

## **ISRAEL METEOROLOGICAL SERVICE**

### **1. Summary of highlights**

Major developments and implementations in GDPS in 2006 are as follows:

- A new Acquisition, Processing and Display system was installed for the new digital MSG satellite products usage.

### **2. Equipment in use**

#### **2.1 Operational equipment**

The IMS computing backbone is provided by SGI Origin 350 Unix server having 2 cpus ( used for database management ) , SGI Origin 200 Unix server having 2 cpus ( used for communications tasks ) and SGI Origin 300 Unix server having 8 cpus ( used for NWP – operational and research activities).

All run under IRIX, system version 6.5 .

4 SGI Indy and O2 workstations are used for software development.

A TP9100 storage array provides disc storage of 1 TB.

Peripheral equipment includes 2 IBM Infoprint 1357 laser A3 color printers used mainly for charts printing and 1 Dataproducts CI-500e line dot matrix printer for long reports printing.

#### **2.2 Software in use at IMS**

The main data bases, a real-time data base and an archive data base are using INFORMIX 7.31.

The core computer environment is mainly Unix. The operational software is written mostly in Fortran 77 and Fortran 90, Java, Perl and Unix shell language. The WEB technology is used for the Intranet site development.

An Intranet site provides a working environment for the local and remote users.

A few systems are developed in the Windows environment using Power Builder software.

#### **2.3 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 ECMWF	364 bulletins
CDF in T.4 format	158 charts

##### **3.2.2 Products received from other sources**

Gridded products in GRIB code from:

- DWD global model (GME).
- UKMO global model
- 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**

METDATA monitoring software is used for WMW Annual Global Monitoring.

### **7. Forecasting System**

## **7.1 System run schedule**

<b><u>Time (UTC)</u></b>	<b><u>System running</u></b>
01:40	00 UTC preliminary analysis
02:50	00 UTC IMS HRM forecast (00h-78h)
03:40	00 UTC main analysis
05:30	00 UTC WAM forecast (00h-72h)
10:40	00 UTC final analysis
13:40	12 UTC preliminary analysis
14:50	12 UTC IMS HRM forecast (00h-78h)
15:40	12 UTC main analysis
17:30	12 UTC WAM forecast (00h-72h)
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**

No change.

### **7.3.3 The products of short-range models run.**

No change.

### **7.3.4 The wave model**

The wave model is operating in an operational mode although we are not entirely satisfied regarding its results. We are still comparing the model's results with the measurements taken in Haifa, Hadera and Ashdod, and a statistical evaluation is done using the measured data and the forecasted data twice a day at 00 and 12 UTC.

Assuming that the wave model is the best model available for us from the physical and numerical point of view, it might be that the wind input data is the cause why the wave results are not quite precise.

We are now considering to check the local model for forecasted wind data input, rather than the UKMO model data input that is used constantly. Recently we began to accept continuously wave data from the SWAN model, and we plan to compare it with the WAM results.

## 8. Verifications of prognostic products

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

<b><u>RMS error of mean sea level pressure (hPa)</u></b>												
	<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>
<b>24h</b>	1.2	1.1	1.2	1.3	1.1	1.2	1.0	1.1	.90	1.1	1.0	1.1
<b>48h</b>	1.5	1.3	1.6	1.6	1.1	1.7	1.3	1.6	1.2	1.2	1.2	1.3
<b>72h</b>	2.0	2.0	1.8	1.7	1.1	2.0	1.7	1.9	1.6	1.5	1.6	1.7

### **RMS error of geopotential height at 500 hPa (m)**

	<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>
<b>24h</b>	9	9	9	12	10	7	7	7	7	7	7	8
<b>48h</b>	15	13	16	13	15	11	9	8	10	11	12	14
<b>72h</b>	21	20	19	24	17	14	11	12	13	18	18	23

### **RMS error of temperature at 850 hPa (C°)**

	<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>
<b>24h</b>	1.1	1.2	1.1	1.6	1.3	1.6	1.3	1.4	1.1	1.1	9	9
<b>48h</b>	1.4	1.3	1.4	1.8	1.5	1.7	1.6	1.7	1.3	1.3	1.1	1.2
<b>72h</b>	1.4	1.7	1.6	2.1	1.8	1.8	1.9	2.0	1.4	1.6	1.4	1.4

## 9. Plans for the future

- Further improvement of the regional model in collaboration with DWD.
- An ongoing improvement of the users' tools.
- Development of a verification scheme especially for Synoptic types.
- Cooperation agreement with the ECMWF.
- New IMS Web site development and implementation.
- IMS Weather radar hardware and software upgrading.