



ALADIN in Poland

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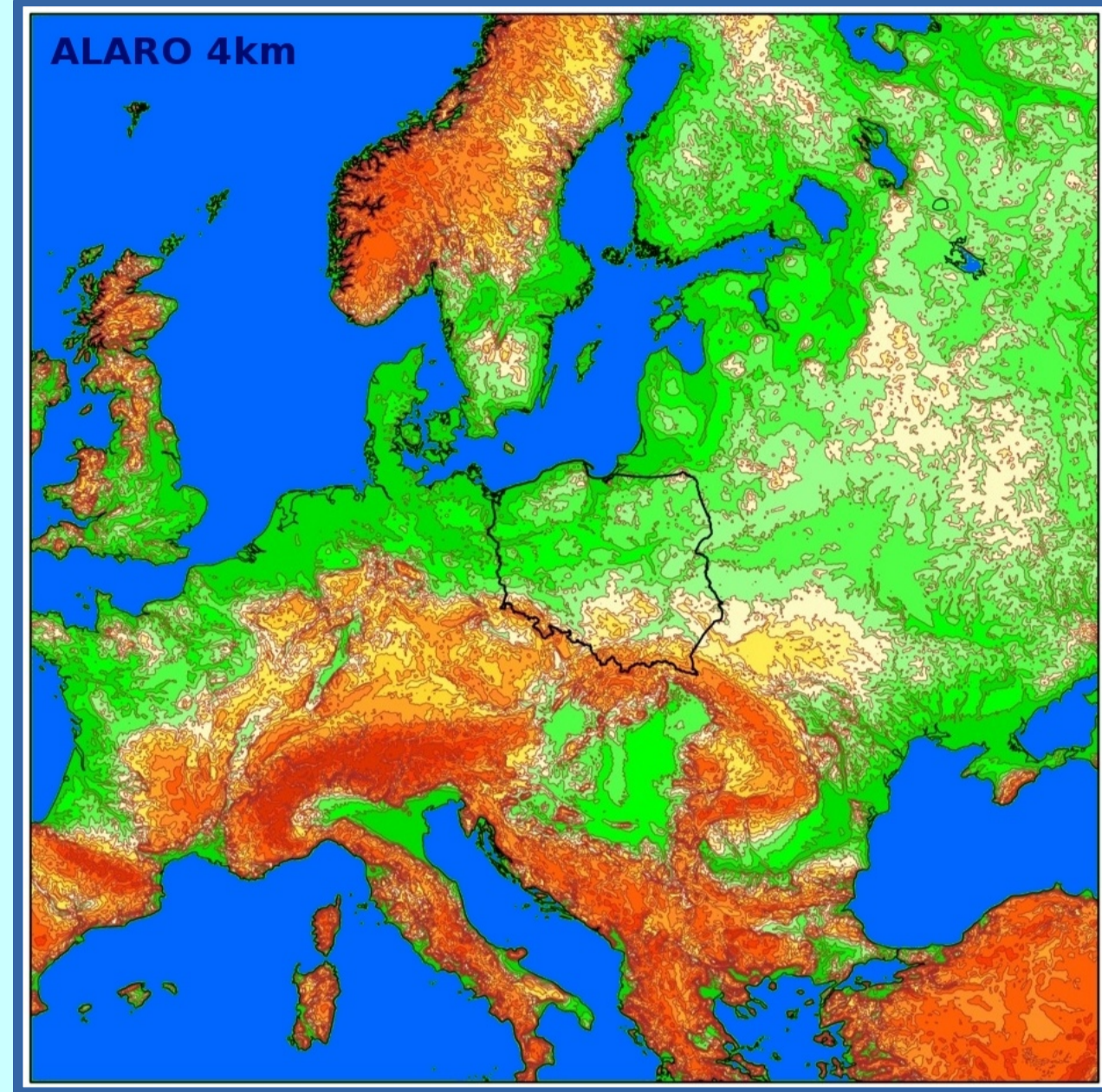
OPERATIONAL

ALARO-1 (CY40T1) Operational Domain:

E040 domain: 4.0 km horizontal resolution, 789x789 grid points, 60 vertical model levels on a Lambert projection with 3h coupling frequency and 3h output, coupling zone with 16 points; Runs 4 times per day (00,06,12 and 18) with 66 hours forecast range; LBC from ARPEGE with 15.7km horizontal resolution;

