

ALARO experience in Romania

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with contributions from Alina Dumitru

I. Operational configurations

- Cy43t2bf11
- LBC from ARPEGE (3h)
- 4 runs day (no DA)
- 78/54/78/54 hours forecast range

1) ALARO 6.5

ALARO-0 baseline,
 $\Delta x = 6.5$ km, L60,
 $\Delta t = 240$ s

	current
00	10.2 min
06	6.85 min
12	9.83 min
18	6.83 min

2) ALARO 4

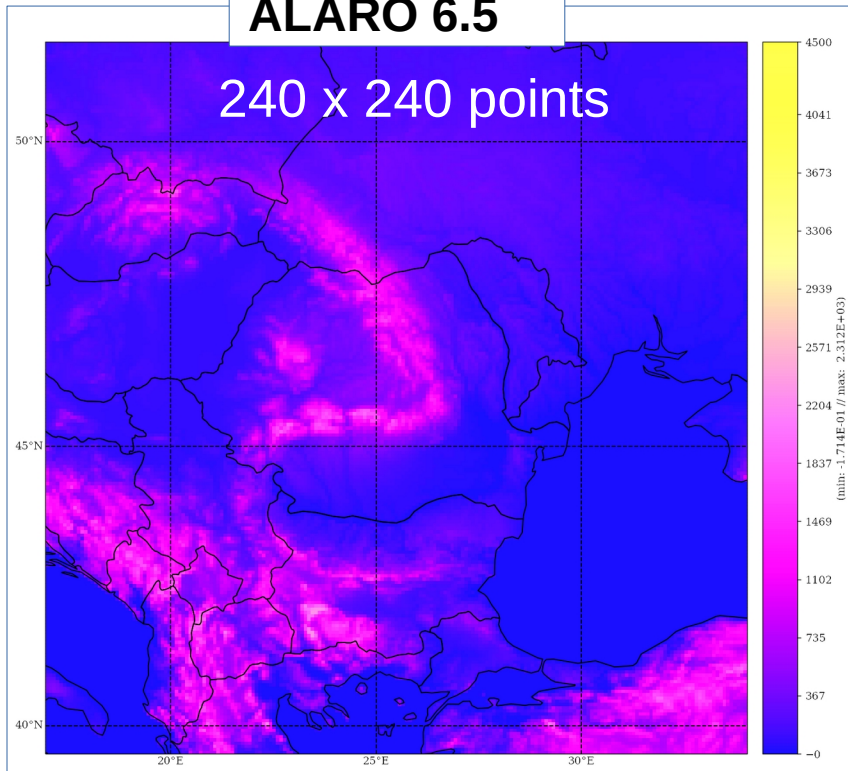
ALARO1vB,
 $\Delta x = 4$ km, L60,
 $\Delta t = 180$ s

	current
4km_e001 00	1.15 hour
4km_e001 06	47.2 min
4km_e001 12	1.15 hour
4km_e001 18	48.4 min

