

General feedback from a forecasters point of view (Belgium)

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*2nd ALADIN Forecasters meeting, 21/10 – 23/10/2015
IPMA, Lisbon*

Content

1. Case studies ALARO (summer 2015)

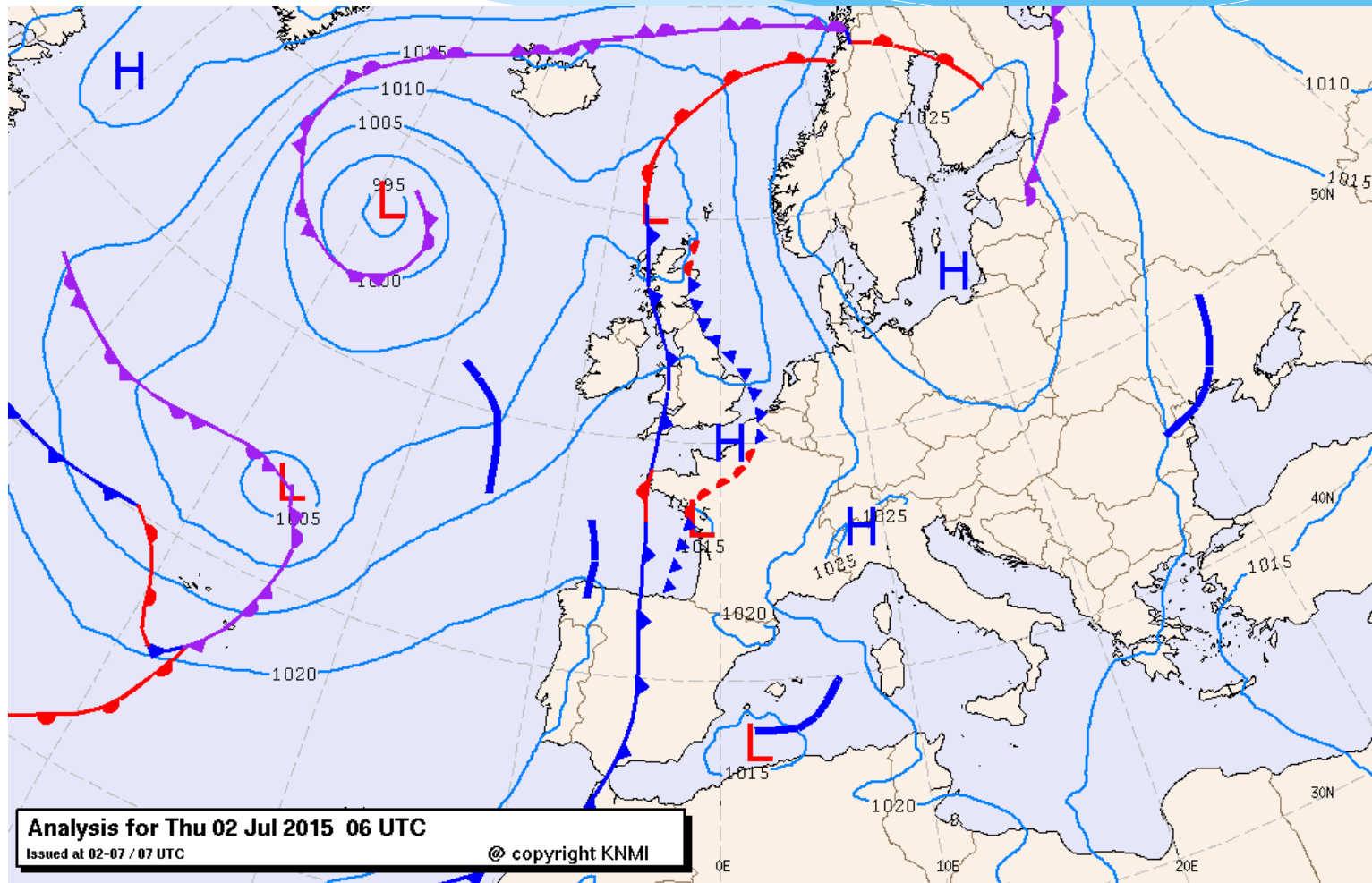
- * 2/7 (thunderstorms)
- * 24-25/7 (showers & low pressure storm)
- * 7/8 (showers in re-activating front)
- * 29-31/8 (thunderstorms)

2. General feedback

Case 1: 2/7/2015

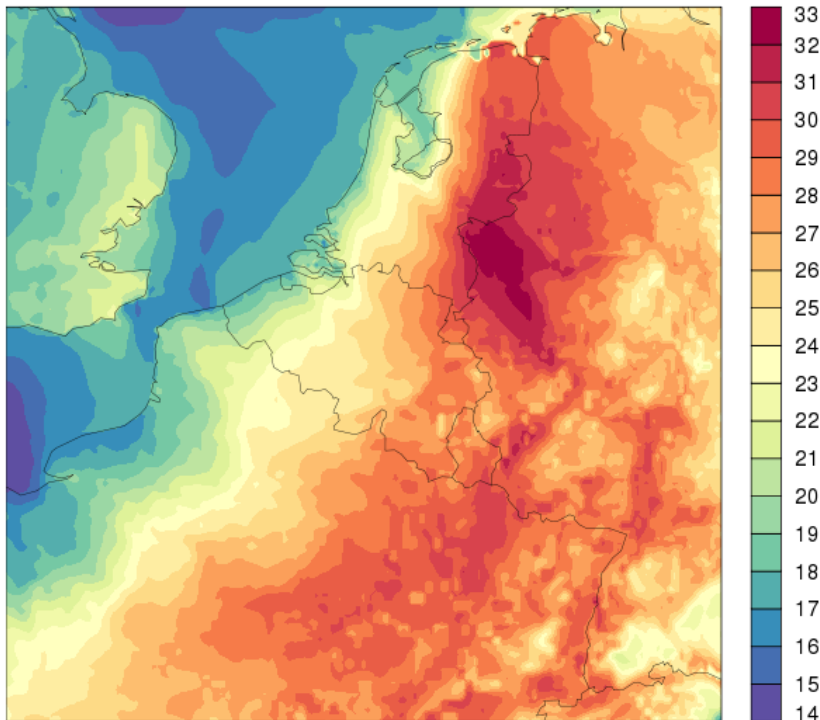
- * Episode during heat wave 30/6 – 5/7
- * Warning for thunderstorms (code yellow)