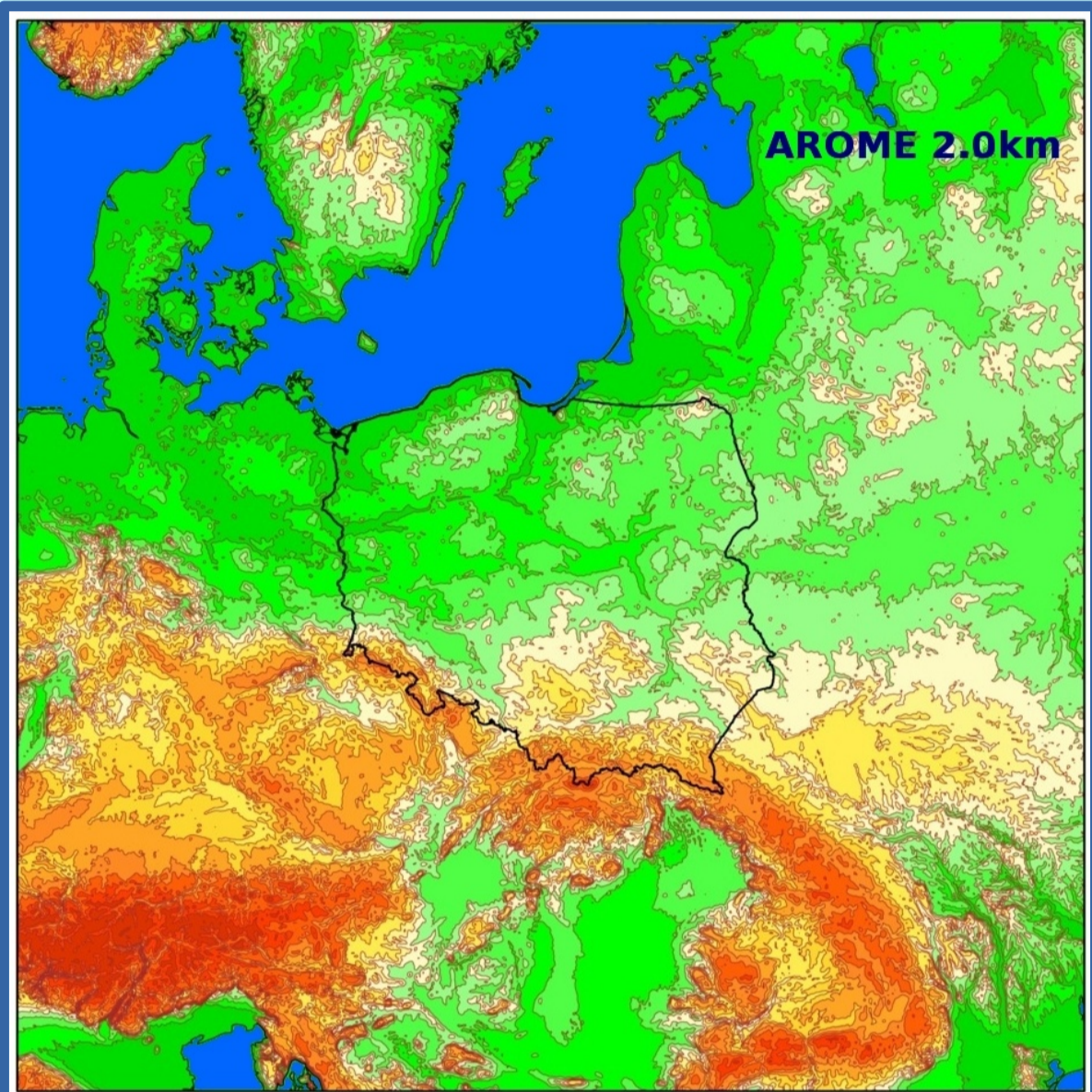
Operational machine characteristics

Cluster of HPBL460c_GEN8 servers connected with Infiniband network, OS Scientific Linux 6, Intel Xeon E5-2690 processors – with maximum 1552 cores (97 nodes with 16 cores each), each core RAM 128 GB, disc array – 64 TB.



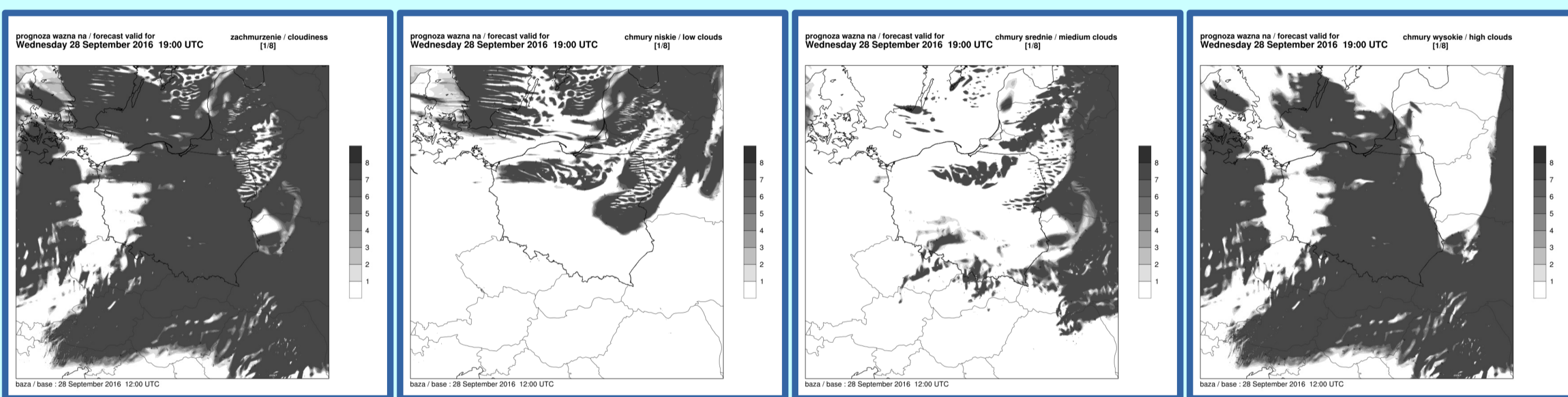
AROME Operational Domain:

P020 domain: 2.0km horizontal resolution, 799x799 grid points, 60 vertical model levels on a Lambert projection with 3h coupling frequency and 1 hour output 2 runs per day (00 and 12UTC) with 30 hours forecast range; LBC from ALARO-1; GRIB format, every 1h – for LEADS system;

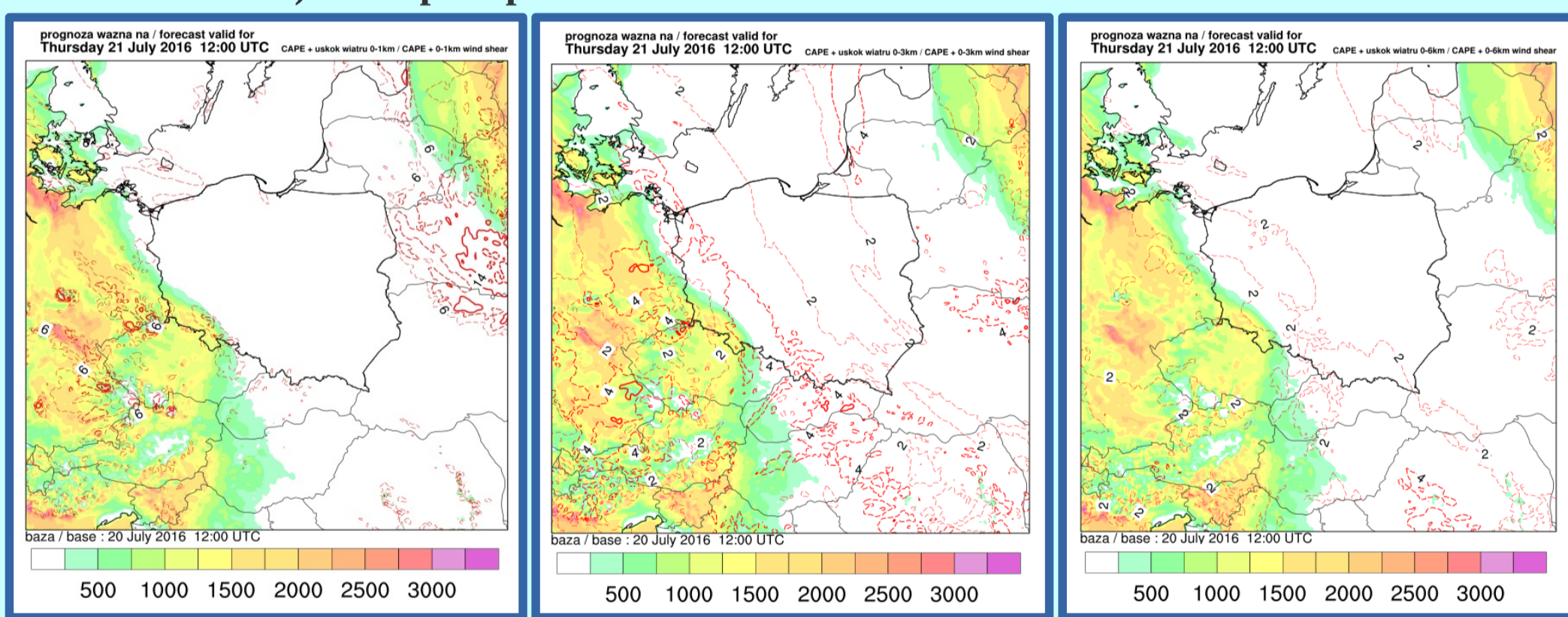


Changes in maps

Below there are some examples of AROME and ALARO-1 CY40T1 cloudiness forecasts. We decided to not use smoothing on that fields, as we loose eg. shallow convection features on maps especially for ALARO-1 ones.

