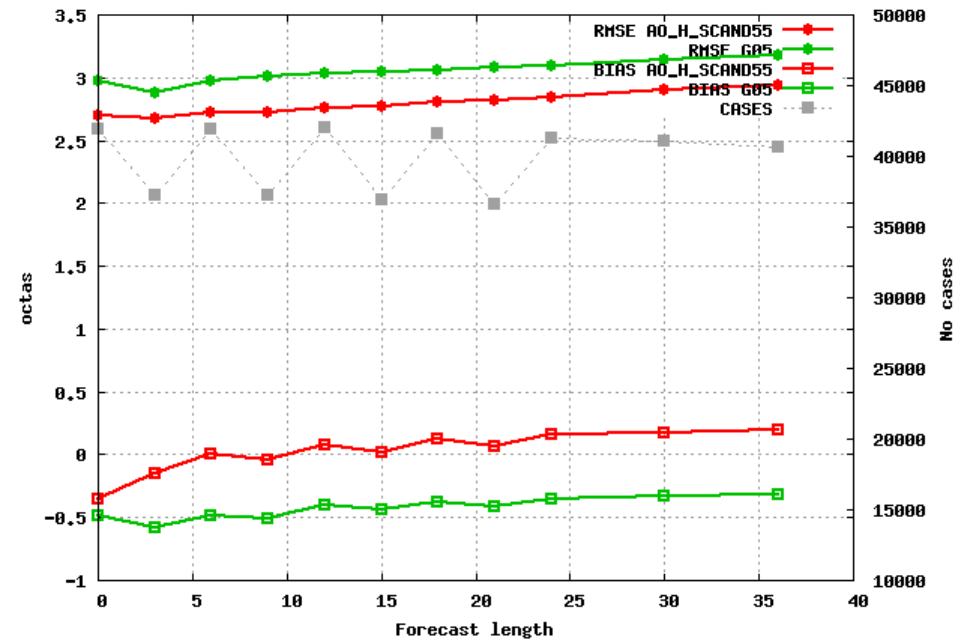
Area: ALL using 590 stations
 Period: 201001
 Temperature Hours: {00,06,12,18}



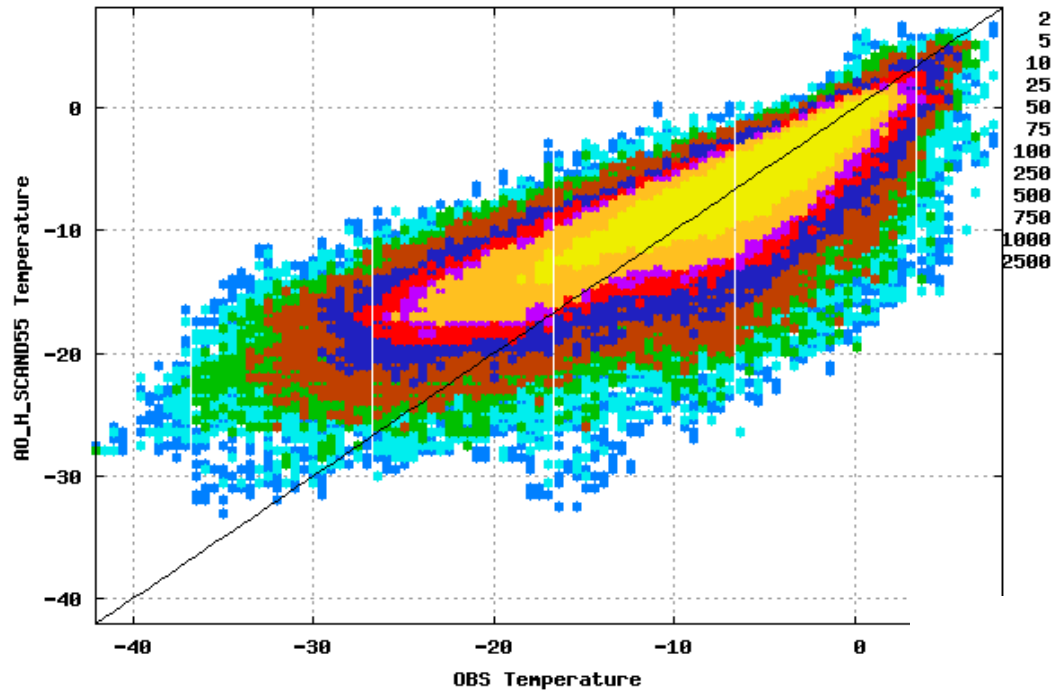
Area: ALL using 587 stations
 Period: 201001
 Relative Humidity Hours: {00,06,12,18}



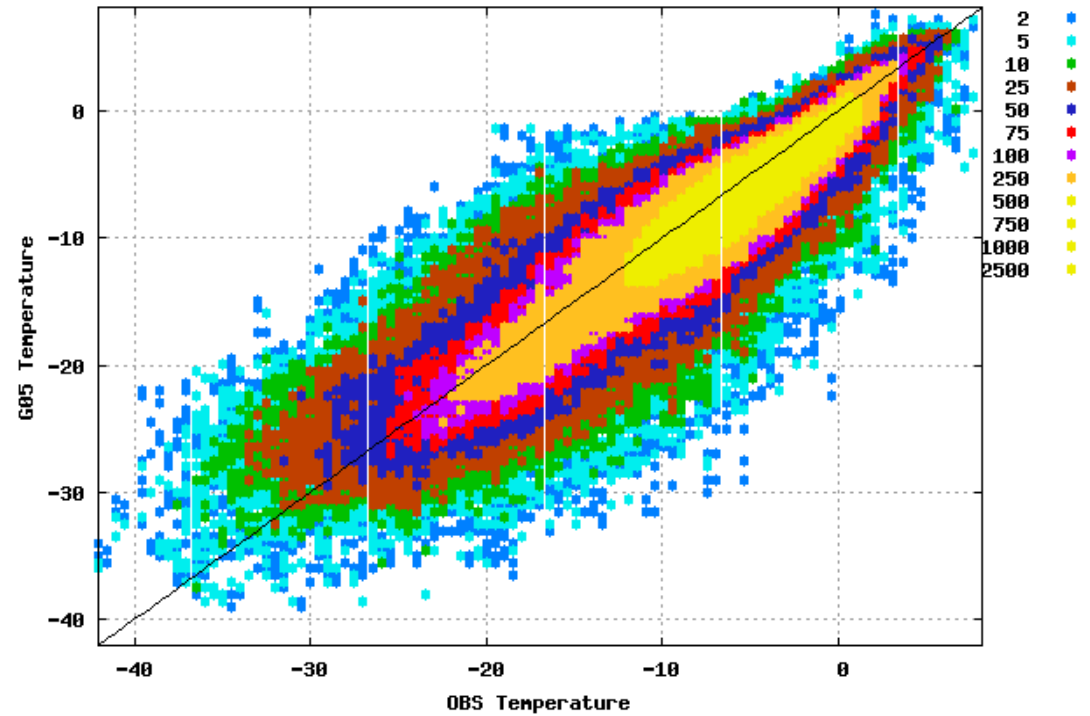
Area: ALL using 387 stations
 Period: 201001
 Cloud cover Hours: {00,06,12,18}



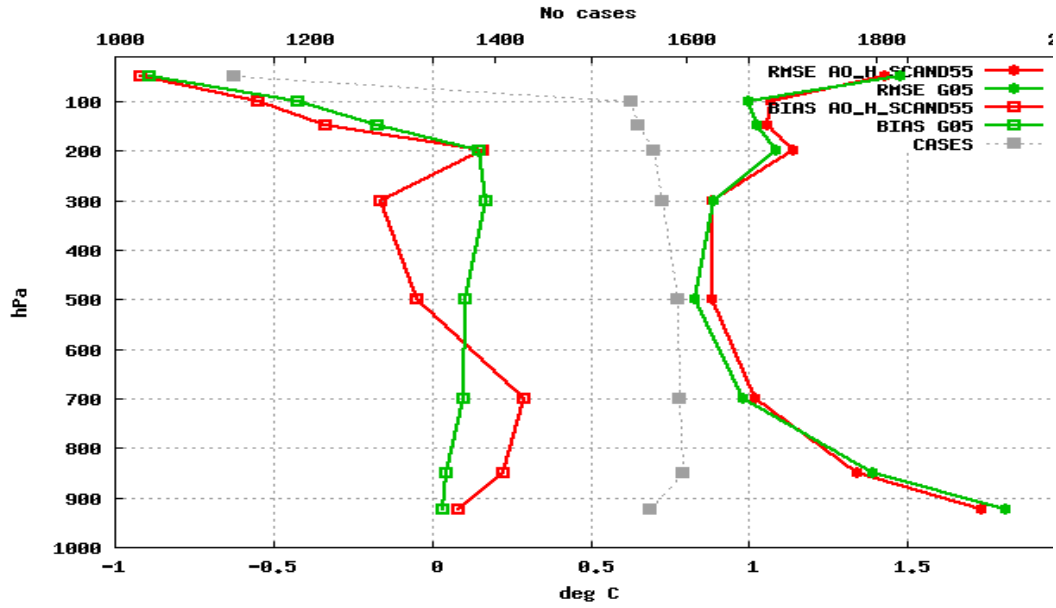
Scatterplot for 598 stations Area: ALL
Temperature
At {00,06,12,18} + 15 18 21 24
Period: 201001



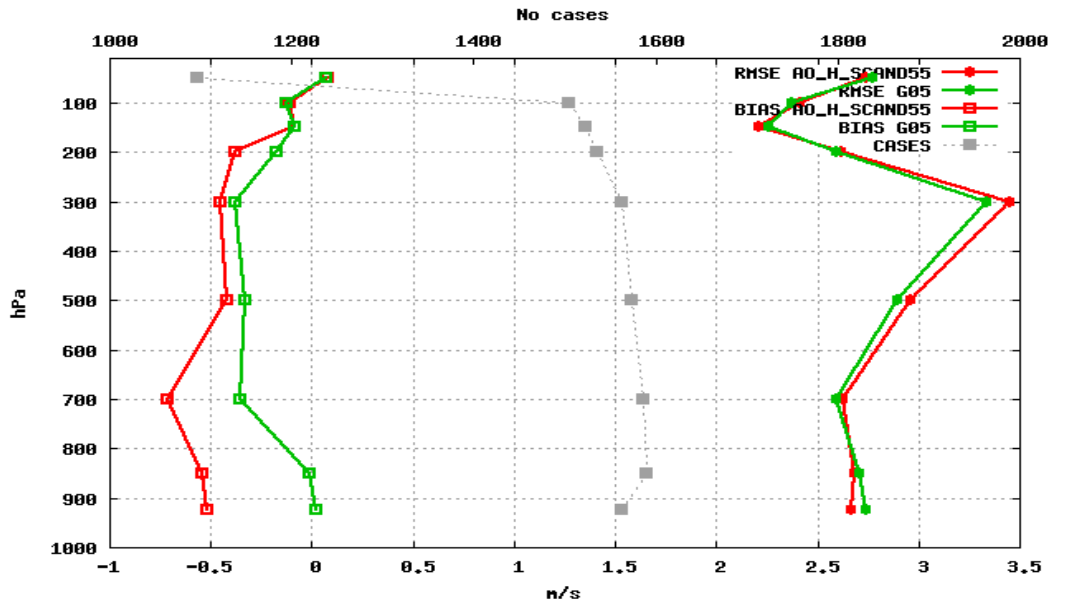
Scatterplot for 598 stations Area: ALL
Temperature
At {00,06,12,18} + 15 18 21 24
Period: 201001



