Recent activities and ambitions in LACE Data Assimilation

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(with contributions from Alena Trojáková and Oldrich Spaniel)

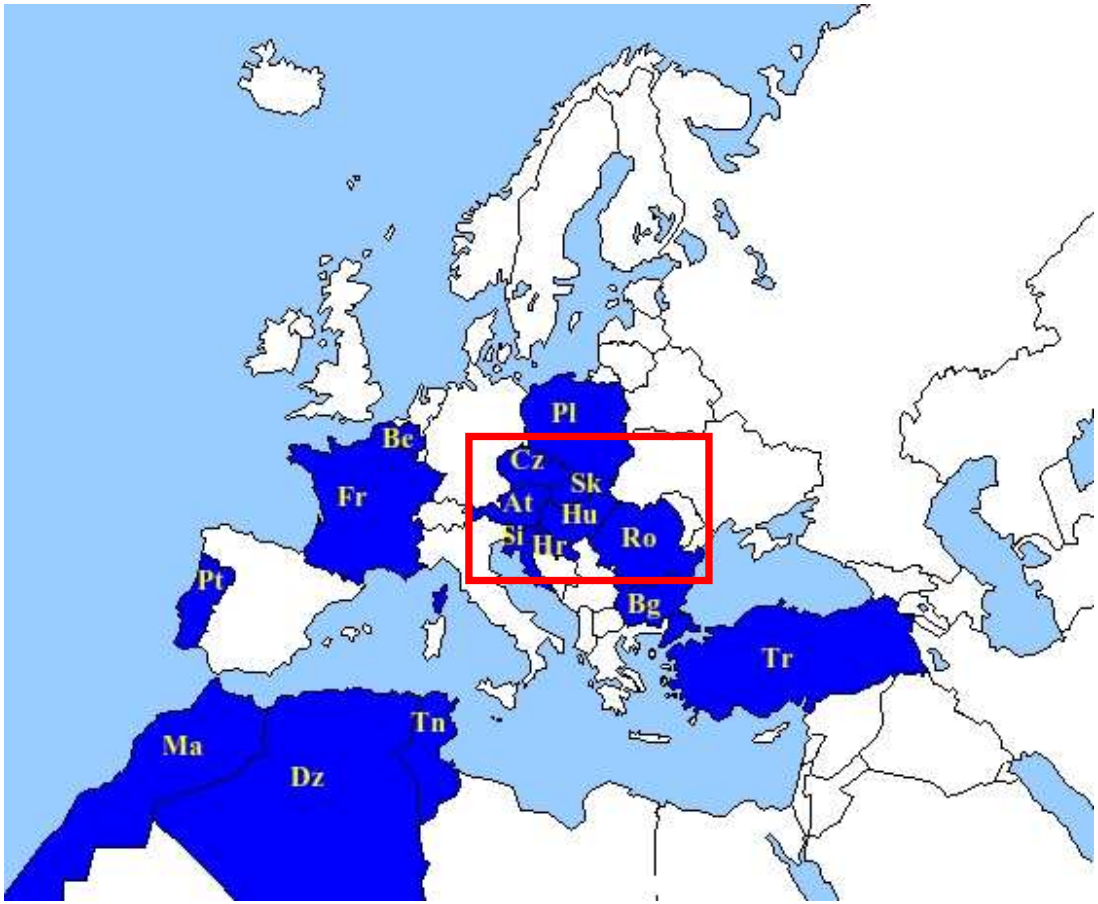
Content

1. Recent developments

2. Ambitions (observation preprocessing and DA installations)

LACE

- Austria
- Croatia
- Czech Republic
- Hungary
- Romania
- Slovakia
- Slovenia



Recent developments

BlendVar (CZ)

