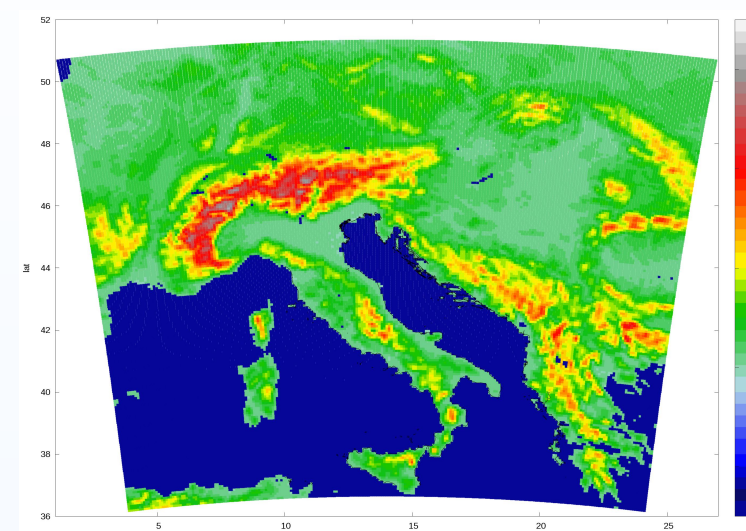




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Model domains

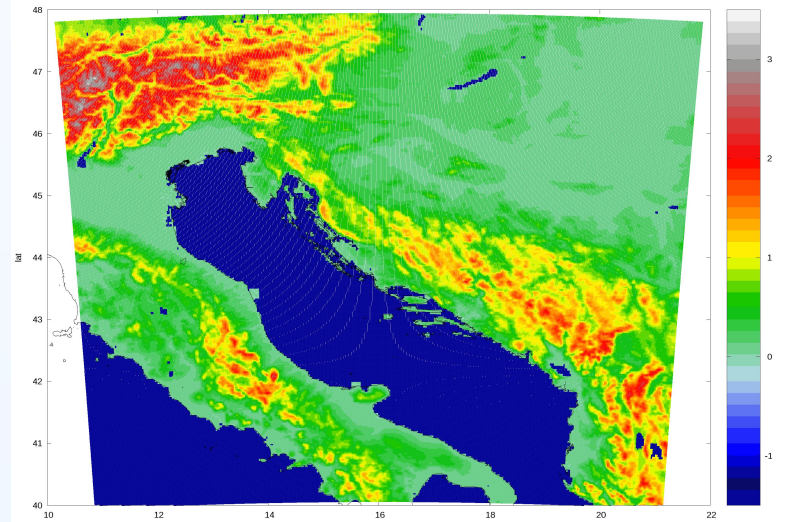


ALADIN HR domain

- 8km horizontal resolution
- 37 levels
- 229x205 (240x216) grid points
- CY38T1 ALARO0 baseline
- 72 hours forecast, 1-3 hourly output; 4 runs per day

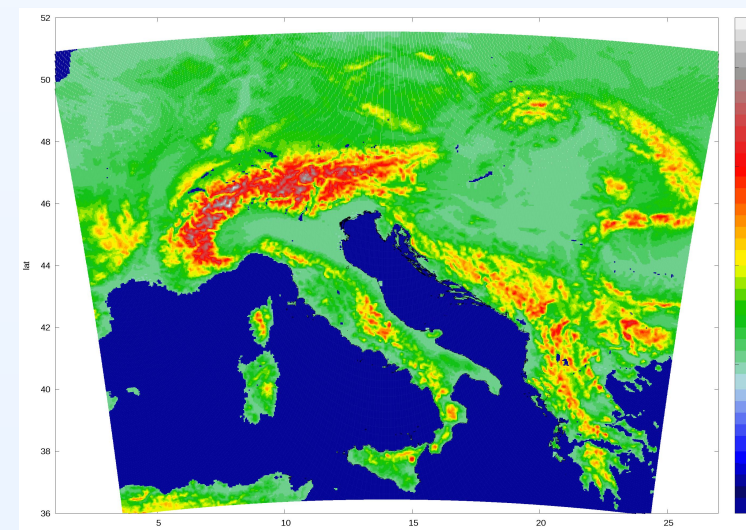
HRDA domain

- 2km horizontal resolution: 439x439 (450x450) grid points @15 levels
- 10 m wind forecast; 4 runs per day
- full NH 24hrs forecast @37 and 73 levels for research studies initialized with 6hrs fcst from 00 ALADIN 8km run