Integration domain

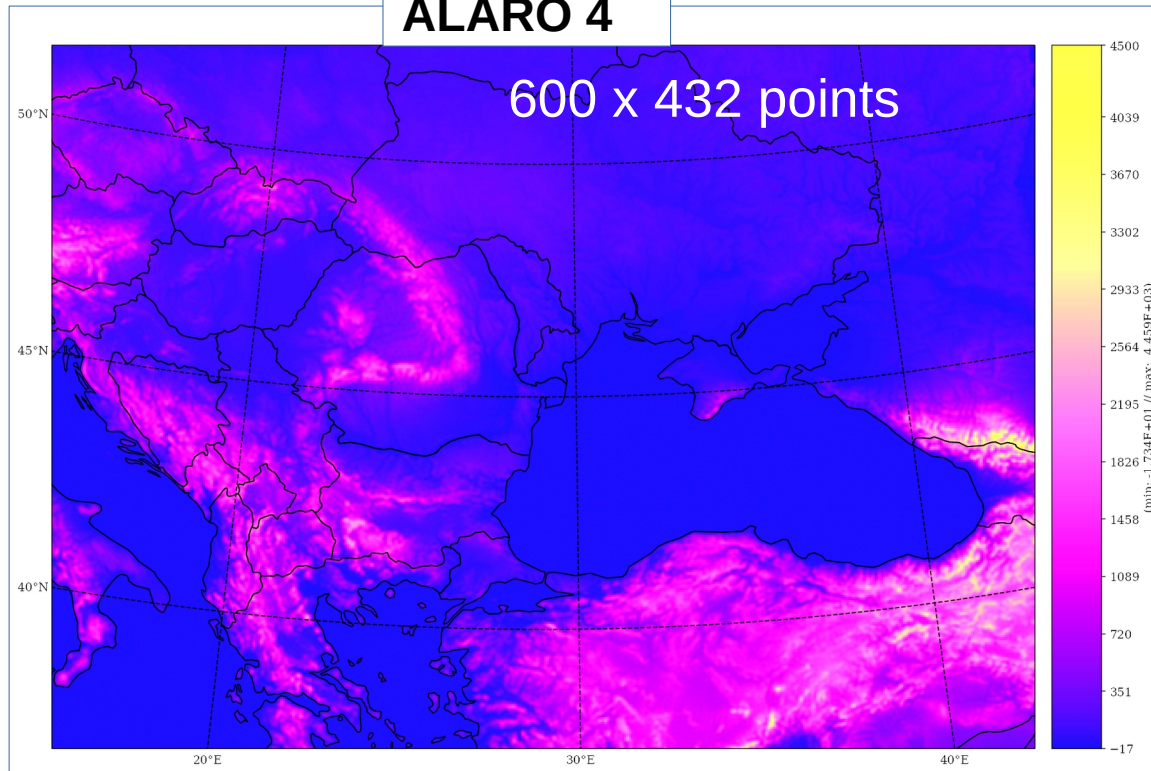
ALARO 6.5

240 x 240 points



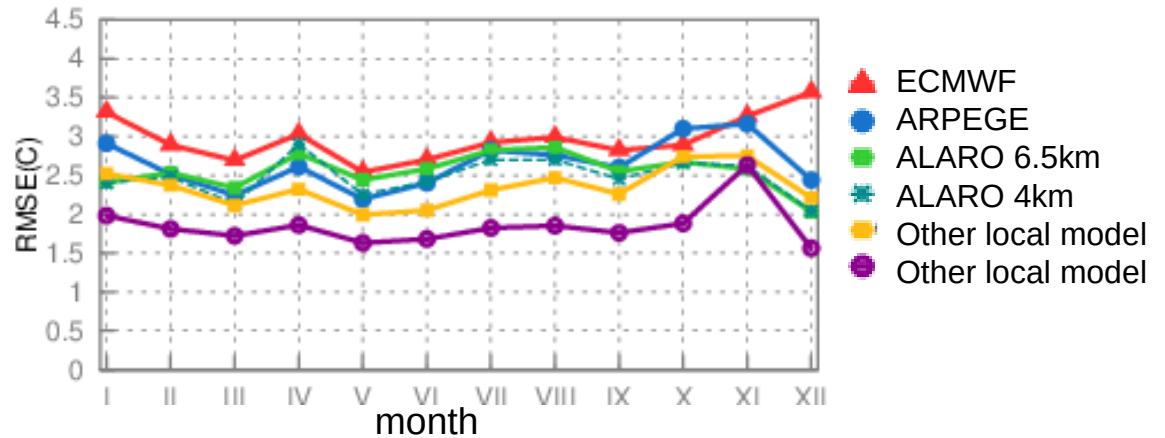
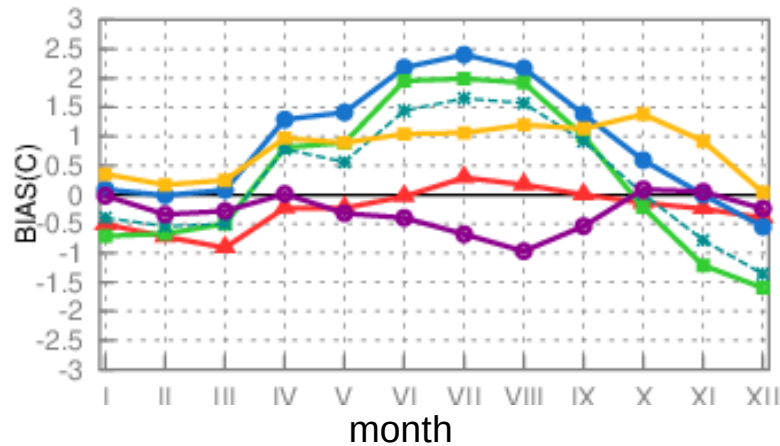
ALARO 4