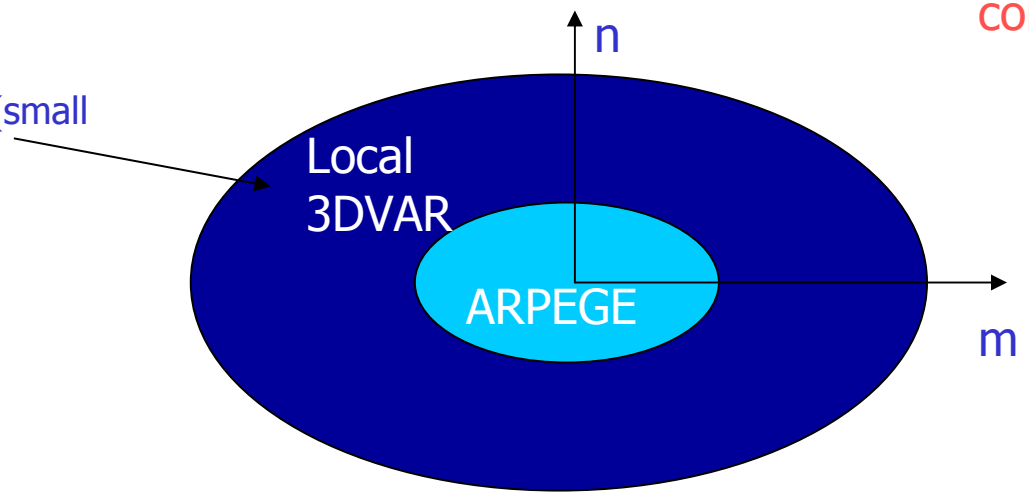
New experimental setup: Blending (atm) + OI (surf) + 3DVAR (atm)

Oper CZ

New component

Settings:

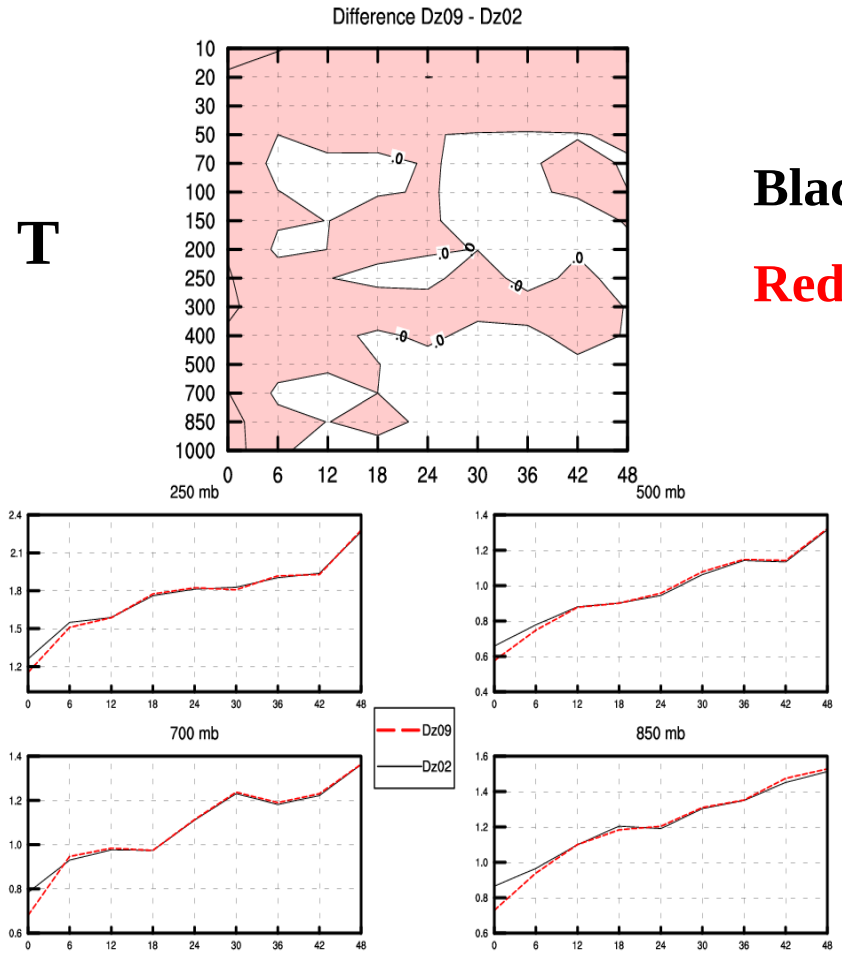
- lagged NMC B matrix (small lengthscales)
- SYNOP and TEMP obs