ALADIN HR 4

- 4km horizontal resolution; 73 vertical levels
- 469x421 (480x432) grid points
- AL38T1 ALARO0 baseline
- covering the same area as current domain for ALARO with 8km horizontal resolution

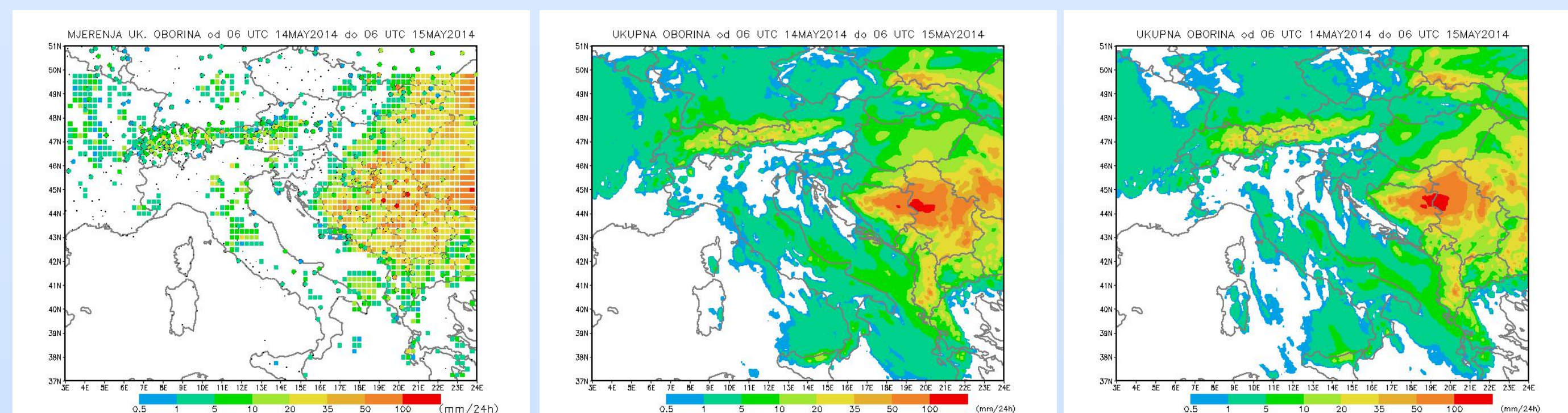


Computer

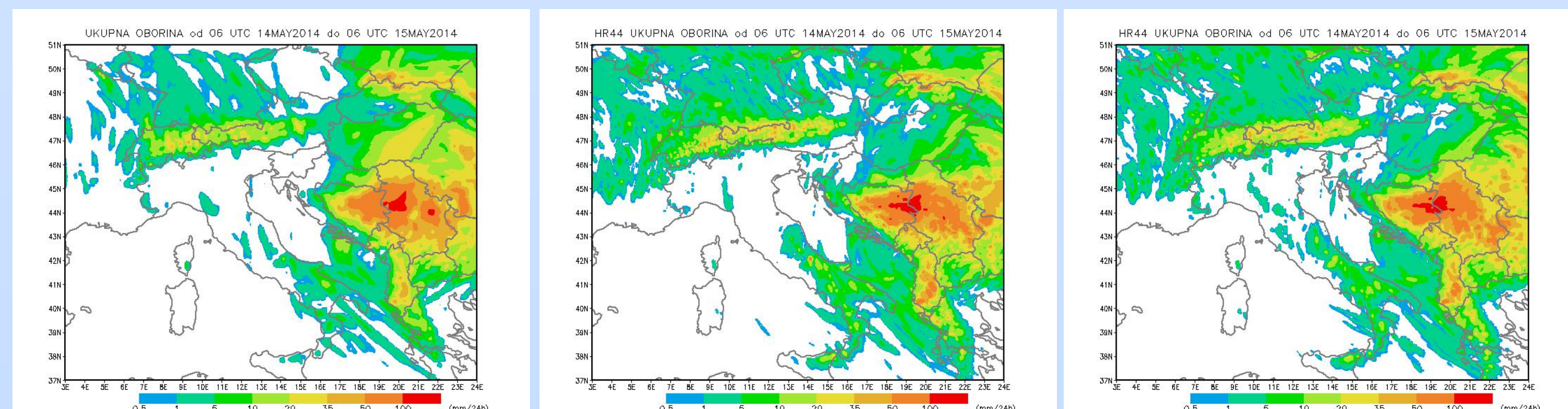
- SGI UV 2000 (shared memory system); 38 Intel Xeon E5 6 core 2,9 GHz 15MB cache CPUs with total 228 cores; 1TB RAM
- upgrade of archive computer (Quantum Scalar i500) performed in March 2015:
 - 35 TB for online archive
 - 80 LTO-6 tapes (~100TB; two copies) for offline archive
 - 126 LTO-4 tapes (~50TB; two copies for backup)

