ALADIN coupled with ECMWF/IFS

16th ALADIN workshop
May 16-19 2006

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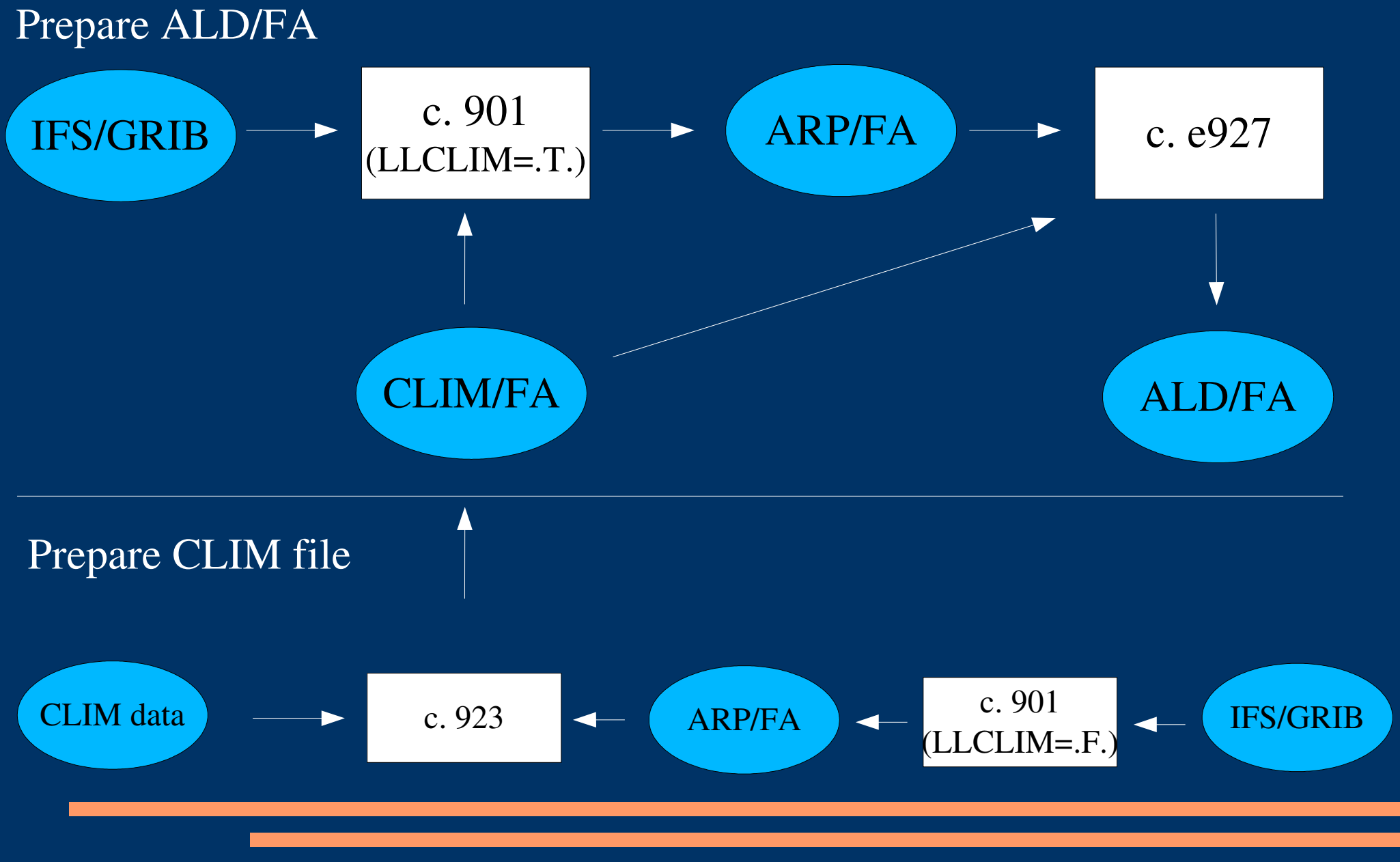
Content

1. Technical introduction
2. Experiments
3. Conclusions

Technical introduction



Technical introduction

Prepare IC

- use analysis grib files
- all fields are available in Mars for 901/e927

- need to initialize surface

Prepare LBC

- use forecast grib files
- surface related constants are NOT available in Mars for 901/e927!