Recent developments

BlendVar (CZ)

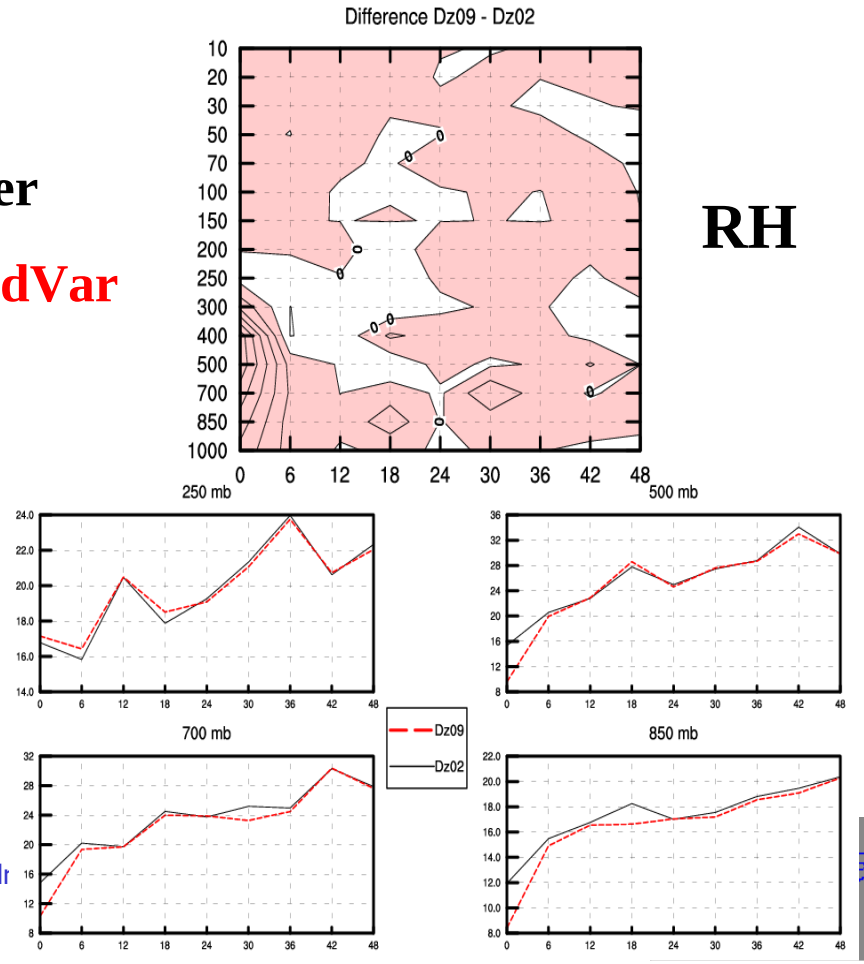
T



Black: oper

Red: BlendVar

RH



Recent developments

Surface assimilation and new LBCs (HU)

New operational setup: OI (surf) + 3DVAR (atm) + LBC from ECMWF (IFS)

New components

OI (CANARI) settings:

- SST analysis from the global model
- soil analysis using 2m RH and T observations

LBC settings:

