

# Application and verification of ECMWF products 2007

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## 1. Summary of major highlights

The year 2006 has been the first full year of the cooperating member status for Estonian Meteorological Hydrological Institute (EMHI) at ECMWF. Most of the technical development supporting operational activities took place during 2006. ECMWF products are now intensely used at EMHI. The main idea behind current application system is the locally tailored visualisation of the basic meteorological products through EMHI's internal web portal. A system for verification of the ECMWF products has not been implemented yet.

## 2. Use and application of products

The ECMWF deterministic model output is the backbone of EMHI's operational 5-day forecasts. MetView generated jpg images of the basic meteorological fields are generated on `ecgate` and transported to EMHI. An internal web-portal is used to supply the fields to forecasters. The web-portal images have better local focus and higher temporal resolution than ECMWF web products. Following maps are provided to forecasters:

- 24-144 h forecasts with 6 h interval, Northern Europe area
  - mean sea level pressure together with 6h precipitation fields. Rain, sleet and snow phases are separated with colouring.
  - 10 m wind and 2 m temperature
  - 850 mb temperature and 500 mb geopotential
  - 700 mb relative moisture
  - false colour cloud map similar to ECMWF web product
- 24-144 h forecasts with 6 h interval, Estonian area
  - 2 m temperature
- 24-144 h forecasts with 6 h interval, the Baltic Sea area
  - mean sea level pressure together with 10 m wind. Wind field is shaded with different colours when certain level of warning is exceeded
- analysis, Northern Europe area
  - mean sea level pressure together with Meteosat image
  - mean sea level pressure
  - 10 m wind and 2 m temperature
  - 850 mb temperature and 500 mb geopotential
  - 700 mb relative moisture
- additional maps
  - sea level temperature analysis, European area
  - sea-ice cover analysis, Northern Europe

Longer than 5 days forecasts are given only on request and data from ECMWF website is used then. Ensemble forecasts are used from ECMWF website only in the case of specific events or request. The main subjects of interest have been so far probability of wind (gust) to exceed a threshold in strong cyclone, probability of temperature dropping below certain value or probabilities of waves to exceed certain height. EPSgrams at the ECMWF website are used often by forecasters but not routinely. ECMWF model output is used to pre-fill tables of weather of towns in global, European and local scale. Very simple diagnostics is applied to determine weather category icon. The tables are later checked by the forecaster and supplied to a newspaper or TV-station.

A 72 h 10-m wind forecast at two points are provided in table form operationally to energy company "Eesti Energia" for wind-generator production estimation calculations.

### 2.1 Post-processing of model output

#### 2.1.1 Statistical adaptation

2.1.2 *Physical adaptation*

2.1.3 *Derived fields*

## **2.2 Use of products**

## **3. Verification of products**

### **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**