Synoptic situation 2/7



Forecasted temperature

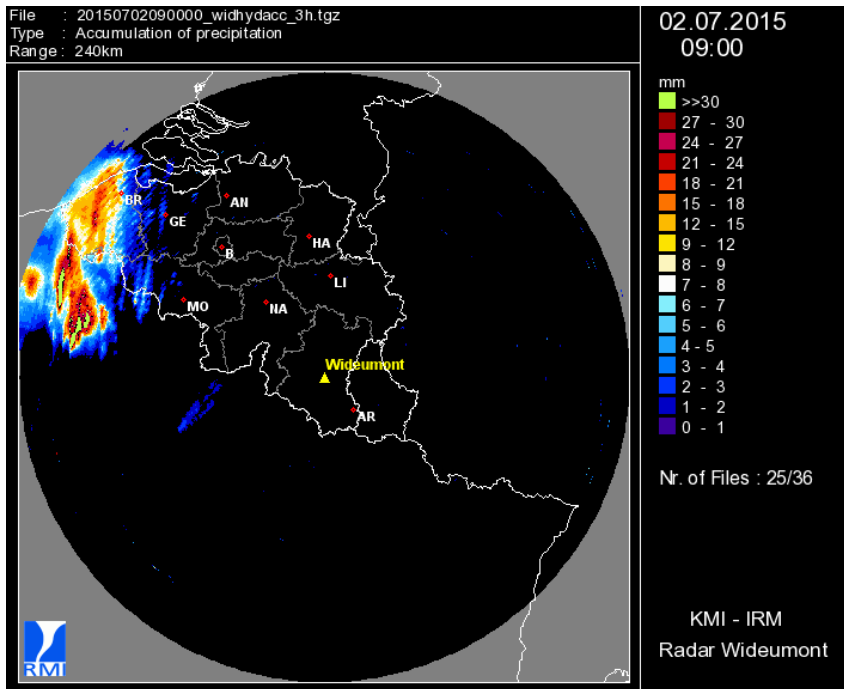
CLSTEMPERATURE
2015/07/02 z00:00 +21h



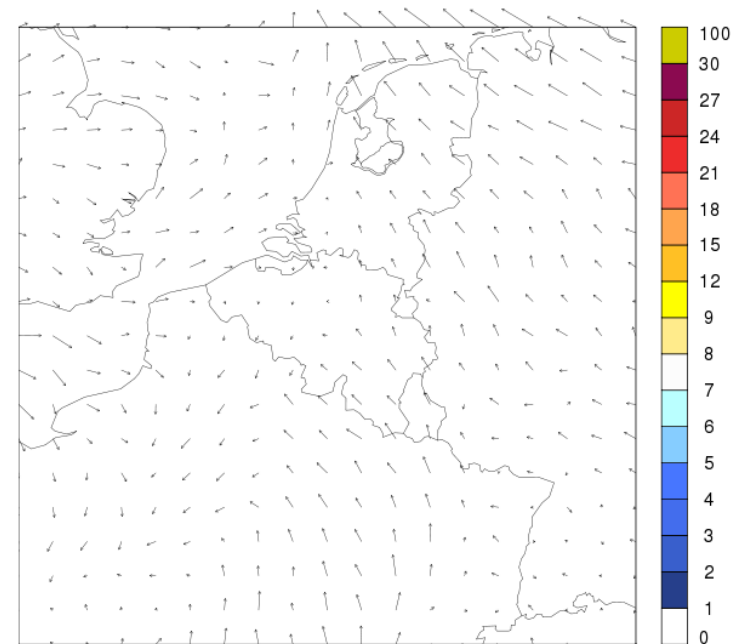
ALARO 00Z run:

A quite large temperature gradient between the coast and inland was observed. The model captures this well.

