Annual WWW Technical Progress Report on the Global Data Processing and Forecasting System (GDPFS) 2004

THAILAND

1. SUMMARY OF HIGHLIGHTS

The Thai Meteorological Department (TMD) has been running operational NWP models since March 2000. There are three models: Global (100 km resolution), South East Asia (48 km resolution) and Thailand (17 km resolution). Forecasters use the products and they are satisfied with the performance of the models. The products are also required by other government agencies such as the Thai Royal Air Force, the Royal Thai Navy, the Royal Rain-Making Office, and the Pollution Control Department.

In December 2004, time length forecasting of the Global model was extended from 3 days to 7 days.

2. EQUIPMENT IN USE

The IBM RS/6000 SP supercomputer is currently used in operation. It consists of six wide nodes (Power2 SC 135 MHz) and 32 thin nodes (Power2 SC 120 MHz). Each wide node has 512 Mb of memory and 4.5 Gb storage and each thin node has 128 Mb of memory and 2.2 Gb storage. The total 32-node system has a peak performance of 7.488 GFLOPS (LINPACK DP) and a peak performance of 12.96 GFLOPS (LINPACK TPP).

Two RS/6000 model 595 computers (Power2 SC 135 MHz) are used as high availability control workstations for the system.

Image and graphics are displayed by the IBM RS/6000 43 P Model 140 workstations with POWER PC604e 233 MHz, 256 Mb memory and 9 Gb disk storage.

3. DATA AND PRODUCTS FROM GTS IN USE

The following observations are daily averaged number used for running NWP models.

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SURFACE    - 7000 reports
SONDE      - 540 reports
SATWIND    - 1400 reports
AIRCRAFT   - 5000 reports
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4. DATA INPUT SYSTEM

Data input is automated.

5. QUALITY CONTROL SYSTEM

Coded observation data receiving from stations in the country are checked against WMO international code forms at the center, errors are reported and data are corrected before they are put on the GTS. No further quality control checks are performed.

6. MONITORING OF THE OBSERVING SYSTEM

Surface and upper-air observations are monitored on the national level.

7. FORECASTING SYSTEM

7.1 SYSTEM RUN SCHEDULE
There are 6 jobs over a 24 hour period for operational NWP runs as Annex I.

7.2 MEDIUM-RANGE FORECASTING SYSTEM (4-10 days)
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7.3 SHORT-RANGE FORECASTING SYSTEM (0-72 hrs)

7.3.1 Data assimilation, objective analysis and initialization
 UK Met Office.

7.3.2 Model
Unified Model of UK Met Office (1998).

7.3.3 Numerical weather prediction products
Wind pressure, temperature, etc. at standard pressure levels

7.3.4 Operational techniques for application of NWP products
The products are used as a guide in daily weather forecast and weekly forecast.

7.4 SPECIALISED FORECASTS
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7.5 EXTENDED AND LONG-RANGE FORECASTS
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8. PLANS FOR THE FUTURE
Improve cumulus parameterization for heavy rainfall forecast.

Reference

Met Office. Scientific & Technical Papers: Unified Model & Observation Processing System. Bracknell, 1998.

Operational Schedule and Forecast Range in 2005

Job no.	Time (UTC)	Model	Process	Used time
1.	Starting 0305 UTC (00Z Model run) (Main run)	Asia	- Observation Processing (GTS data 00 UTC) - Model run (forecast T+72) used LBC 12Z - HORACE Data Conversion	~ 3hr. 40min
		Thailand	- Observation Processing (GTS data 00 UTC) - Model run (forecast T+36) used LBC 12Z - HORACE Data Conversion	
		Global	- Observation Processing (GTS data 00 UTC) - Model run (forecast T+168 (7 days)) - HORACE Data Conversion - Generate Background field for 06Z Model run	
		Asia	- Observation Processing (GTS data 00 UTC) - Model run (forecast T+72) used LBC 00Z - HORACE Data Conversion - Generate Background field for 06Z Model run	
		Thailand	- Observation Processing (GTS data 00 UTC) - Model run (forecast T+36) used LBC 00Z - HORACE Data Conversion - Generate Background field for 06Z Model run	
		Bangkok	- Model run (forecast T+6) - HORACE Data Conversion	
		Asia	- SST and reconfiguration	
		Thailand	- SST and reconfiguration	
2.	Starting 0905 UTC (06Z Model run) (Intermediate run)	Global Asia Thailand	- Observation Processing (GTS data 06 UTC) - Model run - Generate Background field for 12Z Model run	~ 40min
3.	Starting 1505 UTC (12Z Model run) (Main run)	Global	- Observation Processing (GTS data 12 UTC) - Model run (forecast T+168 (7 days)) - HORACE Data Conversion - Generate Background field for 18Z Model run	~ 2hr. 40min
		Asia	- Observation Processing (GTS data 12 UTC) - Model run (forecast T+72) - HORACE Data Conversion - Generate Background field for 18Z Model run	
		Thailand	- Observation Processing (GTS data 12 UTC) - Model run (forecast T+36) - HORACE Data Conversion - Generate Background field for 18Z Model run	
		Bangkok	- Model run (forecast T+6) - HORACE Data Conversion	
4.	Starting 2105 UTC (18Z Model run) (Intermediate run)	Global Asia Thailand	- Observation Processing (GTS data 18 UTC) - Model Run - Generate Background field for 00Z Model run - Back up NWP data	~ 1hr
5.	Starting 2300 UTC		- Merge Step (Pre-verification create files for Asia and Thailand Verification System)	~ 10min
6.	Starting 2330 UTC		- Verification Step for Asia and Thailand Model	~ 30min