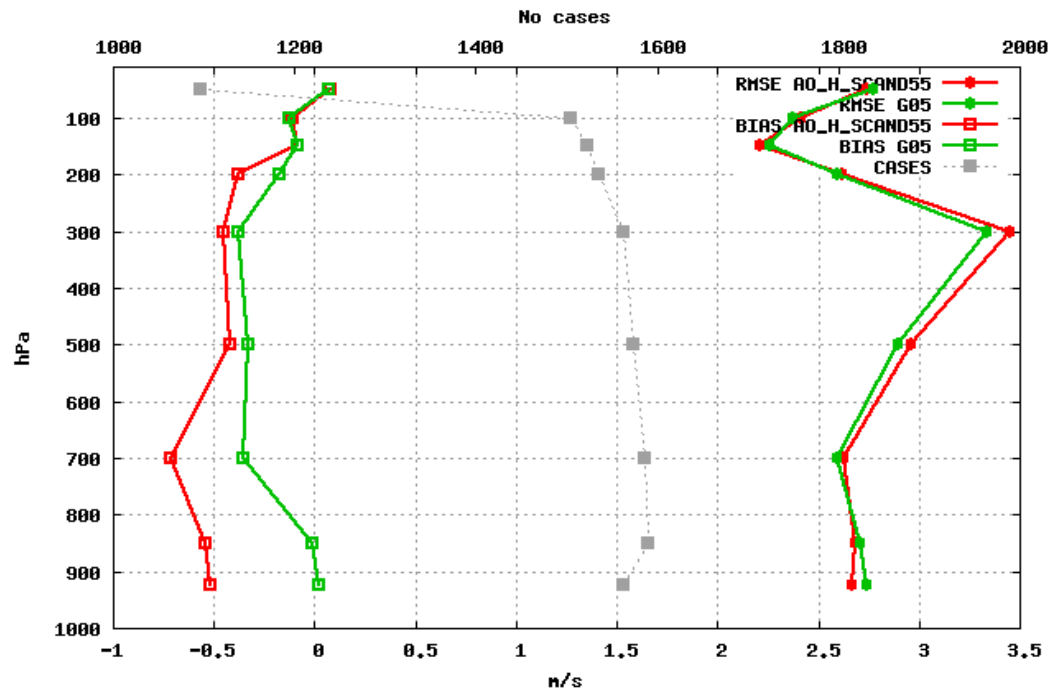
28 stations Area: ALL
 Temperature Period: 201001
 Statistics at 00 UTC At {00,06,12,18} + 12 24



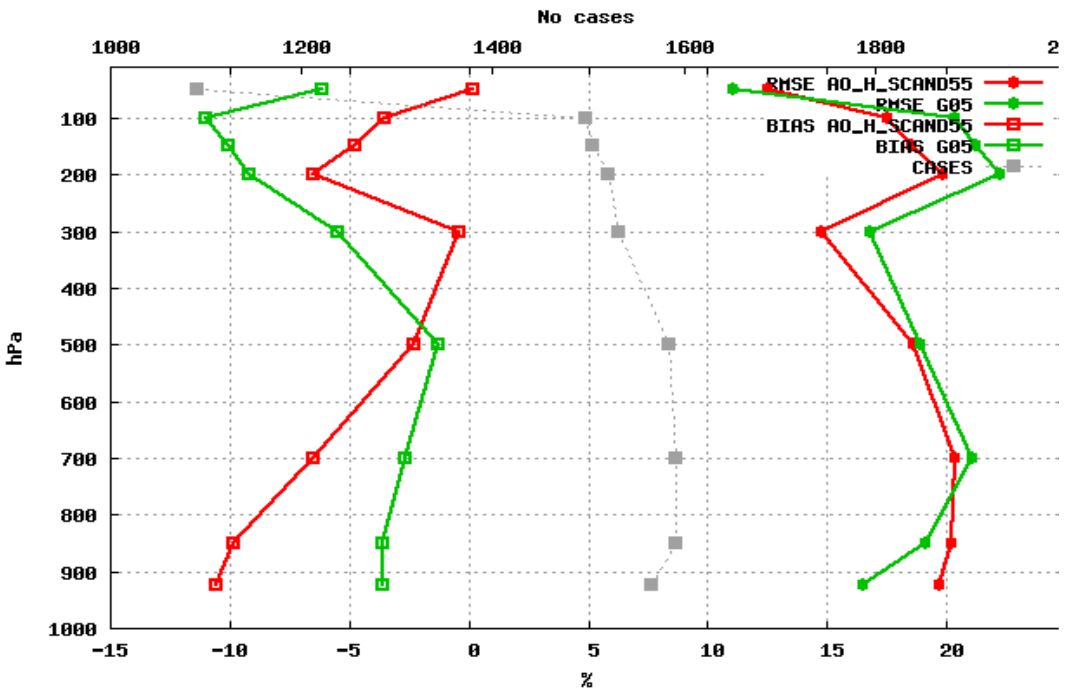
28 stations Area: ALL
 Wind speed Period: 201001
 Statistics at 00 UTC At {00,06,12,18} + 12 24



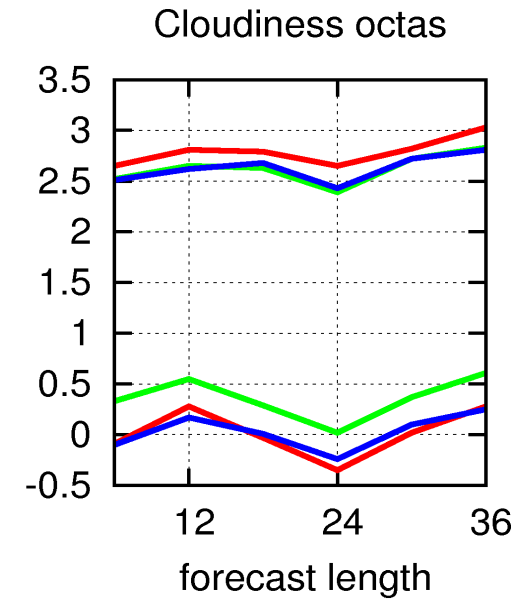
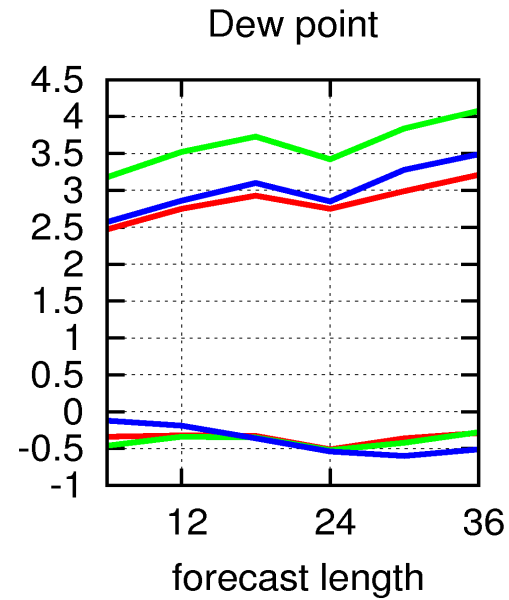
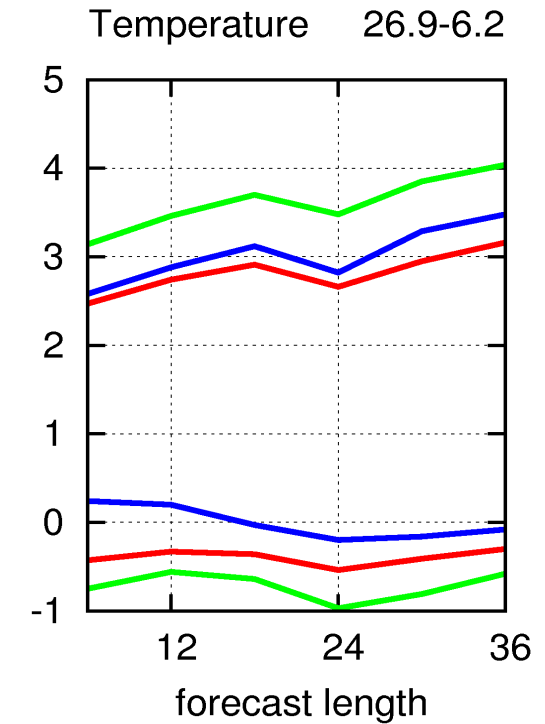
28 stations Area: ALL
 Wind speed Period: 201001
 Statistics at 00 UTC At {00,06,12,18} + 12 24



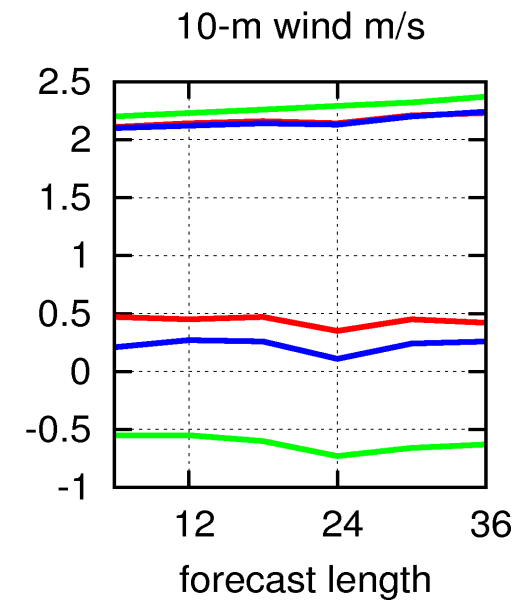
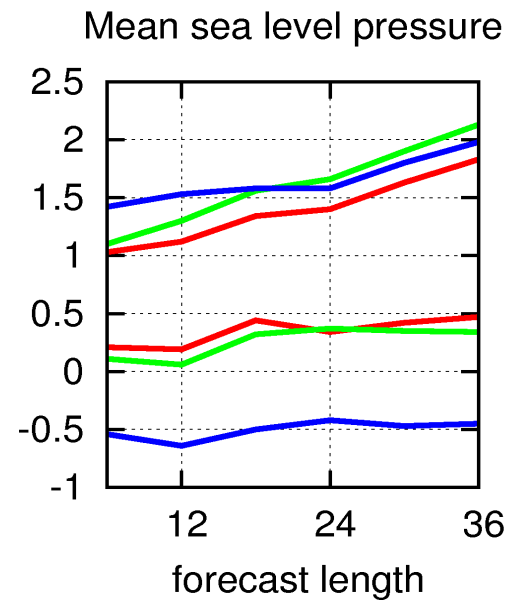
28 stations Area: ALL
 Relative Humidity Period: 201001
 Statistics at 00 UTC At {00,06,12,18} + 12 24



