

Operational short range NWP at Republic Hydrometeorological Service of Serbia

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Computer facilities

Cluster 1: 256 Intel Xeon E5440 processors (32 nodes with 8 CPUs on each) running under Red Hat Linux version 2.6.9-6.7.9hp x86_64.

7 TB + 4 TB of operational storage space22 TB for verification and archive.Old system.

Cluster 2: 384 Intel Xeon E5645 processors on 2.40GHz

(32 nodes with 12 CPUs on each) running under Red Hat Linux version 2.6.32-

220.el6.x86_64

Computing nodes are named from n97 to n128. 2x2TB of storage space + 2x6TB for backup. New system.



NWP models in operational use

ETA model Horizontal resolution 26 km 32 vertical levels forecast period +120h DWD BC 00 / 12 UTC





WRF-NMM at **RHMSS**

The **WRF N**on-hydrostatic **M**esoscale **M**odel (**NMM**) developed by NOAA/NCEP/EMC

Operational in RHMSS since August 2007. - WRF 2.0 Currently operational is WRF 3.5.1 Running on BCs from several global models

WRF-NMM ECMWF IFS BC



WRF-NMM NCEP GFS BC

Domain – Europe horizontal resolution 12km, 38 vertical levels 192h forecast start 00UTC/12UTC









WRF-NMM DWD ICON BC



Domain – Europe horizontal resolution 12km, 38 vertical levels 120h forecast; start 00UTC/12UTC

WRF-NMM DWD 500hPa Geopotencijal (gpdm), vetar i temperatura (C) Start:04.10.2015, 00UTC Valid:05,10,2015. 15UTC 63N -12 51 -28 -30 Beograd Start: 04.10.2015. 00UTC WRF-NMM DWD (mm) PAD 8 26 24 23 20 ZEML 100-200cm dubine 26 Ξ 24 STA 22 EMP ZEMLU 50CT 60CT 70CT SOCT

NMMB

NMMB (Nonhydrostatic Multiscale Model on B-grid) inside of the NEMS (NOAA Environmental Modeling System) structure

Further evolution of WRF Nonhydrostatic Mesoscale Model (NMM)

NMMB regional became the next-generation NCEP mesoscale model for operational weather forecast in 2011

Arakawa B grid (in contrast to WRF-NMM E grid) NMMB within NEMS can be run globally or regionally (just a simple switch) with nesting capabilities (static/moving, 1-way/2-way)

NEMS is a shared, portable, high performance software superstructure and infrastructure for all NCEP models, based on the Earth System Modeling Framework (ESMF)

Since January 2015 freely available at Developmental Test Center (DTC) http://www.dtcenter.org/

NMMB at RHMSS

Operational since: 2011 Global 2013 Regional 12 km 2015 Nested 4 km

What has been implemented and tested so far in RHMSS: Global NMMB on GFS analysis, IFS analysis Regional model on GFS, IFS, NMMB BC Resolutions from 2.5km to 12km Nesting, 2-domains and 3-domains; resolutions from 12 km to 1.3 km

Different physical options: Radiation: RRTM, GFDL Convection: BMJ, None (< 4 km) Microphysics: Ferrier, Ferrier for hi res. Land-sfc: NOAH, LISS





37th EWGLAM and 22nd SRNWP Meeting 5th - 8th October 2015, Belgrade

GrADS: COLA/IGES

NMMB global

NMMB Global IC GFS analysis
horizontal resolution 0.47 x0.33°
64 vertical levels, model top is 10 mb
120h forecast 00/12 UTC

NMMB globalni - 850hPa Geopotencijal (gpdm), temperatura (C)





NMMB regional

NMMB global BC

horizontal resolution 12 km 64 vertical levels forecast period 120h