Precipitation: no signal in ALARO (00Z), small signal for 12Z run

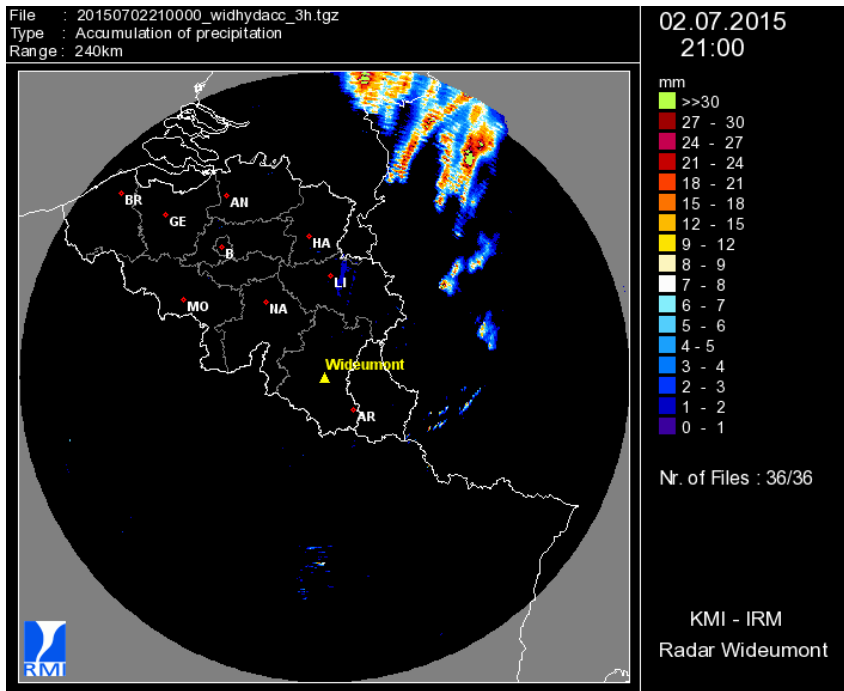


SURFPREC.EAU.CON
2015/07/02 z00:00 +9h

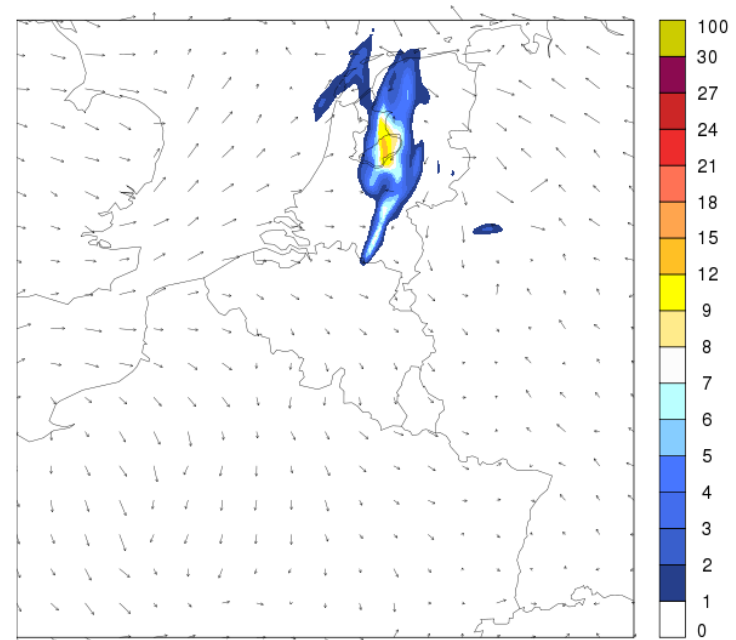


00Z run: no precipitation shown

Precipitation: no signal in ALARO (00Z), small signal for 12Z run



SURFPREC.EAU.CON
2015/07/02 z12:00 +9h

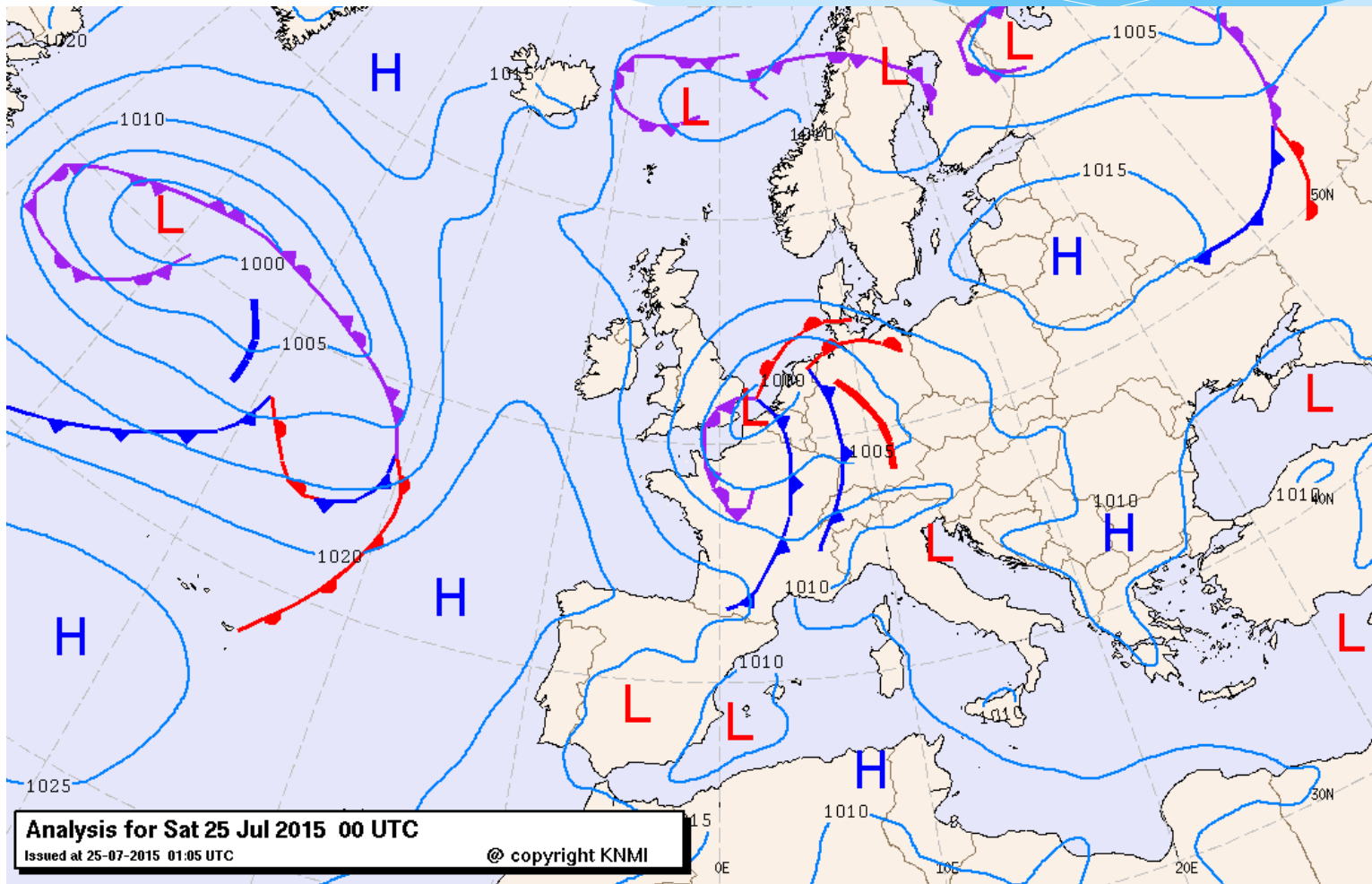


12Z run: a squall line above the Netherlands in the evening
But the squall persisted longer into the night than forecasted by ALARO

Case 2: 24 & 25/7

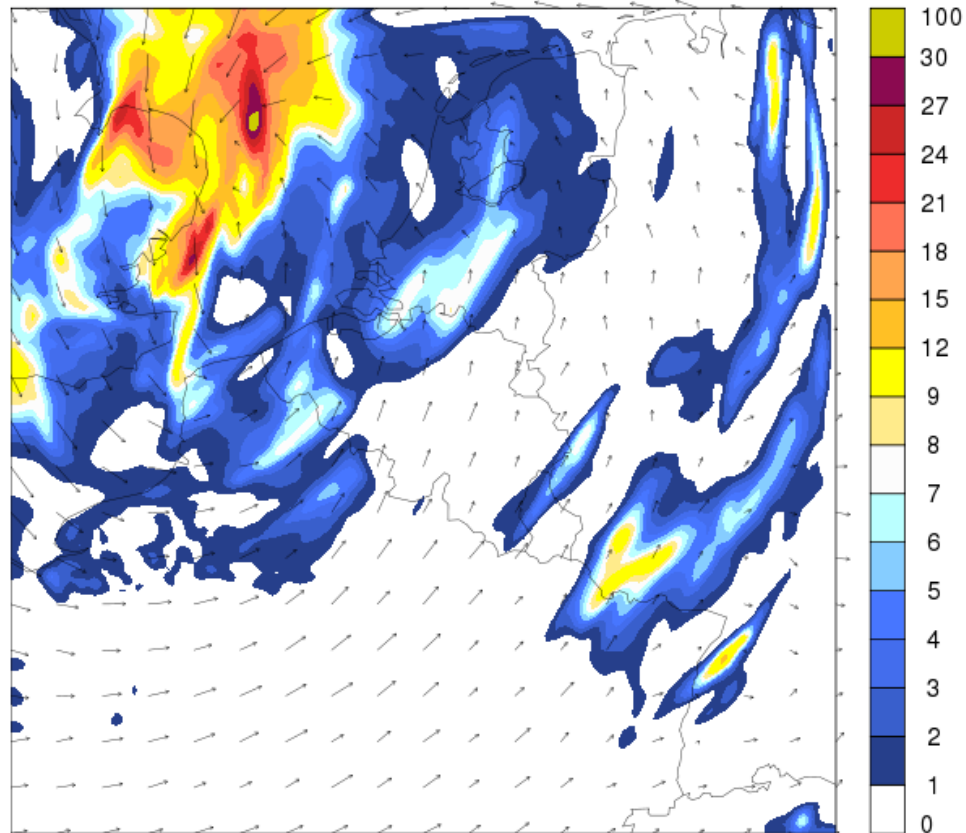
- * Context: passage of low pressure system
- * Warning for thunderstorms (code yellow) during the evening and night of 24/7 and windgusts (90 km/h, code yellow) during the day