600 x 432 points



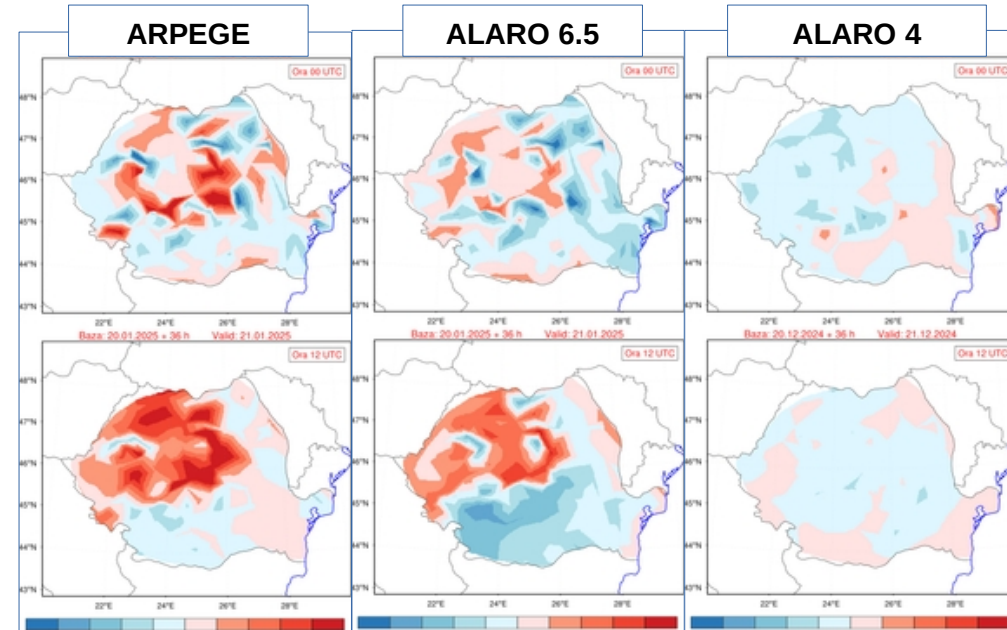
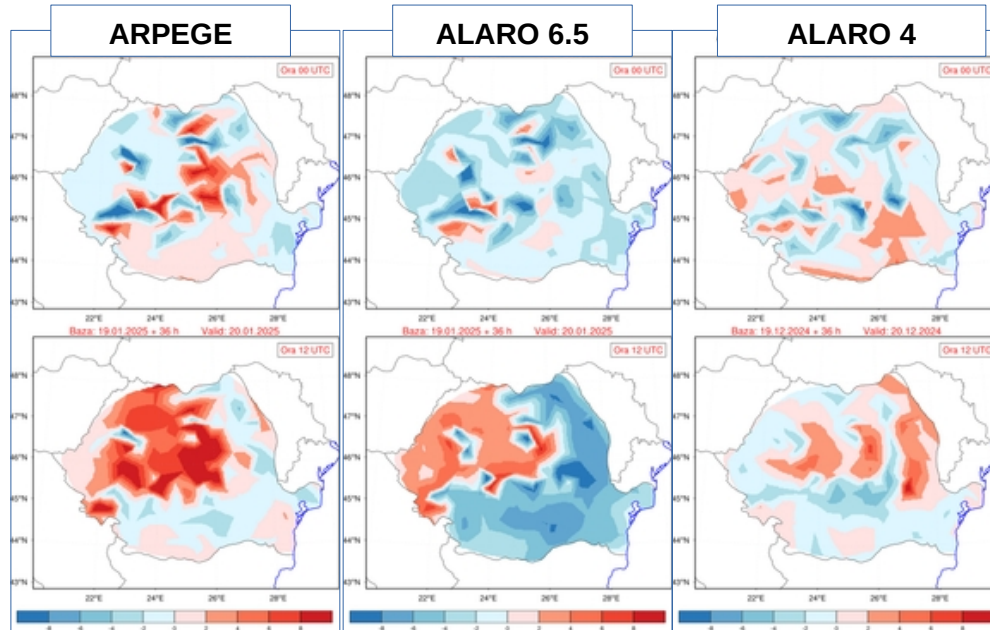
II. Temperature forecast

Evolution of the monthly scores for 2024 for 2 m temperature

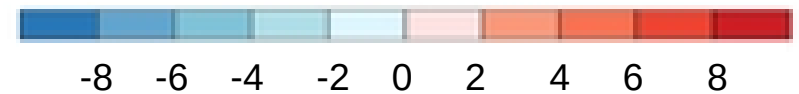


- temperatures are overestimated from April – September
- the opposite trend for November and December

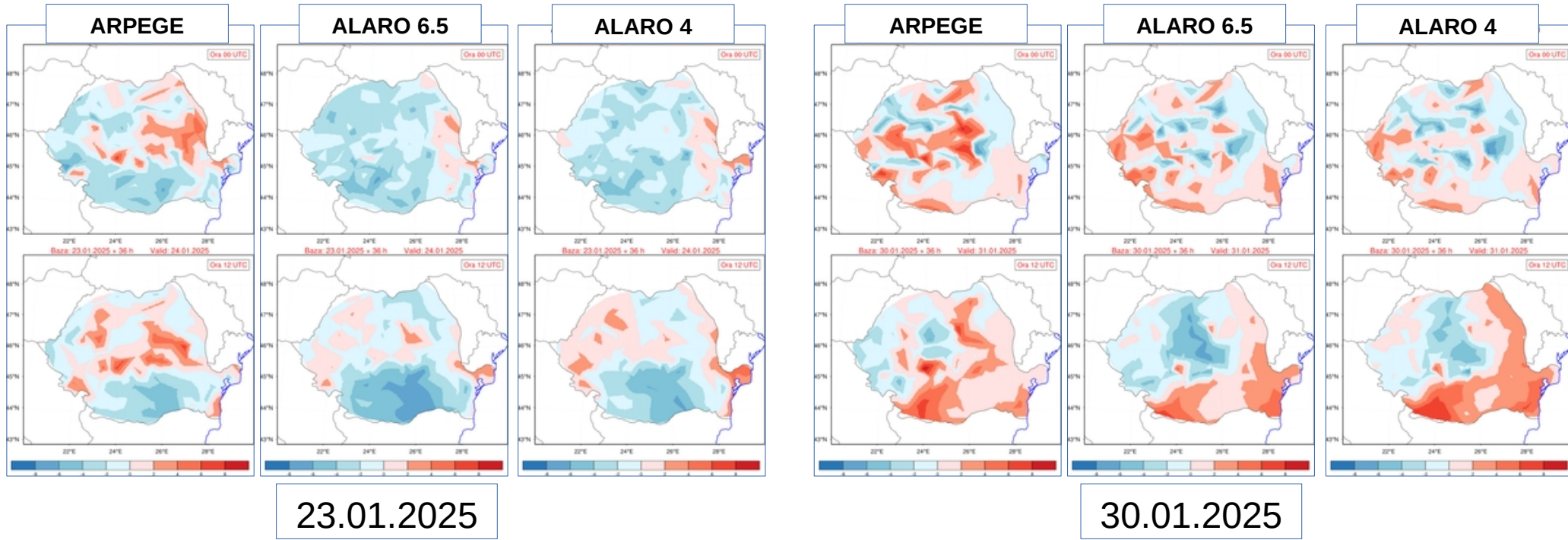
2m temperature error (Forecast - Observation)