Take the missing fields from the analysis / climate file *(several technical solutions: Mars, grib, FA)*

- NO need to initialize surface

- optimality of conf 901 (IC or LBC) (?)
- example of land/sea mask

Experiments

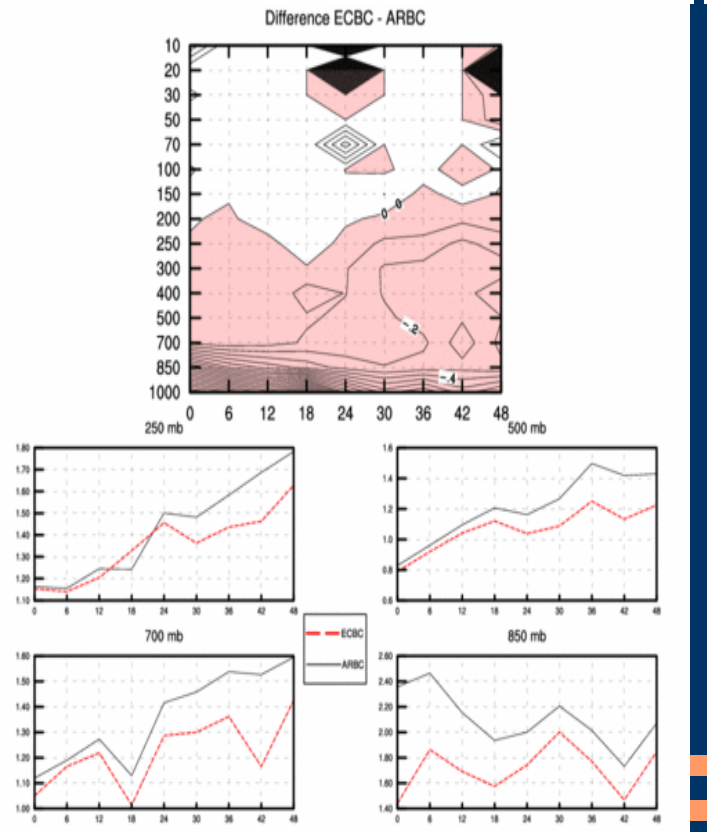
- 10 day period (1-10, January 2005)
- dynamical adaptation (00UTC +48h)
- no local assimilation

ARBC:	IC(Arpege) + LBC(Arpege)
ECBC:	IC(Ecmwf) + LBC(Ecmwf)
ECB1:	IC(Arpege) + LBC(Ecmwf)