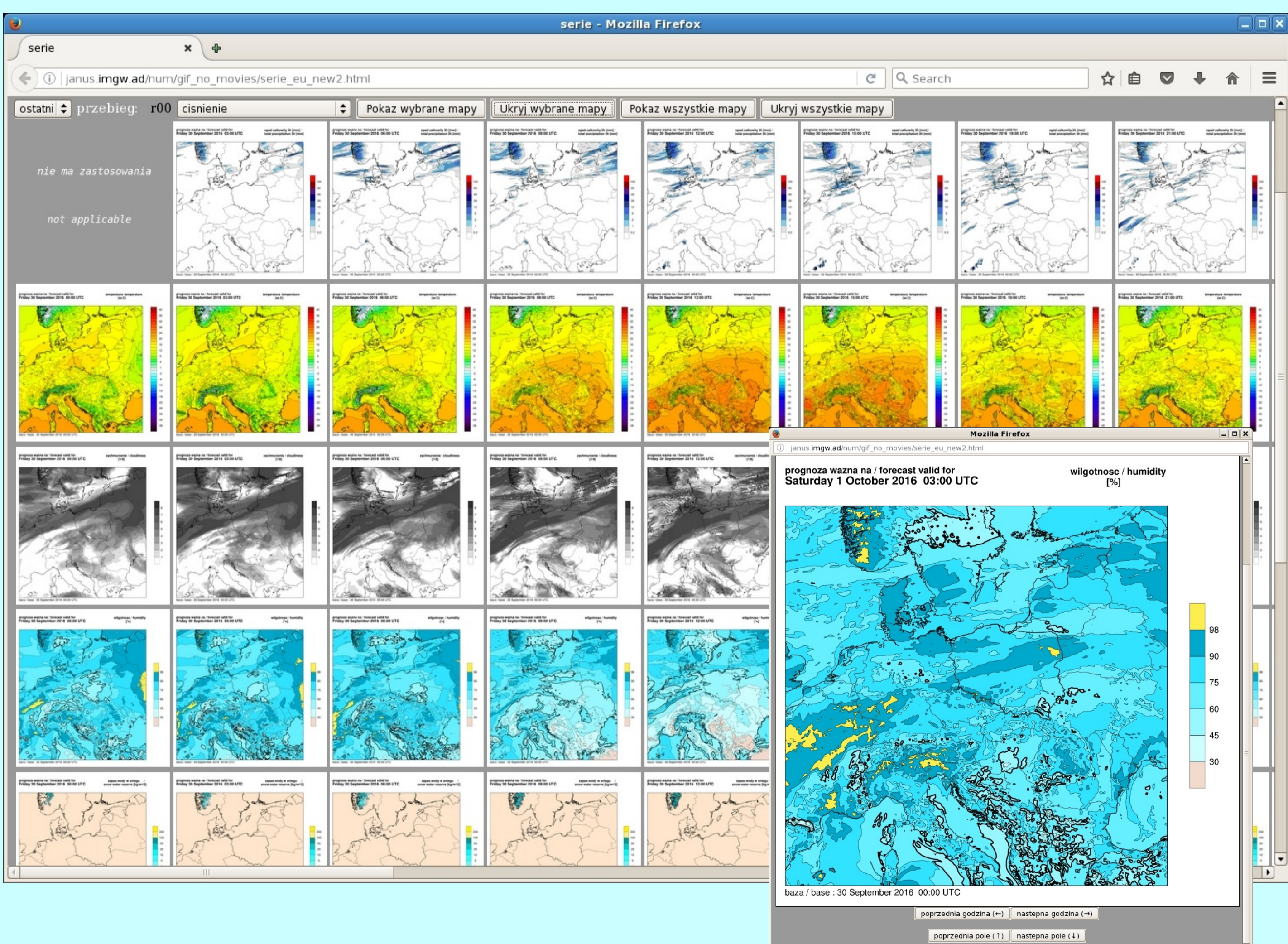


As new season of storms and severe weather is approaching, we were asked to produce common maps for CAPE and Wind Shear (for layers 1, 3 and 6km above ground). Below there are some examples from AROME for case from last year. In contrary to maps above we were “forced” to use smoothing for those combined maps (2 and 3 iterations respectively for CAPE and WS) to keep maps clear and readable.