CY38T1 testing

- ALARO0 baseline has been tested using cycle AL38T1 on the domain used for operational forecast with 8km resolution on 37 levels in the vertical
- tests with higher vertical resolution on 73 levels in the vertical and non-hydrostatic dynamics were also performed running 72 hour forecasts for the two whole months, for January and May 2014
- it is intended to replace this operational domain with one in 4km resolution,
- ALARO0 baseline was applied and tested on 37 and 73 levels in the vertical with hydrostatic and non-hydrostatic dynamics
- The standard scores of forecasts in 4km resolution are superior to the 8km forecast

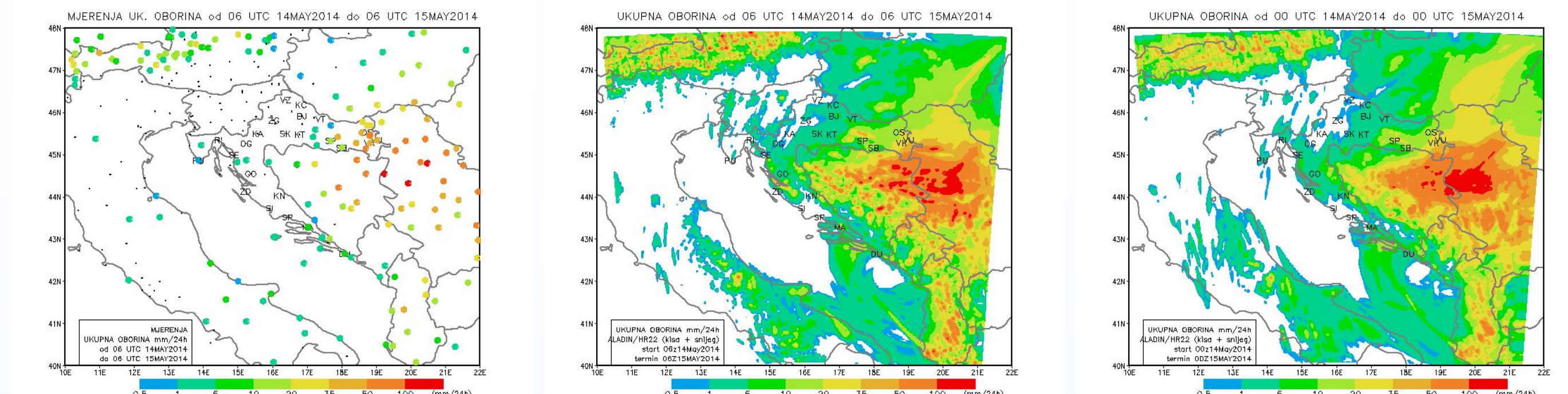


The measured precipitation (left) on raingauges (circles) and estimated from satellite (squares) accumulated during the 24 hours from 6 UTC 14 May 2014, predicted by operational forecast 8km run (center) using CY32T3 starting from the 00 UTC analysis on 14 May 2014 and 00 UTC on 13 (right).



As above for experiment in 8km resolution using ALARO0 baseline in AL38T1 (left), the same for 4km resolution run (center), and an experiment with 4km resolution run with qubic truncation (right).