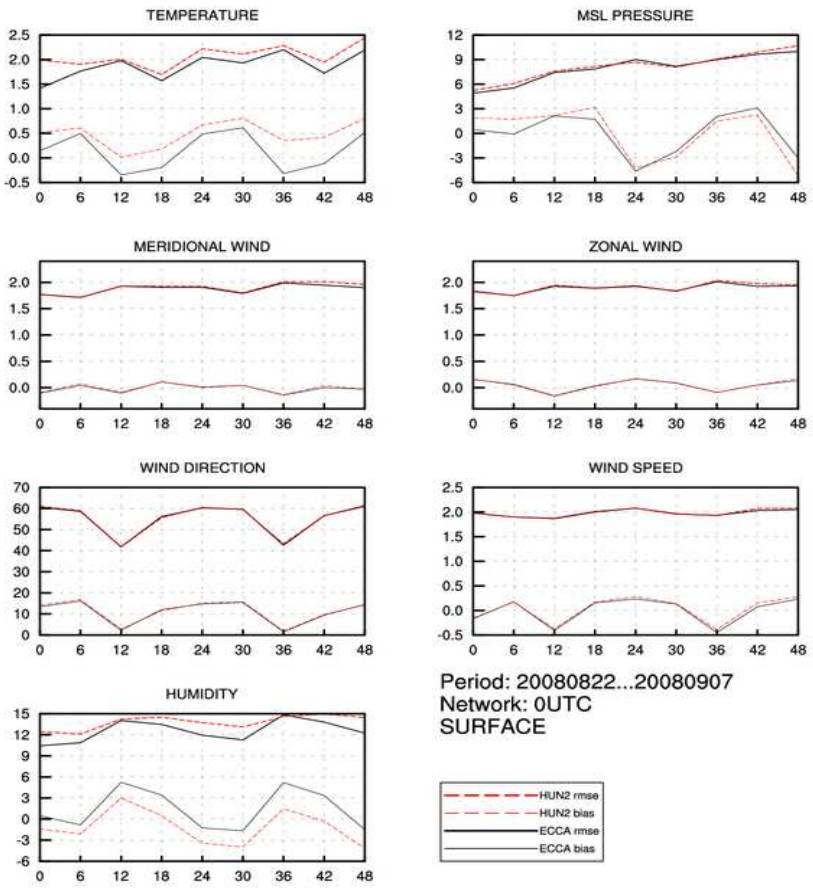
- ECMWF LBCs in assimilation and production (use ARPEGE as backup)
- LBCs from ECMWF are used with a 6 hour shift

  (i.e. at 00 UTC use LBCs from the 18UTC run, etc.)

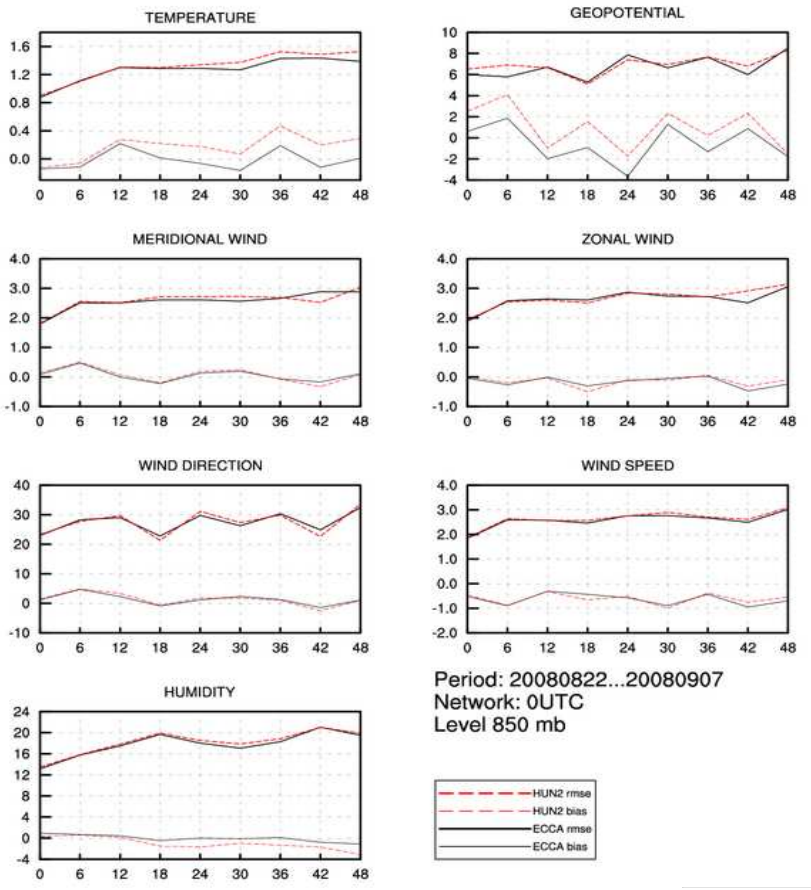
Recent developments

Surface assimilation and new LBCs (HU)

