Recent and Current Activities of the RSMC Tokyo - Typhoon Center

Masashi KUNITSUGU
Head, National Typhoon Center
Japan Meteorological Agency (JMA)
Major Activities of the RSMC Tokyo

- **Dissemination of RSMC Products via the GTS**
  - RSMC Tropical Cyclone Advisory
  - SAREP
  - RSMC Guidance for Forecast
  - RSMC Prognostic Reasoning
  - Tropical Cyclone Advisory for SIGMET
  - RSMC Tropical Cyclone Best Track

- **Provision of a variety of Products via the Internet**
  - RSMC Tokyo Typhoon Center Website
  - JMA Numerical Typhoon Prediction Website
  - WIS DAR

- **Publication**

- **Training**

- **Coordination with TC Members**
JMA’s super computer system was upgraded on 5 June 2012.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HITACHI SR11000 (3 subsystems)</td>
<td>HITACHI SR16000/M1 (2 subsystems)</td>
<td></td>
</tr>
<tr>
<td><strong>Total Peak Performance</strong></td>
<td>27.584TFlops</td>
<td>847TFlops</td>
</tr>
<tr>
<td><strong>Total number of nodes</strong></td>
<td>210 nodes (16CPU/1node)</td>
<td>864 nodes (32CPU/1node)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GSM Global Spectral Model</th>
<th>Current</th>
<th>Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>TL959L60 (20km)</td>
<td>TL959L100 (20km)</td>
</tr>
<tr>
<td>Initial time</td>
<td>00,06,12,18UTC</td>
<td>-&gt;</td>
</tr>
<tr>
<td>Forecast period</td>
<td>216hour for 12UTC 84hour for else</td>
<td>264hour for 12UTC 84hour for else</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEPS Week Ensemble Prediction System</th>
<th>Current</th>
<th>Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>TL319L60 (55km)</td>
<td>TL479L100 (40km)</td>
</tr>
<tr>
<td>Initial time</td>
<td>12UTC 00,12UTC</td>
<td>27 x 2</td>
</tr>
<tr>
<td>Member</td>
<td>51</td>
<td>25</td>
</tr>
<tr>
<td>Forecast period</td>
<td>216hour</td>
<td>264hour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEPS Typhoon Ensemble Prediction System</th>
<th>Current</th>
<th>Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>TL319L60 (55km)</td>
<td>TL479L100 (40km)</td>
</tr>
<tr>
<td>Initial time</td>
<td>00,06,12,18UTC</td>
<td>-&gt;</td>
</tr>
<tr>
<td>Member</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Forecast period</td>
<td>132hour</td>
<td>-&gt;</td>
</tr>
</tbody>
</table>
Provision of Products via the Internet

- **JMA Numerical Typhoon Prediction Website**

  RSMC Tokyo started to provide storm surge distribution maps on 1 June 2011.

---

**[Specification of Storm Surge Model]**

- **Forecast domain**: 0 - 42N, 98E - 137E
- **Resolution**: 2-min mesh
- **Forecast time**: 72 hours
- **Meteorological conditions**: sea level pressure and wind field from JMA Global Spectral Model (GSM) and TC bogus
RSMC Tokyo started to provide storm surge time series charts at one station on 5 June.
RSMC Tokyo plans to develop storm surge time series charts at more than one station if so requested by Members.

JMA Numerical Typhoon Prediction Website

QUARRYBAY (HONGKONG)
LAT, LON = (22°17', 114°12')
Initial = 06Z 29 Oct 2012
Datum: CDL

[Graph showing predicted tide and astronomical tide]

[Map of the region with storm surge and surface pressure data]
RSMC Tokyo as Data Collection or Production Centre (DCPC)

- RSMC Tokyo was designated in Sixteenth WMO Congress in June 2011 as Data Collection or Production Centre (DCPC) of WMO Information System (WIS).

- RSMC Data Serving System (RSMC DSS) was upgraded to a new server of Global Information System Centre (GISC) Tokyo in the framework of WIS Data Discovery, Access and Retrieval (DAR).