• **Hirlam-Alaro-UM4** verification (over the small common area)

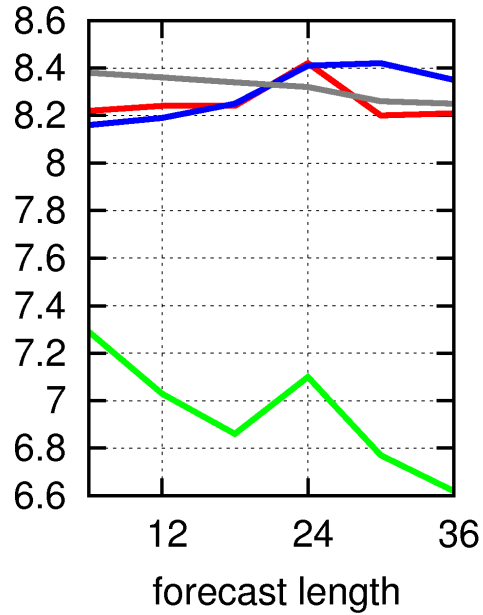


G05 — ALARO — UM4

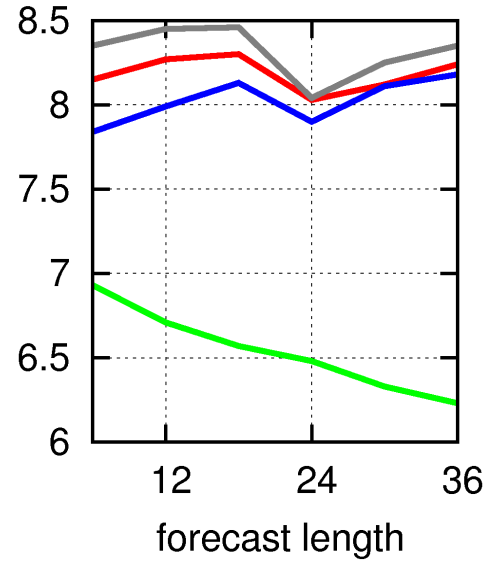


Ver H.A.U ...

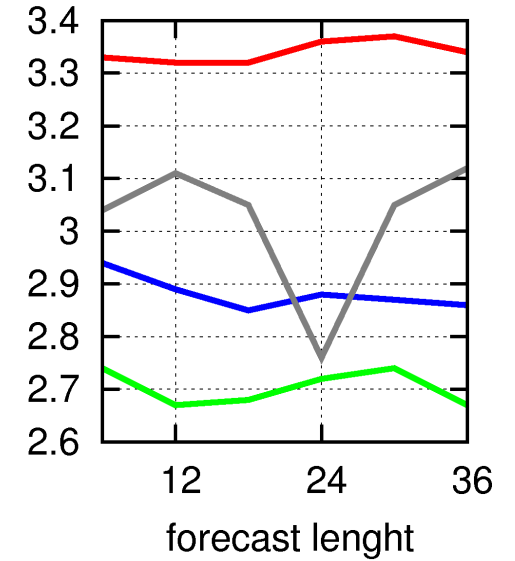
Temperature 26.9-6.2



Dew point

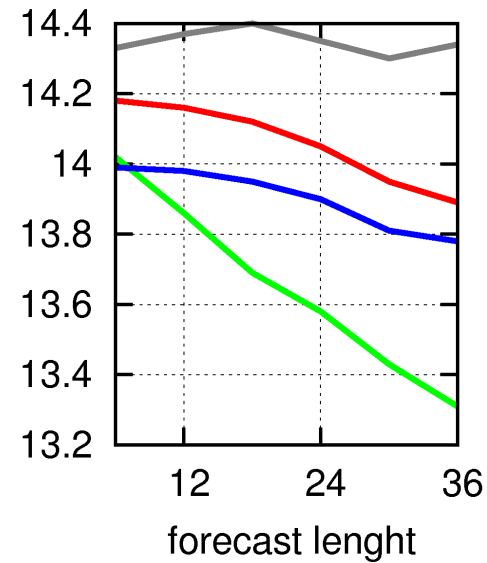


Cloudiness octas

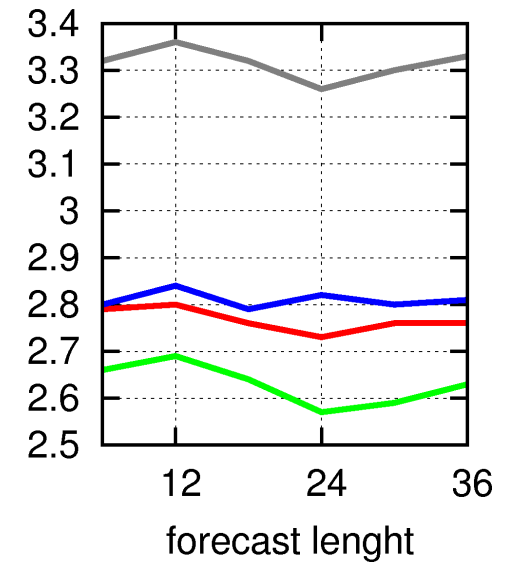


- std G05 — red line
- " ALARO — green line
- " UM4 — blue line
- " obs — grey line

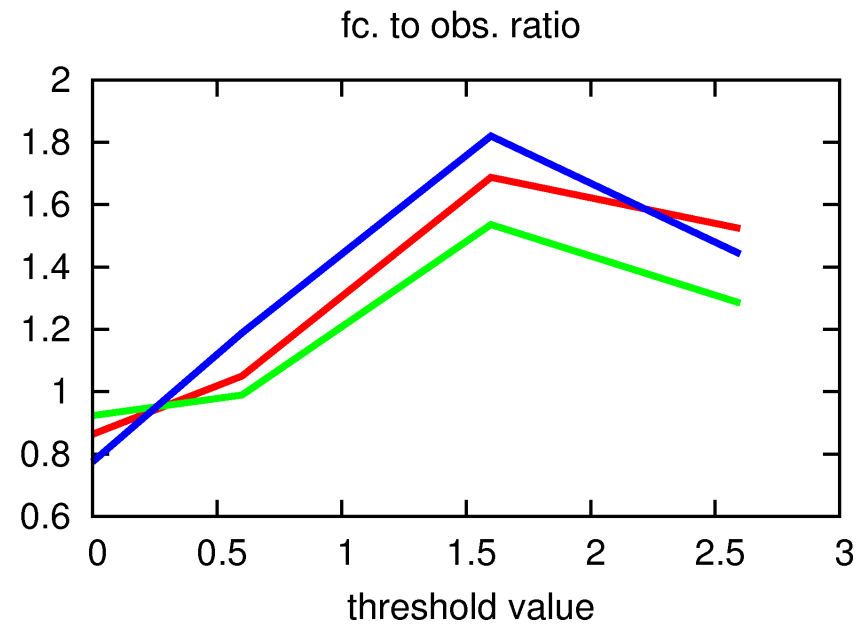
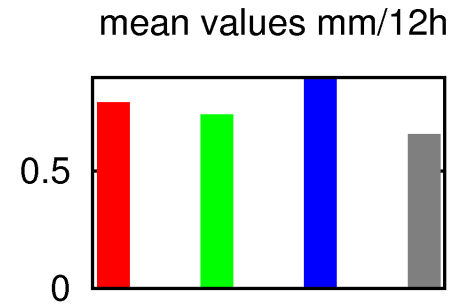
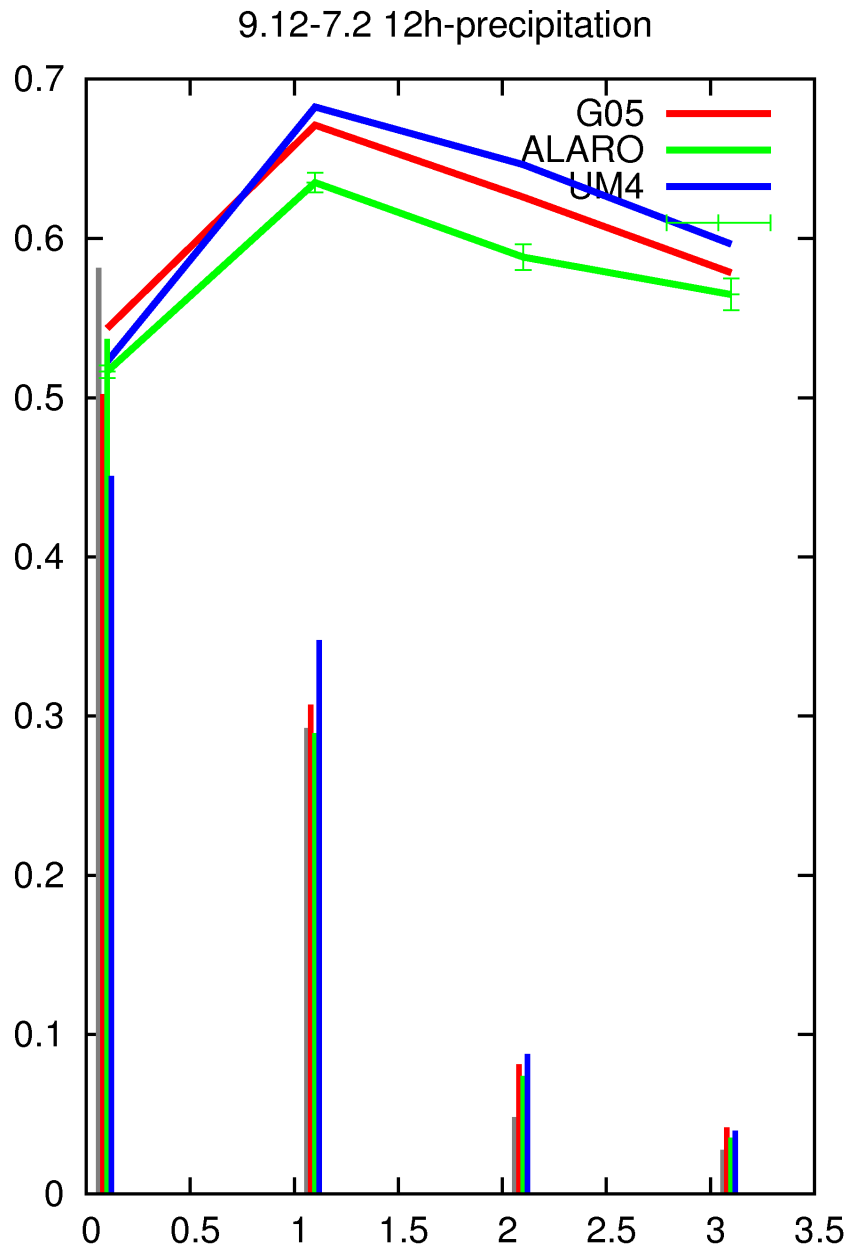
Mean sea level pressure