Evolution of scores with forecast range **2m**



Evolution of scores with forecast range **850hPa**



meeting, M

Recent devel

Use of observations (HU)

MSG/SEVIRI

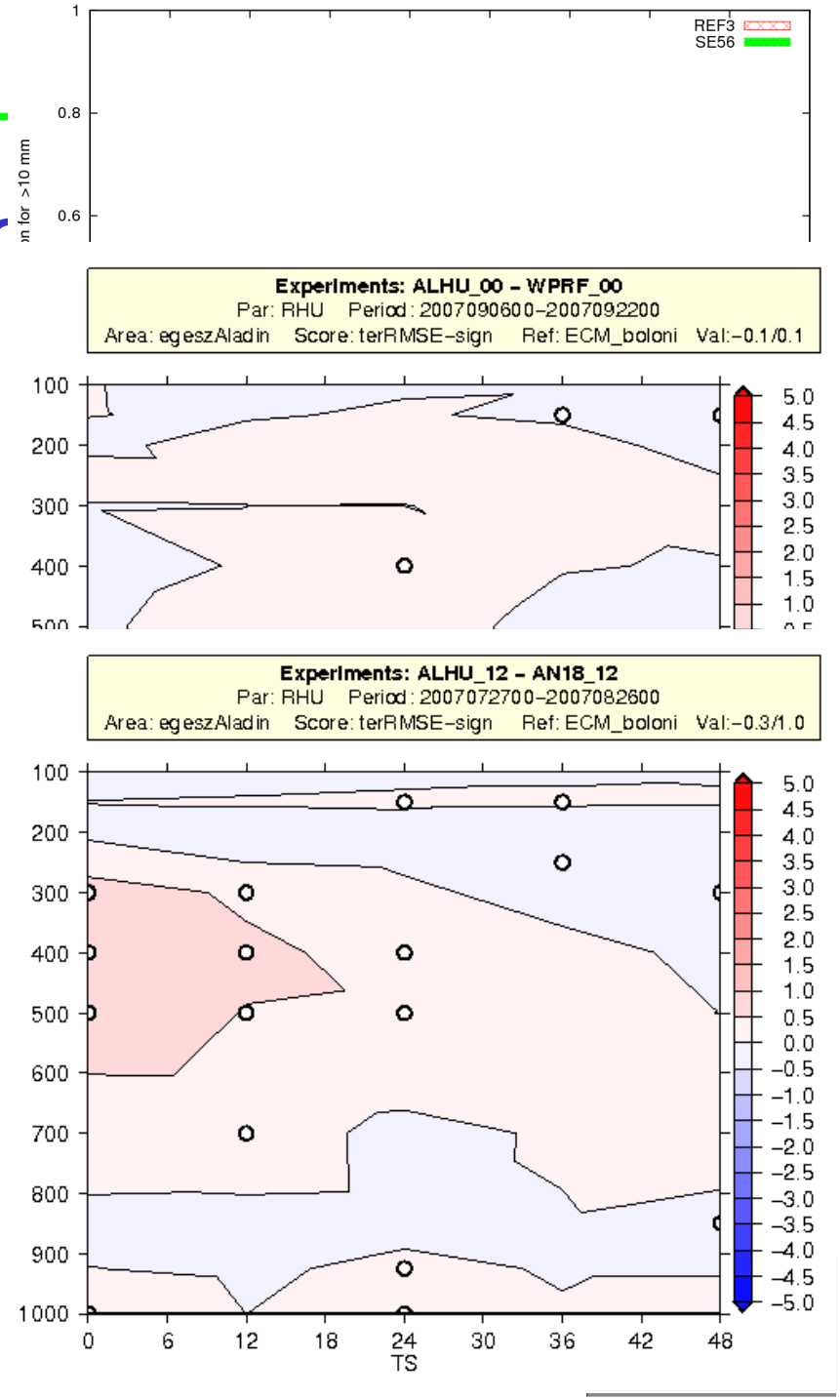
- use IR + WV channels
- neutral classical scores
- improved QPF scores for precipitation (together w