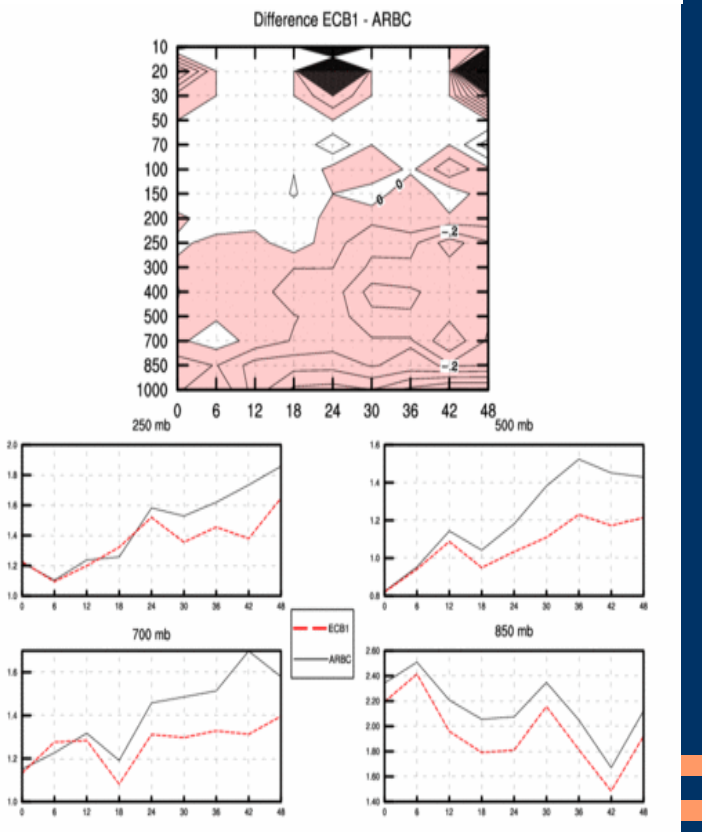
Experiments

Temperature RMSE

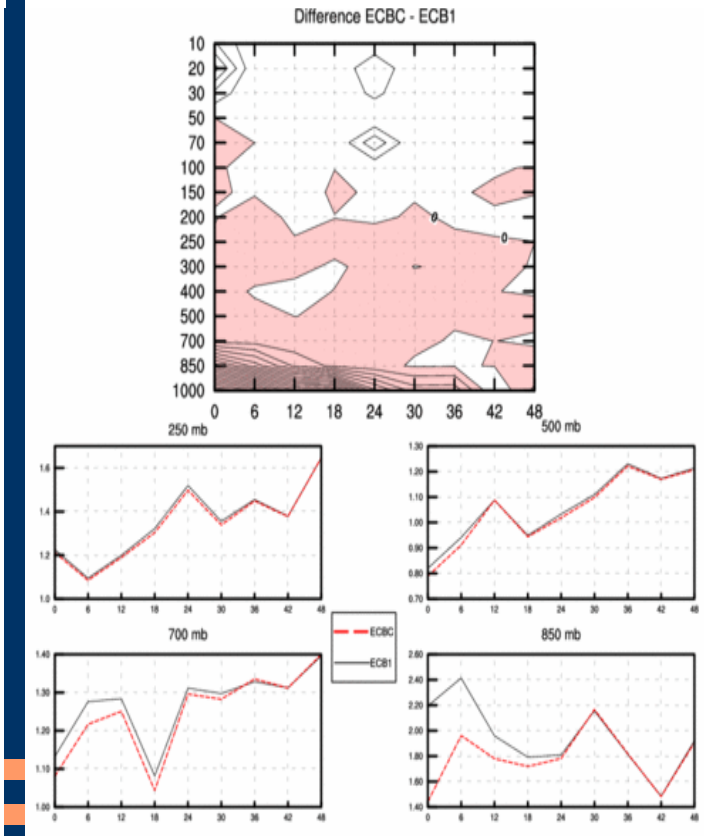
impact of IC +LBC



impact of LBC



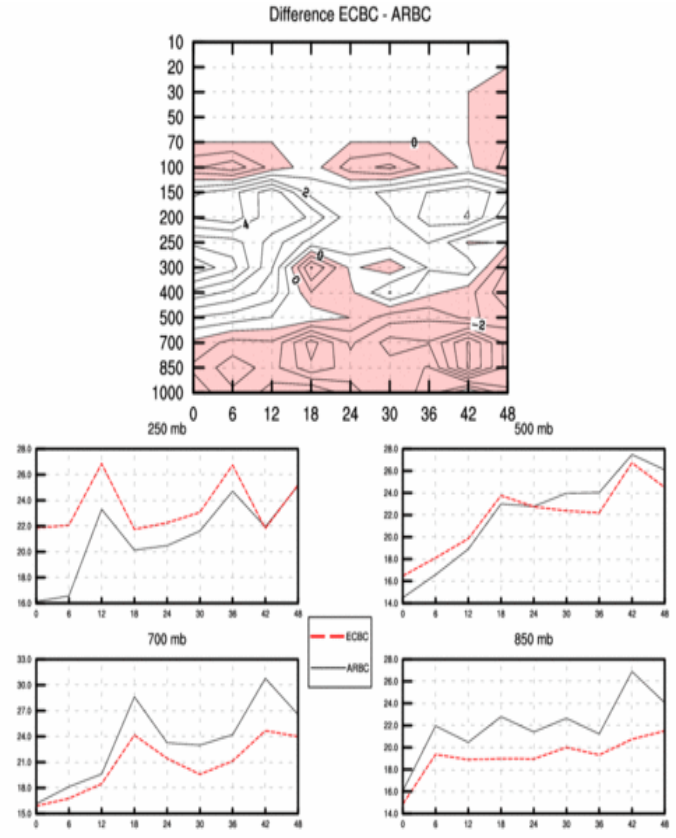
impact of IC



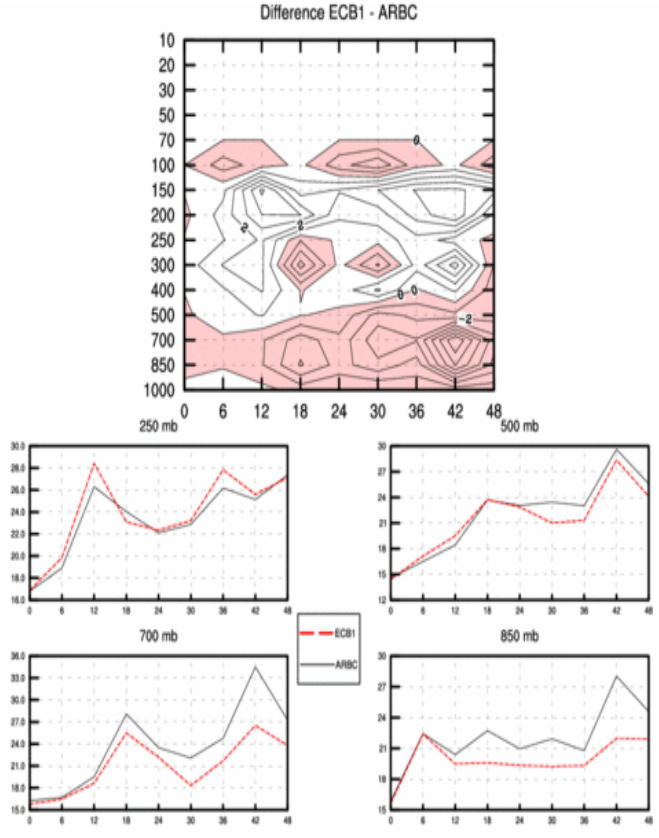
Experiments

Relative humidity
