

Using grid-point sigma B maps in AROME 3DVAR

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Outline

- Test of AEARP grid-point sigma B maps(Errgrib) in AROME 3DVAR
- Problem
- Future perspectives

First tests with AROME & ALADIN 3DVAR

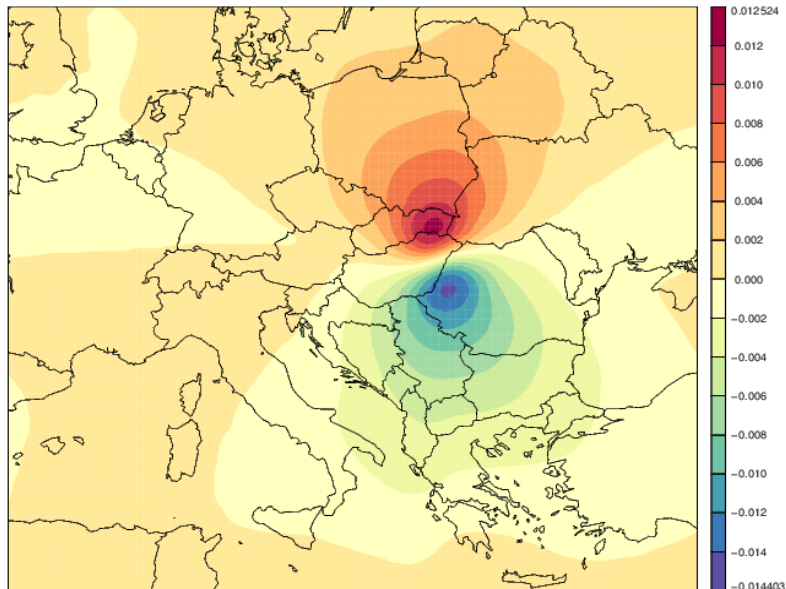
- | Spatially varying background error variances (Strajnar 2008) in AROME 3DVAR was tested this May in Budapest.
- The AEARP Errgrib grid-point sigmaB maps were downloaded from yuki and visualized to check spatial variability over our AROME domain and Central Europe. The variability was indeed very moderate.
- Anyway we have tested the method in AROME 3DVAR and ALADIN 3DVAR as well.
- Single observation studies were run and found:
 - | ALADIN 3DVAR - working correctly with grid-point sigma B maps and realistic increments were produced.
 - AROME 3DVAR - producing distorted humidity increments with single temperature observations and missing humidity increments with single wind observations.

ALADIN 3DVAR

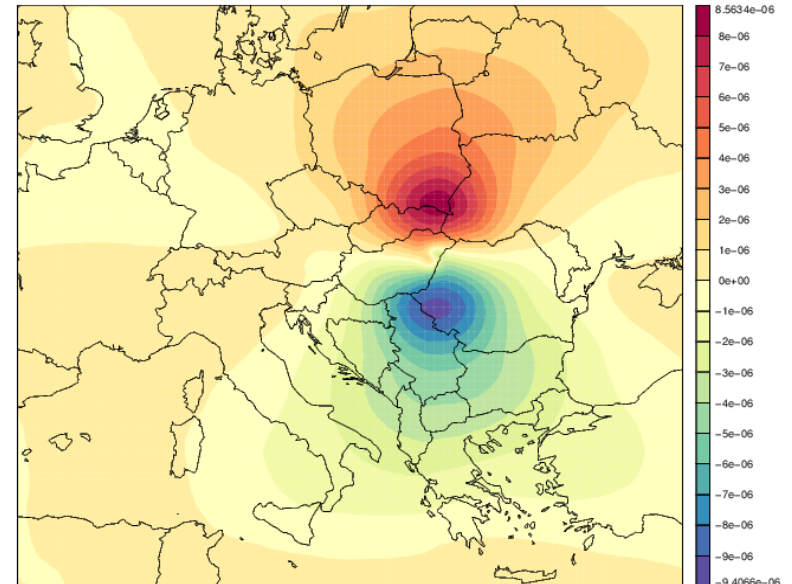
Single U observation
Temperature increment
on L30