Wind Profilers

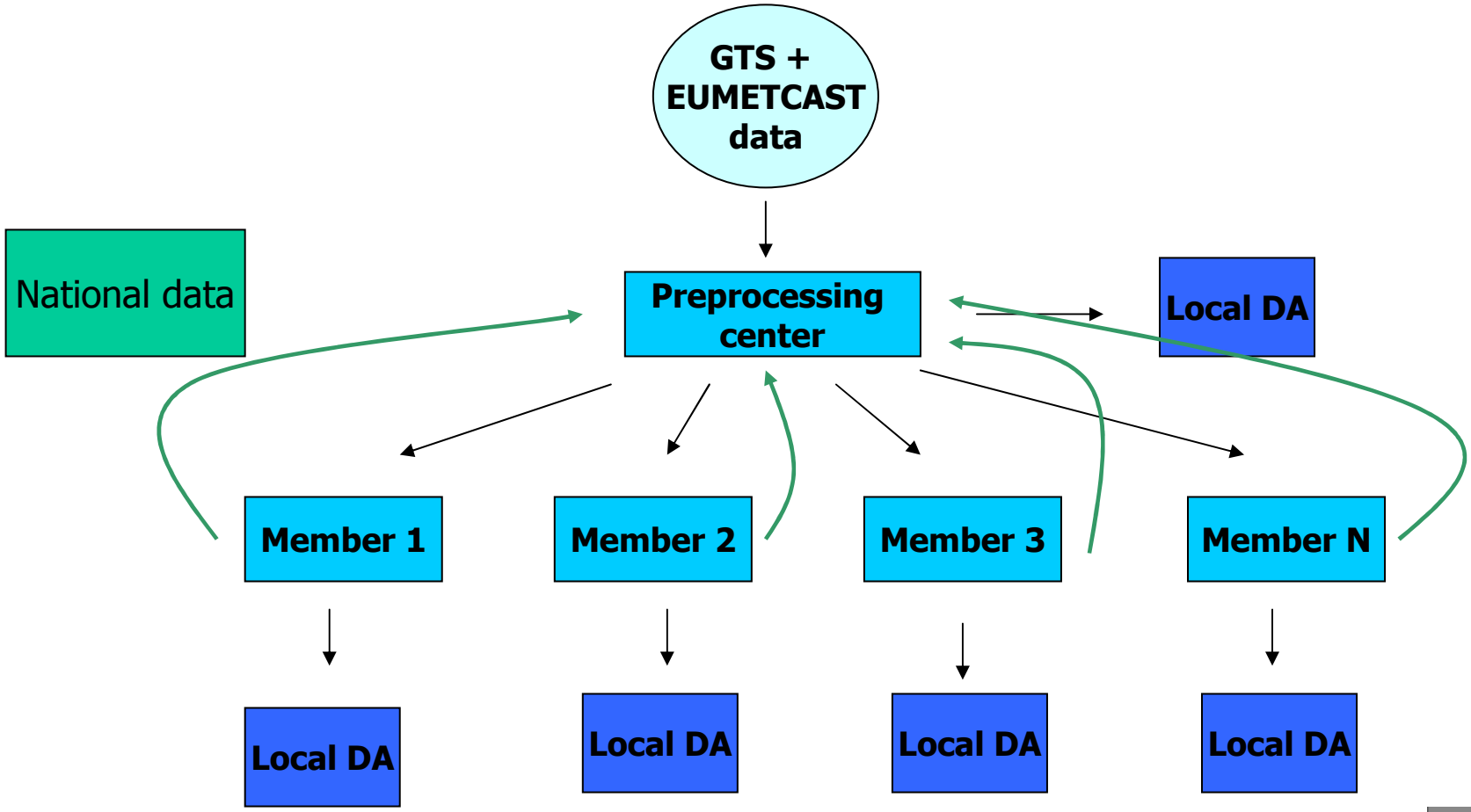
- Meteo France blacklist (4 sites, data between 700
- slight improvement for wind and humidity (oper s