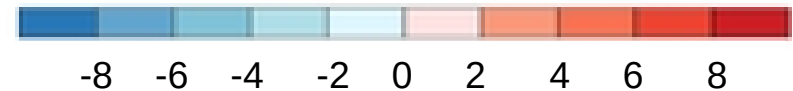
Forecast for 24 h – first row
Forecast for 36 h – second row



2m temperature error (Forecast - Observation)



Forecast for 24 h – first row
Forecast for 36 h – second row

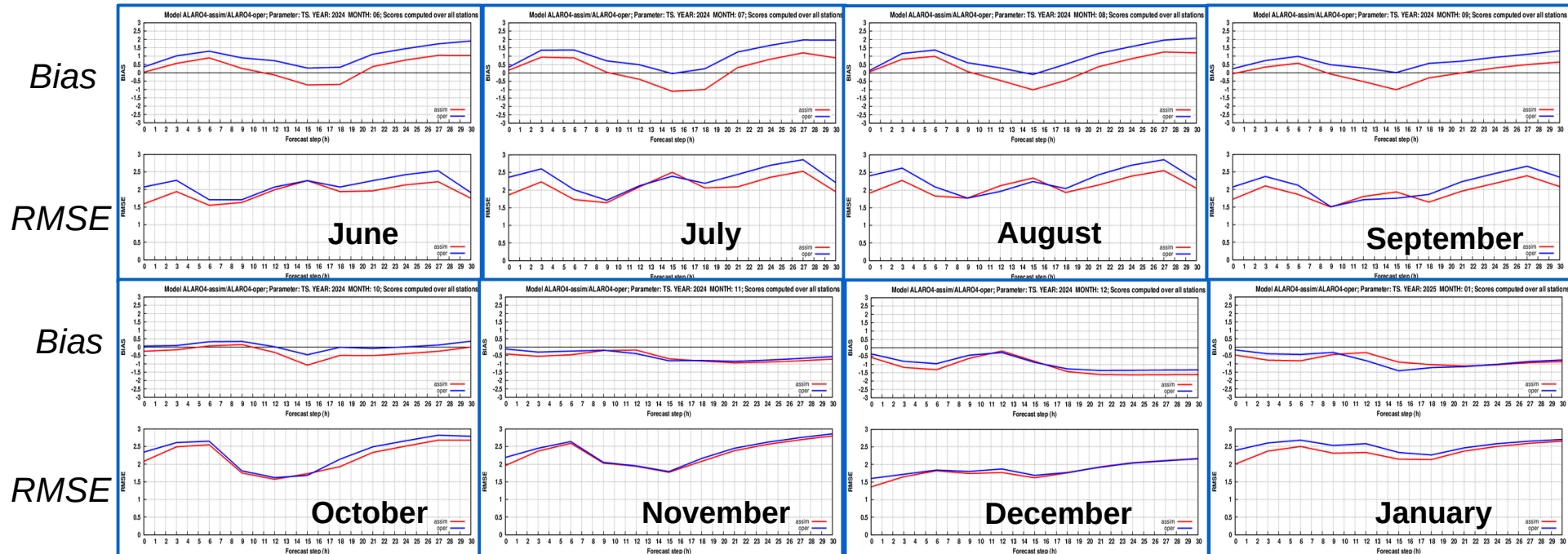


III. Preoperational chain – Data Assimilation

Temperature verification scores

- CANARI
- ALARO1 vB, $\Delta x=4$ km, L60,
- $\Delta t=180$ s, 30 h forecast range

