Miklós Balogh   László Kullmann
Gergely Bölöni   Gábor Radnóti
Edit Hágel   Roger Randriamampianina
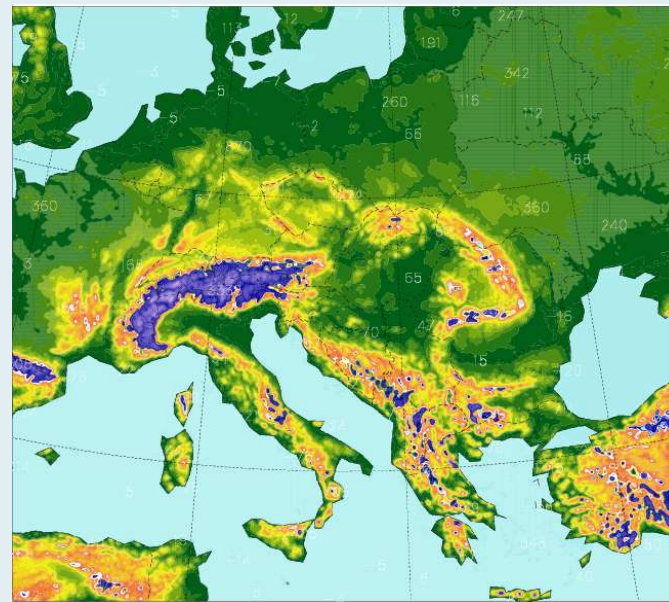András Horányi   Gabriella Szépszó
Sándor Kertész   Helga Tóth

The operational ALADIN/HU model configuration

Sándor Kertész and András Horányi (kertesz.s@met.hu, horanyi.a@met.hu)

OMSZ
Hungarian
Meteorological
Service
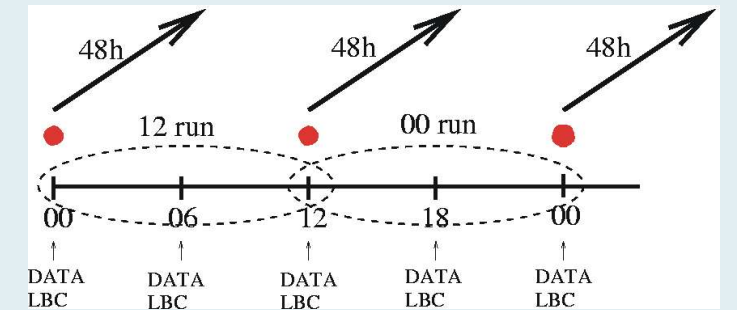
Operational configuration

• Model version: AL28

• Initial conditions: 3DVAR
  (**operational since 17 May, 2005**)

• Digital filter initialisation

• Boundary conditions from ARPEGE

• LBC coupling at every 3 hours

• Lambert projection

• 8 km horizontal resolution (349*309 points)

• 49 vertical model levels

• Linear spectral truncation

• 300 s time-step (two-time level SISL advection scheme)

• 48-hour integration twice a day

• Hourly post-processing in the first 36 hours and 3 hourly afterwards

The ALADIN/HU domain

Operational suite

• Transfer ARPEGE LBC files from Météo France, Toulouse via Internet and
  satellite dissemination system (RETIM) as backup

• Lancelot (ee927) on 4 processors

• 3DVAR (+ data pre-processing and screening) on 26 processors

• Model integration on 24 processors

• Post-processing:

  • Input for visualization - netCDF files with
    latitude/longitude grid

  • Dynamical adaptation of PBL wind to 5 km
    resolution (DADA)

  • Pseudo-temps (for aviation meteorology)

  • Pseudo-satellite movie

  • Input for environmental applications

  • Model Output Statistics (under development)

  • Verification (objective and subjective)

  • Archiving

• Continuous monitoring supported by a web based system

The web based monitoring system

Data assimilation

The 3DVAR data assimilation cycle run at HMS

• 6 hourly analysis:

• ARPEGE analysis for the surface

• 3DVAR for the upper air fields

• B-matrix: standard NMC

• Background: 6 hour ALADIN forecast

• 3 hour LBC coupling frequency. The LBCs:

  • at 0 and 6 hour: long cut-off ARPEGE analysis

  • at 3 hour: 3 hour ARPEGE forecast

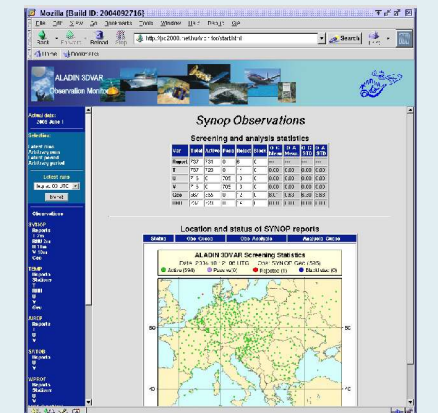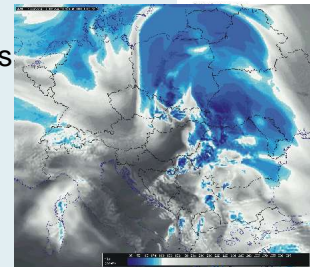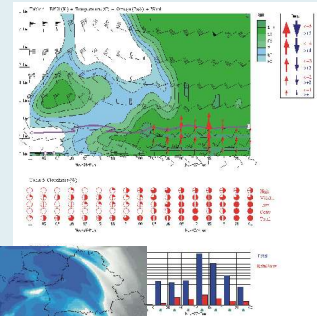• DFI applied (in cycling and production)

Observation usage

• Synop (surface pressure)

• Temp (T, u, v, q on standard pressure levels)

• ATOVS/AMSU-A (radiances from NOAA 15 and 16) with 80 km thinning distance

• AMDAR (T, u, v) with 25 km thinning distance and 1 hour time-window,
 a special pre-filter that allows only one profile in one thinning-box is also applied

• Experiments with:

  • GEOWIND (SATOB) from MSG

  • Windprofiler

  • ATOVS/ AMSU-B

• A web based system to monitor observation handling is under development

The 3DVAR observation monitor system

The computer system

• IBM p690 server (regatta) + IBM (p655) cluster server

• CPU: 2* 32 processors (1,3 Ghz + 1,7 Ghz)

• Peak performance: 5.2 + 10 Gflops/processor

• 64+ 128 Gbyte internal memory

• 1 Tbyte disk space

• Loadleveler job scheduler

• Totalview debugger (on Regatta)

Two IBM supercomuters at HMS: p690 (left) and p655 (right)