43rd EWGLAM & 28th SRNWP Meeting, 27 September - 01 October 2021, video-conference

ACCORD
A Consortium for COnvection-scale modelling Research and Development

NWP activities in Romania

Alina Dumitru[1], Simona Taşcu[1], Alexandra Crăciun[2,1], Mihaela Neacşu[1]

[1]National Meteorological Administration, Romania

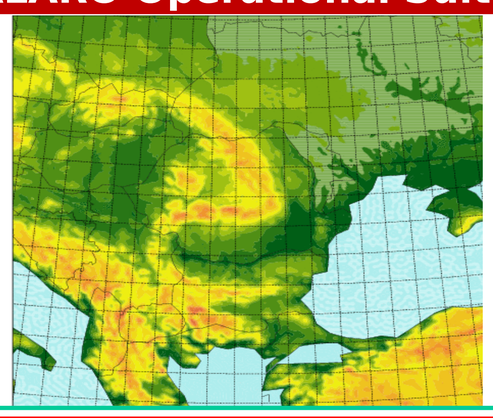
[2]University of Bucharest, Faculty of Physics, P.O.MG - 11, Romania

aladin@meteoromania.ro

LACE nwp central europe

METEO ROMÂNIA

ALARO Operational Suite



Characteristics

- cy43t2 – **ALARO-0 baseline**;
- semi-implicit semi-Lagrangian 2TL, Δt=240 s;
- Δx=6.5 km, 240 x 240 points, 60 vertical levels, linear grid, Lambert projection;
- LBC from ARPEGE (3h frequency), DFI Initialization;
- 4 runs /day 00, 06, 12, 18 UTC - no DA;
- forecast range: 78/54/66/54 hours;
- physical parameterizations : ALARO-0 including developments concerning thermodynamics adjustment, microphysics, moist deep convection.

Downstream applications

Atmospheric input from ALARO for:
- hydrological model
- wave model

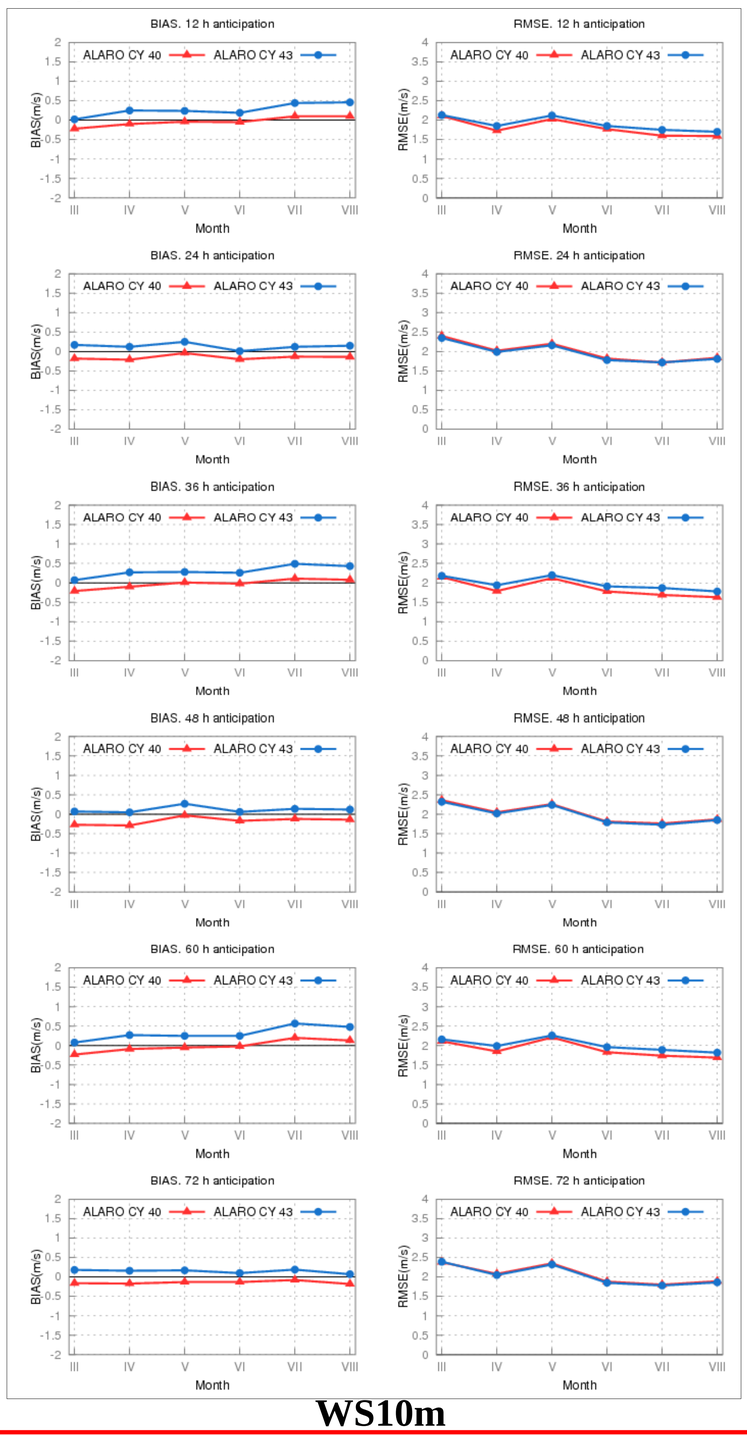
Post-processing
FULLPOS in line – geographical grid (0.06° x 0.085°)