- June 2024 – January 2025
- 166 meteorological stations

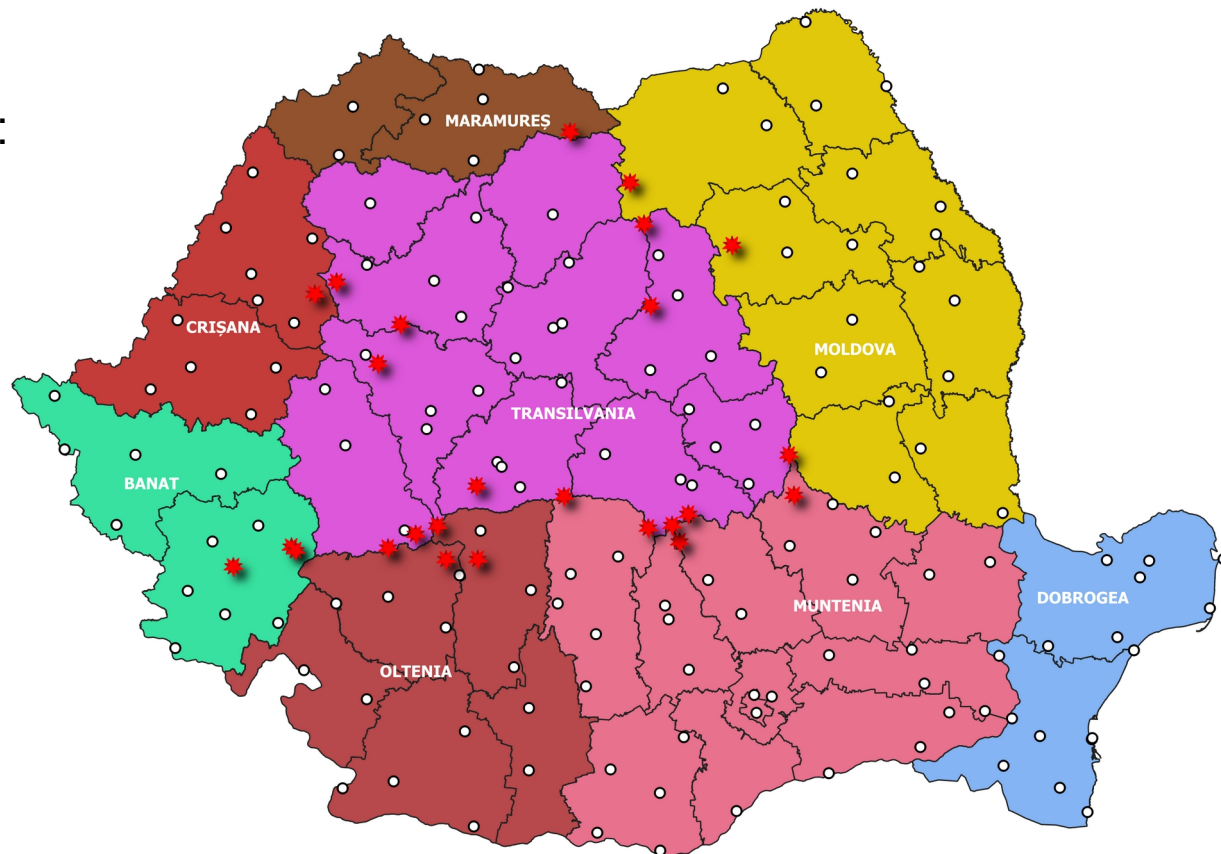


2 m Temperature Verification

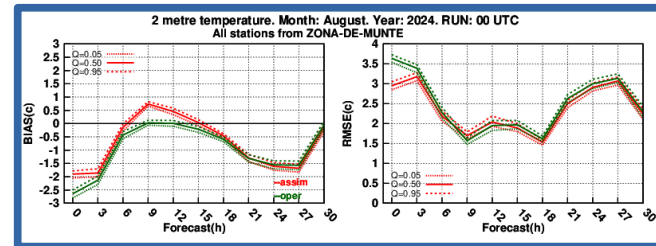
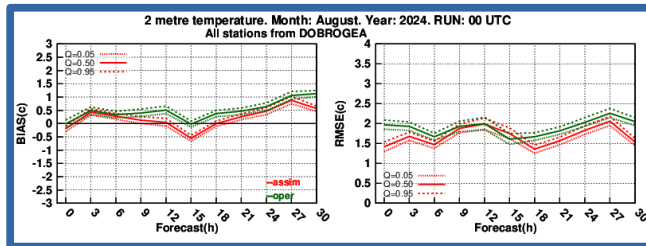
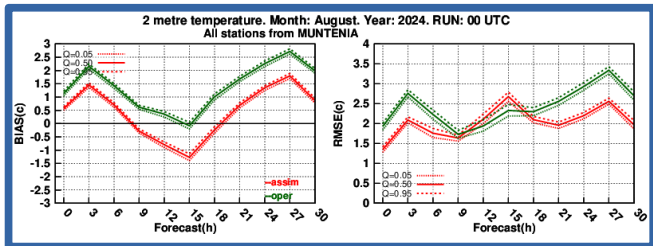