10-m wind m/s

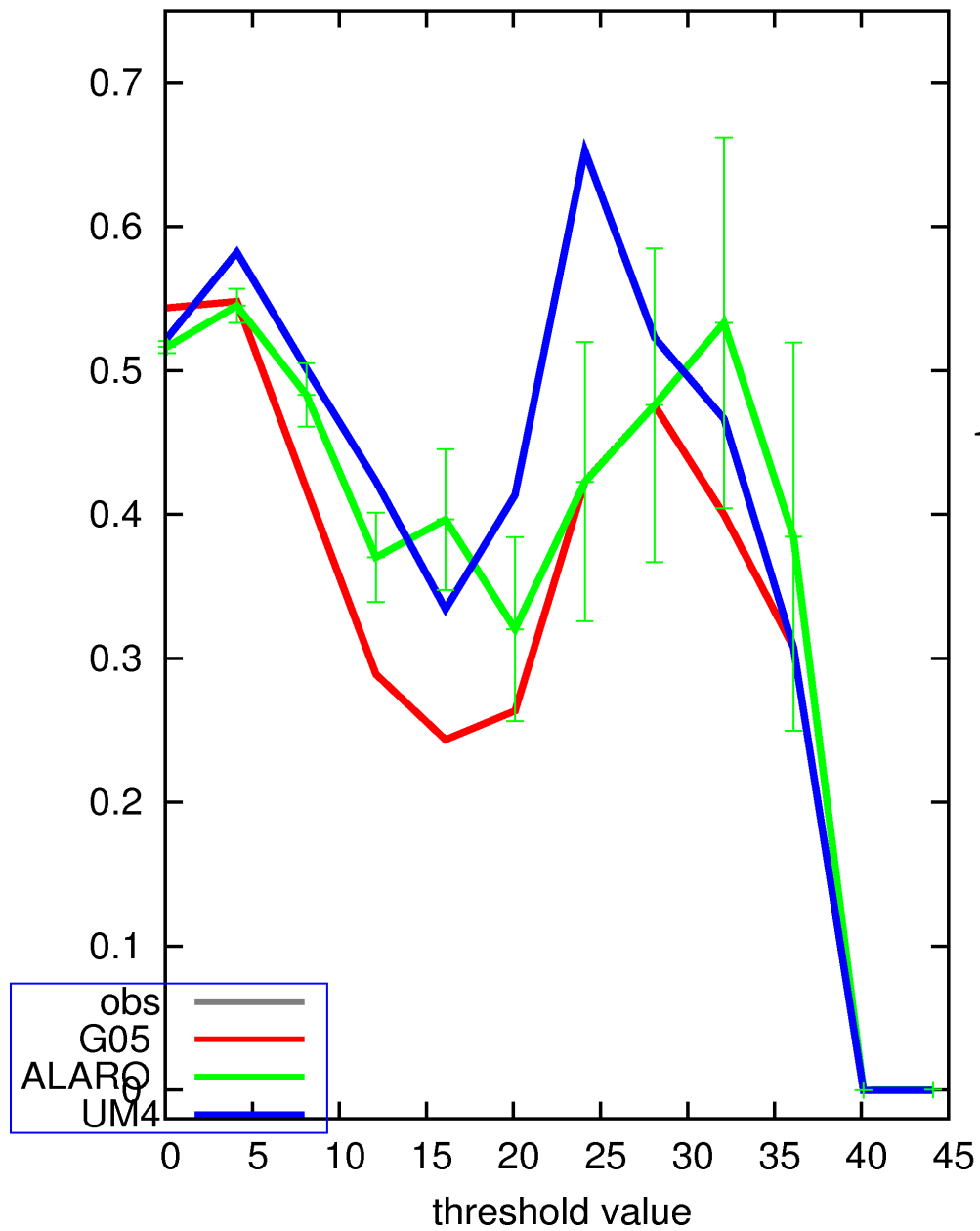


Ver H.A.U ...

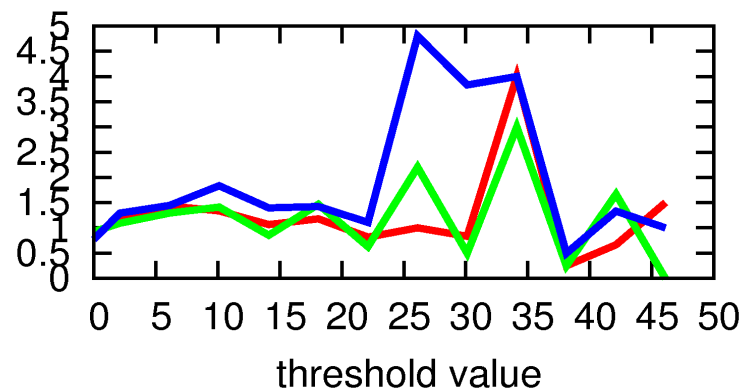


Ver H.A.U ...

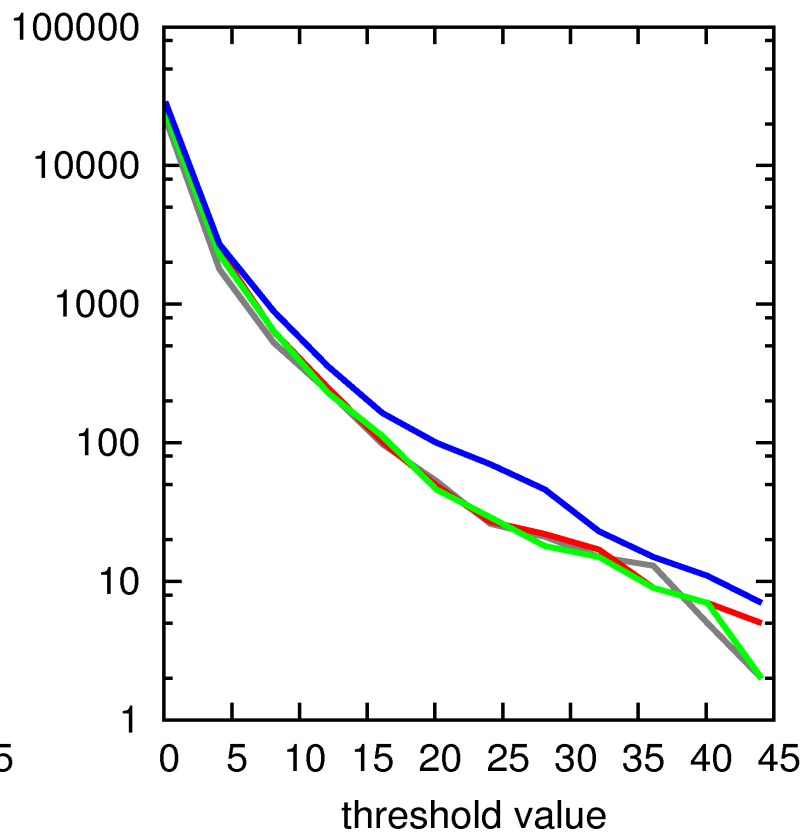
9.12-7.2 12h-precipitation kuipers skill score



