



Evaluation of NIMROD precipitation nowcasting

A. Jurczyk, K. Osrodka, **J. Szturc**

Institute of Meteorology and Water Management, Radar Centre, Poland (jan.szturc@imgw.pl)

NIMROD is a British Met Office system which produces precipitation nowcasts with lead-time 1-6 hours. It is a hybrid system that combines advection radar-based nowcasts with NWP-derived forecasts using a proper weighting function. The Polish version of the NIMROD system is operated by Institute of Meteorology and Water Management (IMWM). Radar data provided by Polish weather radar network POLRAD constitutes the main input to the NIMROD. Other data applied to processing this input data are derived from measurement networks, such as telemetric synoptic stations (raingauges and meteorological stations) and meteorological satellite (Meteosat). NIMROD forecasts are generated by merging advection nowcasts with NWP forecasts produced by COSMO-LM model operated by IMWM as well.

The aim of the presentation is to show and evaluate quality of the forecasts generated by NIMROD. The concept is to assess the nowcasts basing on (1) relevant NIMROD analyses (spatial comparison), and (2) raingauge data (in their location pixels). In the presentation proposed methodology of evaluation, results, and comments will be presented.

The 180 x 170 domain of 4-km pixels, that covers the entire Poland, was defined. Area where flash floods are most likely to happen was chosen for analyses based on raingauge data. It is mountainous region in the south of Poland where the upper Vistula (Wisla) and Odra Rivers constitute the main causes of flood hazard.

The NIMROD forecast quality was investigated in dependence on:

- data used as reference (NIMROD analyses and raingauge point data),
- type of field (precipitation rates and 1-h accumulations),
- kind of forecast (merged from advection and NWP, advection, and persistence)

nowcasts),

- lead-time (from 0 h, i.e. analysis, to 6 h ahead),
- precipitation threshold (from 0 mm/h to 5 mm/h),
- type of precipitation (snowfall and rainfall) basing on thermal seasons.

Quality of merged forecasts up to 2 hours decreases, and then is nearly steady. The quality was measured using various criteria, such as RMSE, bias, correlation coefficient, and other based on contingency table. It seems that the forecast quality does not meet requirements of operational hydrological modelling for lead-times over 2 hours.