

Application and verification of ECMWF products 2014

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1. Summary of major highlights

ECMWF products are main source of information for medium and long range weather forecasts. EFI, probabilistic forecasts from EcCharts Web Service and EPS meteograms are used to check deterministic forecasts and to evaluate risk of severe weather events. SHMI plans using LBC from ECMWF for LAM ALADIN –SLOVAKIA.

2. Use and application of products

2.1 Post-processing of model output

2.1.1 Statistical adaptation

There is no statistical adaptation of ECMWF products at SHMI.

2.1.2 Physical adaptation

SHMI has tested using of LBC from ECMWF for our LAM ALADIN-SLOVAKIA and we plan to start to use them operationally. Air quality department ad-hoc uses ECMWF model data as input for WRF model and results are input for CMAQ model. SHMI participates in development and research of LAM EPS (ALADIN-LAEF), which uses ECMWF model outputs.

2.1.3 Derived fields

No derived fields are calculated from ECMWF products.

2.2 Use of products

ECMWF products are main source for medium range weather forecasts and forecasters use ECMWF deterministic or ensemble forecasts even for evaluation of probability of short range weather forecasts. EFI products, EPS meteograms and probabilistic forecasts visualised by EcCharts Web Service are used in order to evaluate risk of severe weather situations for the whole available time range.

The monthly forecasts are based on ECMWF monthly forecasts. The seasonal forecasts are preparing very rarely, but are again based on ECMWF seasonal forecasts.

3. Verification of products

Software package Harmonie was installed at SHMI last year. It provides verification scores for deterministic forecasts, but uses standard observations from GTS, or from databases available for ECMWF also. We do not use Harmonie package regularly for verification of ECMWF products. We expect verification scores are very similar to scores computed by ECMWF because of using of identical observation databases.

3.1 Objective verification

3.1.1 Direct ECMWF model output (both deterministic and EPS)

3.1.2 ECMWF model output compared to other NWP models

3.1.3 Post-processed products

3.1.4 End products delivered to users

3.2 Subjective verification

3.2.1 Subjective scores (including evaluation of confidence indices when available)

3.2.2 Synoptic studies

4. References to relevant publications

Wang, Y., M. Bellus, J.-F. Geleyn, X. Ma, W. Tian, F. Weidle, 2014: A New Method for Generating Initial Condition Perturbations in a Regional Ensemble Prediction System: Blending. *Mon. Wea. Rev.*, 142, 2043–2059.

Wang, Y., M. Bellus, G. Smet, F. Weidle, 2010: Use of the ECMWF EPS for ALADIN-LAEF, ECMWF Newsletter No. 126 - Winter 2010/11, 12-16.