

JOINT WMO TECHNICAL PROGRESS REPORT ON THE GLOBAL DATA PROCESSING AND FORECASTING SYSTEM AND NUMERICAL WEATHER PREDICTION RESEARCH ACTIVITIES FOR 2007

Lithuanian Hydrometeorological Service

1. Summary of highlights

Lithuania is a cooperating member of ECMWF since 2006 and of the international HIRLAM consortium since 2007.

The numerical weather prediction (NWP) system operational at Lithuanian Hydrometeorological Service (LHMS) is based on the HIRLAM NWP system, maintained by the international HIRLAM consortium (<http://hirlam.org/>).

2. Equipment in use

12-node Linux PC cluster for short-range forecasting system is used at LHMS.

3. Data and Products from GTS in use

Initial data and boundary conditions for the local HIRLAM model are received from ECMWF via Finish meteorological institute. Real time data (SYNOP, TEMP, etc.) received via GTS at LHMS are not used for NWP.

4. Forecasting system

4.1 System run schedule and forecast ranges

Medium range forecasting at LHMS is based on ECMWF operational model. NWP products for compiling 3-10 day weather forecast are available twice a day (initial time 00 and 12 UTC) via password-protected internet connection (www.ecmwf.int).

A short range NWP HIRLAM model adopted for Lithuania is used (more in section 4.3).

4.3 Short-range forecasting system (0-72 hrs)

4.3.1 Data assimilation, objective analysis and initialization

4.3.1.1

Assimilated data – SYNOP, SHIP, BUOY, TEMP/PILOT t, u, v, q. Method of analysis - 3DVAR. Observation cut-off time – 2 h, initialization method – IDFI. First guess from + 6 hour since previous cycle forecast.

4.3.1.2 Research performed in this field

4.3.2 Model

4.3.2.1

HIRLAM. Hydrostatic, resolution of 0.08 d. with 60 vertical levels. Time step of 180 s. is used both for physics and dynamics. Forecast range 0-54 hours, interval of main NWP product output – 1 hour. 4 full 54-hour runs performed per day. Current boundary source 0.2 d. resolution HIRLAM, usage of ECMWF boundary data is planned to be used in 2008. Horizontal domain coverage approx. 11-29 E, 47-66 N., highest vertical model level at 10 hPa. More information about the model can be obtained from the official website listed in paragraph 7.

4.3.2.2 Research performed in this field

4.3.3 Operationally available NWP products

Temperature, relative humidity (surface, 2 m. height + standard pressure levels), dew point temperature (surface, 2 m.), cloud cover (low, medium, high, total), wind speed (10 m. and standard pressure levels), pressure (surface and mean sea level), geopotential (standard pressure levels), vertical motion (standard pressure levels), accumulated precipitation (rain and snow fraction - surface), cloud water, cloud ice; products from internal post-processing – visibility, cloud satellite, precipitation type, wind gust at 10 m.

All NWP HIRLAM forecasts are available to duty forecasters on MESSIR-VISION workstations.

4.3.4 Operational techniques for application of NWP products

4.3.4.1 In operation

HIRLAM forecasts provide guidance to duty forecasters(for general and specialized weather forecasts). Some of them are made available for general public via LHMS website.

4.3.4.2

4.3.5.3

4.4 Nowcasting and Very Short-range Forecasting Systems (0-6 hrs)

NWP HIRLAM model adopted for Lithuania is used (more in section 4.3).

5. Verification of prognostic products

5.1 Annual verification summaries are not available, due to the limited computational area. However, some standardized verification scores based on surface observations and upper air soundings are being provided for operational forecasters and HIRLAM consortium.

5.2 Research performed in this field
"[Summary of research and development efforts in the area]"

6. Plans for the future (*next 4 years*)

Boundary data for the local HIRLAM model is planned to be received directly from ECMWF.

6.1.1

6.1.2

6.2 Planned research Activities in NWP, Nowcasting and Long-range Forecasting

6.2.1 Planned Research Activities in NWP

6.2.2 Planned Research Activities in Nowcasting

7. References

"[information on where more detailed descriptions of different components of the DPFS can be found]"

<http://www.hirlam.org>