Application and verification of ECMWF products 2010

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1. Summary of major highlights

The ECMWF deterministic model output is a milestone of LHMS operational 5-day and medium and long-term forecasts. ECMWF output are used mainly supporting the usual weather service, and also as input for applications such as limited area NWP modelling – HIRLAM.

2. Use and application of products

2.1 Post-processing of model output

2.1.2 Physical adaptation

Boundary conditions for local limited area models – HIRLAM using BC project.

Boundary Conditions for HIRLAM:

HL8 - Resolution 0.08 deg,

4 daily runs at main synoptic hours,

Forecast duration – 54 hours.

HL_L7 – Resolution 0.072 deg,

4 daily runs at main synoptic hours,

Forecast duration – 54 hours.

2.2 Use of products

Use of ECMWF products in operational duties, in particular use in severe weather situations:

Atmospheric model (deterministic) forecast products from 00 and 12 UTC model runs. Surface –Mean sea level pressure, 2 m temperature, 2 m dew point temperature, 10 m U-wind component, 10 m V-wind component, Sea surface temperature, Sea ice cover, Total cloud cover, Low cloud cover, Middle cloud cover, High cloud cover, Convective precipitation, Large scale precipitation, Total snowfall. Multi level fields (1000 925 850 700 500 400 300 250 200 150 hPa) – temperature, u component of wind, v component of wind, geopotential, relative humidity, vertical velocity.

Atmospheric model data are distributed and visualised via forecasters Messir Vision workstation software. Other products like EPS, monthly and seasonal forecast, regional weekly anomalies, Epsgrams and EFI are taken from ECMWF website.

3. Verification of products

3.2 Subjective verification

3.2.2 Synoptic studies including evaluation of the behaviour of the model:

There were 3 hazardous meteorological events during the year 2009:

1. Local heavy rain (74 mm/in 4.25 h) in Central part of Lithuania (Kedainiai region) on the 23rd June 2009 (this meteorological event was very local, thus global model couldn‘t predict it);
2. Heavy rain (58-60 mm/in 12 h) in the Western part of Lithuania on the 8th July 2009 (the situation was predicted by model 216 h before)
3. Strong convection round the country, including thundery showers, squalls (17–20 m/s), strong hail – 21 mm (in SW part – Jurbarkas region) on 19th July 2009. (The warning about strong wind was issued in time as forecaster has good information from ECMWF – the situation was predicted by model well 120 h before).