

RECENT ACTIVITIES AT THE REPUBLIC HYDROMETEOROLOGICAL SERVICE OF SERBIA

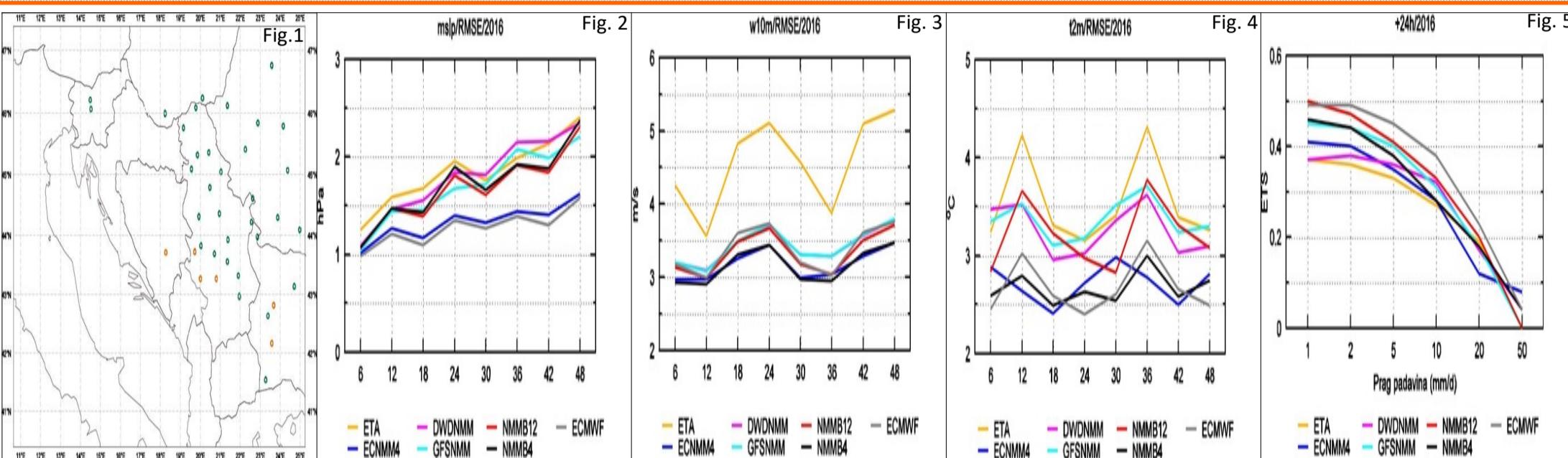
Goran Pejanovic, Assistant Director, goran.pejanovic@hidmet.gov.rs

During the last year, operational and research activities at the RHMS/SEEVCCC mainly has been focused on these three topics:

- Verification of the operational NWP system
- Hydrology – atmospheric modelling improvements in HYPROP
- Nuclear accident simulation using NWP DREAM-ER-NMME modell

Verification of the operational NWP system

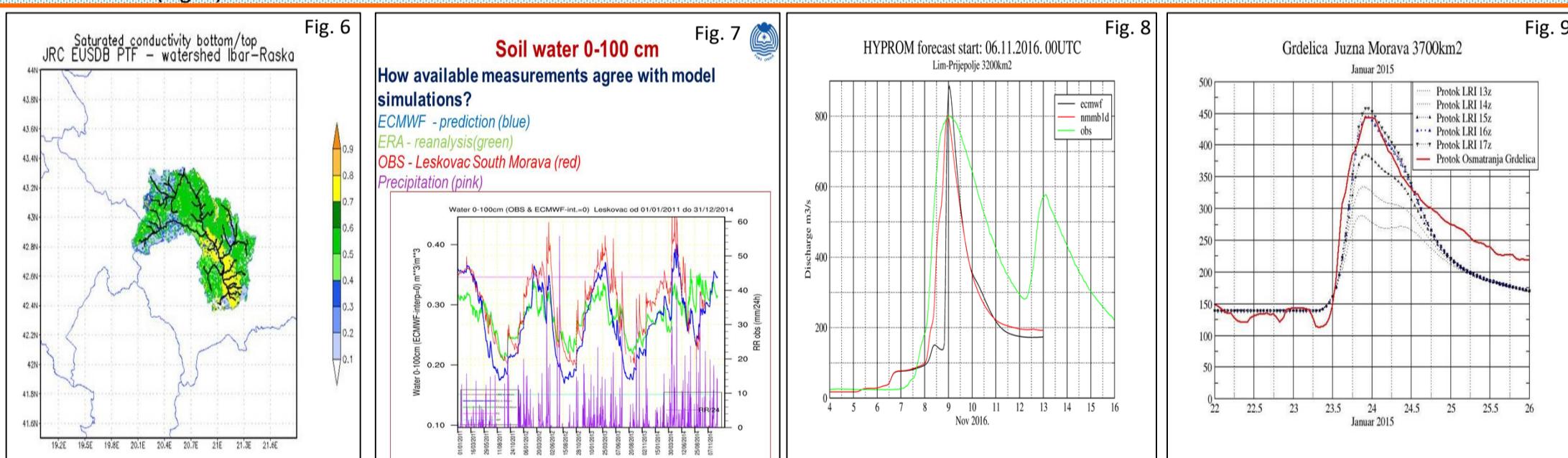
Verification of the operational regional NWP models and ECMWF high-resolution modell, against the observed parameters (mean sea level pressure, 10m wind, 2m temperature and precipitation) over the West Balkans, has been continued in 2016. The latest modell implemented in the operational forecast system is nested NMMB4. Scores obtained through standard WMO verification procedures show progress towards the better forecast of heavy precipitation, 10 metre wind and 2 metre temperature (Fig. 1-5).



ETA(ETA ~26km, conditions ICON-DWD); ECNMM4(WRF-NMM v3.0 ~4km, conditions IFS-ECMWF); DWDNMM(WRF-NMM v3.1.1 ~12km, conditions ICON-DWD); GFSNMM(WRF-NMM v3.2.1 ~12km, conditions GFS NCEP); NMMB12(NMMB ~12km, conditions NMMB GLOBAL); NMMB4(NMMB ~4km nested in NMMB12); NMMBEC(NMMB ~4km, conditions IFS ECMWF); ECMWF(IFs ECMWF~9km)

Hydrology – atmospheric modelling improvements

Horizontal and vertical soil type distribution, initial soil water content and precipitation are critical input and forcing parameters for the coupled hydrology-atmosphere forecast system. Derived 3D water constants (Fig. 6), from the European Soil Data Base, have been tested on heavy precipitation episodes, over few mid-sized watersheds in Montenegro and Serbia. High agreement between ECMWF analysis of soil moisture and observed data from 5 stations (Fig. 7) permits their use as initial conditions. In addition to modelled precipitation (Fig. 8), radar data has been used to force hydrology modell in flash flood episode in South Serbia (Fig. 9).



Nuclear accident simulation using NWP DREAM-ER-NMME modell

The aerosol transport model DREAM (DREAM-ER-NMME) was used at RHMS to simulate an anticipated nuclear accident at the Hungary's Paks Nuclear Power Plant, within the ConvEx-3 IAEA/WMO Global Emergency Response exercise, held on 21 June 2017 (IAEA – International Atomic Energy Agency). The exercise was developed in cooperation with authorities in Hungary, which acted as the accident state in the scenario. The RHMS results of the simulation showed a high level of comparability with the Regional Specialized Meteorological Centre in Toulouse (France), Fig. 10 - 11. The test simulation for the Kozloduy accident (2014) has been also performed, Fig. 12 - 13.

