



## **Verification of precipitation of the COSMO\_LM in Poland.**

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The national meteorological service of Poland operates the version of “Lokal Modell” (DWD) in an operational mode at 14 km grid spacing twice a day (00 UTC and 12 UTC). We named it COSMO\_LM because we are the member of the Consortium for Small-scale Modelling, COSMO. The size domain is 193 x 161 grid points and 35 vertical layers.

Precipitation forecasting is one of the most important reasons to utilize a numerical weather prediction model. The question about quality of this forecast is very important. Verification has been performed in terms of 24-hour cumulated precipitation. Observations are derived from a rain gauge network (308 stations).

For the calculations we interpolated the gridded forecast values on the station points where observations are available. The interpolation of the forecast values on the station points was performed by averaging the values on the four nearest grid points. For this purpose we used the bilinear interpolation. We verified the 24-hour precipitation amounts using 7 indices from the contingency table for the 3 day forecast range (1st day, 2nd day, 3rd day).

For verification of the precipitation thresholds 0.5, 1, 2.5, 5, 10, 15, 20, 25, 30 mm were used. For each threshold the following scores were calculated: frequency bias index (FBI), probability of detection of event (POD), false alarm rate (FAR), true skill statistic (TSS), Heidke skill score (HSS) and equitable skill score (ETS). The model overestimates the amount of precipitation. Especially, it was apparent for threshold bigger than 10.0 mm. For threshold 0.5 mm in 1st day of forecast the POD index was always bigger than 80 % and the FAR index was smaller than 40 %. Those indices did not deteriorate significantly in subsequent days of the forecast. For higher

precipitation, the FAR index significantly increased and exceeded the POD index.

I will present the results of verification from January to December 2005. I would also demonstrate examples of the behaviour of the model in the extreme meteorological situation.