Single U observation
Humidity increment
on L30

S030TEMPERATURE
2013/5/15 z0:0 +6h



S030HUMI.SPECIFI
2013/5/15 z0:0 +6h

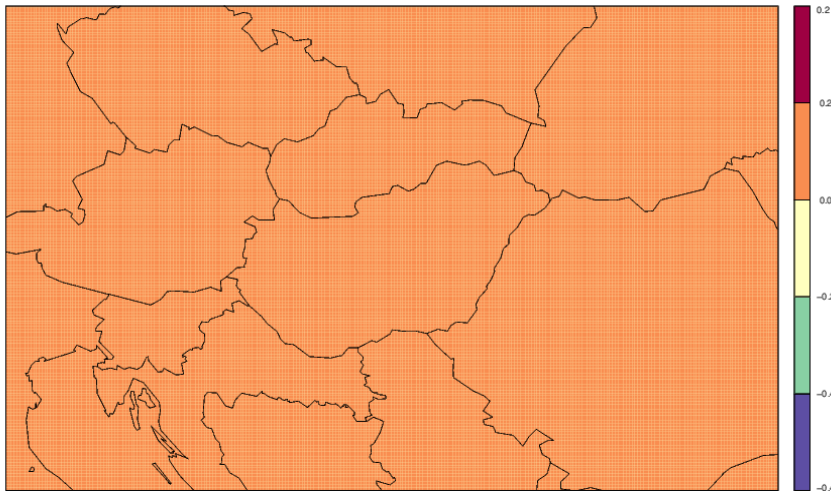


AROME 3DVAR

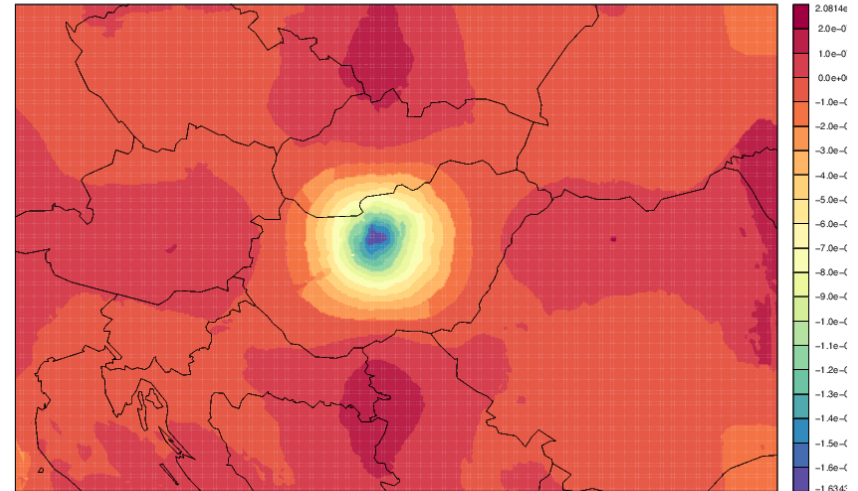
Single U observation
Humidity increment
on L50

Single T observation
Humidity increment
on L50

S050HUMI.SPECIFI
2013/5/14 z3:0 +3h



S050HUMI.SPECIFI
2013/5/14 z3:0 +3h



Articles

of its error covariances: increase of sample size by local spatial averaging. Proceedings of the ECMWF workshop on
art. Jour. Roy. Meteor. Soc., 137, 607-619. doi: 10.1002/qj.795.

ce), 243pp. [Available from Université Paul Sabatier, 118 route de Narbonne. 31062 Toulouse Cedex, France.]
WMO International Symposium on Data Assimilation, Melbourne, Australia, Paper N.196.

Future Perspective

- ▮ The grid-point sigma B maps are beneficial and able to provide spatially varying approach in background error representation which going to be more and more important to high resolution.
- ▮ Also update of sigma B maps at every analysis time can bring time and space variations of background errors.
- ▮ The variability of AEARP grid-point sigma B maps is indeed very moderate over our area of interest, therefore the primary aim would be to generate grid-point sigma B maps from limited area ensemble system.
- ▮ Also on AROME 3DVAR side, an investigation of missing and distorted humidity increments is needed.