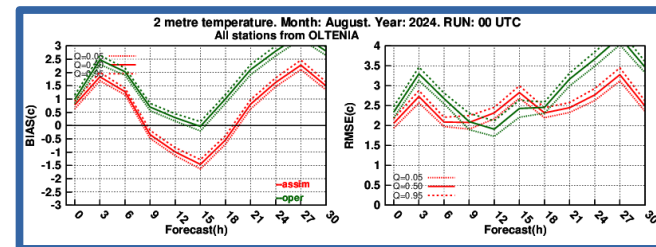
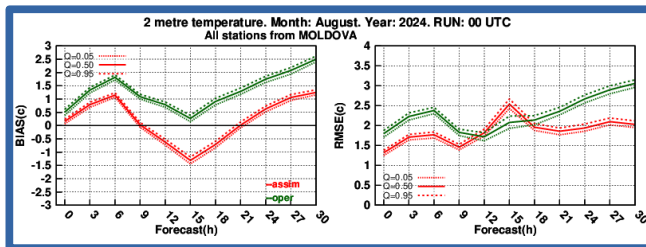
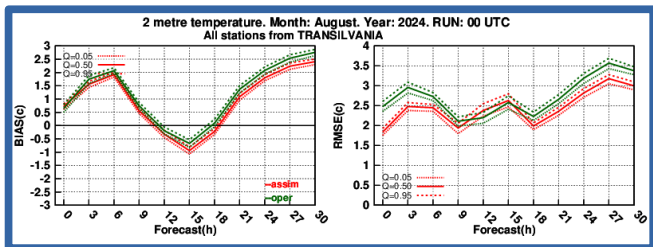
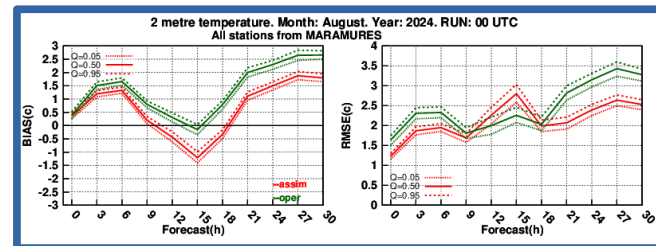
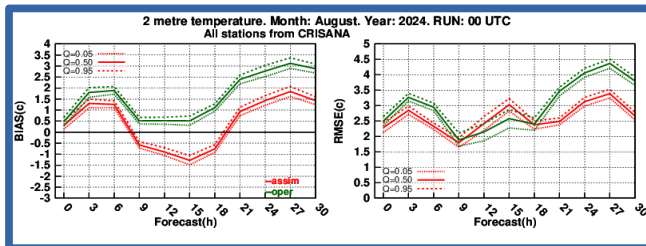
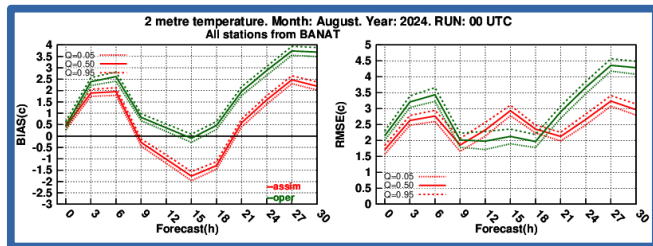
- Scores computed for 9 regions:

+

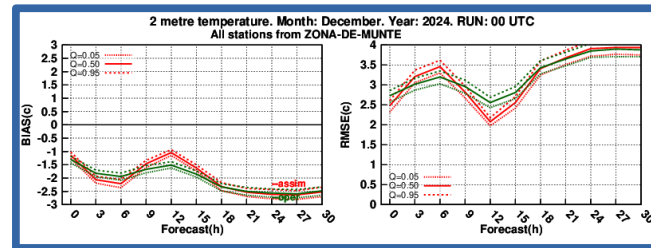
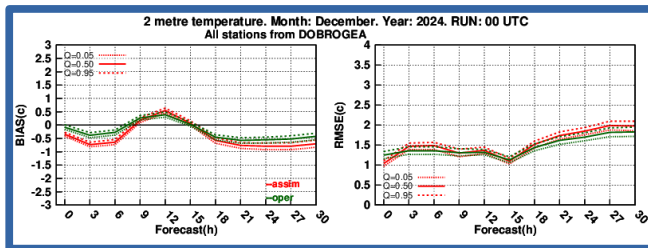
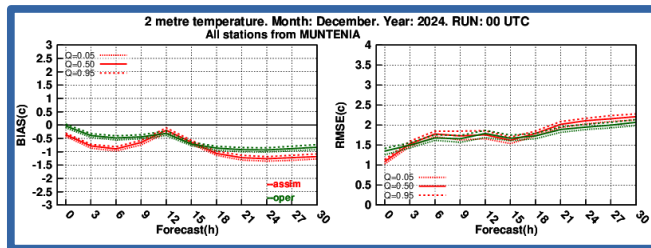
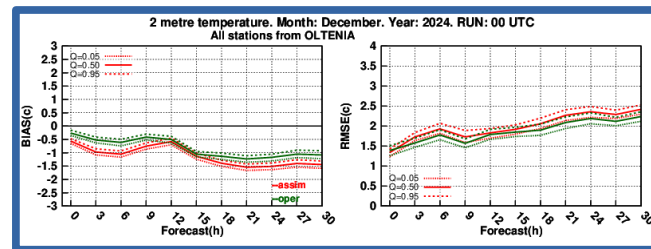
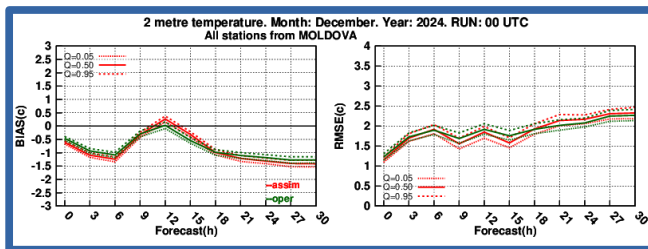
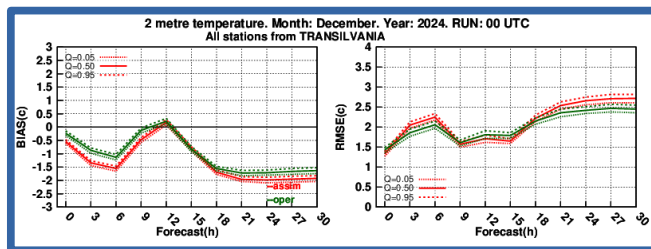
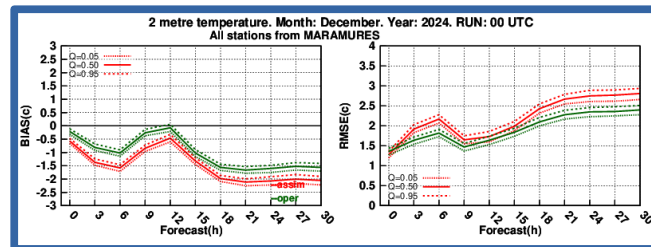
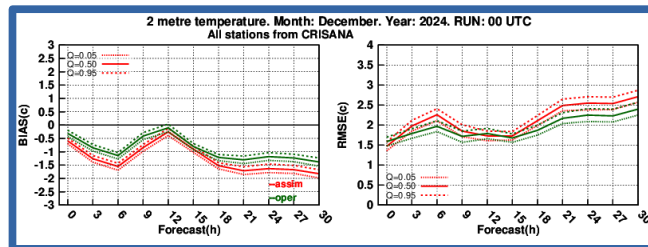
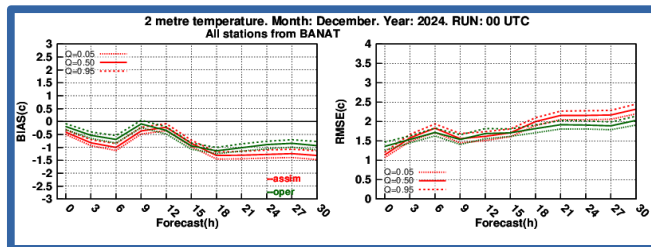
Mountain stations (red stars)