RMSE

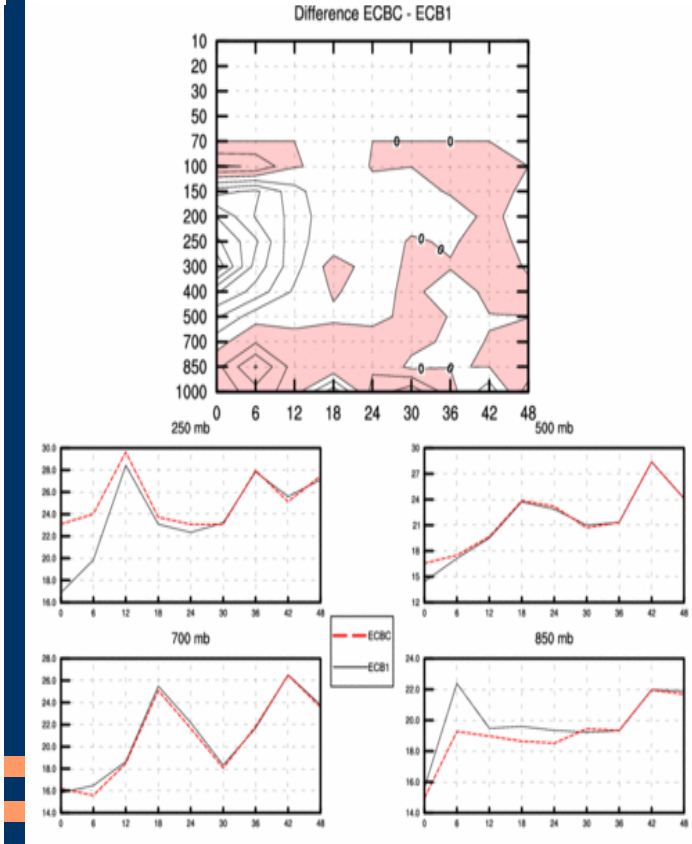
impact of IC +LBC



impact of LBC



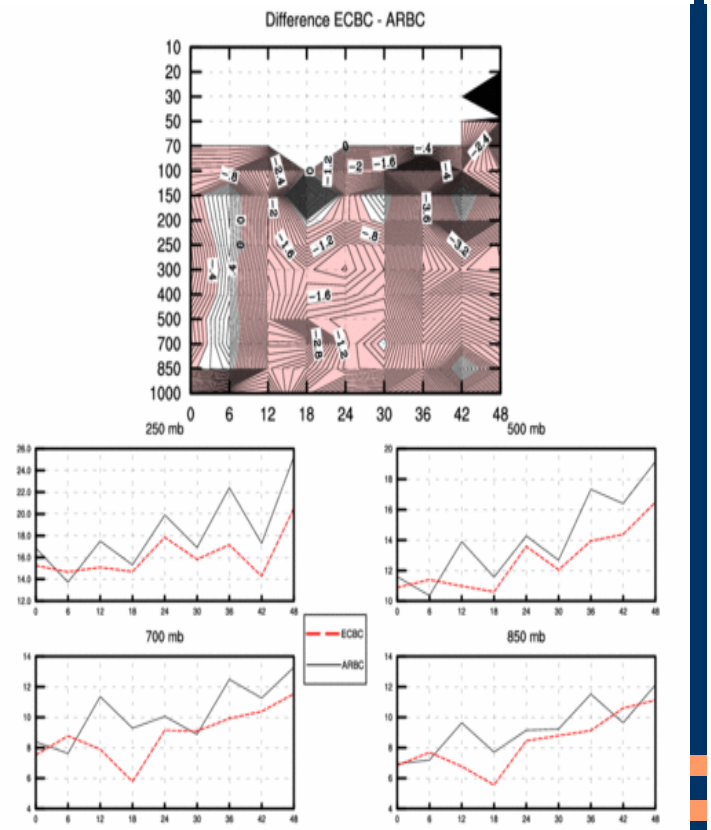
impact of IC



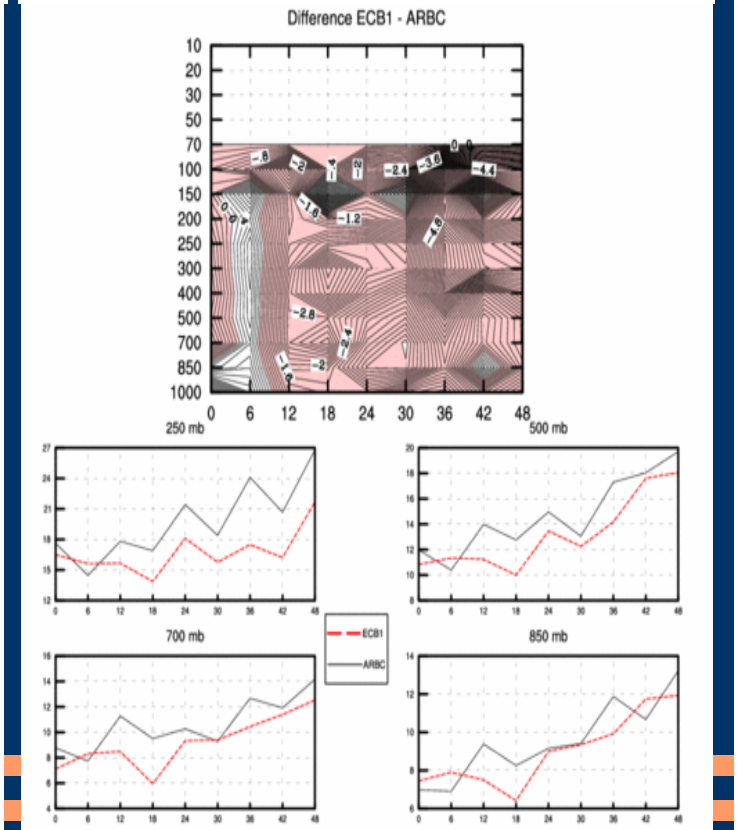
Experiments

Geopotential RMSE

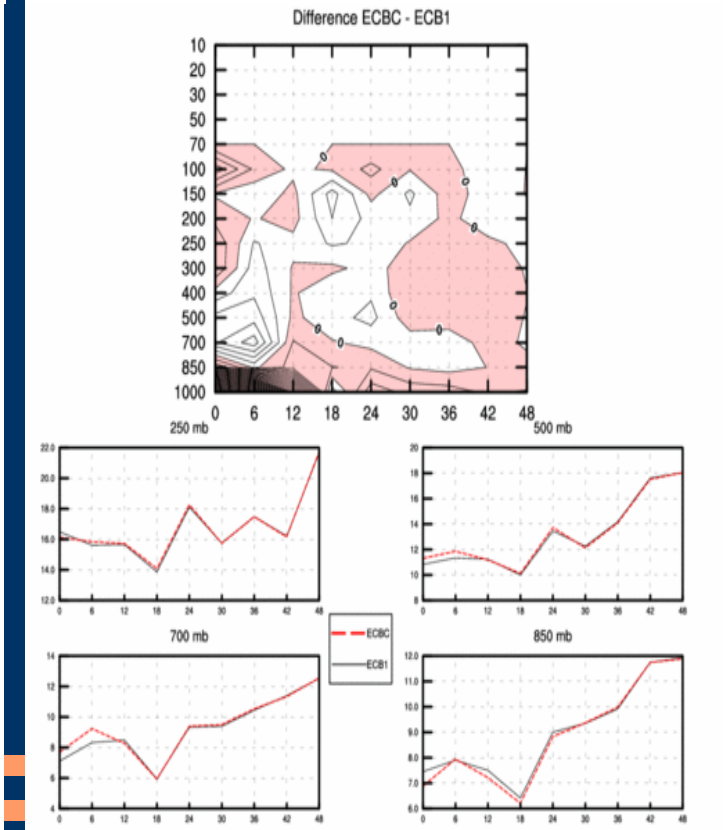
impact of IC +LBC



