

Annual WWW Technical Progress Report

On the Global Data Processing and Forecasting System 2004

ISRAEL

1. Summary of Highlights

- During 2004 further development of the Intranet site has been carried on.
- Run of regional model with increased horizontal (about 13 km) and vertical (38 layers) resolutions has been put into operational routine.
- A quasi-operational run of new wave model started.
- Printing of meteorological charts was implemented instead of plotting.

2. Equipment in Use

2.1 Operational equipment

- No major changes in the GDPS system backbone.
- 2 laser A3 color printers (IBM Infoprint 1357) were installed for charts printing.

2.2 Communications

No major changes.

3. Data and Products from GTS in Use

3.1 Data

Data from the northern hemisphere supplied by RTH Offenbach.

3.2 Products

3.2.1 Products received from GTS

A number of products received in a 24-hour period:

GRIB EGRR	1018	bulletins
GRIB EDZW	1330	bulletins
GRIB ECMF	364	bulletins
CDF in T.4 format	158	charts

3.2.2 Products received from other sources

Gridded products in GRIB code from:

- DWD HRM.
- UKMO HRM.
- NCEP MRF model.

- MM5 model from Tel-Aviv University

4. Data Input System

Fully automated. INFORMIX DBMS is used for the data management.

5. Quality Control System

No change.

6. Monitoring

No change.

7. Forecasting System

7.1 System run schedule

<u>Time (UTC)</u>	<u>System running</u>
01:40	00 UTC preliminary analysis
02:50	00 UTC IMS HRM forecast (00h-78h)
03:30	00 UTC quasi-operational WAM forecast (00h-72h)
03:40	00 UTC main analysis
06:10	00 UTC WAM forecast (00h-48h)
10:40	00 UTC final analysis
13:40	12 UTC preliminary analysis
14:50	12 UTC IMS HRM forecast (00h-78h)
15:30	12 UTC quasi-operational WAM forecast (00h-72h)
15:40	12 UTC main analysis
18:10	12 UTC WAM forecast (00h-48h)
22:40	12 UTC final analysis

MSL pressure analysis is carried out every 3 hours with cut-off of 0:40 and 2:40 hrs.

7.3 Short-range forecasting system.

7.3.2 Regional Forecasting Model

A new version of the regional high resolution forecasting model (HRM) was installed in October. Instead of the old HRM (IR) (horizontal step of 0.25° and 20 vertical layers) we are running, twice a day, HRM (IH) (horizontal step of 0.125° and 38 vertical layers).

The analysis and forecast data of the global model, GME, from DWD are used as initial and lateral boundary data. Since September we are receiving these data with spatial resolution of 40 km and 42 vertical layers.

7.3.3 The products of short-range models run.

The products saved in the data base are:

Sea level pressure.

Geopotential, temperature, wind and relative humidity at 1000, 975, 950, 925, 900, 850, 700, 500 and 300 hPa levels.

Surface level: temperature, max/min temperature, wind, relative humidity, cloud amount and accumulated precipitation.

Model integration is made from 6 to 78 hours with output every hour (depicted on charts every 6 hours).

7.3.4 Wave model

During 2004 a new version of WAM Cycle 4 , upgraded for FORTRAN 90, was adjusted for operation. The adjustment has been performed with the cooperation of Israel Oceanographic and Limnological Research Institute.

The model is running in two versions of different resolutions, a coarse one and a fine one. The coarse version boundaries are 30° N to 46° N and 6W° to 37 E°, and its resolution is 0.5° x 0.5° (latitude and longitude).

The fine version boundaries are 30.5° N to 41° N and 22° E to 36.5 E° with resolution of 0.125° x 0.125°.

The input wind-field source is UKMO High Resolution model.

8. Verification of prognostic products

HRM main verifications against analysis for the region (27E-37E, 28N-40N)

<u>RMS error of mean sea level pressure (hPa)</u>												
	IR (0.25°)								IH (0.125°)			
	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
24h	1.4	1.5	1.2	1.2	1.3	0.9	1.0	1.1	0.9	1.0	1.0	1.2
48h	1.9	1.9	1.8	1.7	1.5	1.3	1.5	1.8	1.3	1.1	1.4	1.6
72h	2.6	2.4	2.3	2.1	2.3	2.0	1.9	2.3	1.6	1.2	1.9	1.8

<u>RMS error of geopotential height at 500 hPa (m)</u>												
	IR (0.25°)								IH (0.125°)			
	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
24h	13	13	10	10	11	8	7	7	8	9	9	10
48h	20	20	17	16	13	11	10	10	9	12	15	16
72h	29	25	25	20	16	15	13	13	12	17	16	19

<u>RMS error of temperature at 850 hPa (°C)</u>												
	IR (0.25°)								IH (0.125°)			
	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
24h	1.1	1.3	1.0	1.3	1.3	1.1	1.1	1.2	1.2	0.9	0.9	1.0
48h	1.3	1.6	1.6	1.7	1.5	1.5	1.5	1.5	1.4	1.3	1.2	1.3
72h	1.6	1.9	2.0	2.1	2.1	2.0	1.9	1.7	1.6	1.5	1.4	1.7

9. Plans for the future

- Further improvement of the regional model in collaboration with DWD.
- An ongoing improvement of the forecasters' tools.
- An upgrading of the database server and the DBMS.
- Planning of the migration to TDCF.
- Cooperation agreement with the ECMWF.