Regional scores for 2 m temperature – August 2024

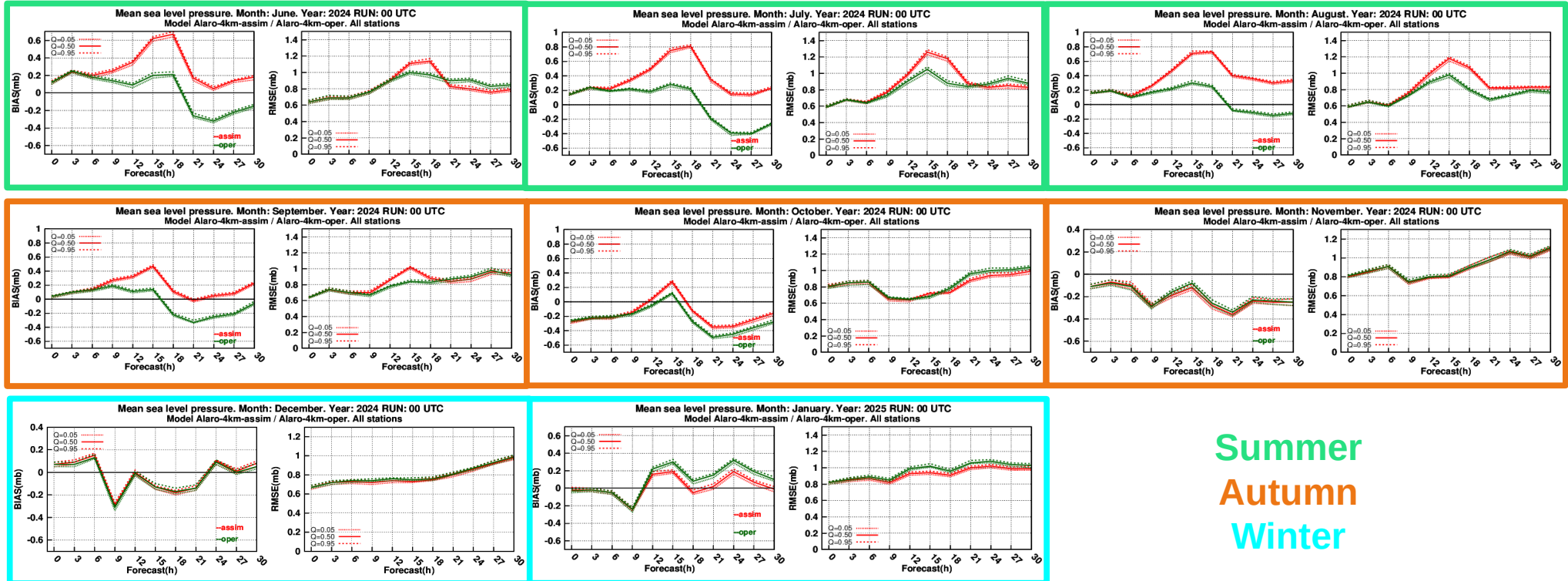


Regional scores for 2 m temperature – December 2024



Mean sea level pressure, June 2024 – January 2025

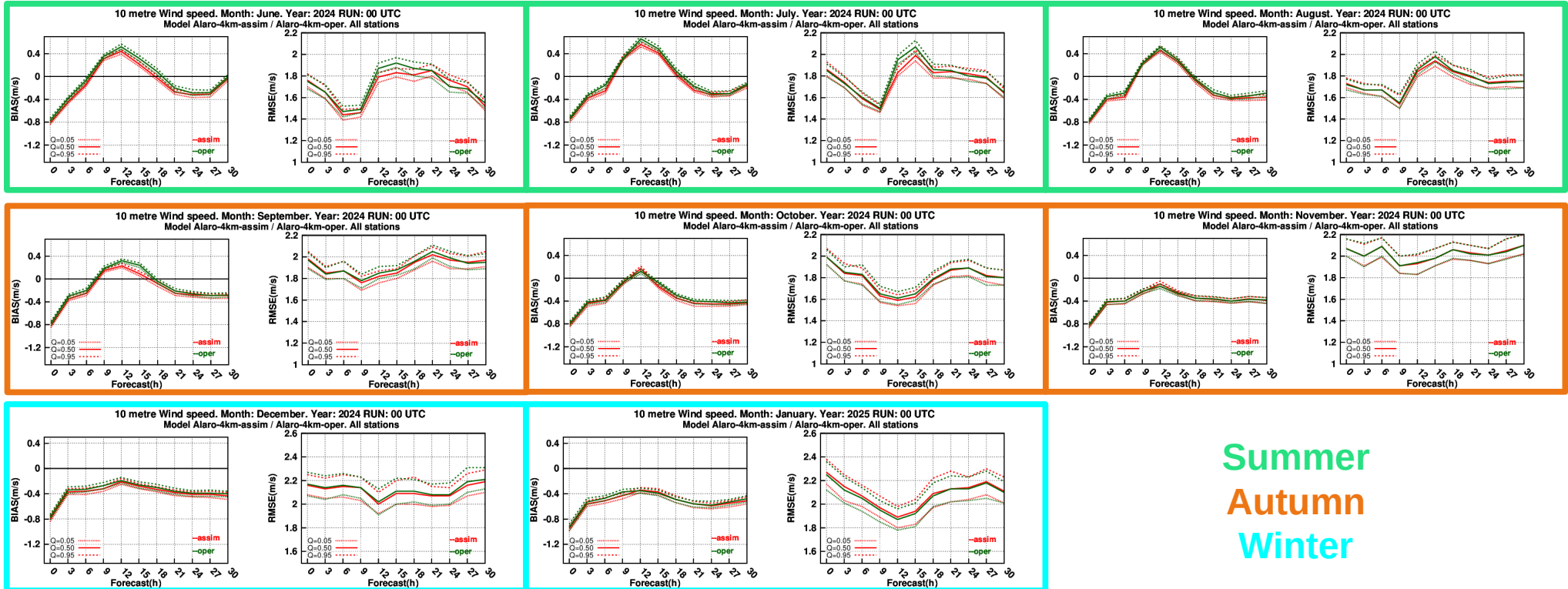
ASSIM **OPER**



Summer
Autumn
Winter

10 m Wind Speed, June 2024 – January 2025

ASSIM OPER



Summer
Autumn
Winter

Plans

- ✓ Migration and tests on new computer nodes
 - work was delayed
 - *floating point exception* error for random runs, disappears usually after one or more reruns
 - solved with older libraries
- ✓ Operational data assimilation
 - continue the verification for other parameters
- ✓ Compilation of cy46

*Regional Cooperation for
Limited Area Modeling in Central Europe*



Thank you for your attention.