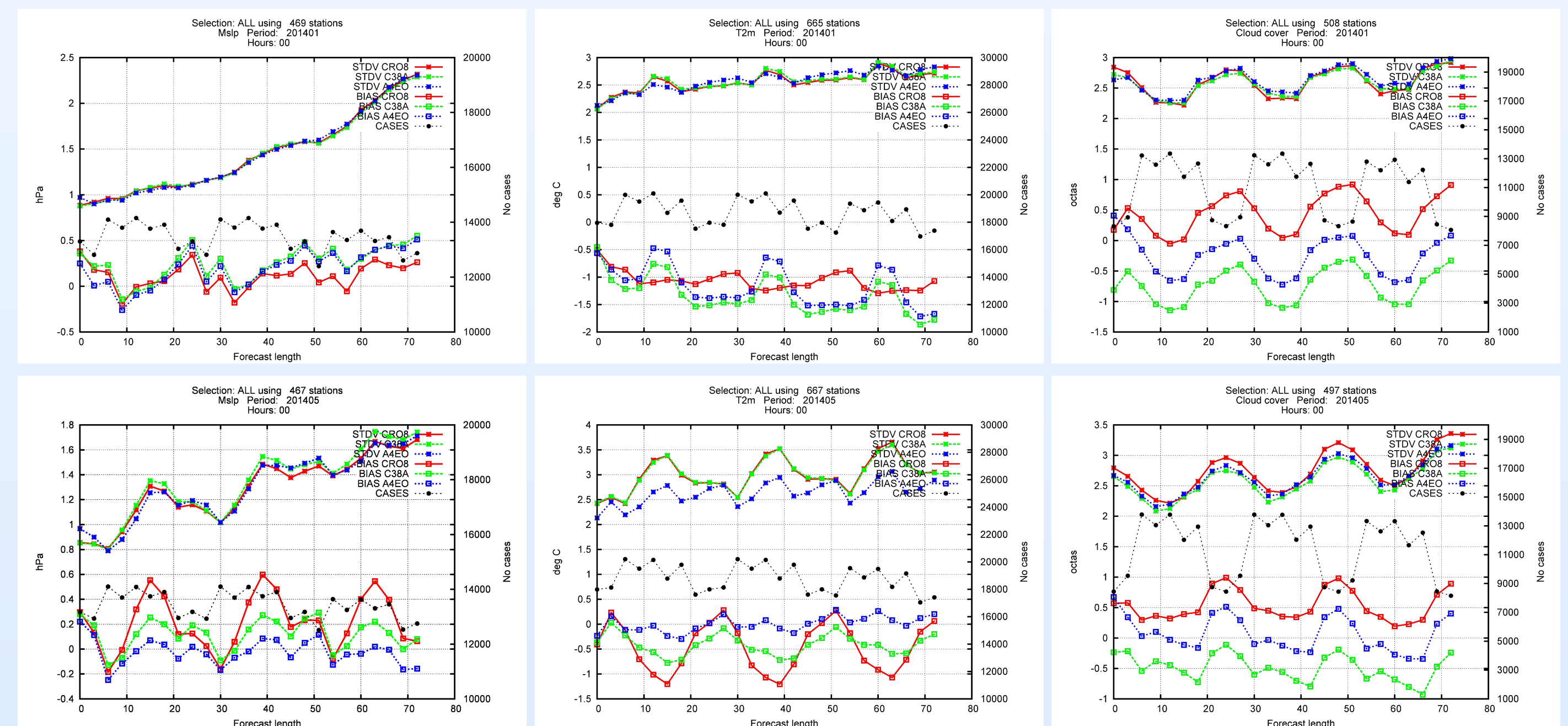
- ALARO0 baseline with CY38T1 was tested on the 2km horizontal resolution nonhydrostatic run
- Here we present the results for a severe rainfall event from May 2014 when floods hit Serbia, Bosnia and Herzegovina and Croatia taking more than 50 lives



The measured precipitation on raingauges (left) accumulated during the 24 hours from 6 UTC 14 May 2014, predicted by operational 2km nonhydrostatic run (center) using CY36T1 and an experiment using cy38T1 (right) with ALARO0 baseline settings.