impact of LBC



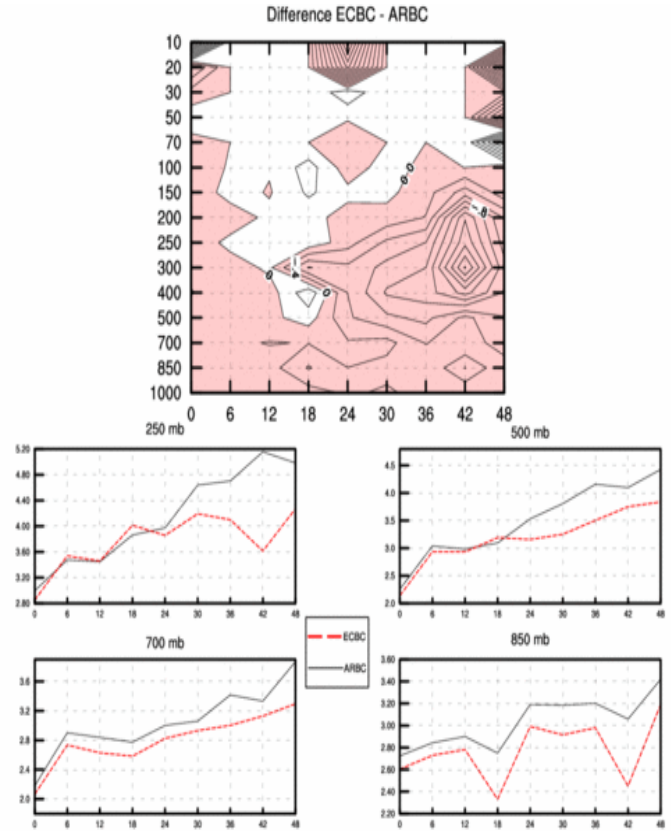
impact of IC



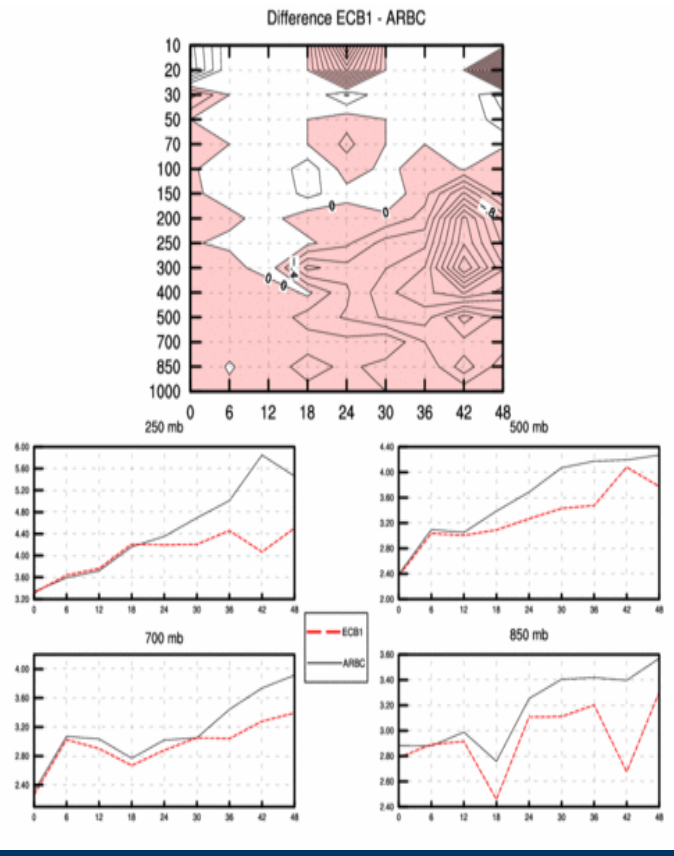
Experiments

Wind speed RMSE

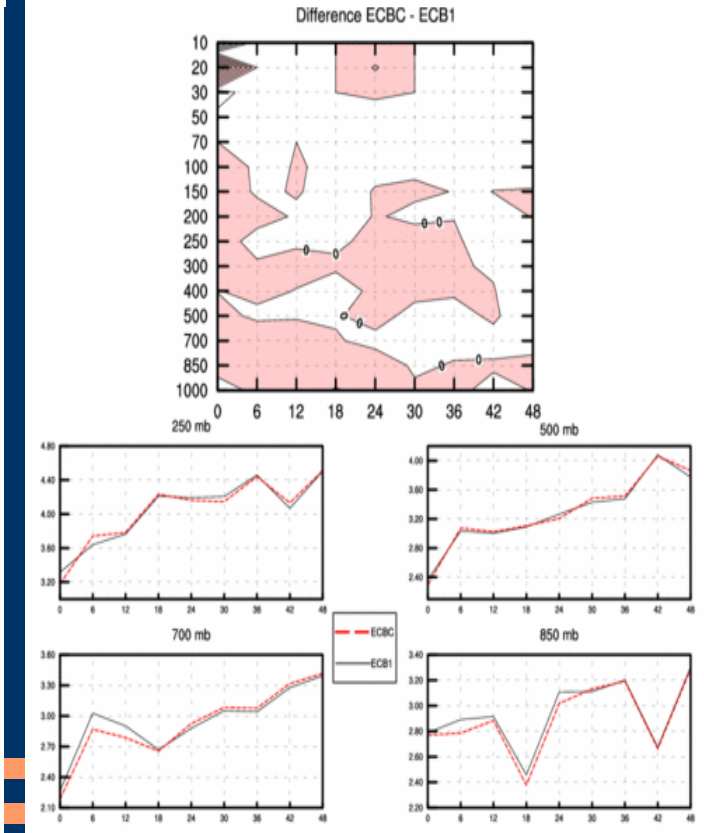
impact of IC +LBC



impact of LBC

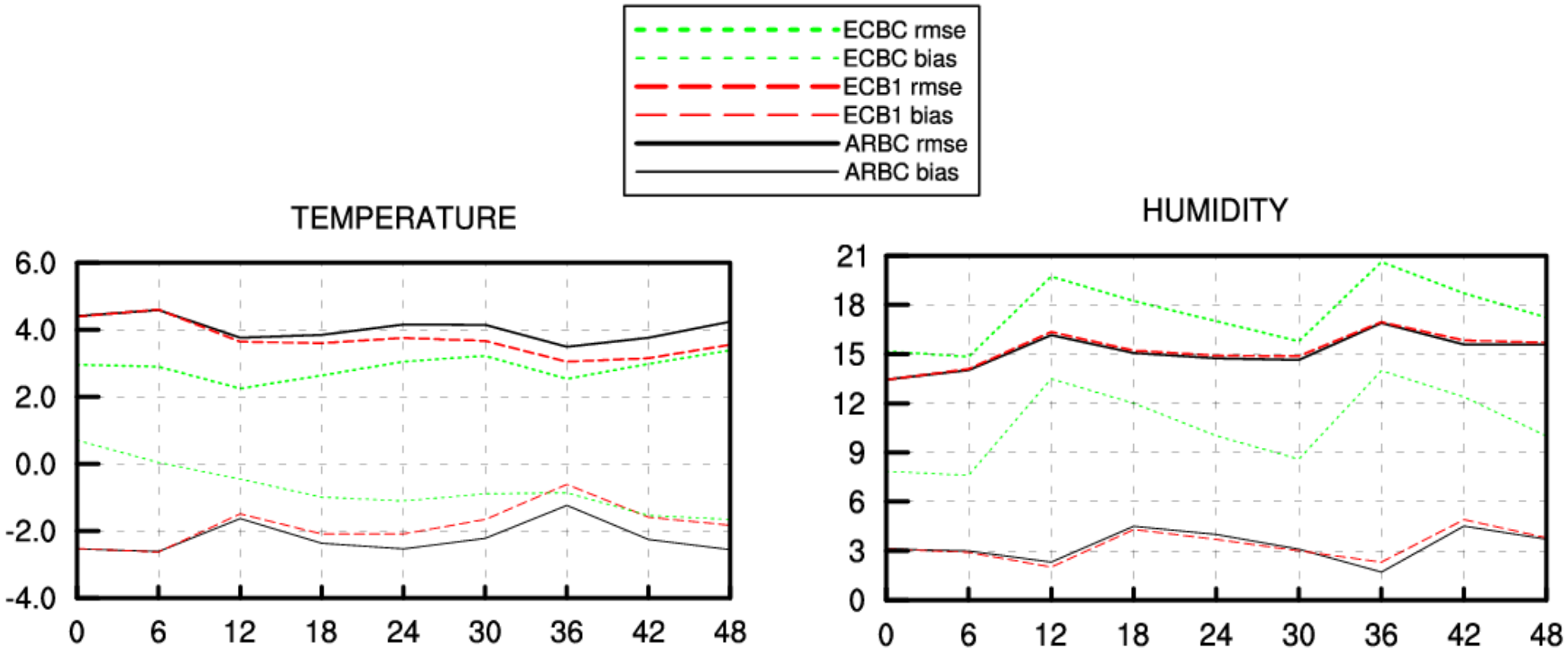


impact of IC



Experiments

T2m, RH2m
RMSE & BIAS



Conclusions

- Influence of the LBC is very important (strong differences in the forecast quality above +24-36h even if IC is the same)

- Influence of the IC diff. is important at the beginning of the forecats (max. up to +36h)

- The use of ECMWF IC and LBC gives generally better results (there are however important exceptions, see next slide)

Conclusions

- RH2m RMSE and BIAS with ECMWF IC is very bad! (purely due to the IC, probably poor initialization of surface fields)

- Use of ARPEGE IC and LBC gives better results for RH in the altitude (?)

References (technical doc)

- ALADIN webpage:
  http://www.cnrm.meteo.fr/gmapdoc/article.php3?id_article=38
  by Patric Saez

- ALADIN/LACE webpage:
  http://radar.dhz.hr/~rclace/ALADIN_tools/ALADIN_tools.htm
  by Stjepan ivatek-Sahdan and Gergely Bölöni