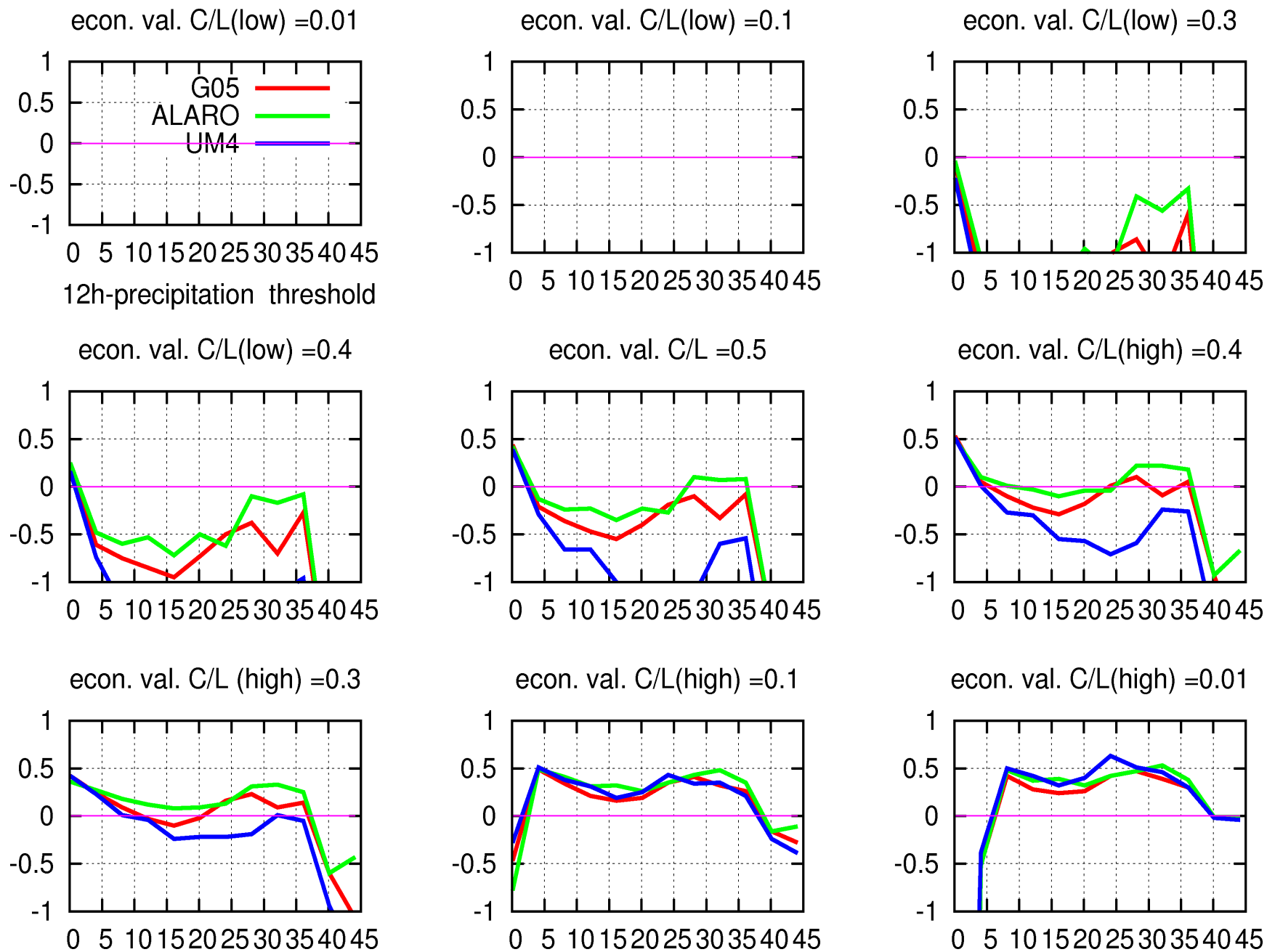
fc. to obs. ratio



number of observations

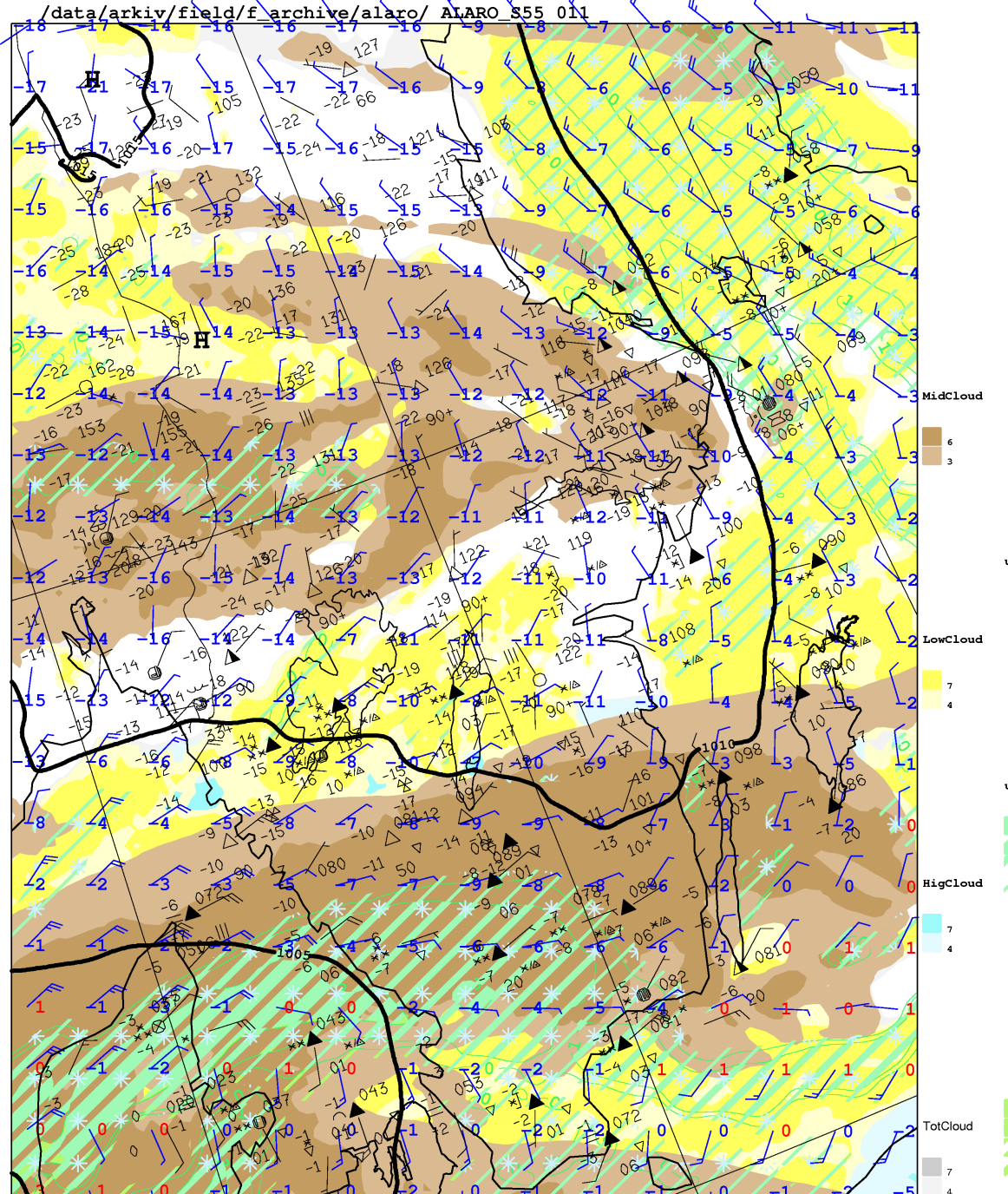
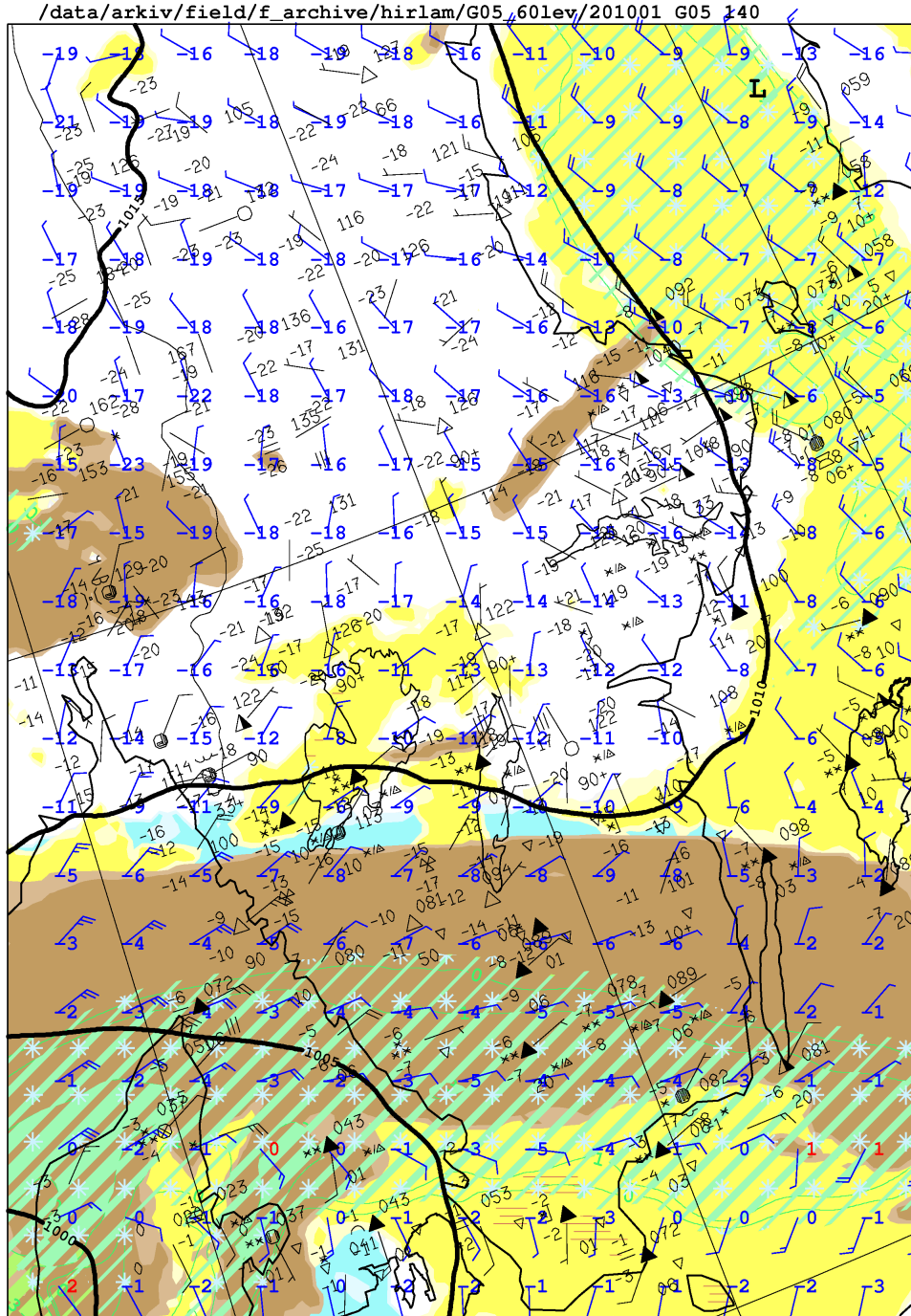


Ver H.A.U ...