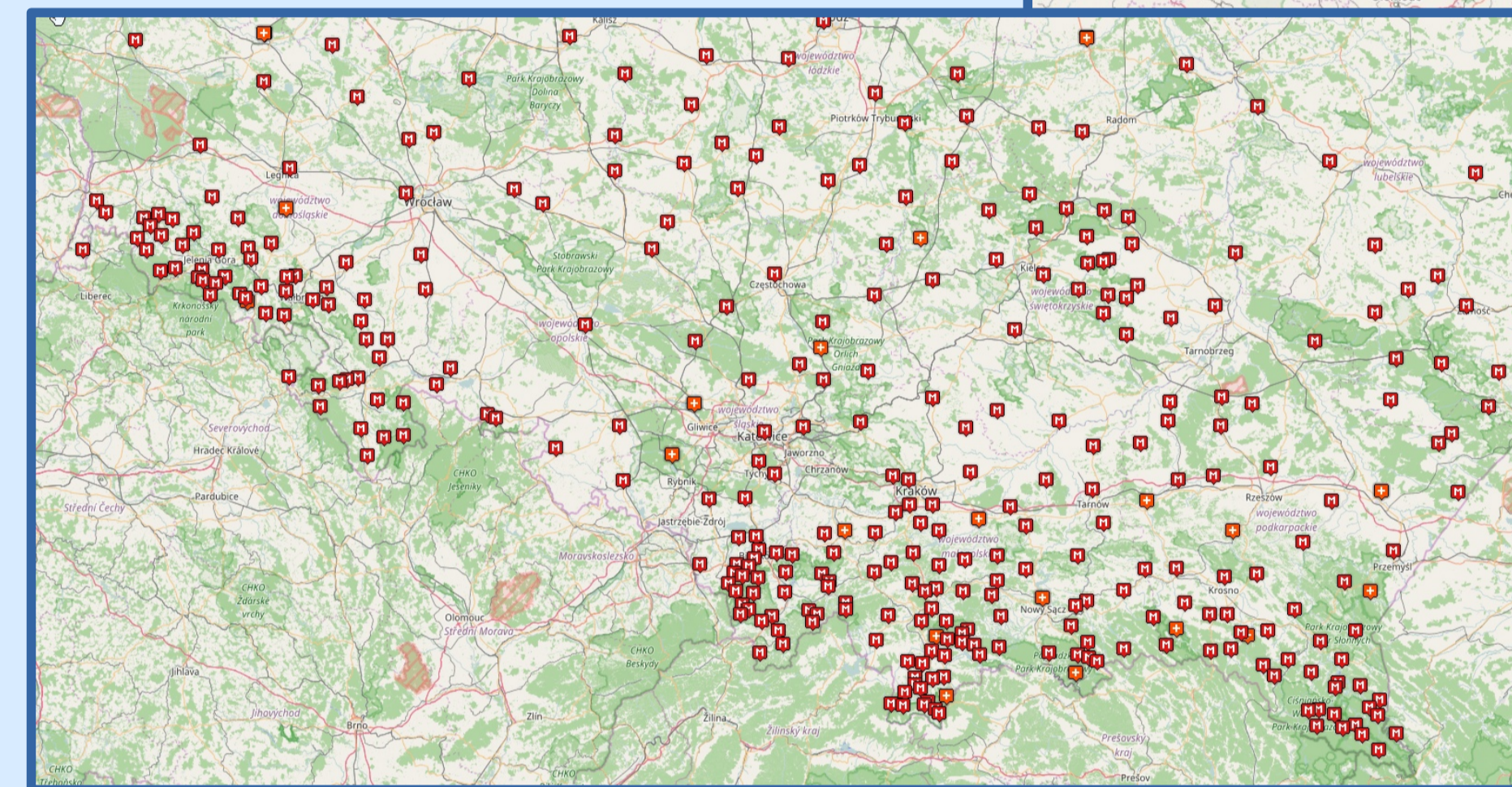
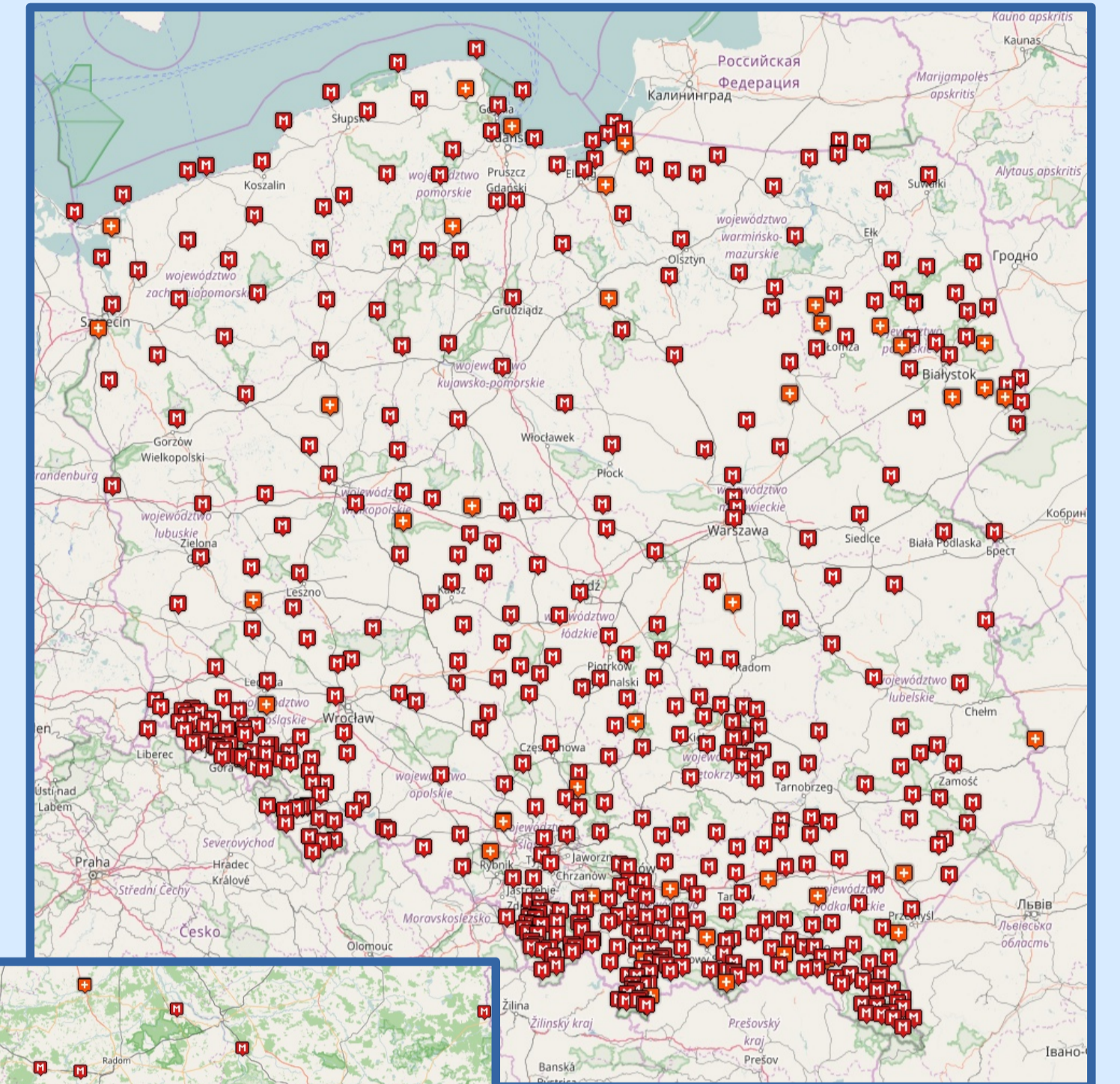