Synoptic situation 25/7

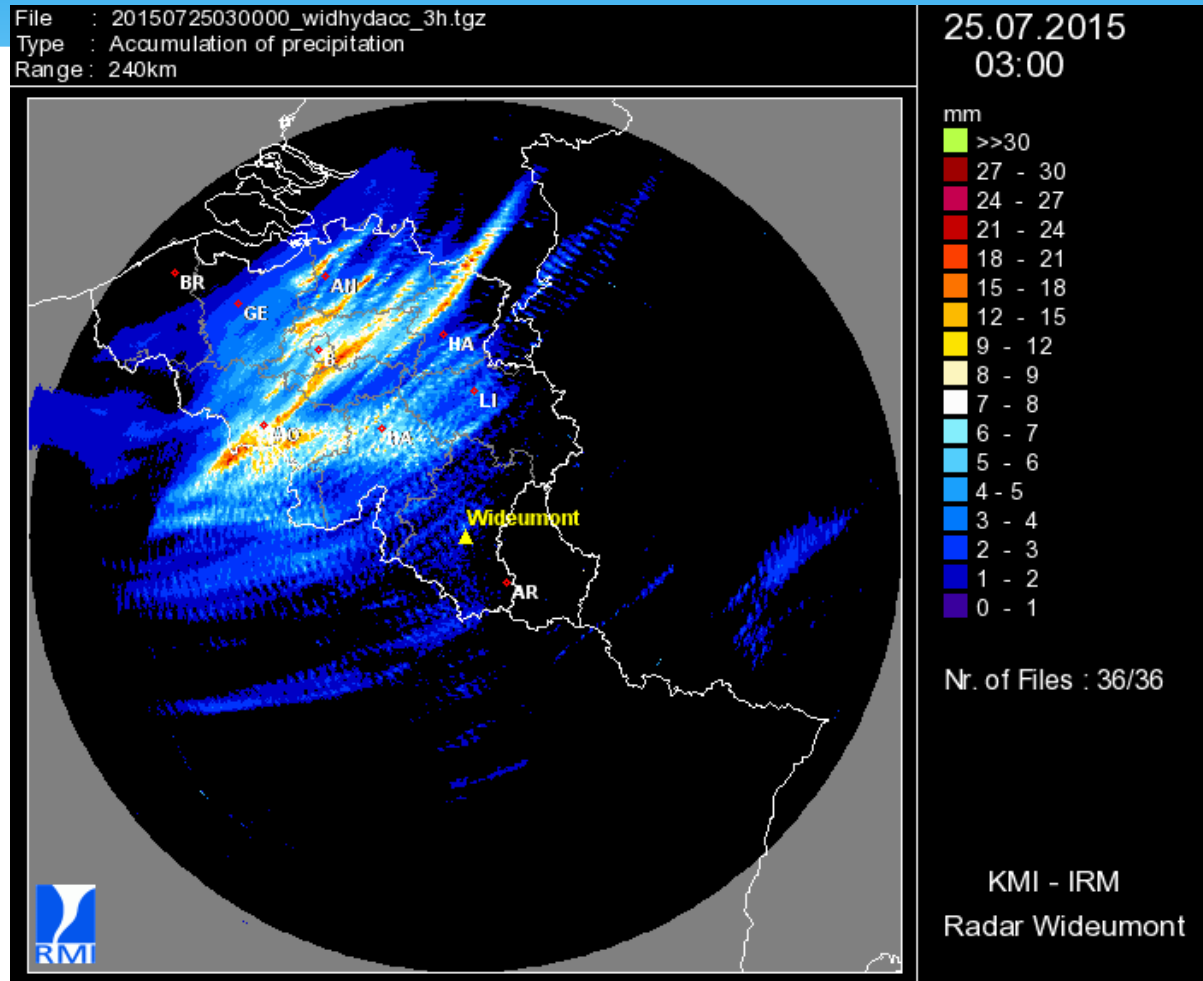


ALARO precipitation forecasts

SURFPREC.EAU.CON
2015/07/24 z00:00 +27h



Observed precipitation

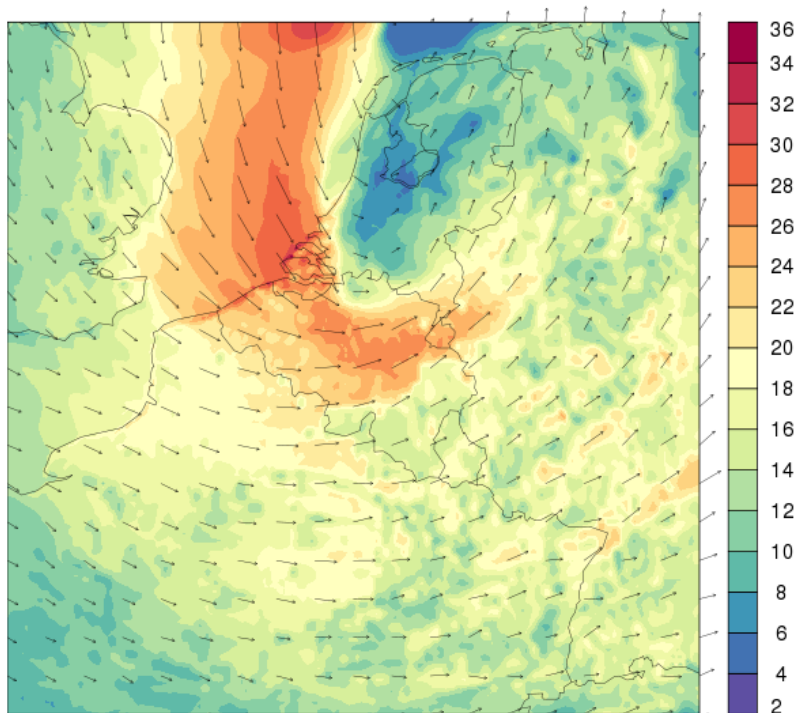


Location & timing: quite good!

Amounts: underestimation (8-12 mm expected, 15-20 mm observed)

ALARO windgusts

CLSU.RAF.MOD.XFU
2015/07/24 z00:00 +36h



Forecasted windgusts were around 100 km/h for the 00Z run and even higher (120 km/h) for the later 12Z run for the northern part of Belgium.

