ALARO in Romania

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(with acknowledgeemnts to Cornel Soci, Florinela Popa, Gabriela Bancila)

It is a short experience.....

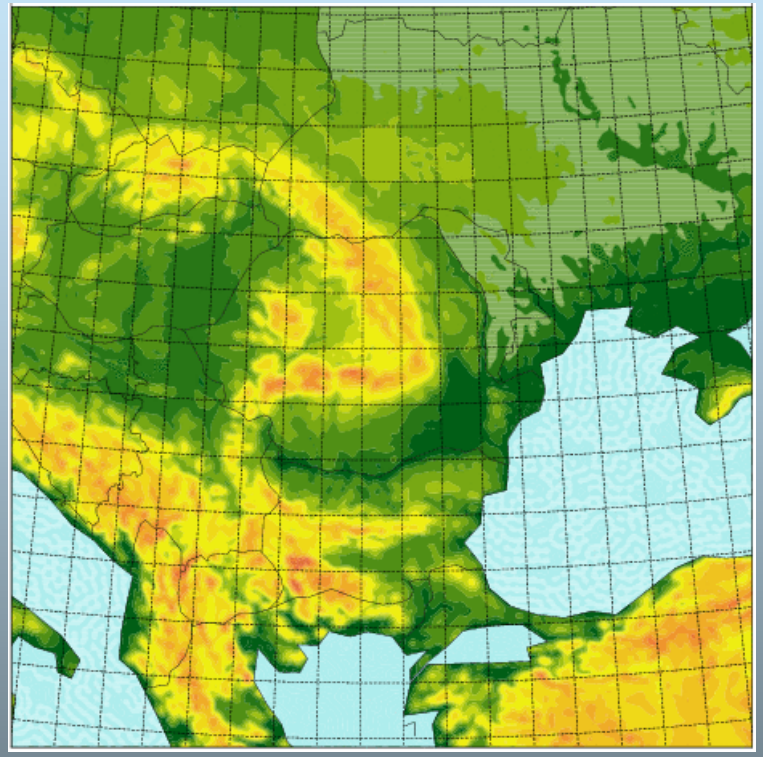
End of October – end of December 2009
ALARO at 10 km integrated once per day

December 2009 – January 2010
ALARO at 6.5 km integrated once per day

Begin of February fully operational
ALARO at 6.5 km integrated 4 times per day
but ALADIN at 10 km is still operational

→ results available for the forecasters on a dedicated web site
(different from the Aladin one)

ALARO - Romania model characteristics



- platform IBM BLADE Linux cluster
- model version: cycle 35t1
- domain: 240 x 240 points , 49 vertical levels
  Δx=6.5 km ,linear grid
- Dynamical adaptation mode
  DFI initialization
  Δt=240 s
  coupling with ARPEGE : 3 hours frequency
  4 runs / day : 78/54/66/54 hours
- integration time ~50 min / 78 h
  (7 nodes , 2 CPU quad-core)

ALADIN- Romania model characteristics

- platform SUN E4500 8CPUS
- model version: cycle 26t3
  - no prognostic variable for water species
  - old RADIATION SCHME
- domain: 144 x 144 points , 41 vertical levels
  Δx=10 km , quadratic grid
- Dynamical adaptation mode
  DFI initialization
  Δt=450 s
  coupling with ARPEGE : 6 hours frequency
  4 runs / day : 78/54/66/54 hours
- integration time ~240 min / 78 h