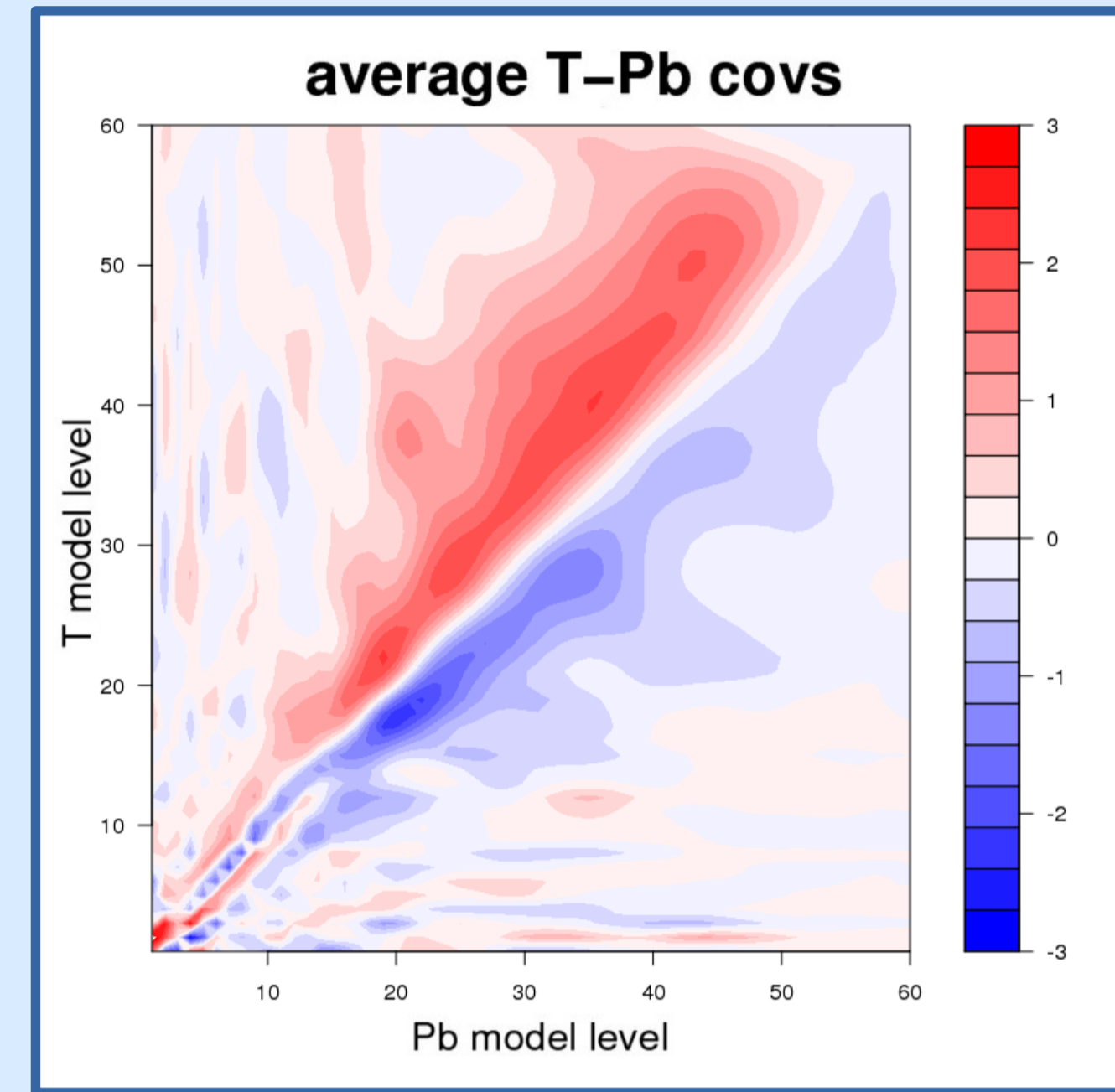
Web site news