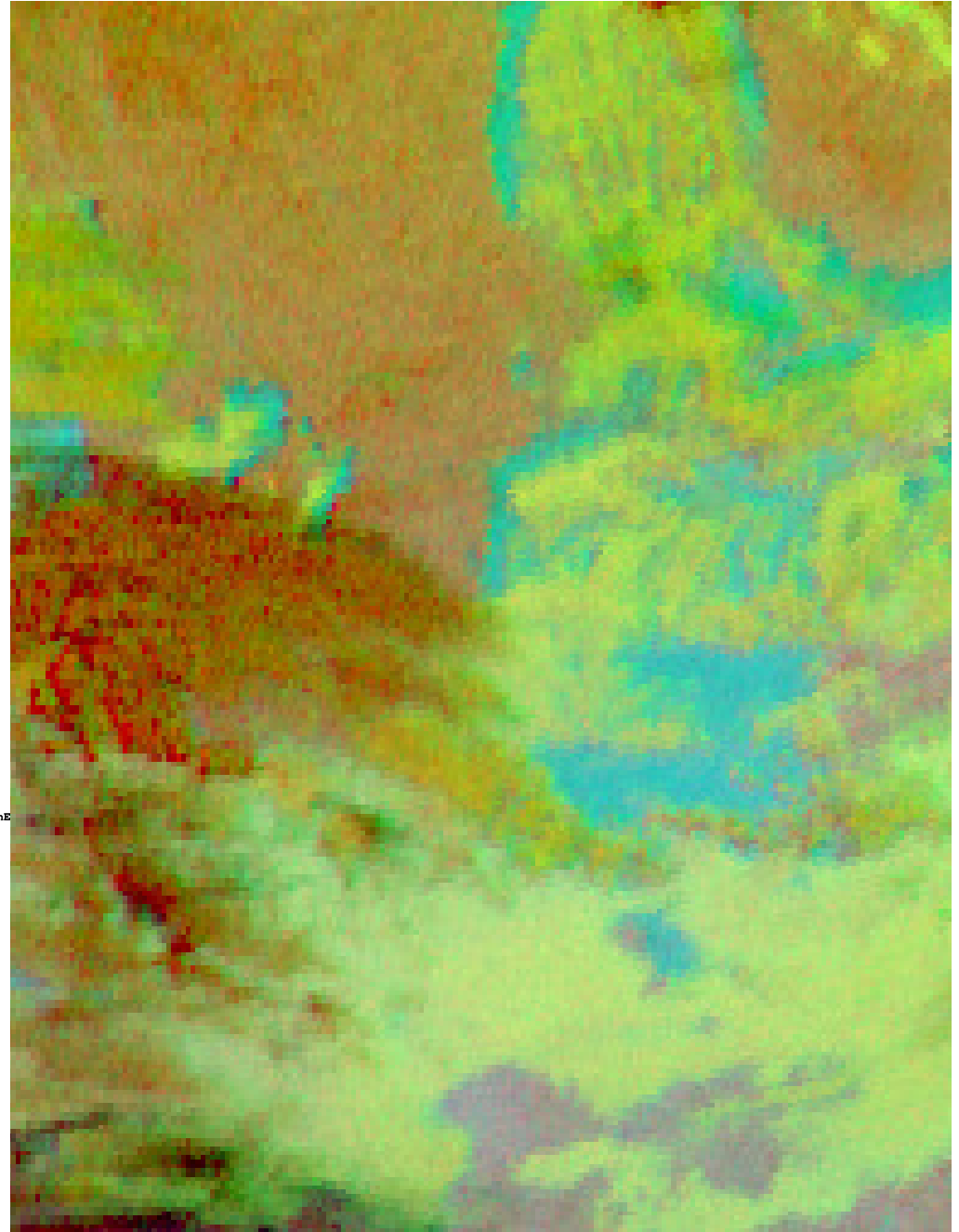
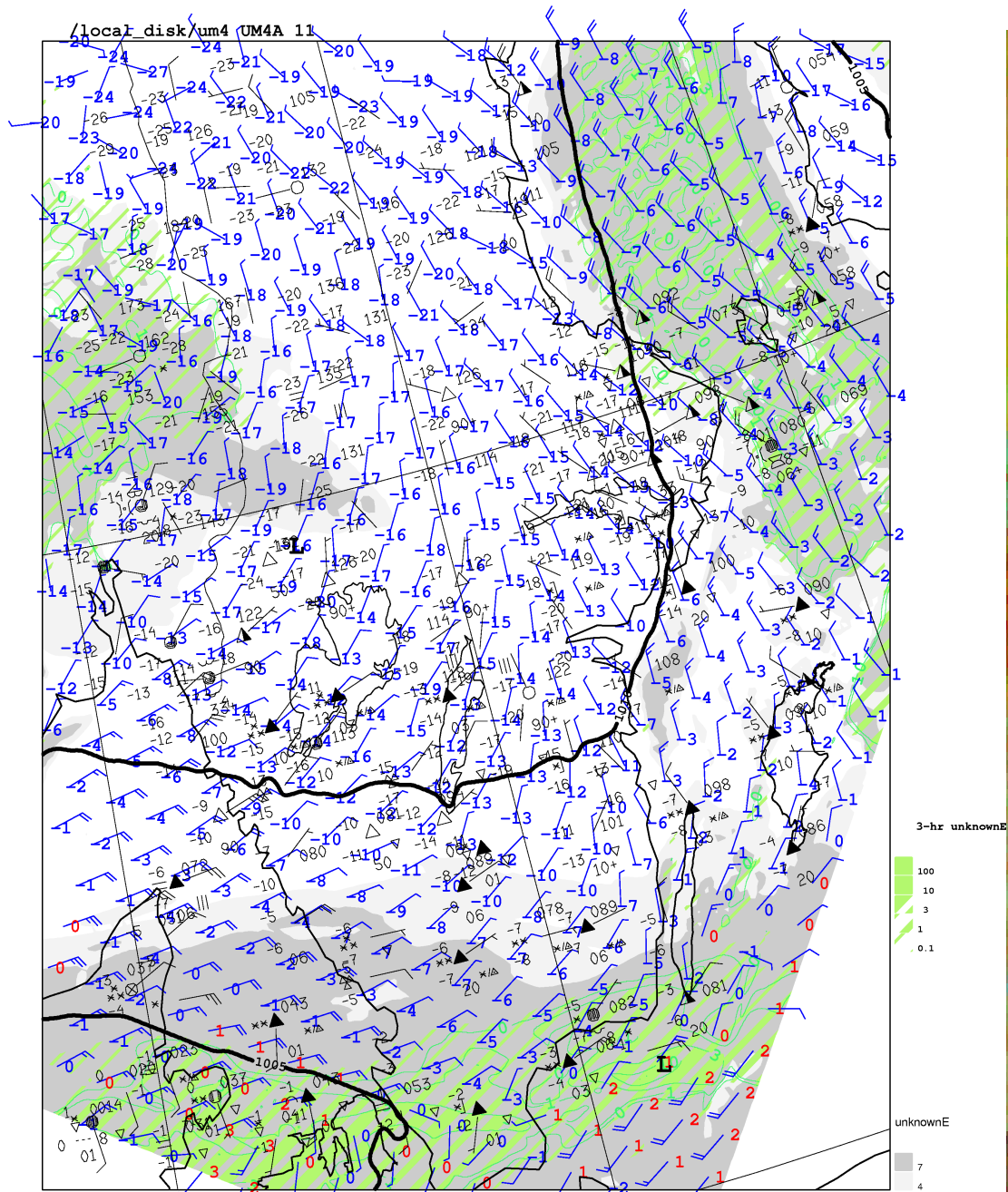


Case studies

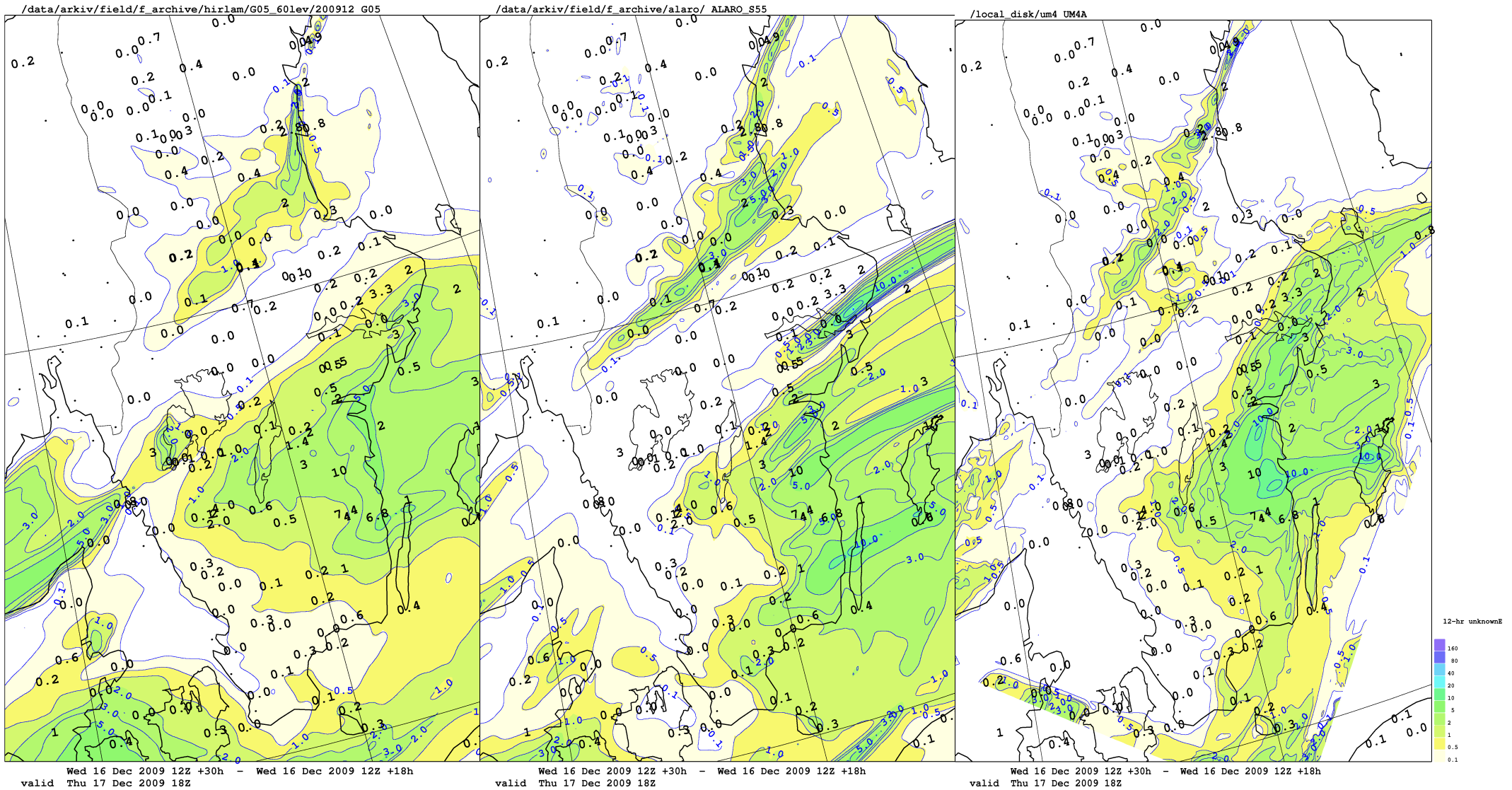
January 5 2010 12z (Cold weather situation)