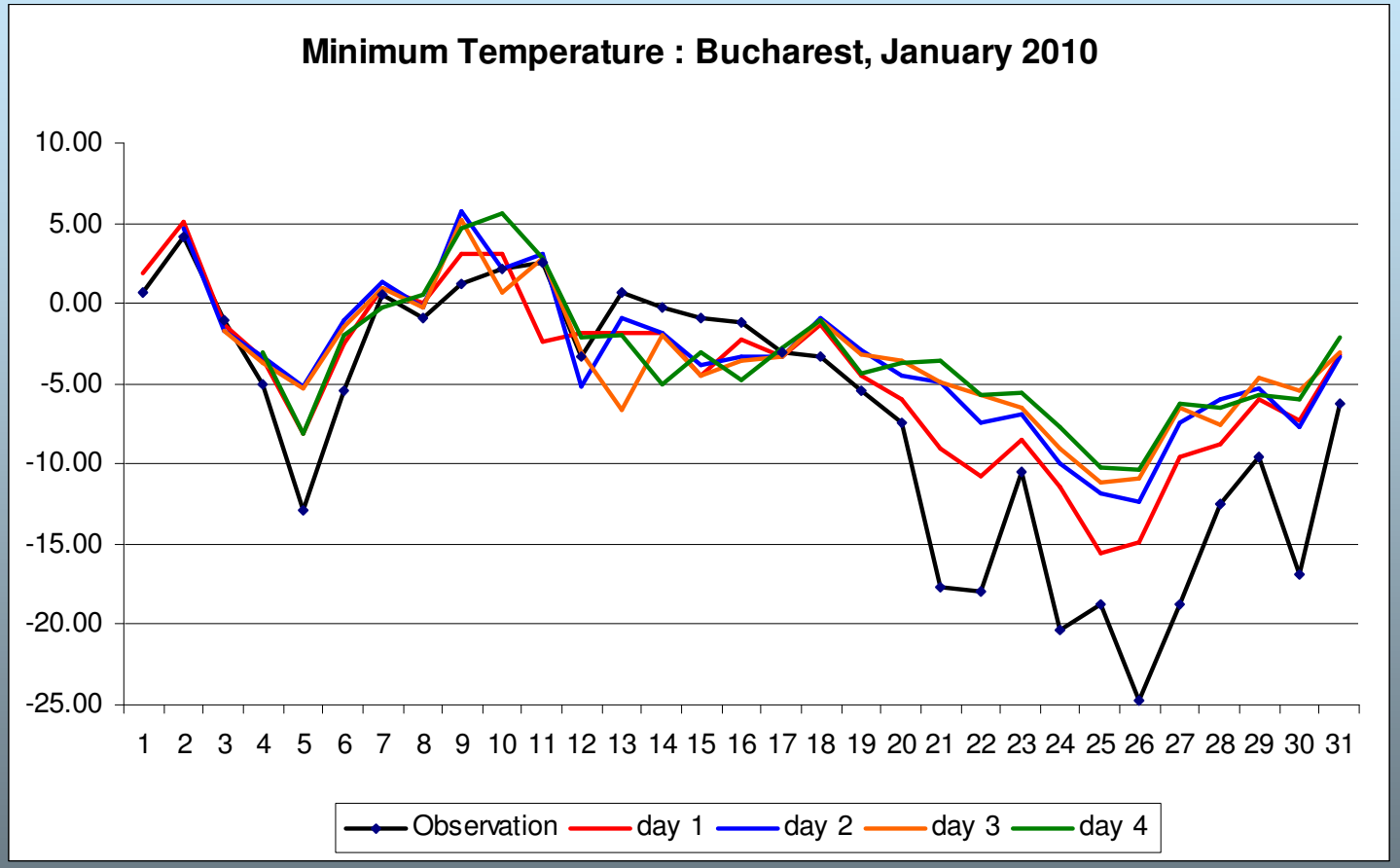
Subjective evaluation, comparison with ALADIN results

Special attention:

precipitation, wind and minimum temperature forecast due to several severe blizzard events, typical for Romania but with higher frequency this winter