As we try to follow ask from Synoptic Division side, the latest change in our web side is the new way of presentation and navigation (with arrow keys) of maps. Below is the example of that.



Assimilation – AROME B matrix

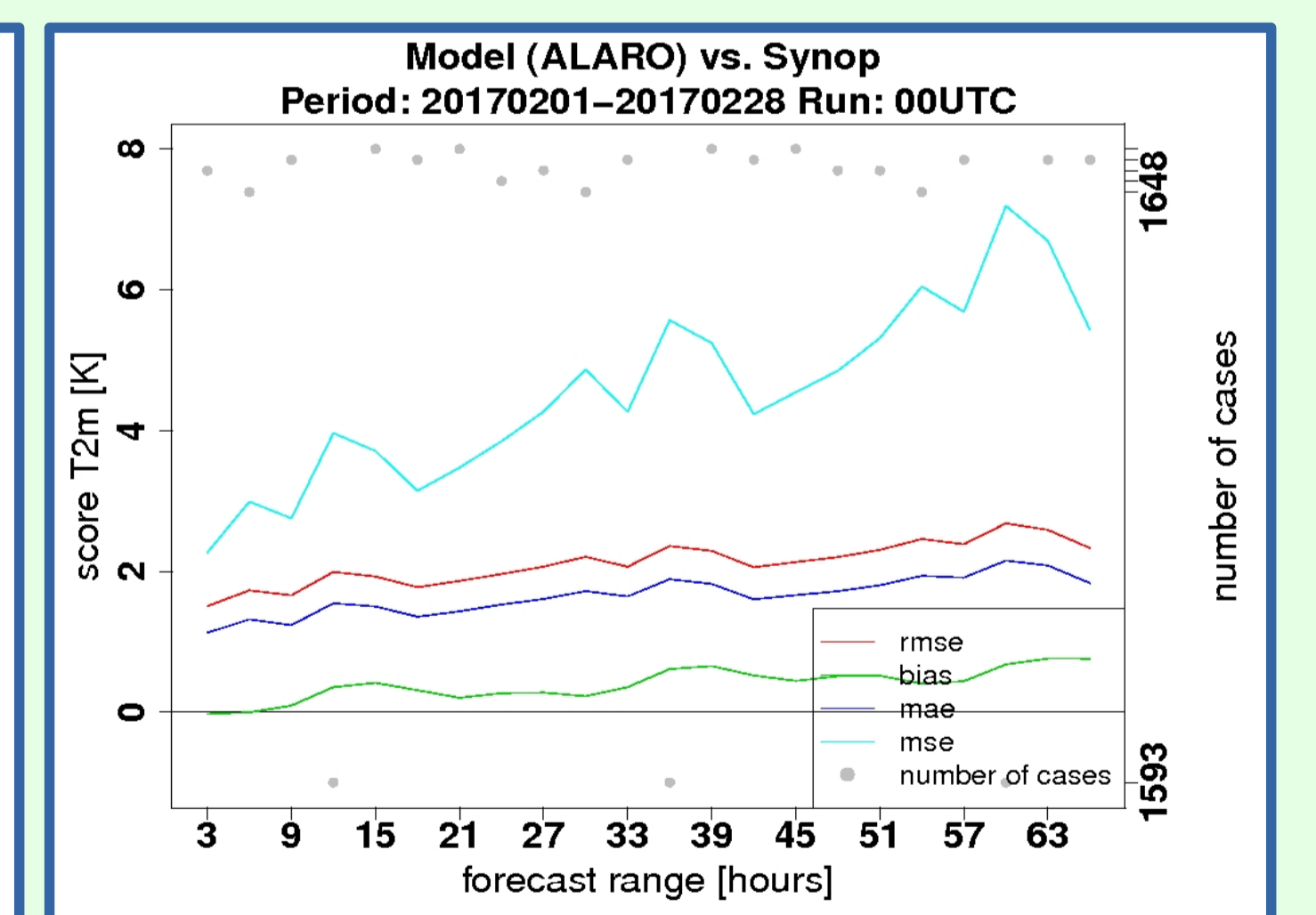
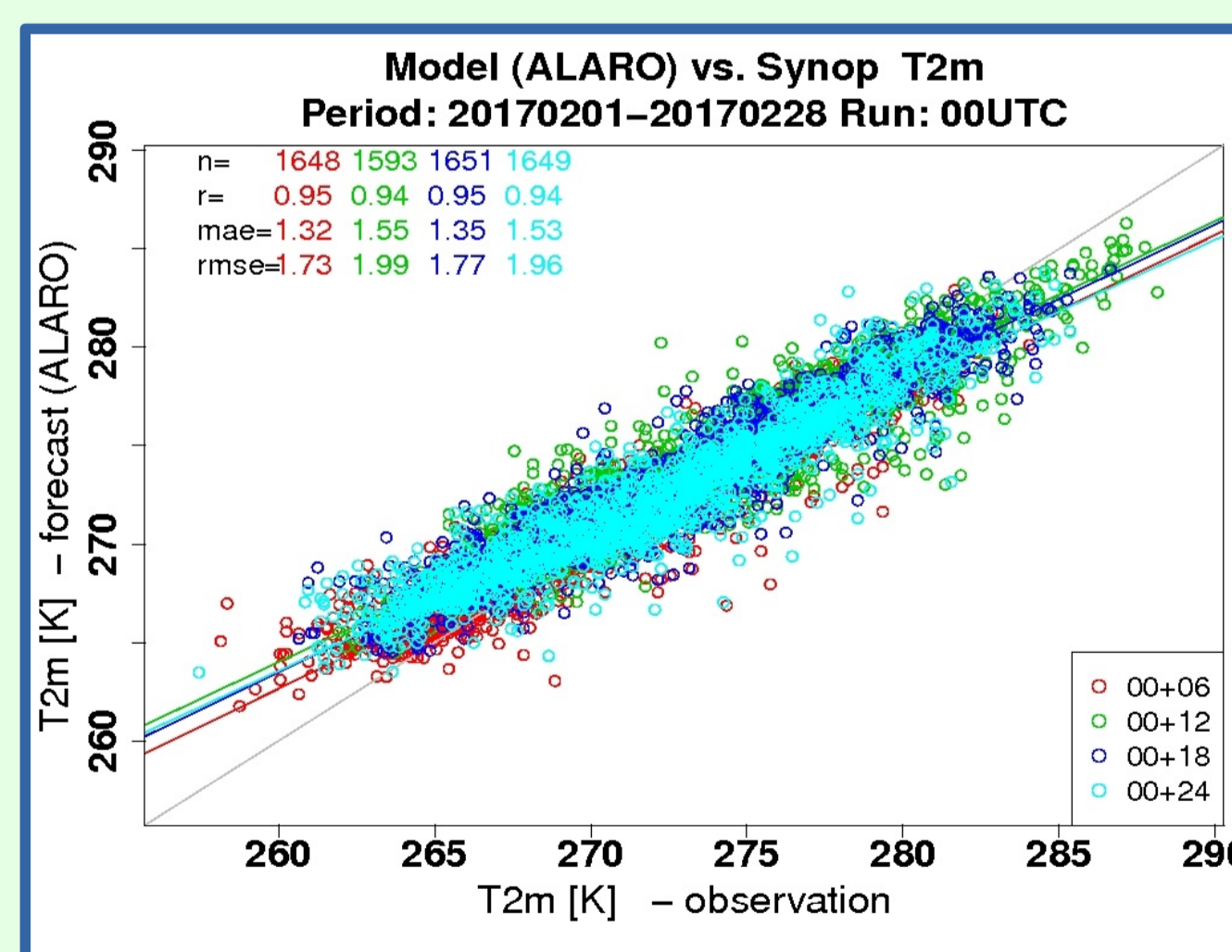
Preparations for Data Assimilation in AROME had started. On the base of our domain AROME ensemble forecast background error covariance - B matrix was built. The forecast run with LBC from AEARP. The domain characterises 799x799 grid points, with 2km horizontal resolution and 60 vertical levels. Our ensemble forecast consist of 6 members, and it was running two times per day for 30 days.



