

Activities on data assimilation in Austria since last LSC meeting

Operational system

- ALARO 4.8km: (unchanged) atmosphere: IFS downscaling; SOIL: CANARI cy36t1 export
- AROME: assimilation 3D-VAR/OIMAIN still cy36t1 export except OIMAIN (cy36t1op2) as before. Coupling IFS-lagged as before. New operational version since 18th August 2014: More extended domain, 90L instead 60L and 48h lead time 8x/day instead of 30h 8x/day. Due to lower model top some high peaking channels had to be switched off. Bug in hradpad had to be fixed (in cy38t1, it already is). NOAA 19 HIRS switched off because it led several times to crashes. METOP-B IASI, windprofilers and new OPLACE national data still not used, but technically working.
- LAEF: Ensemble-CANARI unchanged transfer to new ECMWF HPC is ongoing (F. Weidle)

Cy38t1 tests

- All necessary binaries could be produced, most configurations PGD/927/001/927surf/ADDSURF/BLEND SURF/BATOR/IOASSIGN/002/CANARI+OIMAIN inline technically working, BATOR only with conventional data so far. Soil assimilation: CANARI+OIMAIN inline with FA soil files works, 3D-Var: with conventional data till screening OK crash during SHUFFLE (ECMA->CCMA) although SHUFFLE after BATOR works without crash

Austrian national data:

- Stations from directors' list send to new OPLACE ftp-server regularly except stations, which don't exist anymore

RADAR Assimilation:

- ZAMG gets radar data in real time from Austrian Aviation meteo service Austrocontrol: 4 Austrian Doppler dual pol radars: Vienna, Salzburg, Innsbruck, Zirbitzkogel (SE-Austria) since April 2014 (OPERA HDF5 format; 16 elevations each). Data before July have partly bad quality. Historical data 2011/2012, we got, are almost not usable without lots of additional work (wrong sign of Doppler speed, unknown calibration of reflectivity, different file format etc.
- C-Routine was written to make the dealiasing of Doppler wind hdf5->hdf5 (based on CRAD technique, elevation by elevation no additional observations used)
- ->CONRAD->BATOR->SCREENING->MINIMIZATION works fine
- RADAR-constant/sensibility were replaced by station specific values in BATOR -> significant impact on reflectivity assimilation results

- QC: No additional quality control so far, we got INCA2 code from Michal, ZAMG INCA group is working on installation
- Lowest elevations $<2^\circ$ contain lots of noise signals/WLAN, which cause huge problems on dry days -> elevations below 1.5° not used et all-> set to no data in hdf5
- 4 CASE studies: flooding in Austria (Danube) around 15th May 2014, Squall line Austria 20th July 2014, severe local thunderstorm in Vienna 24th May 2014, dry day with RADAR noise 16th July results partly positive, but still problems on dry days

GPS Assimilation

- Xin had a stay at Météo France on assimilation of GPS 3D refractivity index in 3D-Var in AROME cy38t2. Forward observation operator and AD/TL operator developed, work on preprocessing (BATOR/SCREENING etc. is ongoing at MF)
- Stay in Budapest on GPS-VARBC (Xin)

Plans:

- SATIN project: Assimilation of MSG HR-AMV, IASI tests (METOP-A,-B)
- Switch to cy38t1 export
- Continue with GPS

Time spent:

- 6 month Florian; 6 month Xin