

# Application and verification of ECMWF products 2008

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## 1. Summary of major highlights

No significant developments over the year 2007. LHMS joined the BC project in the II quarter of the year 2008.

## 2. Use and application of products

ECMWF password-protected website is used. Medium-range deterministic and ensemble forecasts are used in daily operational work for origination of 1-5-day general weather forecasts for Lithuania and warnings about dangerous and disastrous phenomena, 10-day extreme temperature forecasts for heating utilities.

ECMWF monthly (4-week) and seasonal forecasts of mean temperature and precipitation anomaly forecasts are used for origination of similar forecasts for Lithuania. These forecasts are posted on the LHMS website comparing them to climatic normals. ECMWF as a source is indicated. Mean monthly and weekly temperature validation diagrams for the year 2007 are presented in Chapter 3.

### 2.1 Post-processing of model output

ECMWF data from the BC (Boundary Conditions) project is used as an input for HIRLAM (0.08 d. resolution) runs at LHMS. Boundary conditions are retrieved for the main synoptic hours (00, 06, 12 and 18 UTC) 4 times per day. ECMWF BC data has fully replaced the previously used Hirlam boundary source (0.15 d. resolution Hirlam RCR from the Finnish Meteorological Institute). Only a short-term verification between Hirlam results using different boundary sources has been performed, due to limited computing power.

### 2.2 Use of products

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

Heavy rain on 5th - 8th of July 2007. There was 2.5-month amount of rain (202 mm)/4 days at 1 meteorological station (MS). At 6 MS - 50 mm and more in 12 hours and less. At 1 MS - 86 mm/12 h and at others - 85 mm/10 h. It was for the second time when such heavy and long rain period occurred in Lithuania over the last 30 years, and a significant damage had been done - mainly by rivers floods. Moreover, it spoiled the all-Lithuanian open-air festival of songs and dances.

ECMWF, MetOffice and DWD numerical forecasts as well as HIRLAM provided very good guidance on the cyclogenesis 2 - 3 days in advance of the event. It allowed forecasters to predict weather conditions quite well and to issue severe weather warnings in time.

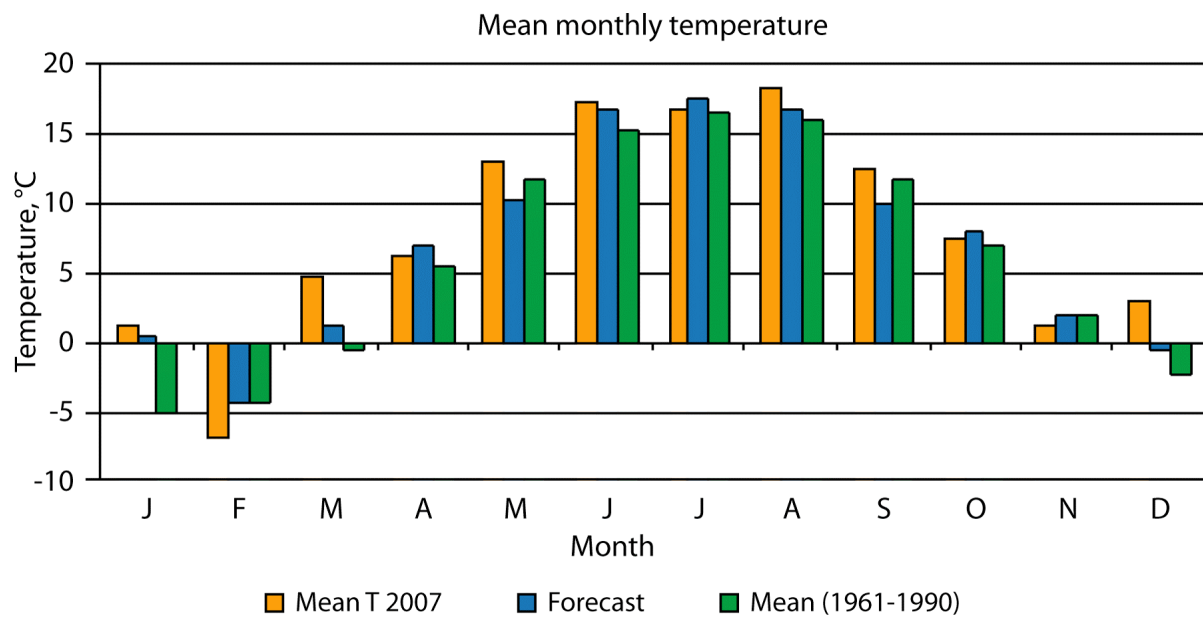
Year 2008:

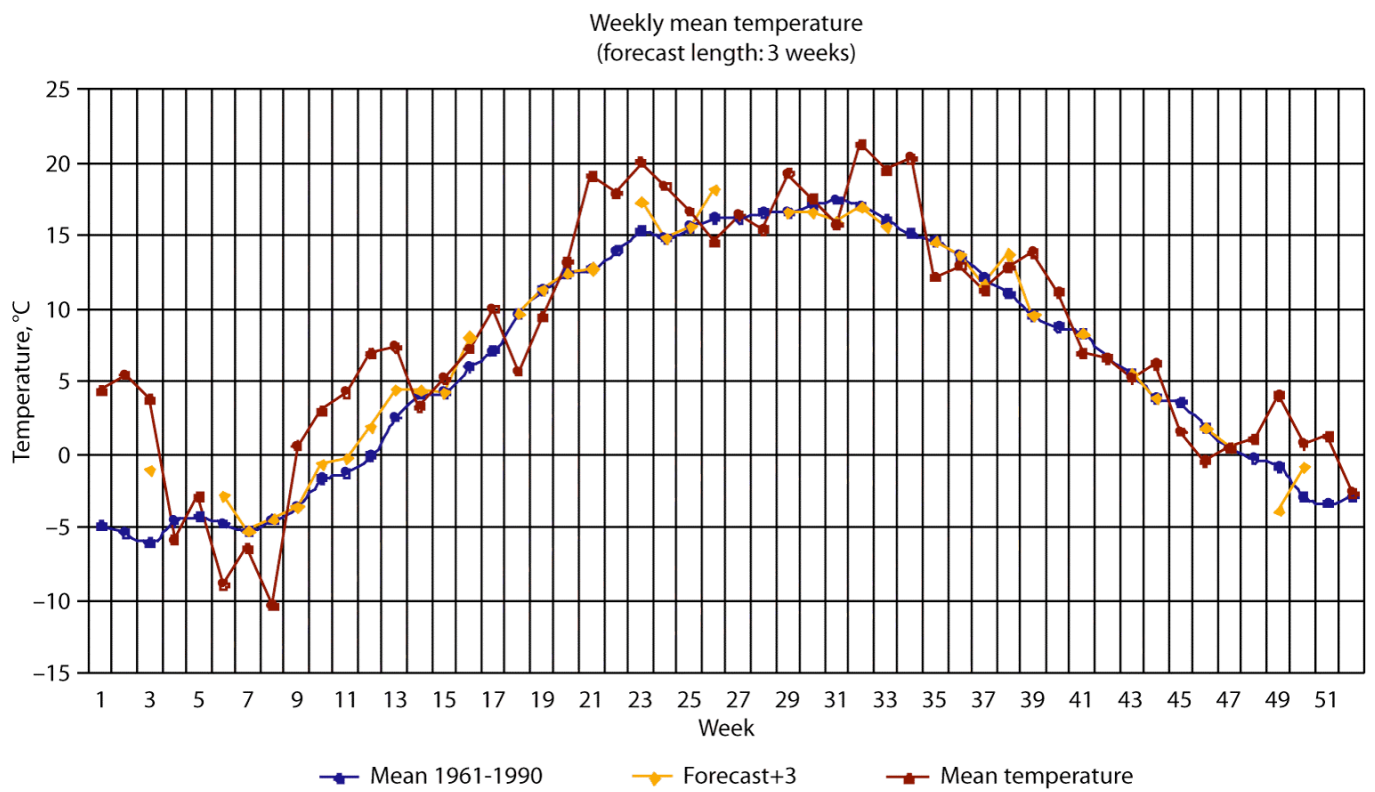
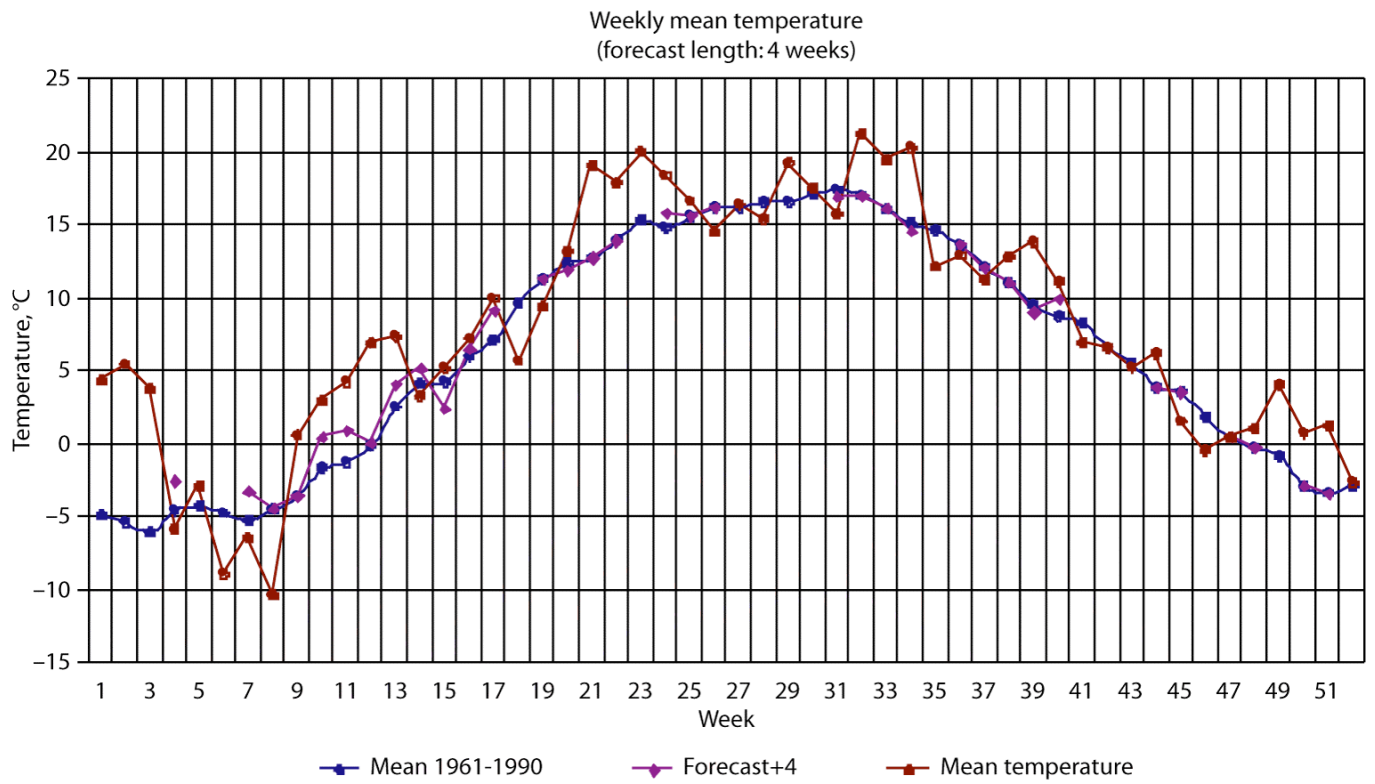
On February 22nd - 23rd, a disastrous wind reaching 28 - 29.5 m/s criterion was recorded in western borderland of Lithuania. In West Lithuania, over 5 thousand inhabitants were left without electricity. There were complaints about damaged dwelling-house roofs and decorative elements, broken windows, also farmsteads and cars suffered damage. The Lithuanian Insurance had to compensate damages caused by strong wind amounting to 100 thousand Lit. Timely issuance of the warning was assisted by EPS probability wind gusts at least of 25 m/s forecast.