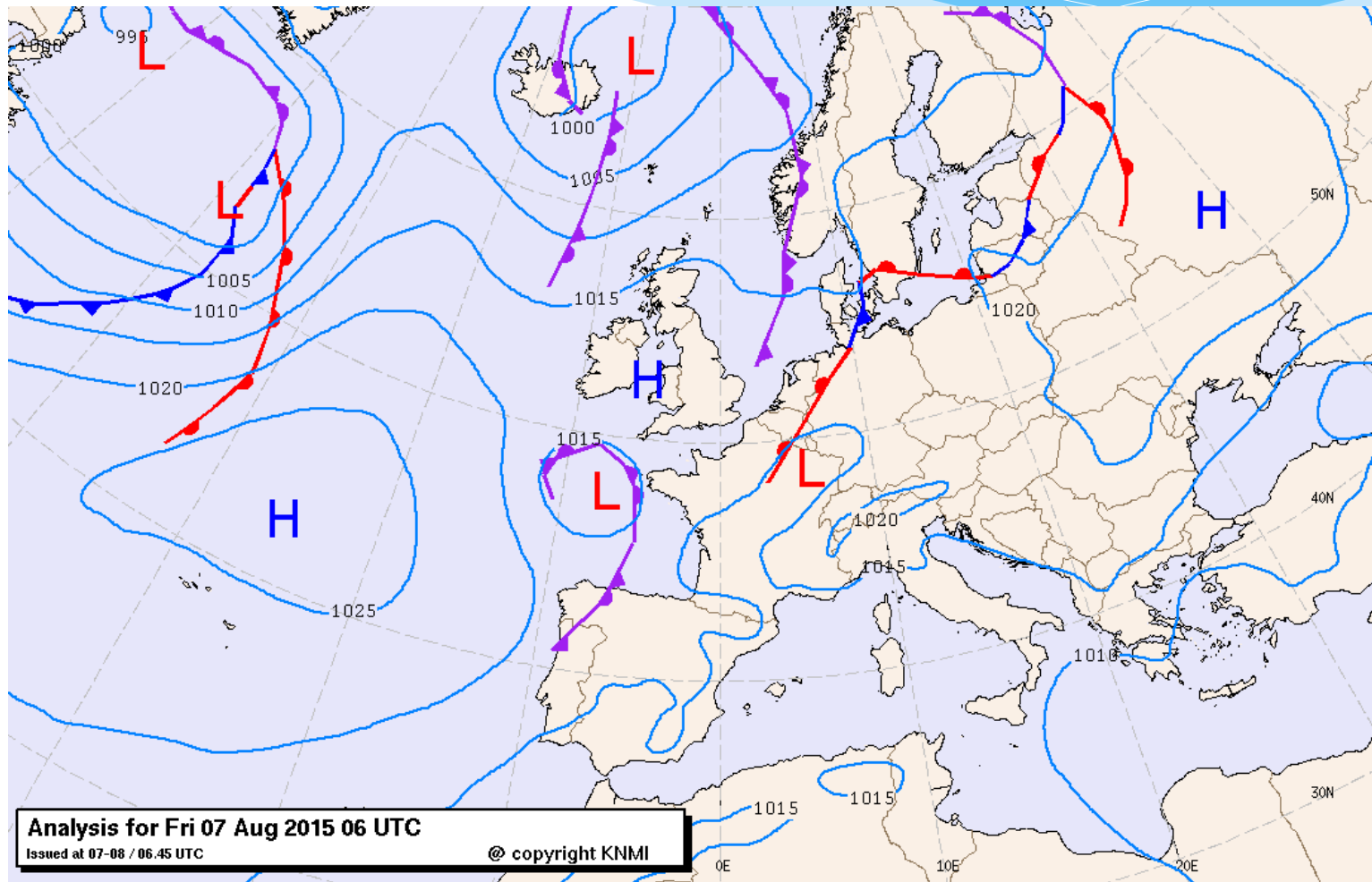
Observations were around 80-100 km/h. But general picture was OK.

=> Trajectory of the low centre is crucial and depends on large scale circulation. In reality, the centre of the low was around 80 km shifted towards the N compared to what the model shows.

Case 3: 07/08

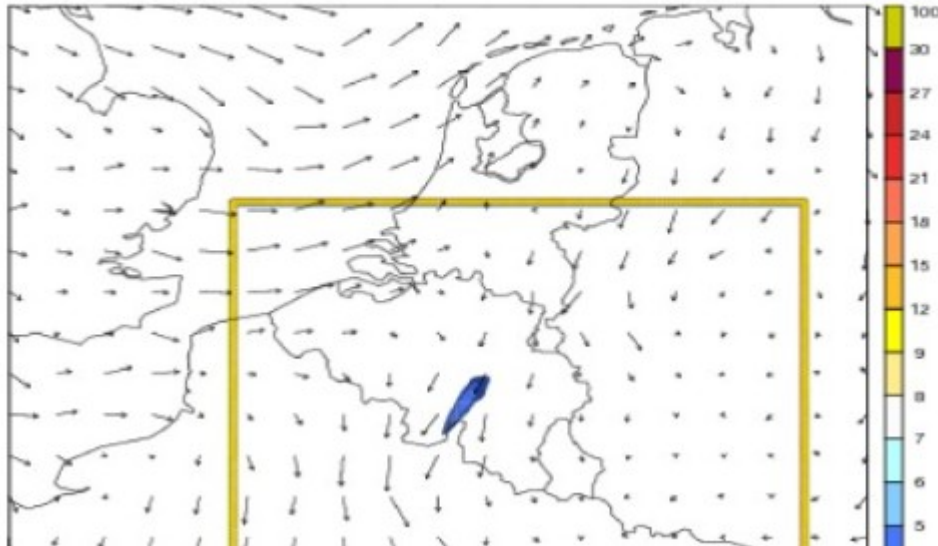
- * Context: quite large precipitation amounts in south and central Belgium (up to 30 mm in 6h) and embedded thunderstorms. Baroclinic zone reactivates during the night.
- * Warning for TS (code yellow) in the night/morning.