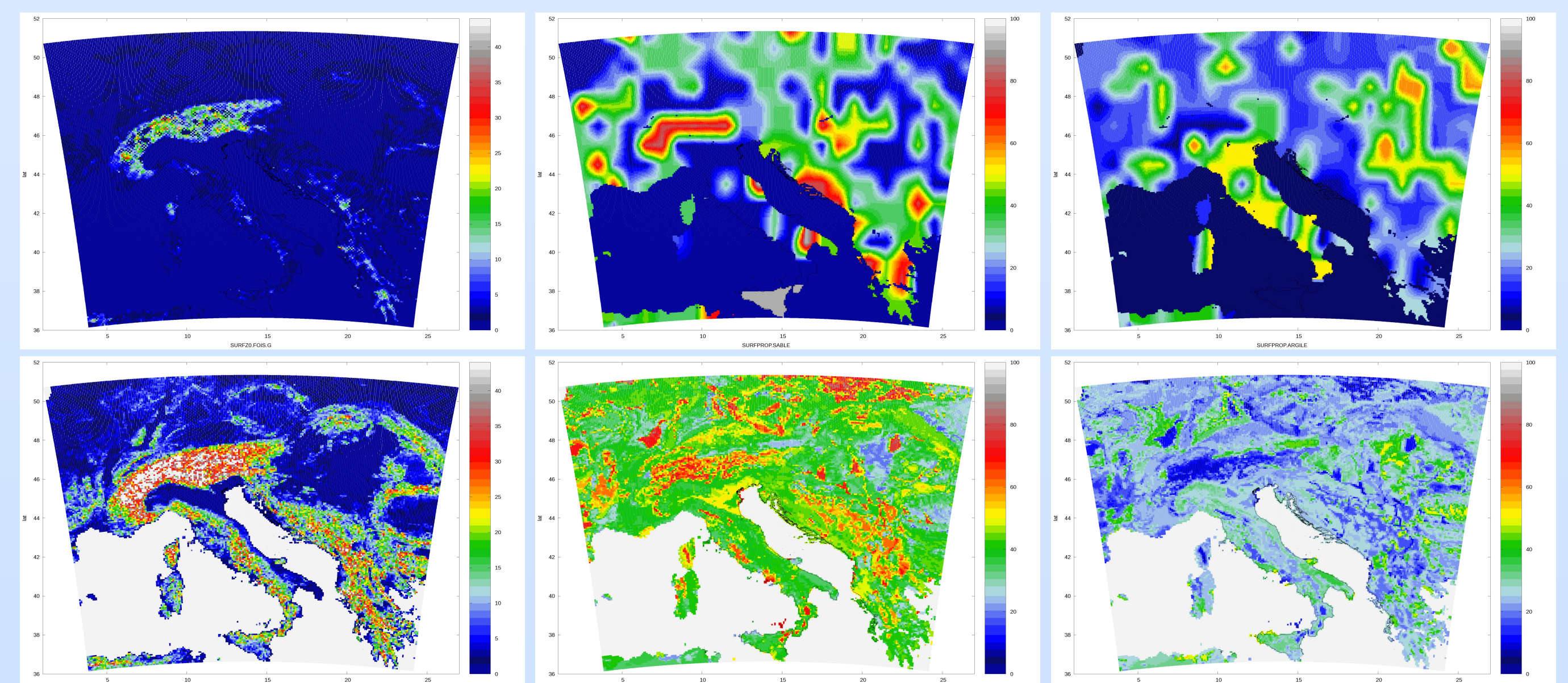
ALADIN 4km

- from the beginning of February ALADIN HR 4km in parallel suite
- coupled to ECMWF in lagged mode
- initial conditions obtained using CANARI for surface analysis and upper air fields are copied from ECMWF
- ongoing task is calculation of B matrix using NMC method
- promising first results