- JMA’s GSM product at 0.5 degree resolution and 0.25 degree resolution (surface layer) has been provided as WIS DAR since December 2011.

- JMA SATAID Service has been provided as WIS DAR since December 2011 (http://www.wis-jma.go.jp/cms/sataid/).
Tropical cyclone satellite analysis with SATAID

SATAID Service

http://www.wis-jma.go.jp/cms/sataid

JMA SATAID Service has been provided as WIS DAR since December 2011

ID and password required (provided to each NMHS)

- SATAID (Satellite Animation and Interactive Diagnosis)
- Developed as an application software to display satellite imagery and NWP data for training purposes
- Today, used also as an operational tool for daily weather analysis including tropical cyclone monitoring at JMA’s HQ and local offices
- Freely available to NMHSs and easy to install
- Equipped with lots of functions
Area and Specification of the data

Data format is all for SATAID.

All MTSAT imagery (VIS, IR, IR2, WV, 3.8 μm), NWP and Observation data of the last 3 days are available.
Progress with tropical cyclone satellite analysis

(a) Objective tropical cyclone satellite analysis using MTSAT called “Cloud grid information objective Dvorak analysis (CLOUD)” is to be introduced into operation in 2013
(b) Tropical cyclone satellite re-analysis for the period since 1981 started in 2012

(c) CLOUD utilizes the cloud grid information (CGI) – an objective cloud product enabling cloud type identification. CGI is to be used in the CB area determination process to issue the graphical TCA.
Training on the TC analysis and forecast

Utilizing SATAID Service

1. The Satellite Analysis and Viewer Program (SATAID)
2. Tropical cyclone analysis (Dvorak)
3. Tropical cyclone forecasting
4. Storm surge
5. Quantitative precipitation estimation (QPE) and quantitative precipitation forecast (QPF)
6. Severe Weather Forecasting Demonstration Project (SWFDP)

Attachment Training at RSMC - Tokyo
18 to 27 July 2012

JICA Group Training Course
“Reinforcement of Meteorological Services”
11 Sep to 7 Dec 2012

8 participants joined the annual JICA Training Course in 2012
Experimental CAP version of tropical cyclone advisory developed by RSMC Tokyo

The latest and sample experimental tropical cyclone advisories in CAP format have been posted at the JMA website http://www.jma.go.jp/jma/jma-eng/jma-center/rsmc-hp-pub-eg/RSMC_HP.htm since 12 November 2012.

This feed is NOT intended for operational use.

Validated by google.org Common Alerting Protocol Validator http://cap-validator.appspot.com/
Publication

  - Estimation of Tropical Cyclone Intensity Using Aqua/AMSR-E Data
  - Quantitative Precipitation Estimation and Quantitative Precipitation Forecasting by the Japan Meteorological Agency

  - Inactive Typhoon Season in 2010
  - JMA’s Storm Surge Prediction for the WMO Storm Surge Watch Scheme (SSWS)

PDF version available on website
The RSMC Tokyo - Typhoon Center publishes the Technical Review to introduce recent improvements in operational meteorological services and research related to tropical cyclones.

Typhoon Committee Operational Manual (TOM)

2012 edition distributed to Members in February 2012
Contribution to the WMO North Western Pacific Tropical Cyclone Ensemble Forecast Project (TCEFP)
The Severe Weather Forecasting Demonstration Project (SWFDP) in South-east Asia: SWFDP-SeA

The SWFDP is designed as a series of regional subprojects whose scope is to test the usefulness of NWP products produced by global and regional meteorological centres, with the goal of improving severe weather forecasting services in countries where sophisticated model outputs are currently not used.

- **NMCs**
  - Cambodia
  - Lao PDR
  - Thailand
  - Viet Nam

- **Regional Centres**
  - Hanoi (regional forecast support)
  - Hong Kong (training and technical support)

- **Global Centres**
  - CMA
  - JMA
  - KMA

- **RSMCs Tokyo and New Delhi** (Tropical Cyclone/Typhoon forecasting support)
Thank you