Visualization
- Graphics based on package developed within NMA and RC-LACE, based on grib_api, perl and NCL-NCAR

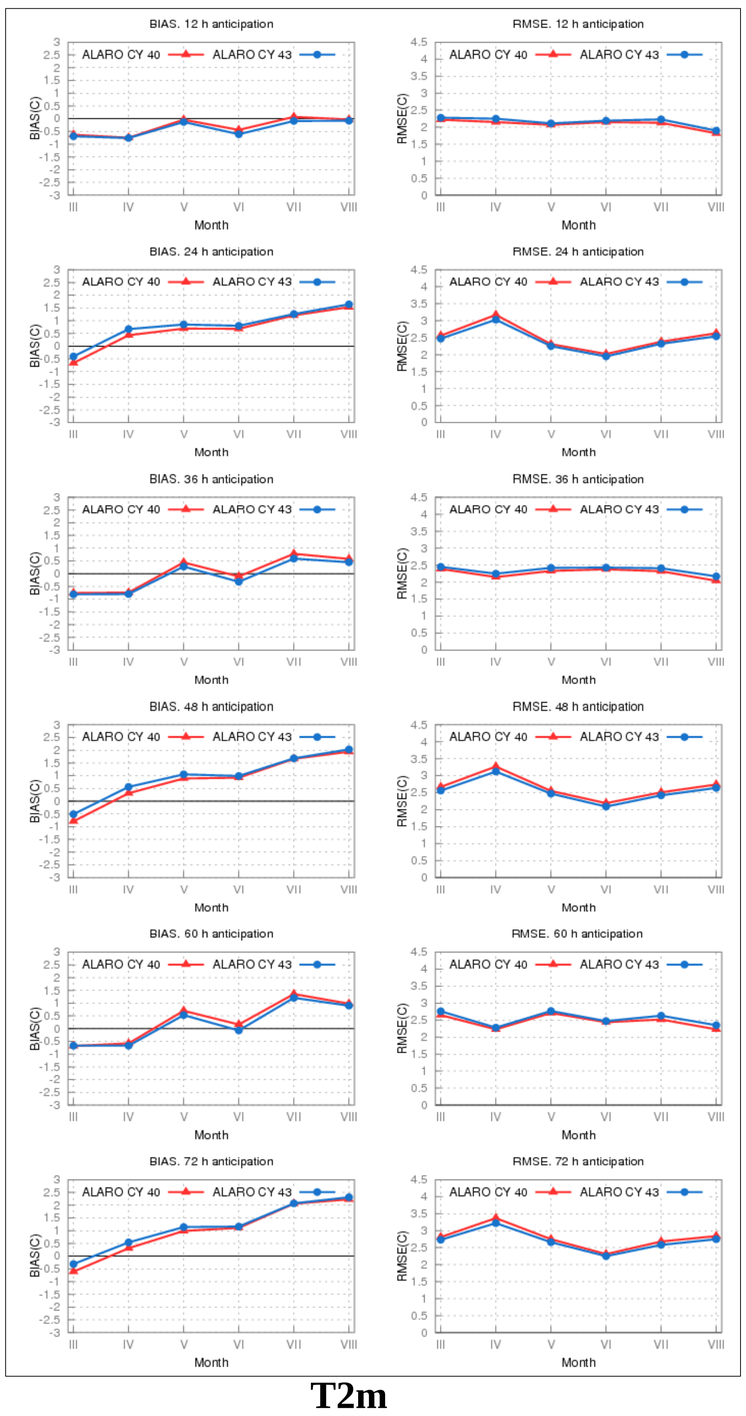
Statistical Adaptation Verification

Forecast validation: cy40 - cy43

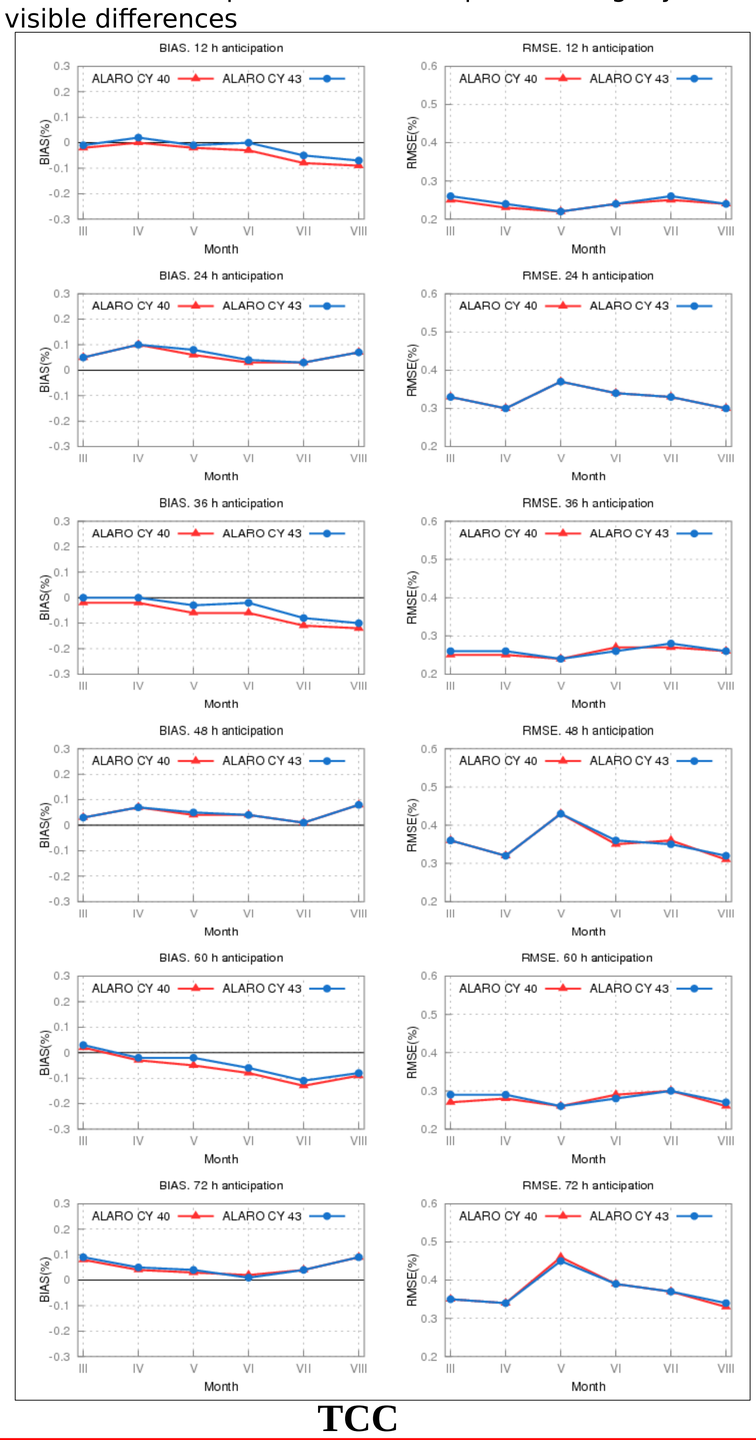
- observation data from 157 synoptic stations
- monthly statistical scores for WS10m, T2m, TTC, MSLP, PREC6h
- six month period: March – August 2020
- 00 UTC run, 12, 24, 36, 48, 60 and 72 forecast ranges
- the scores (BIAS and RMSE) are similar between the two model versions
- for 10 m wind speed and 2 m temperature slightly more visible differences