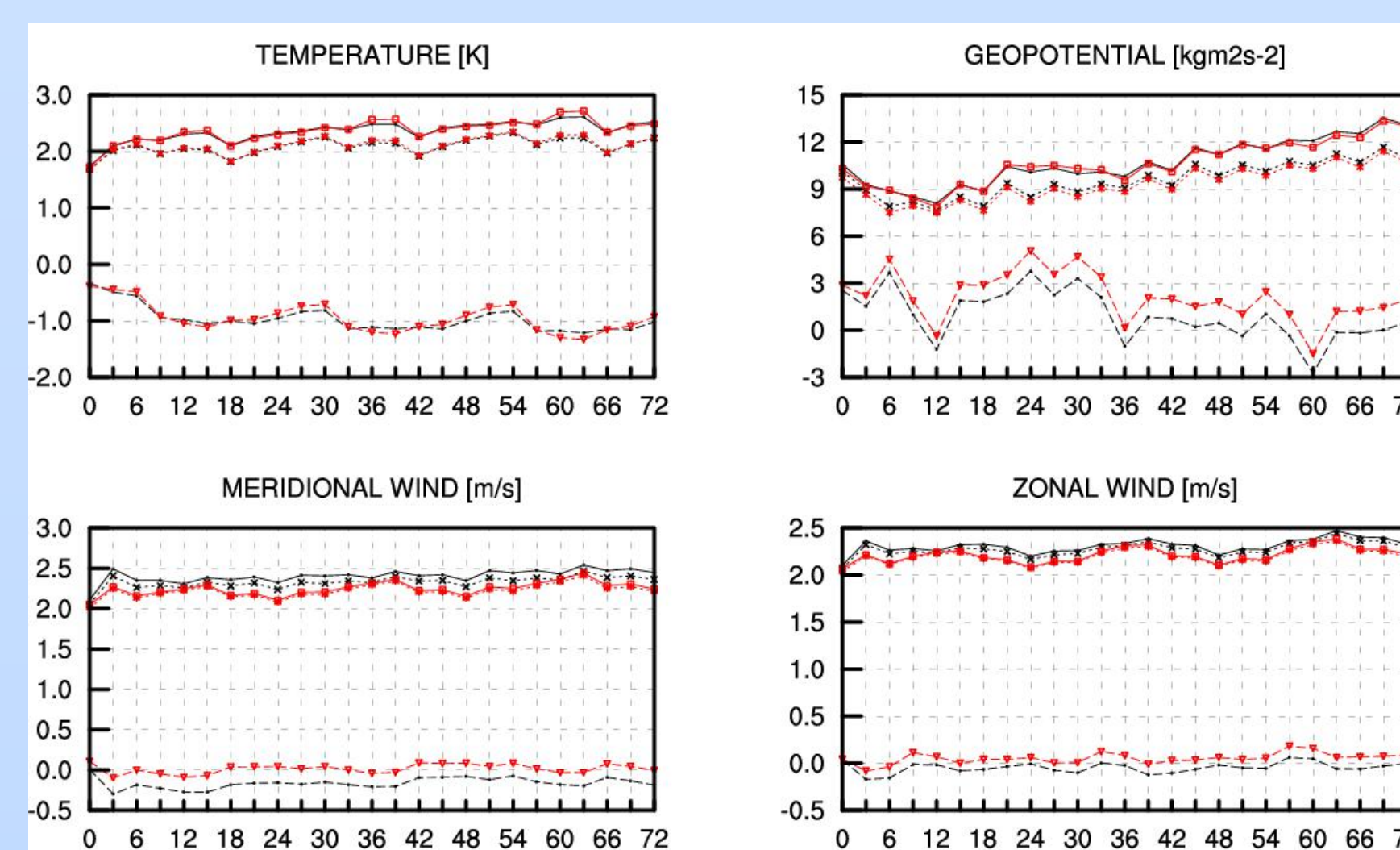


Verification scores versus model lead time obtained by comparison of model results with surface observations coming from GTS. Scores were calculated over ALADIN Croatia domain for January (first row) and May (second row) 2014. Scores for mean sea level pressure (first column), 2m temperature (second column) and cloud cover (third column) are shown.

Testing of alternative database for surface climate fields



Surface roughness length (left) proportion of sand (center) and clay (right) from newly created clim file (top row) and computed using alternative fields from the Surfex file (bottom row).



Standard deviation (short dash), root mean square error (full line) and bias (long dash) for Alaro0 baseline forecast coupled to ARPEGE double suite using newly created clim files (black) and using new clim files with alternative fields for z0, sand and clay (red) for February 2015.