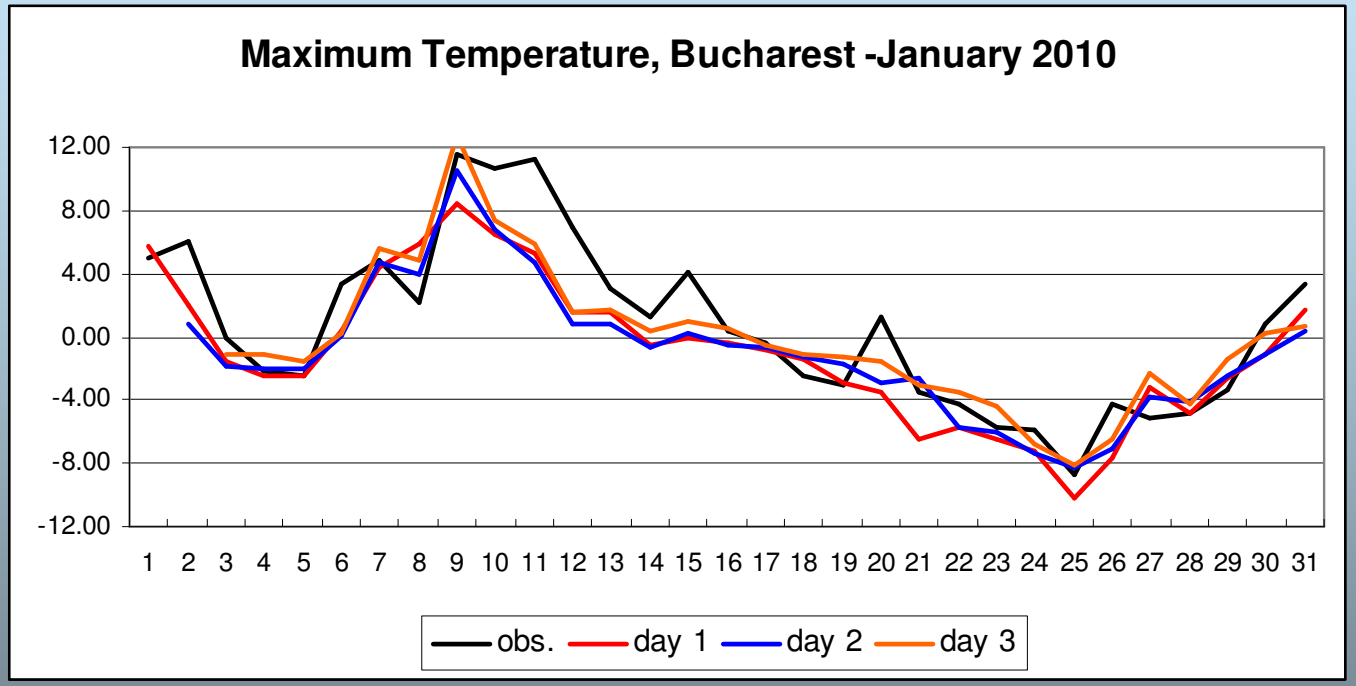
Forecasters found ALARO at 6.5 km better than ALADIN and ALARO at 10 km

Extreme temperatures forecast



Day1: mean error = 2.46˚C, max. error=9.88 ˚C, 26 January, 2010

Extreme temperatures forecast



Max. Bias day 1=6.0, 8 January, 2010

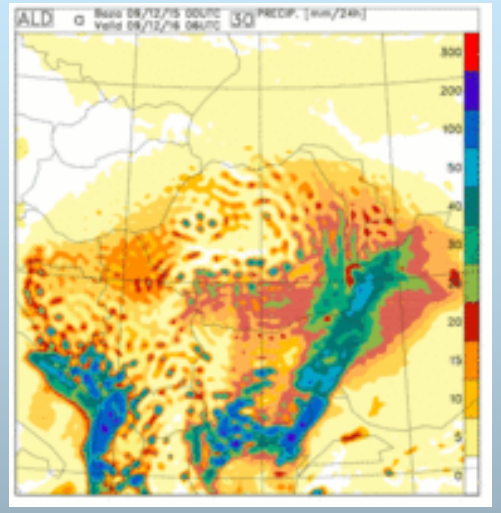
Precipitation forecast ALARO versus ALADIN