Another preparational step for our data assimilation was creation of dedicated observational data base. For this we start co-operation with RC LACE to create the conditions to facilitate an access to the common Observation Preprocessing system for LACE (OPLACE) to our Institute. This Agreement establishes that IMWM can exclusively use OPLACE data just for local data assimilation and verification. Also IMWM will provide its national surface observations to OPLACE. Currently we are in the process of technical agreement of sending/receiving the data. On the maps above one can see IMWM network of automatic observational stations, from which the data will be send to OPLACE, with the same restrictions as we have for OPLACE data.

Verification

Lately was done adaptation and expansion of verification reports for AVP. This enlargement include additional fields, other time intervals and lengths of forecast. For this purpose was used SYNOP data observation base created with HARP. Those verification results will renew our monthly raport system (up for now with operational issues as on-time availability, completeness of products, accuracy) with other verificational results/graphs.



Above is the 2m temperature scatterplot of ALARO-1 model vs. all SYNOP observations, for first day of 00UTC forecast for period 1-28 Feb 2017. Additionally are presented regression lines for separate forecast hours.

The other picture shows results (monthly values for separate forecast hours of RMSE, BIAS, MAE and MSE) for the same time period as previous picture. Also with indicated number of cases (observations) for each forecast hour and all stations.

On the right is a table with values of error „parameters” calculated also for February 2017. Scnum is the number of used observations. It's for all stations together.

Lead Time	scnum	RMSE	BIAS	MAE	MSE
3h	1650f	1.59493f	-0.02550f	1.12701f	2.26475f
6h	1648f	1.72895f	-0.09420f	1.21694f	2.98931f
9h	1651f	1.65019f	0.09219f	1.23515f	2.75293f
12h	1593f	1.99108f	0.35496f	1.54602f	3.96442f
15h	1652f	1.92598f	0.41535f	1.49999f	3.70939f
18h	1651f	1.77325f	0.30989f	1.35495f	3.14445f
21h	1652f	1.86369f	0.20323f	1.43129f	3.47331f
24h	1649f	1.96128f	0.26827f	1.52756f	3.84661f
27h	1650f	2.06606f	0.27664f	1.60708f	4.26859f
30h	1648f	2.20632f	0.22626f	1.71861f	4.86788f
33h	1651f	2.06544f	0.35372f	1.64369f	4.26693f
36h	1593f	2.35945f	0.61106f	1.88817f	5.56701f
39h	1652f	2.28968f	0.65401f	1.82074f	5.24263f
42h	1651f	2.05746f	0.51974f	1.68148f	4.23314f
45h	1652f	2.13150f	0.44279f	1.66141f	4.54370f
48h	1650f	2.20191f	0.50922f	1.71768f	4.84839f
51h	1650f	2.30475f	0.51554f	1.80174f	5.31189f
54h	1648f	2.45902f	0.40621f	1.93537f	6.04680f
57h	1651f	2.38482f	0.43834f	1.91089f	5.03739f
60h	1593f	2.68182f	0.67732f	2.15261f	7.19218f
63h	1651f	2.58731f	0.76071f	2.08255f	6.64211f
66h	1651f	2.33015f	0.75899f	1.83161f	5.42860f