

NWP with ALADIN at Croatian Meteorological Service, October 2002

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In the Croatian meteorological service ALADIN is operationally run twice a day, for 00 and 12 UTC. Coupling files are retrieved from Vienna to the *lahor* machine. The *lancelot* (ee927) and the integration (e001) are done on the new SGI machine *mrcina*. The post-processing is done in-line. The e001 runs on 10 processors while the ee927 runs on one. After the main forecast integration on the Croatian HRv8 domain with an 8 km resolution is finished, the surface wind field is dynamically adapted to orography on the 5 domains with 2 km resolution that cover the coastal part of Croatia: the Senj, Karlovac, Maslenica, Split and Dubrovnik domains. The ee927 and e001 for dynamical adaptation run sequentially for each output historical files, using one processor per domain. The historical output files from the main integration and the dynamical adaptations are retrieved from *mrcina* to one LINUX PC during integration. The production of grib files, the visualisation of numerous meteorological fields and the production of pseudo-TEMPs are made on this linux PC. The pseudo-TEMP messages are transferred on another LINUX PC where HRID meteorological diagrams are done for 54 points. The products are available on the Intranet & Internet.

The Croatian HRv8 domain consist of 144x120 grid-points (127x109) with an 8 km horizontal resolution and 37 vertical levels. The dynamical adaptation domains - Senj, Karlovac, Maslenica, Split and Dubrovnik, with a 2 km grid consist of 80x80 (72x72) grid-points, 15 levels.

Computer environment, integration and visualisation of the products

Main computer is SGI ORIGIN 3400 with 16 x 400 MHz IP35 Processors. Main memory size: 6144 Mbytes, OS IRIX 6.5.

For visualisation 2 HP KAYAK i686 computers are used with 2 x 667 MHz Processors. Main memory size: 2 x 128 Mbytes. OS Red Hat LINUX 6.2 Kernel 2.2.16.

Download of the LBC files for 00 UTC run starts at 3:25 UTC and usually finishes at 4:32 UTC, integration starts at 3:30 UTC and finishes at 4:38 UTC and the dynamical adaptation starts at 4:40 UTC finishes at 4:58 UTC. Visualisation for 00 UTC run starts at 3:50 and finishes at 5:10 UTC

Download of the LBC files for 12 UTC run starts at 15:48 UTC and usually finishes at 16:49 UTC, integration starts at 15:55 UTC and finishes at 16:55 UTC and the dynamical adaptation starts at 16:57UTC finishes at 17:18 UTC. Visualisation for 12 UTC run starts at 15:50 and finishes at 17:30 UTC

CAPE from Radio Sounding Data & ALADIN PSEUDOTEMPs

Comparisons of convective available potential energy (CAPE) calculated from radio sounding data from Zagreb-Maksimir with CAPE calculated from prognostic ALADIN/LACE pseudo-TEMPs were done for 00 & 12 UTC runs. When surface values of pressure, temperature and specific humidity of PSEUDOTEMPs were replaced with measured values for the same term a very good agreement between CAPE calculated from PSEUDOTEMPs and that from radio soundings is achieved. A very good forecast for CAPE were achieved, even for 48 hours in advance. More details kovacic@cirus.dhz.hr.

The surface wind field and dynamical adaptation of the wind field for the lower troposphere

The wind field in lower troposphere from the operational integration with 8 km horizontal resolution is dynamically adapted to sub-domain with a 2 km resolution. This procedure is very useful for the coastal parts of Croatia due to the complex local terrain. For the new highway, a special study was made. Few hours before 16th of December 2001 18 UTC a maximum wind speed for that month was measured (10-min mean 33.2 m/s, wind gust 65.5 m/s) on a Maslenica bridge (44.23°,15.52°).

Maximum forecasted wind speed for 16th of December 2001 18 UTC, in HRv8 domain with 8 km resolution was 21 m/s. In Maslenica domain with 2 km resolution 34 m/s was forecasted.