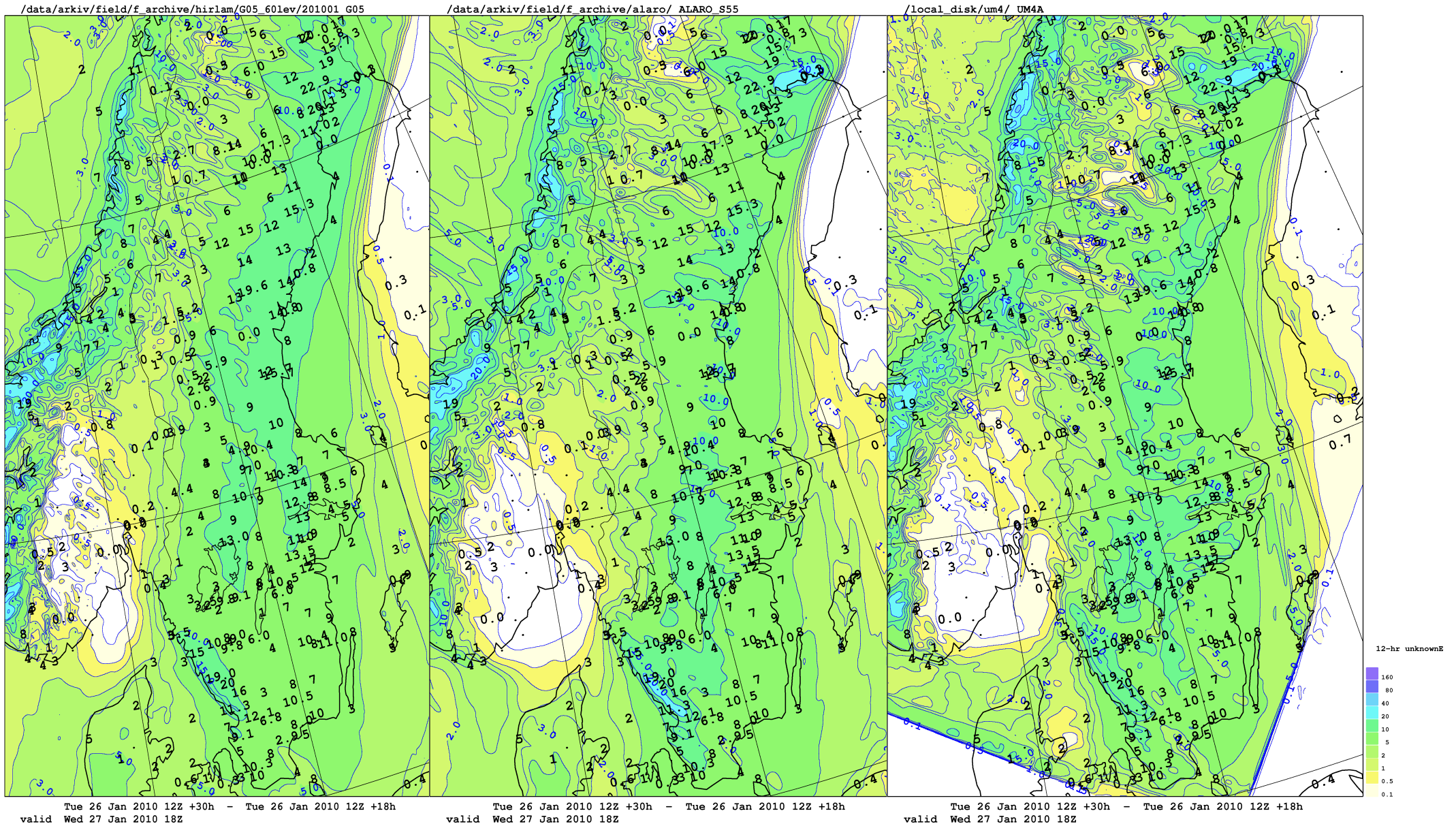
Jan 5 2010 12z



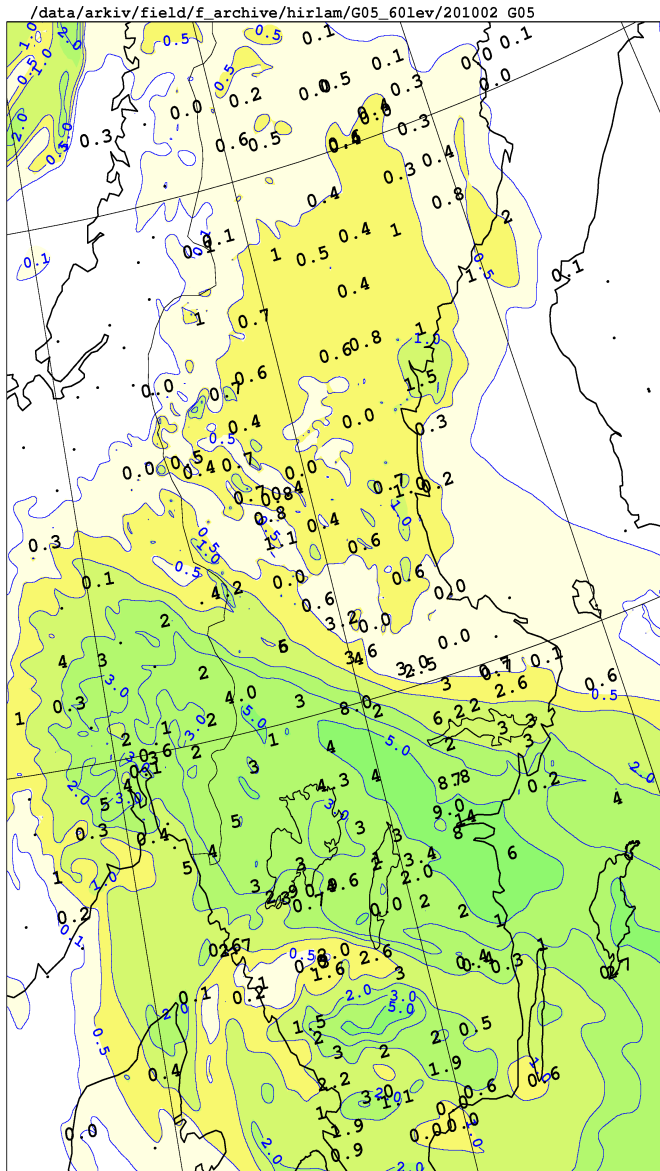
Dec 17 2009 (Snow showers from open water NE-wind)



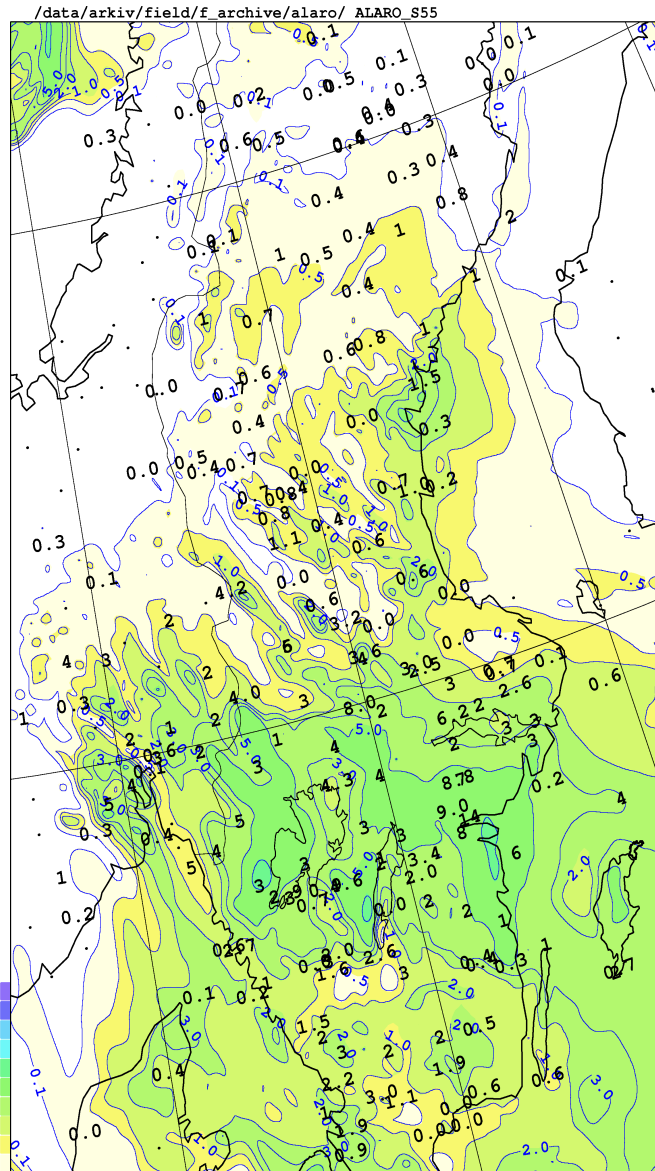
Jan 27 2010 (Large frontal system from NW, lots of snow)



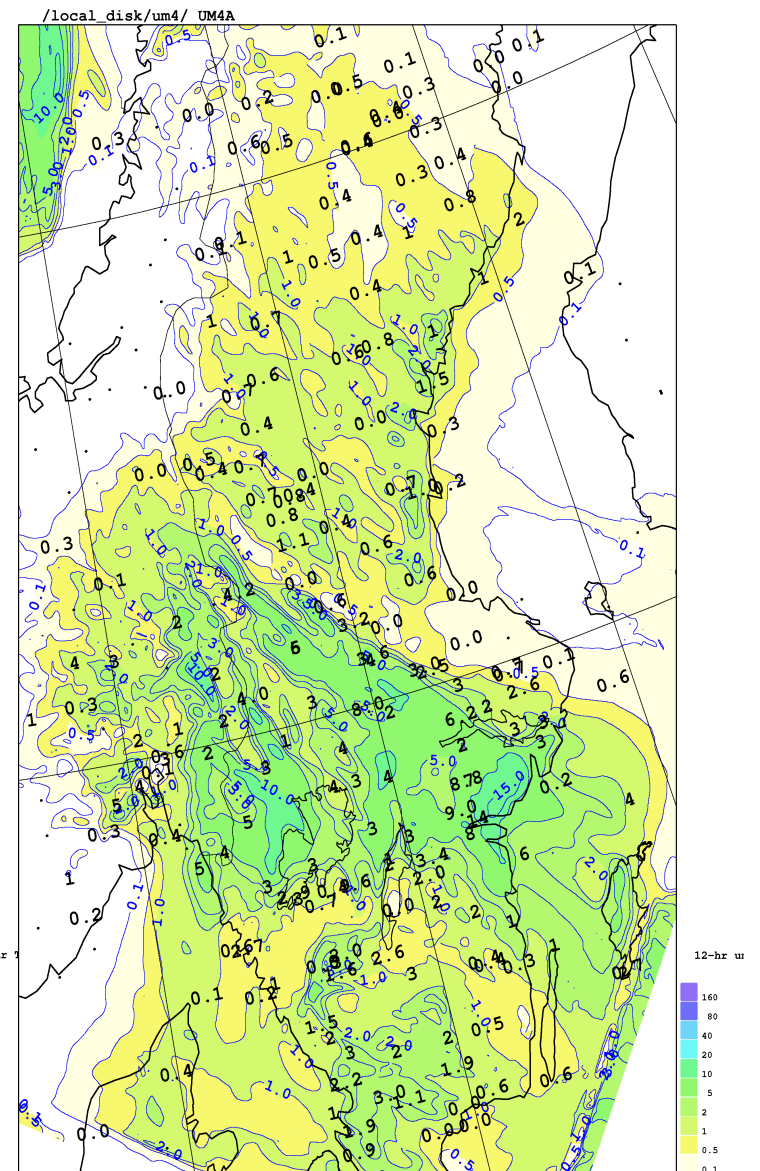
Feb. 3 2010 (Lots of snow again, now from SW)