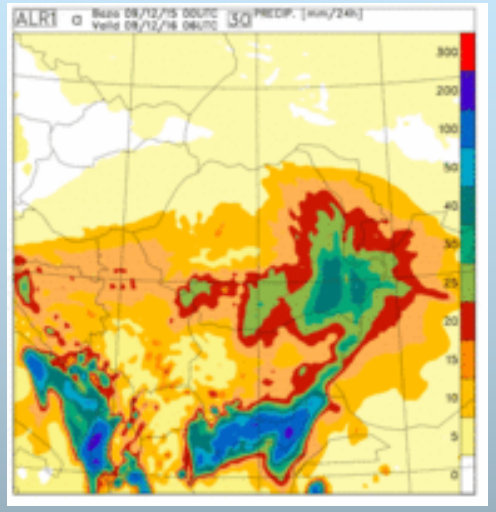
- No major differences in the precipitation pattern
  differences : development of a perturbation in the western basin of the Black Sea
- Both models has the tendency to over estimate the precipitation

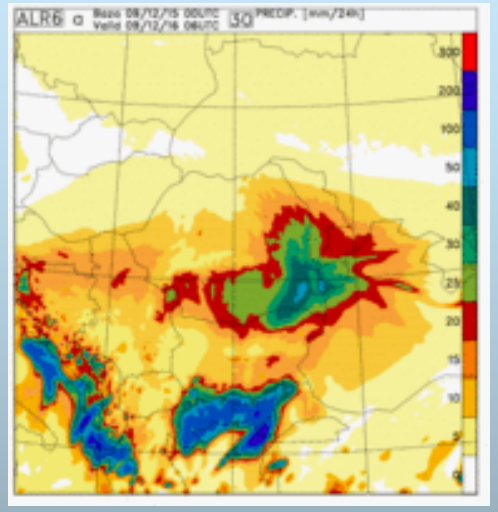
ALARO

- better precipitation structure (noise is remove)
- better position and evolution of the precipitation bands
- generally better precipitation amount

