AROME 3DVAR with AEARP grid-point sigmaB maps
Preliminary validation
2013

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Introduction

The spatially varying background error statistics have positive impact on analysis compare to the climatological ones. With the method made by Strajnar et al. 2008 we have a possibility to use such variances in ALADIN LAM models. In 2013 this method was tested with AROME 3DVAR in Budapest in order to validate the algorithm and assess the effectiveness. After the first single observation studies it turned out the method is not working properly with AROME 3DVAR and during assimilation of single wind observation the humidity increment was lost. In this short report we are not focusing on the detailed description of the method and model configurations but only to describe the problem what was found.

Distorted humidity increments

Due to the assimilation of single temperature observation the humidity increments in AROME 3DVAR were produced but the isotropy was not kept. (AROME 3DVAR LSPFCE=.FALSE., single T2m observation on the picture below – humidity increment)

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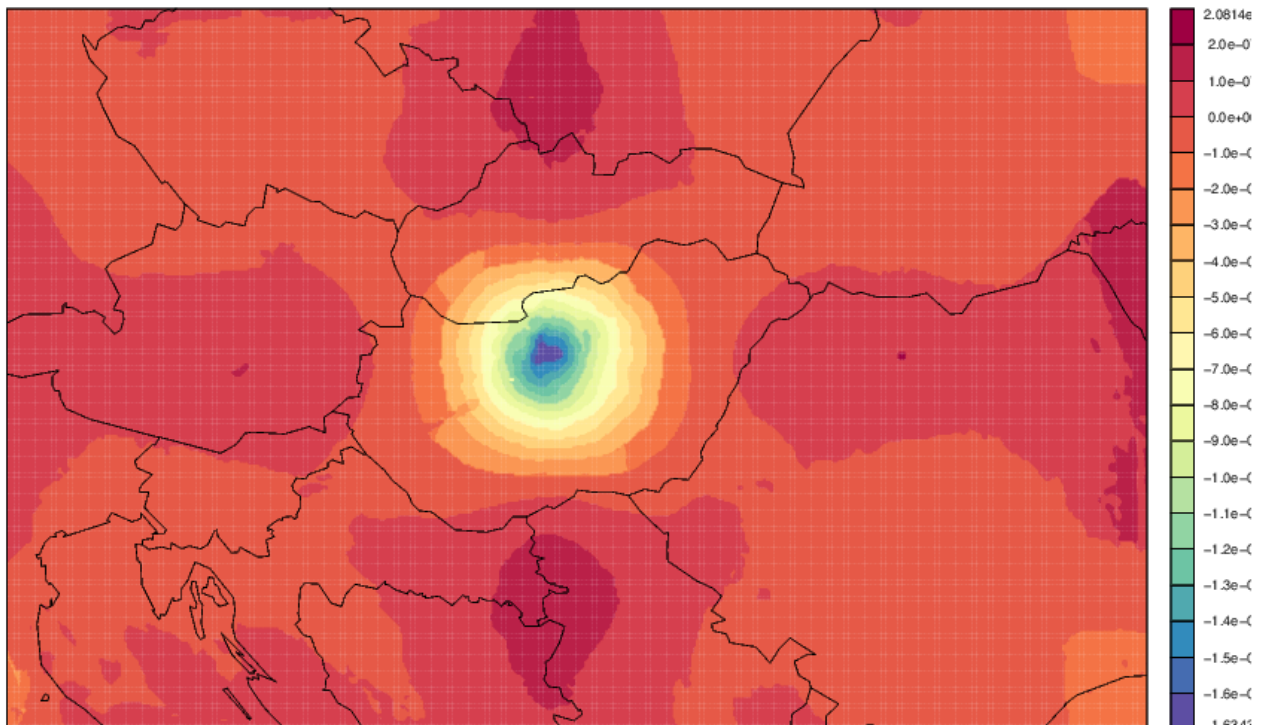
Missing humidity increments

When wind innovation was used the specific humidity even missing in the analysis only with AROME 3DVAR and LSPFCE=.FALSE. As you can see on the picture below.

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