Synoptic situation 7/8

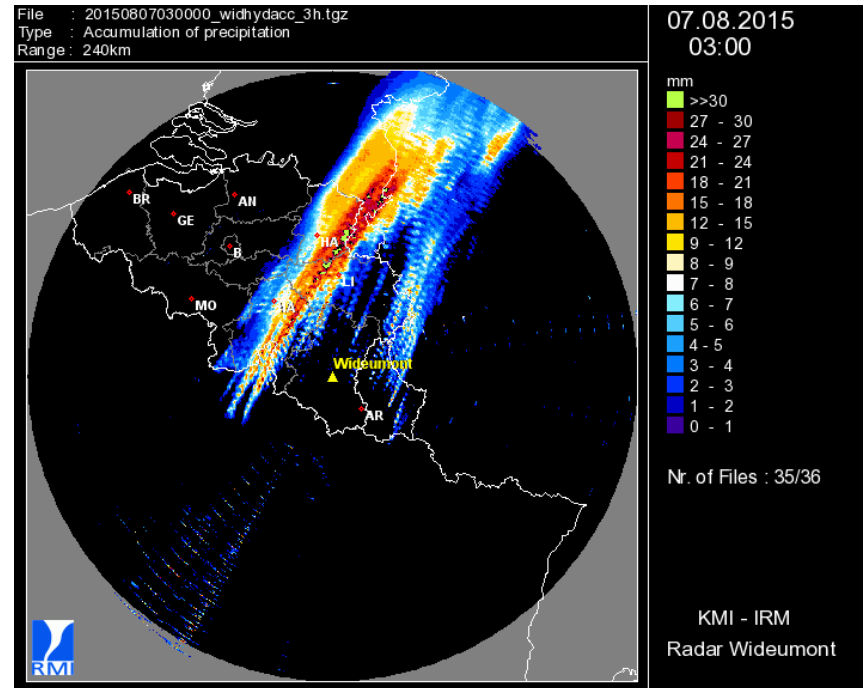


Precipitation forecast vs observation

ALO4 06 08 2015 [00h]
3-HR RAIN: +24 h to +27 h



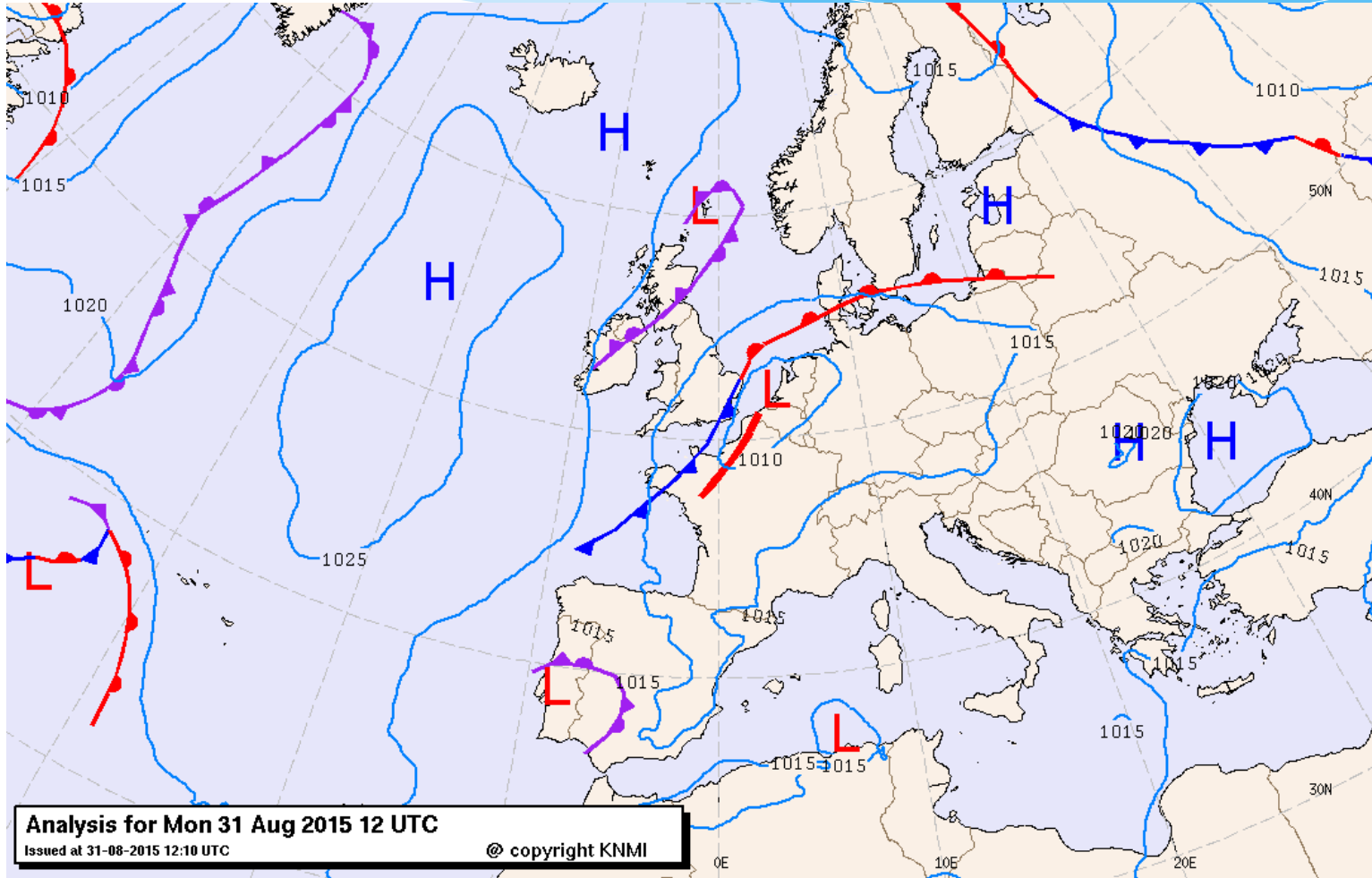
ALARO 00Z run: large underestimation of precipitation amounts



Case 4: 29, 30 & 31/08

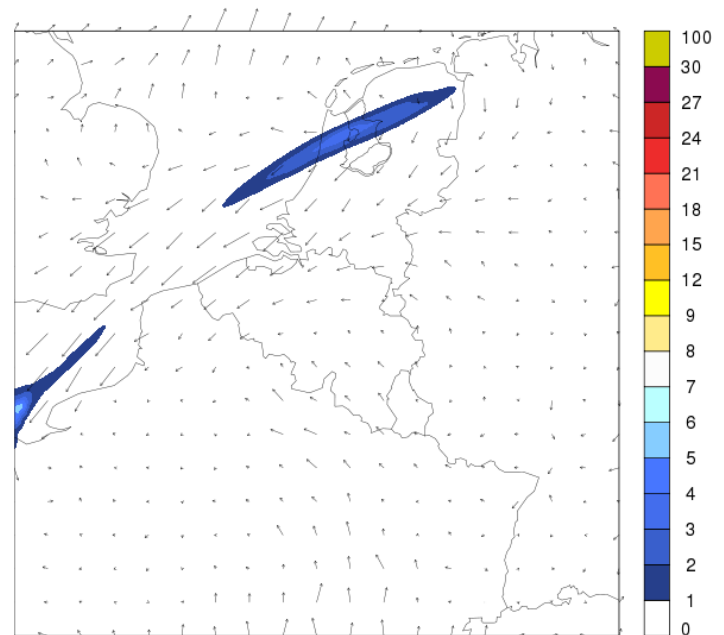
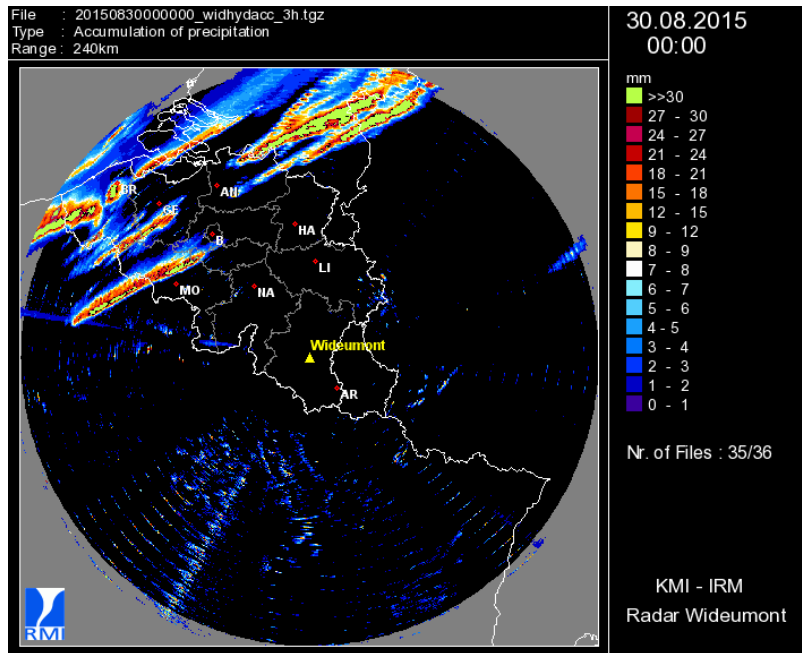
- * Warning for thunderstorms (code yellow, later orange) with severe precipitation, wind, hail
- * 3 “episodes”:
 - * 29/8 21h → 30/8 06h: intense thunderstorms the NW part + French border. Damage due to wind, hail and local floodings.
 - * 30/8 18h → 24h: thunderstorms over the southern part of the Netherlands and NE Belgium. Large precipitation amounts.
 - * 31/8 12h → 18h: intense thunderstorms over central and NW part of Belgium.