WS10m



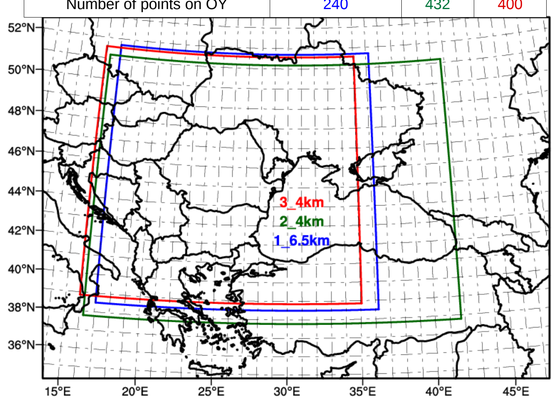
T2m

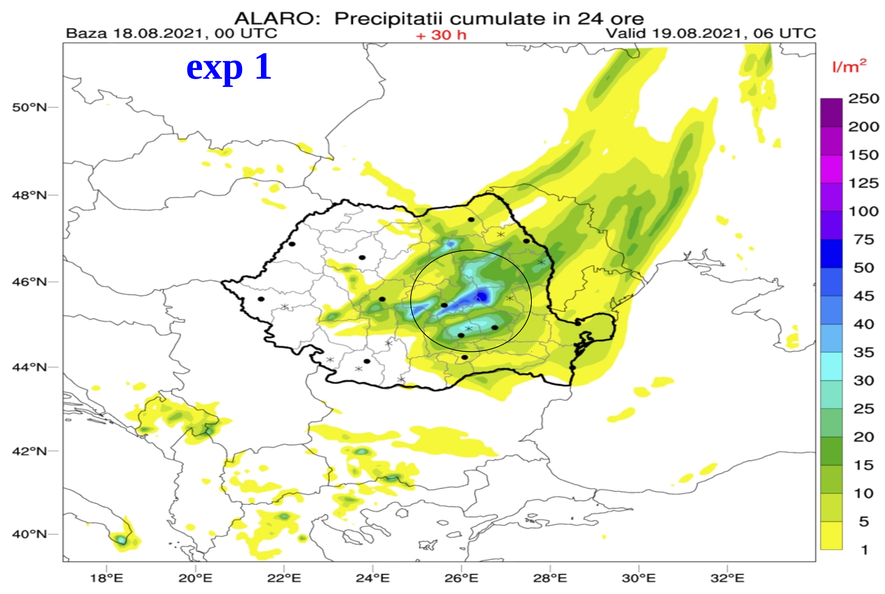


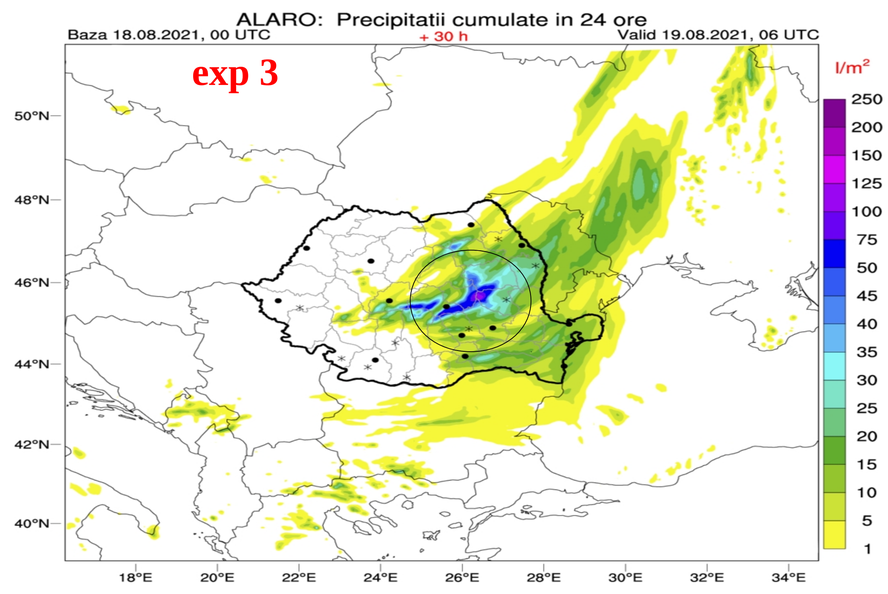
TCC

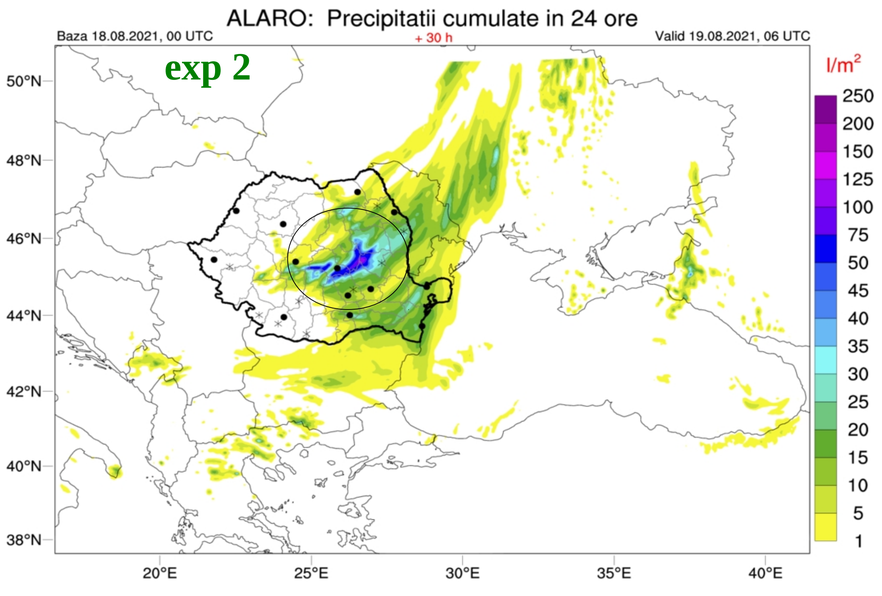
Preparation of the new operational version

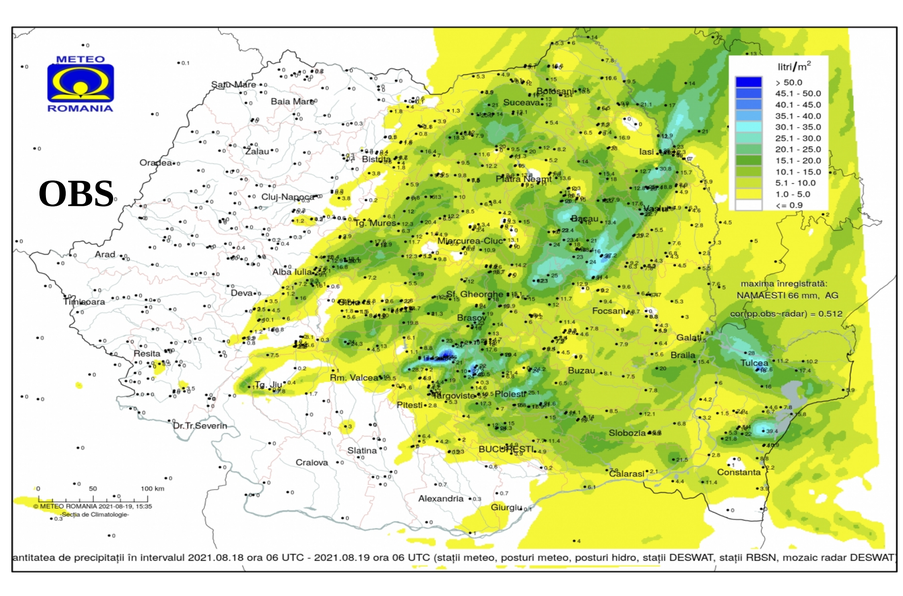
Name of experiment	exp 1 (oper)	exp 2	exp 3
Horizontal resolution	6.5 km	4 km	4 km
Number of points on OX	240	600	450
Number of points on OY	240	432	400











18th of August 2021, PREC24h

The presented results were obtained from the operational version (exp 1) and new domains at 4 km horizontal resolution and 60 vertical levels (exp 2 and exp 3).

The 4 km horizontal resolution experiments are based on ALARO-1vb, the operational is based on ALARO-0 baseline.

The amount of precipitation (black circle) is overestimated in the experiments at 4 km resolution.

The overall precipitation pattern in the south-eastarn part of Romania is better captured by the forecast of exp 2 (bigger domain at 4 km resolution).