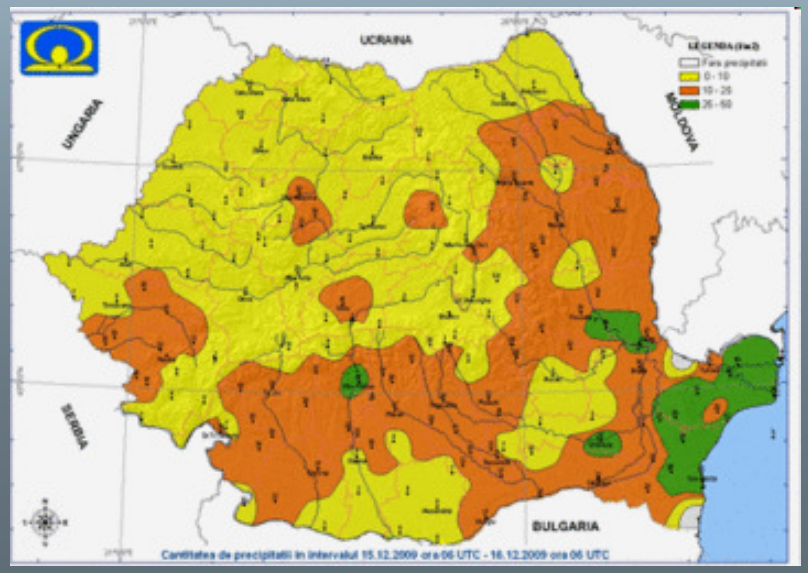
Precipitation forecast



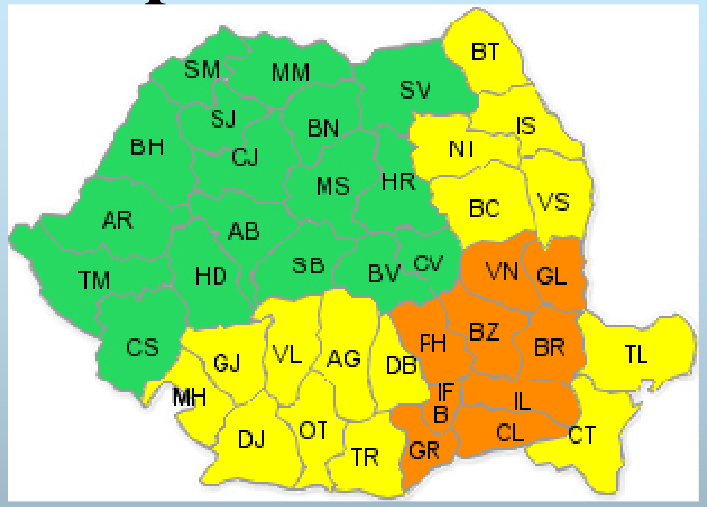


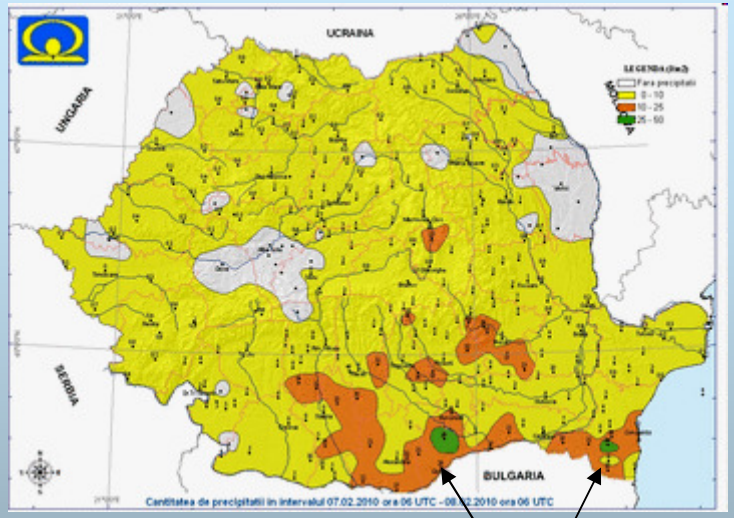


24 h cumulated precipitation: 15.12.2009, 00+06 → 00+30 UTC

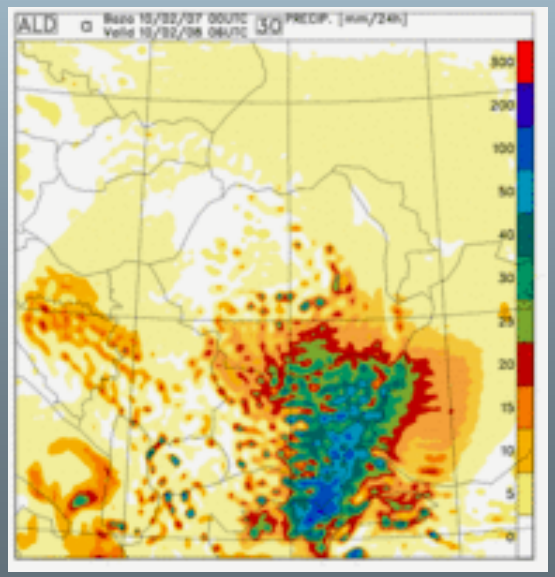


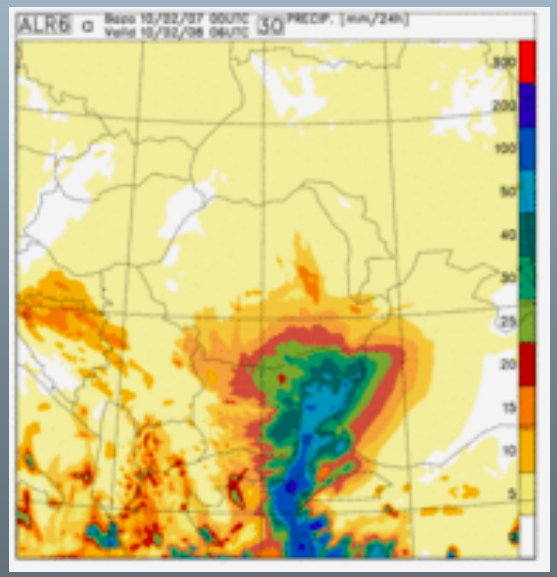
Precipitation forecast





28 l/mp





24 h cumulated precipitation: 7.02,2010, 00+06 → 00+30 UTC

10 m wind forecast

ALARO 6.5 km in respect with ALADIN -10Km:

- **better wind direction and position of high speed areas**
- **better evolution of the wind fielsd**
- **beter maximum wind speed even if it is still underestimate for strong wind situations**

10 m wind forecast