Tue 2 Feb 2010 12Z +30h - Tue 02 Feb 2010 12Z +18h
valid Wed 3 Feb 2010 18Z



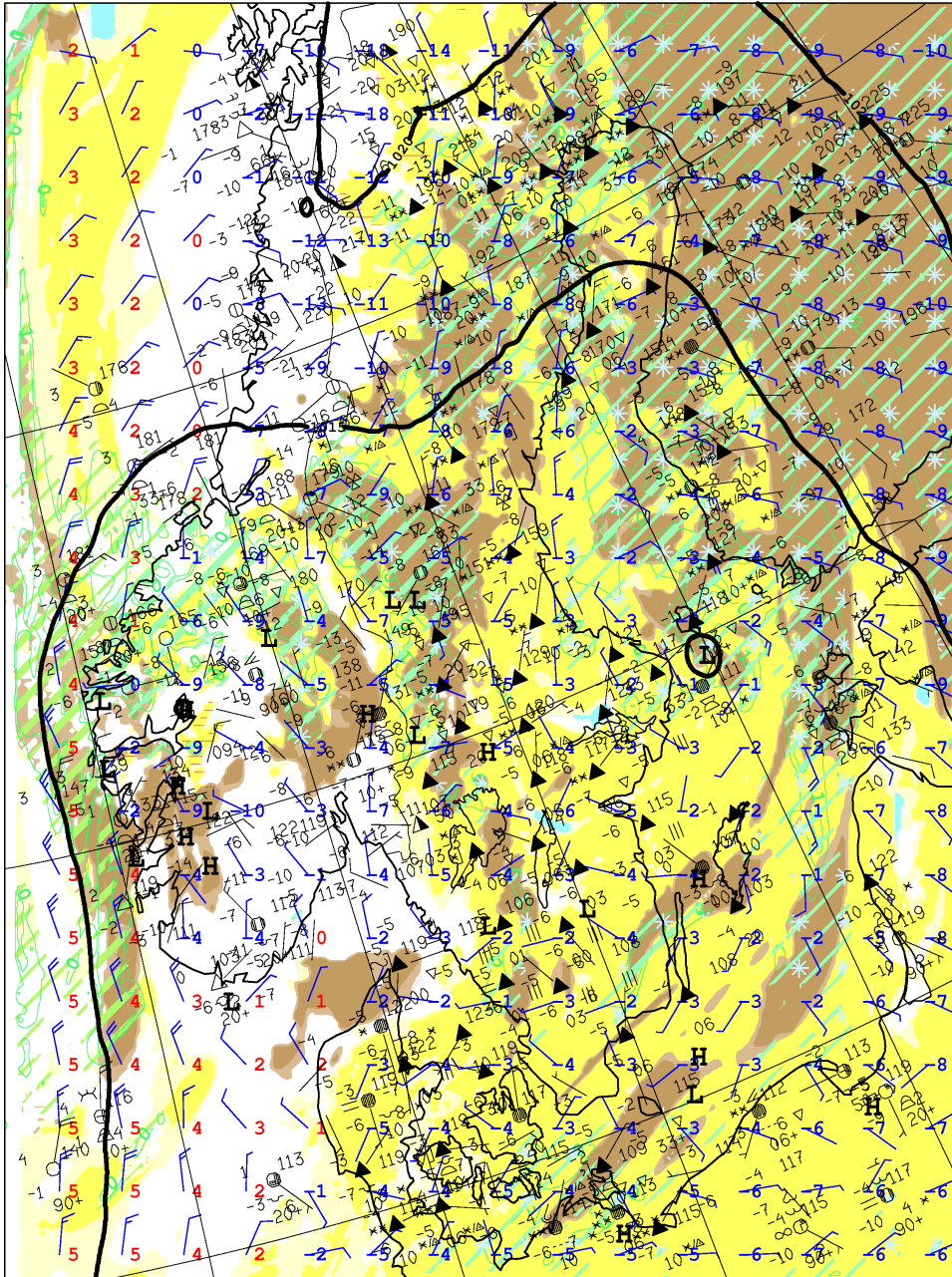
Tue 2 Feb 2010 12Z +30h - Tue 02 Feb 2010 12Z +18h
valid Wed 3 Feb 2010 18Z



Tue 2 Feb 2010 12Z +30h - Tue 02 Feb 2010 12Z +18h
valid Wed 3 Feb 2010 18Z

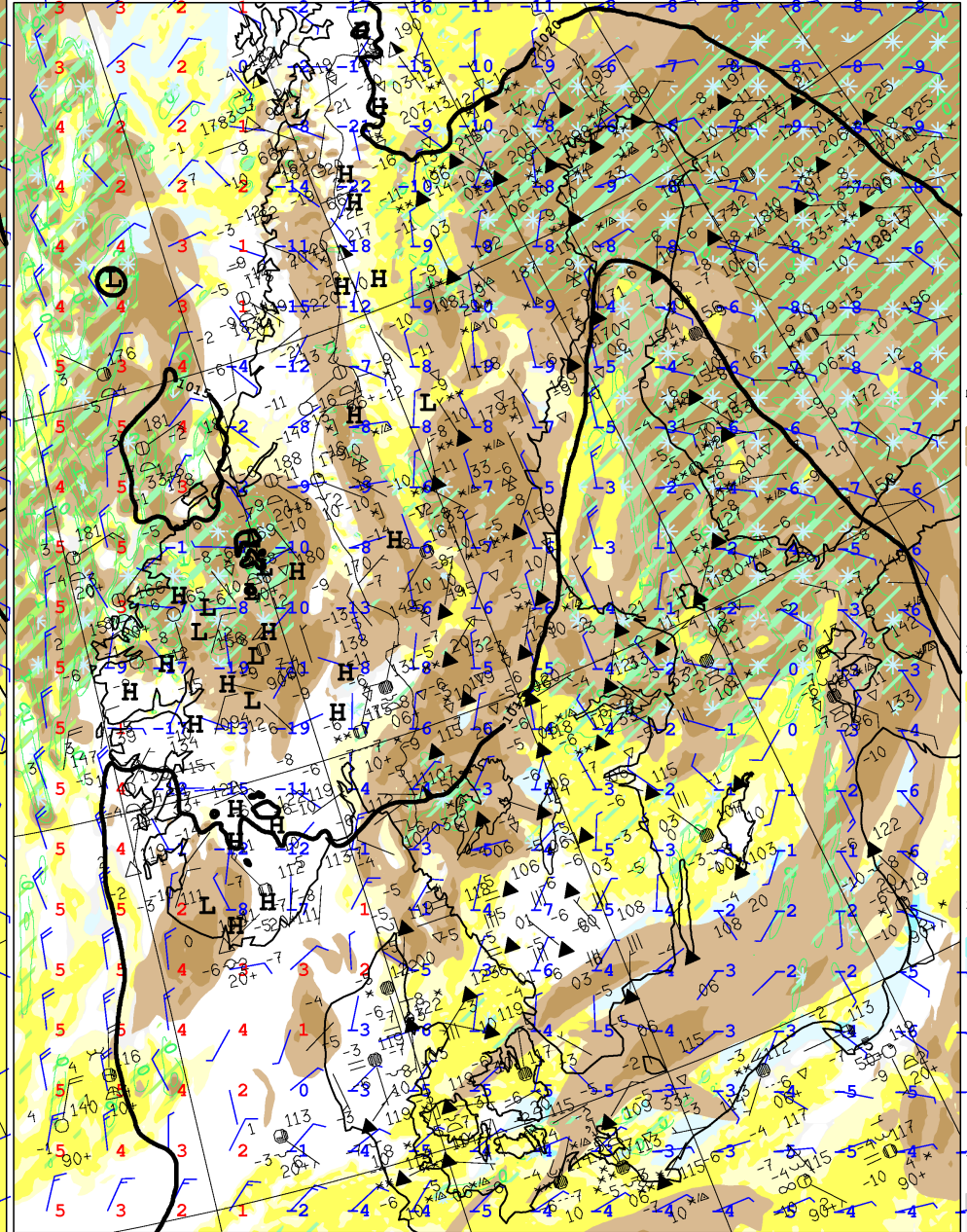
Feb 09 2010 12z (Illustrating the difficulties with low clouds = yellow)

/data/24/hirlam/G 05km 60lev/ G05 140

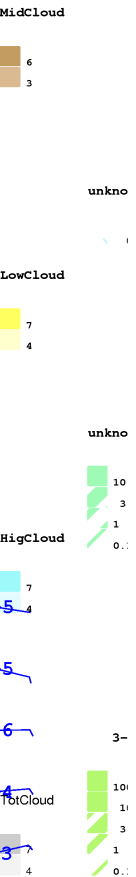


Mon 8 Feb 2010 00z +36h
valid Tue 9 Feb 2010 12z

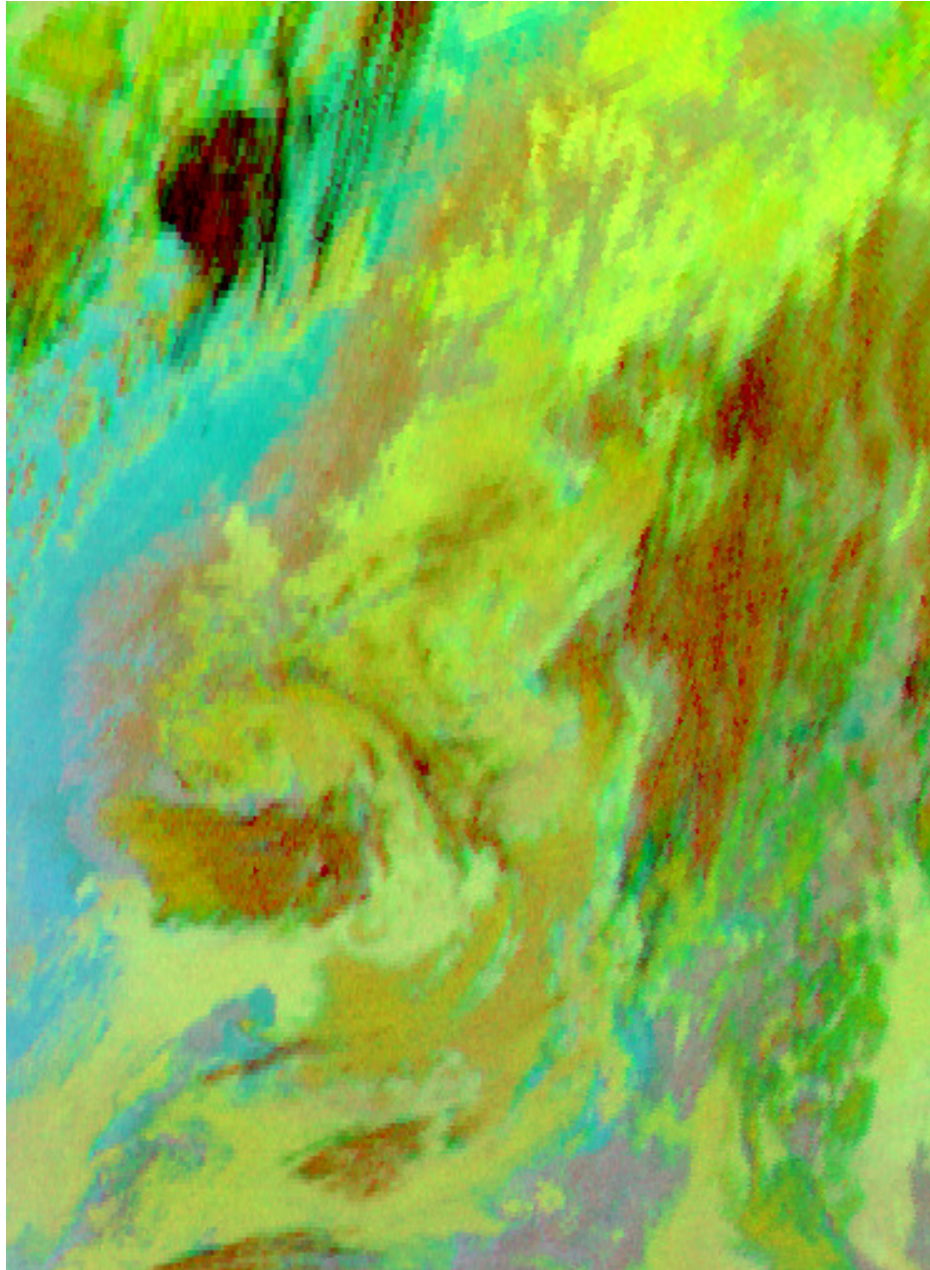
/data/24/hirlam/alaro/ ALARO_S55_011



Mon 8 Feb 2010 00z +36h
valid Tue 9 Feb 2010 12z



Feb 09 2010 12z (Satellite picture , yellow = low clouds)



Surface temperature ALARO-0 20100130