NOAA/ATOVS

- add NOAA-18 (AMSU-A and MHS)
- improvement in humidity (oper since 28/01/2008)



Ambitions: obs preprocessing



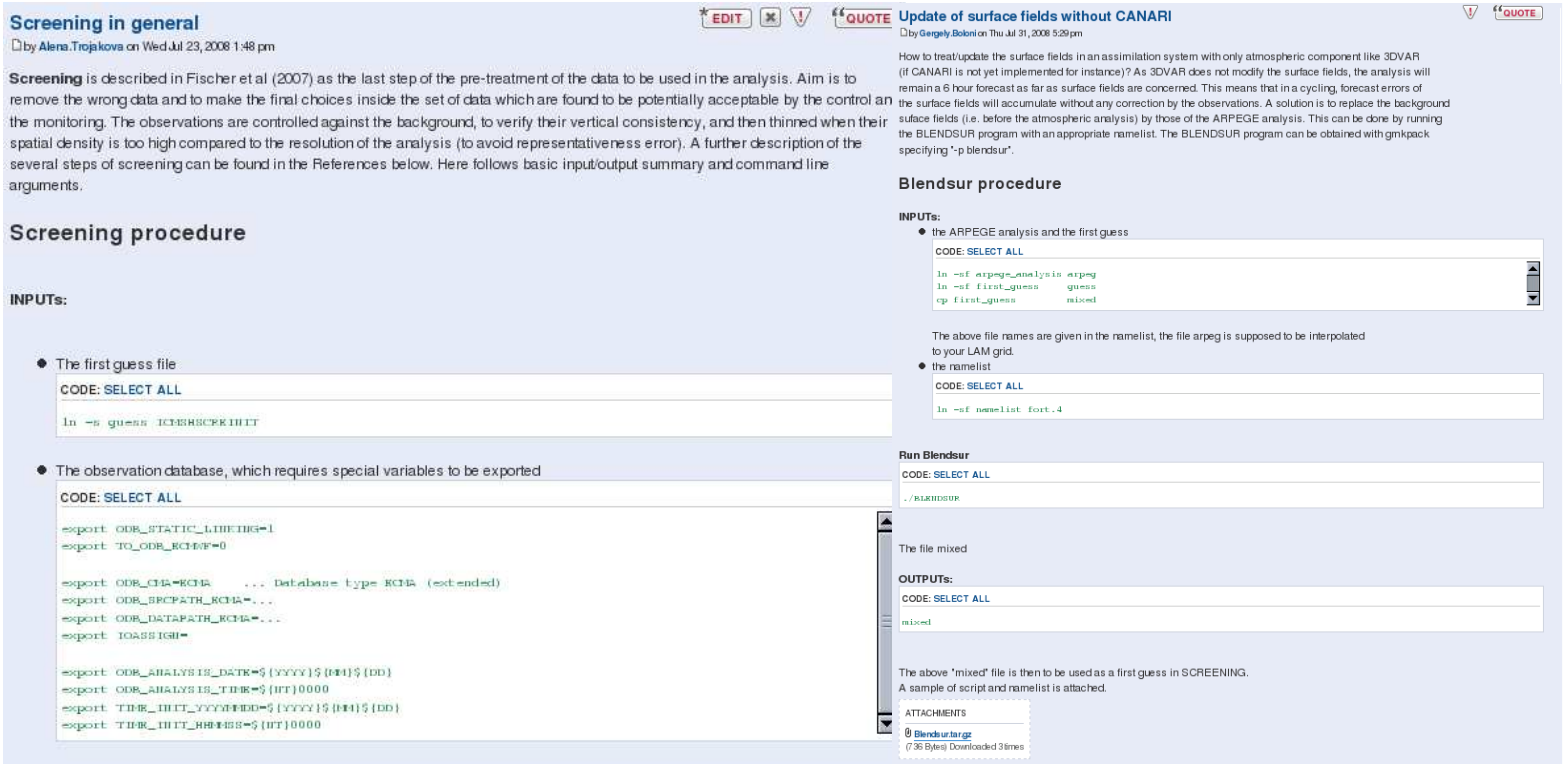
Ambitions: obs preprocessing

- Preprocessing center is HMS
- Regular preprocessing from Jan 2009 (GTS and EUMETCAST)
- Later include national data from all members (from 2010 ?)
- Download via Ftp from HMS
- ASCII and GRIB (later BUFR instead of ASCII)
- 1 file / timeslot / obstype (for FGAT, 4DVAR, OSEs)
- Tool to merge and split data by obstype and timeslot
- A short and longer cut-off

Local installations of DA systems

„Brick" approach: comprehensive script samples

Help via the web forum of LACE



Screening in general

by Alena.Trojakova on Wed Jul 23, 2008 1:48 pm

Screening is described in Fischer et al (2007) as the last step of the pre-treatment of the data to be used in the analysis. Aim is to remove the wrong data and to make the final choices inside the set of data which are found to be potentially acceptable by the control an the monitoring. The observations are controlled against the background, to verify their vertical consistency, and then thinned when their spatial density is too high compared to the resolution of the analysis (to avoid representativeness error). A further description of the several steps of screening can be found in the References below. Here follows basic input/output summary and command line arguments.

Screening procedure

INPUTs:

- The first guess file

CODE: SELECT ALL

```
ln -s guess ICMSHSCREINIT
```

- The observation database, which requires special variables to be exported

CODE: SELECT ALL

```
export ODB_STATIC_LINEINC=1
export TO_ODB_RCMWF=0

export ODB_CMA=RCMA    ... Database type RCMA (extended)
export ODB_SRCPATH_RCMA=...
export ODB_DATAPATH_RCMA=...
export IOASSIGN=

export ODB_ANALYSIS_DATE=${YYYY}${MM}${DD}
