

ALADIN activities in Romania

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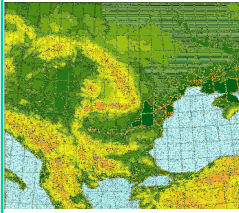
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Special thanks to Doina Banciu for her guidance in numerical weather prediction to all ALADIN-RO members.

ALARO Operational Suite



Characteristics

- semi-implicit semi-Lagrangian 2TL; $\Delta t=240$ s
- physical parameterizations: **ALARO-0 baseline** including last developments from 2012 concerning thermodynamics adjustment (dependency of critical relative humidity on the model resolution for Xu - Randall adjustment), microphysics (sedimentation of cloud water and ice) moist deep convection (modulation of the entrainment rate by the vertical integral of relative humidity, adaptive detrainment, mixed type of closure)

$\Delta x=6.5$ km; 240 x 240 points
60 vertical levels; Linear grid
Lambert projection

Downstream applications

- Atmospheric input for:
 - Hydrological model: from ALARO-ROMANIA
 - Wave model: from ALADIN

LBC from ARPEGE, 3h frequency ;
DFI Initialization;
4 runs /day 00, 06, 12, 18 UTC - no DA ;
Forecast range: 78/54/66/54 hours

Post-processing and visualization

FPOS:

- cy36t1 : in line - geographical grid ($0.1^\circ \times 0.125^\circ$)
- **new cy40t1 : in line - geographical grid ($0.06^\circ \times 0.085^\circ$)**

- off line - model grid

Graphics:

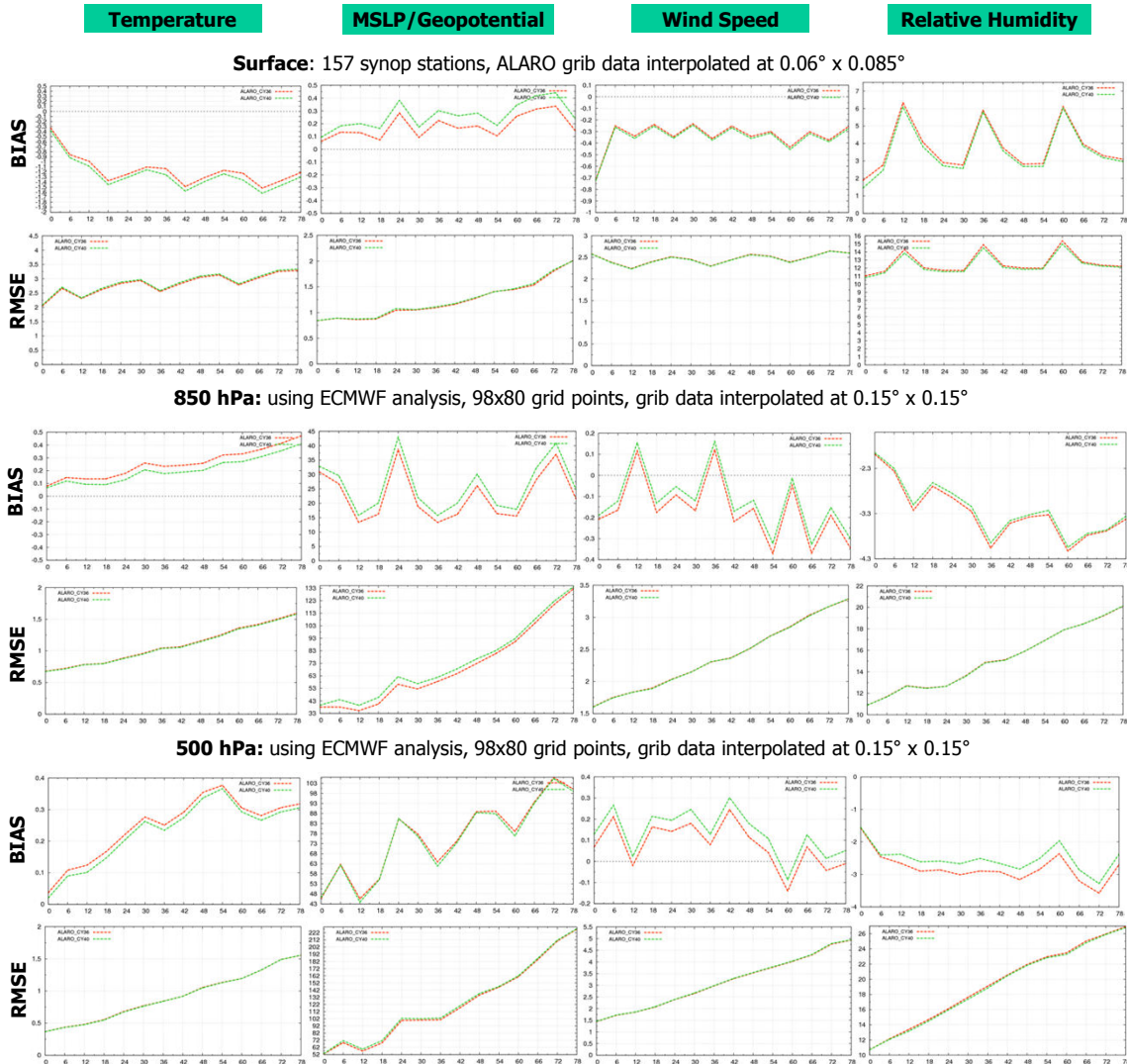
- cy36t1 - graphics based on Magics and Metview
- cy40t1 - graphics based on new package developed within NMA and RC-LACE, based on grib_api, perl and ncl-ncar

Statistical Adaptation Verification

Implementation and validation of ALARO version cy40t1-bf05

*Many thanks to RC-LACE support, and also to Oldrich Spaniel for the help provided with implementation

05.11.2015 – 25.01.2016, run 00 UTC



• scores (bias and rmse) are comparable for cy36 and cy40, rmse being almost identical for the two versions

• for surface parameters, in general cy36 shows slightly better results

• for upper levels (850 and 500 hPa), most parameters are better simulated with cy40

• operational from 1st of April

B-matrix computation for 3DVar data assimilation with ALARO cy40t1-bf05

*Many thanks to Loik Berre for useful advice

- $\Delta x=6.5$ km; 60 vertical levels
- ensemble method was used for differences of 6h ALARO forecast downscaled from 2 ARPEGE ensemble members (AEARP)
- ALARO 6h forecasts valid at 00 and 12 UTC

• climatological B matrix for summer period 01.06.2015 – 31.08.2015

• in total, 184 forecast differences; IC and 3h LBC coupling from ARPEGE ensemble

• after these initial results, the next step is to perform 3DVar assimilation tests in order to tune the background errors