Synoptic situation 29, 30, 31/8



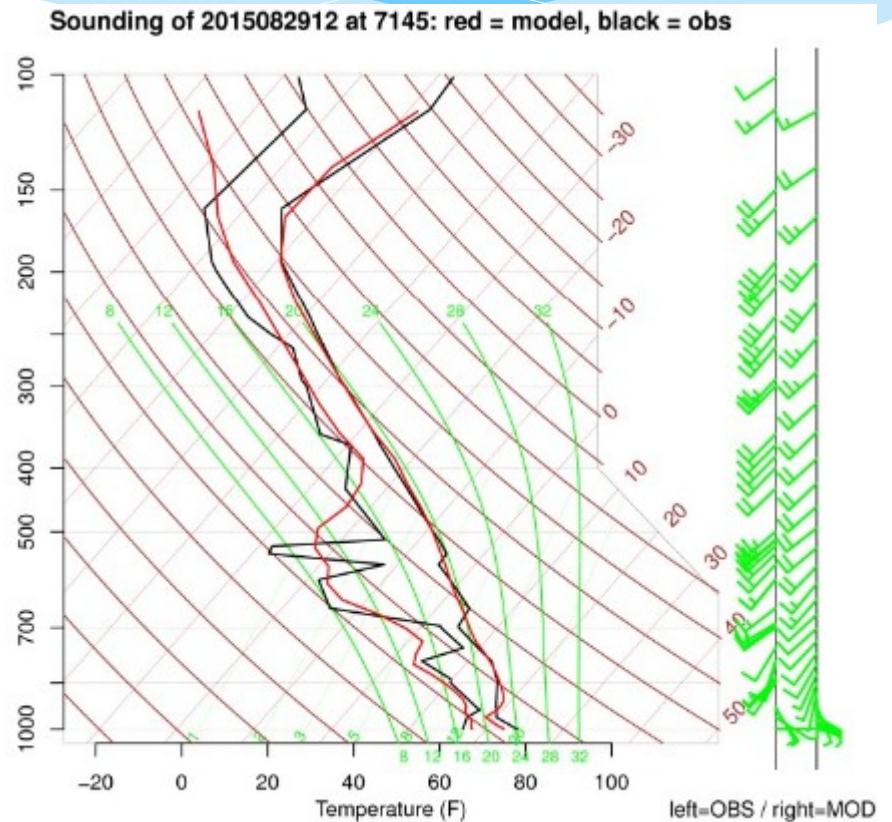
Episode 1: no signal (Belgium)

SURFPREC.EAU.CON
2015/08/29 z00:00 +24h



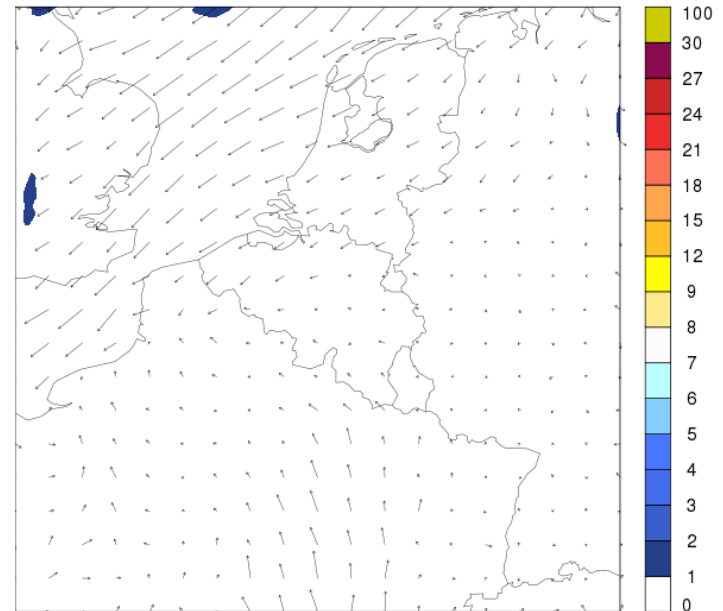
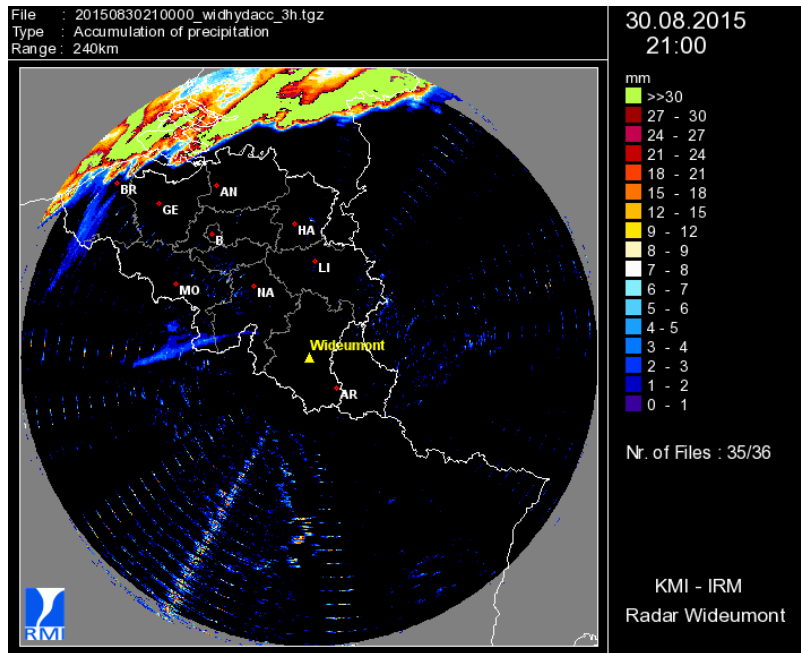
Sounding