export ODB_ANALYSIS_TIME=${HT}0000
export TIME_INIT_YYYYMMDD=${YYYY}${MM}${DD}
export TIME_INIT_HHMMSS=${HT}0000
```

Update of surface fields without CANARI

by Gergely.Boloni on Thu Jul 31, 2008 5:29 pm

How to treat/update the surface fields in an assimilation system with only atmospheric component like 3DVAR (if CANARI is not yet implemented for instance)? As 3DVAR does not modify the surface fields, the analysis will remain a 6 hour forecast as far as surface fields are concerned. This means that in a cycling, forecast errors of the surface fields will accumulate without any correction by the observations. A solution is to replace the background suface fields (i.e. before the atmospheric analysis) by those of the ARPEGE analysis. This can be done by running the BLENDSUR program with an appropriate namelist. The BLENDSUR program can be obtained with gmkpack specifying "-p blendsur".

Blendsur procedure

INPUTs:

- the ARPEGE analysis and the first guess

CODE: SELECT ALL

```
ln -sf arpege_analysis arpeg
ln -sf first_guess     guess
cp first_guess         mixed
```

The above file names are given in the namelist, the file arpeg is supposed to be interpolated to your LAM grid.

- the namelist

CODE: SELECT ALL

```
ln -sf namelist fort.4
```

Run Blendsur

CODE: SELECT ALL

```
./BLENDSUR
```

The file mixed

OUTPUTs:

CODE: SELECT ALL

```
mixed
```

The above "mixed" file is then to be used as a first guess in SCREENING.
A sample of script and namelist is attached.

ATTACHMENTS

Blendsur.tar.gz
(7.35 Bytes) Downloaded 3 times

Local installations of DA systems

Possible common „supersystem” with HIRLAM (HARMONIE system):

- central repository for sources/scripts/compilers together
- running under mSMS or SMS
- central maintenance
- missing elements for LACE (work to be devoted if this approach)

Thank you for your attention!