

# Application and verification of ECMWF products 2018

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## 1. Summary of major highlights

MeteoLux uses mainly ECMWF deterministic (2.5, 0.125, 0.250) and ensemble model output data for their medium range forecasts as well as probabilistic charts and verification data.

## 2. Use and application of products

Whereas the HRES model data is mainly used for forecasts up to D-3, most of the forecasters at MeteoLux switch to ENS data for the medium term forecasts.

As MeteoLux is sending out the official weather warnings for the Grand-Duchy of Luxembourg, a probabilistic approach by the forecaster (using the ensemble products, ecCharts, EFI, ...) is very important for decision making. This method reveals itself as consistent and effective.

### 2.1 Post-processing of ECMWF model output

There are no activities in post-processing at MeteoLux.

### 2.2 ECMWF products

#### 2.2.1 Use of Products

- Data (HRES/ENS) directly used by the forecasters for human expertise.
- The Meteograms are widely used by the staff to have a global overview of the forecasts and/or to identify uncertainties in the model output.
- HRES data is included in our internal forecasting system (Synergie from MFI), together with other deterministic model data as ARPEGE, AROME, GFS, ...
- ENS data used when uncertainties are present (e.g. convective weather situation, snow accumulation, wind gusts, ...) for short, medium and long term forecasts.

#### 2.2.2 Product requests

EcCharts is very slow and not really user-friendly. (e.g. Borders disappear once a layer is being added, ...)

## 3. Verification of products

The only verification being done is the analysis of the forecaster for the choice of the “accurate” model. This sometimes vary between ECMWF and the French models. The French non-hydrostatic model AROME is especially good in convective weather situations!

Meteolux is currently not using any model data for fully automatic products that are not reviewed by the forecasters.

Beside the French models, ECMWF products are also used daily by the staff of MeteoLux.

### 3.1 Objective verification

No objective verification of ECMWF products at MeteoLux.

### 3.2 Subjective verification

Based on the forecasters’ experiences the following statements can be made:

- The parameter (T2m) in the deterministic approach is quite often lower than the measured values.
- The parameter wind is very consistent with measured values.
- ECMWF is often used fog foggy conditions and often reflects reality.

#### **4. Feedback on ECMWF “forecast user” initiatives**

As the ecCharts is not very user friendly, the description is really helpful to the forecaster in organising his dashboard.

Especially the articles on past severe weather phenomena are very interesting. By studying these, the forecaster gets a good approach on how using the different parameters available and how to interpret them.

The “Known IFS forecasting issues” helps how to correct some parameters in order to be more representative.