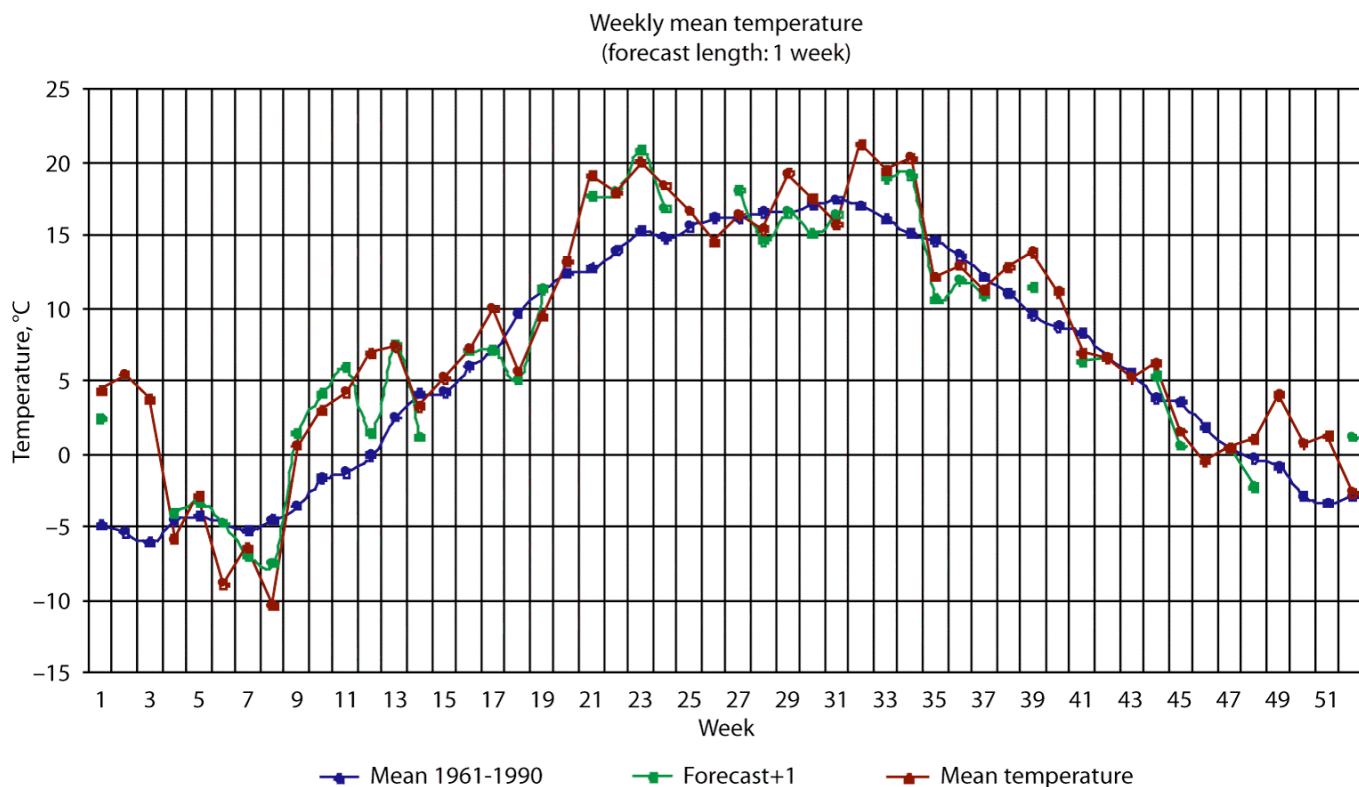
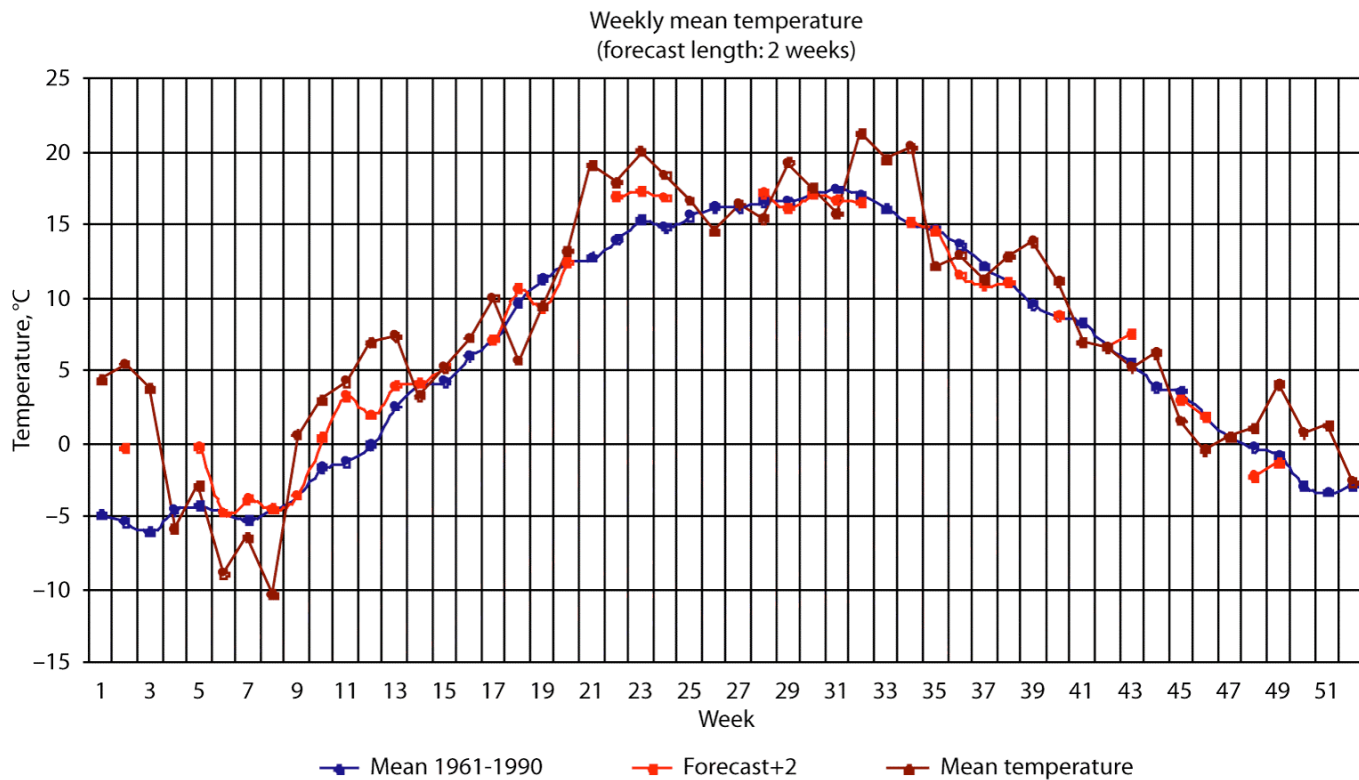
Mild and almost snowless winter was followed by a cold spell on March 17th - 18th, causing very unfavourable weather conditions like freezing rain, sleet and snowfall amounting to 13 cm snowcover formed overnight, here and there accompanied by snow-stick and fog. ECMWF model had well predicted not only synoptic situation but also the amount of precipitation and other parameters.

## 3. Verification of products

A comparison of mean monthly temperature and mean weekly temperature to measured means of monthly and weekly temperature means in 2007 as well as climatic normal (1961-1990) is presented.







#### 4. References to relevant publications

No publications over the year 2007.