- * Sounding (for Trappes) of the 00Z run:
Slight underestimation of humidity



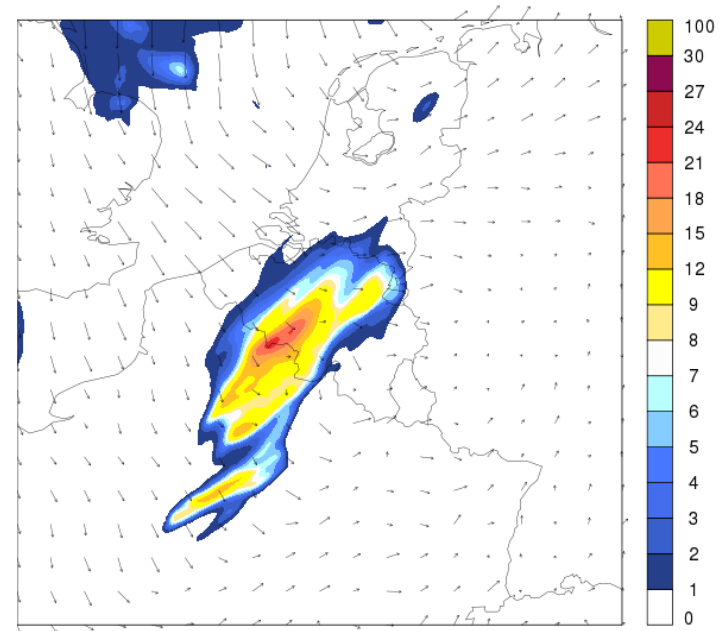
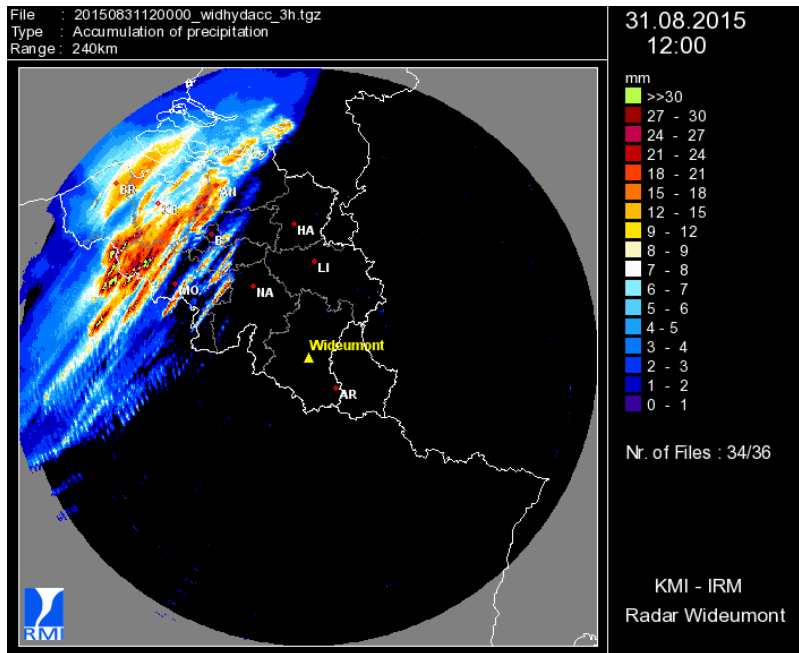
Episode 2: no signal

SURFPREC.EAU.CON
2015/08/30 z00:00 +21h



Episode 3: signal, but time lag (6 to 9h)

SURFPREC.EAU.CON
2015/08/31 z00:00 +21h

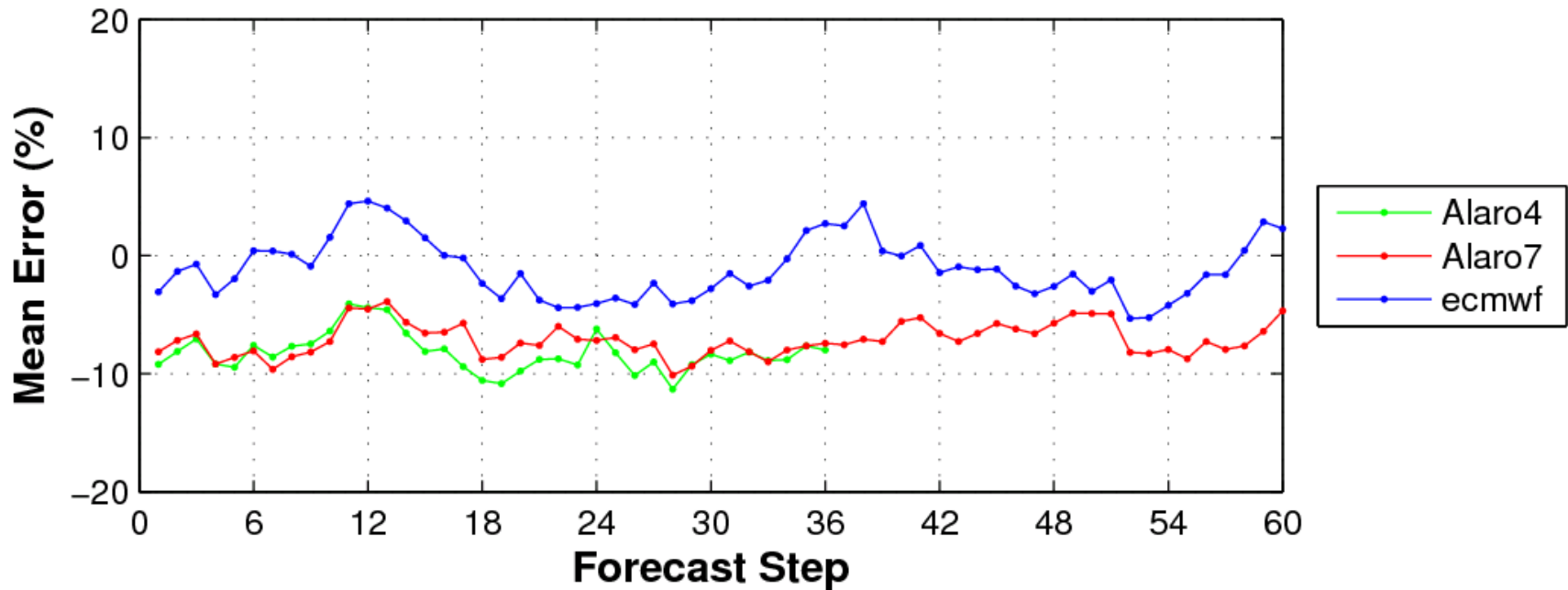


Feedback from the weather office

- * ALARO performs well in situations where a maritime, slight unstable air is advected from the North Sea (NW'erly winds).
- * When instability is triggered from the ground, the model is OK. Otherwise: not so good.
- * Pseudosoundings are good, but the model fields for the clouds (especially low clouds) do not correspond with the soundings. “Binary” output is frequently observed (i.e. complete overcast or sky clear).

Validation of cloudiness

Total Cloudiness Liege-Bierset 20141001-20150930 00 UTC



Cloud cover for Bierset: negative bias



Thank you for your attention!