T-PARC Website at MRI

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1. Overview

The special experiments conducted during the T-PARC project of 2008 produced a great deal of observation and forecast data. For researchers' convenience, a number of related products from the Japan Meteorological Agency (JMA) and other organizations are archived on the T-PARC website at http://tparc.mri-jma.go.jp/ (Fig. 1). This paper gives a brief introduction to the website's content.

Figure 1 T-PARC website

The T-PARC website operated by the MRI contains both freely available and restricted-access data/products. In this paper, Section 2 details the freely available content, and Section 3 outlines the restricted-access content.

2. Freely available content

2.1 Global deterministic forecasts

The pictures in PNG format from GSM deterministic forecasts (run twice a day) are provided. The file names and corresponding elements are shown in Table 1. The forecast times are from the initial time to 72 hours ahead at 12-hour intervals. A sample picture is shown in Fig. 2.

File name	Elements
Ps89	Sea surface pressure [hPa]
Tmp89	Temperature [K]
Deprxx	T-Td [K]
HTTTdxx	Height [m], T [K], T-Td [K]
UVxx	Wind
Vorxx	Vorticity [10^{-5}/s]
Divxx	Divergence [10^{-5}/s]
EPV32	320K EPV [PVU], P [hPa], wind
2PVU	Theta [K], Ps [hPa], wind at 2 PVU

Table 1 File names of visual representations and corresponding elements. The 'xx' parts represent two-digit heights in hPa, and '89' is used for surface data.

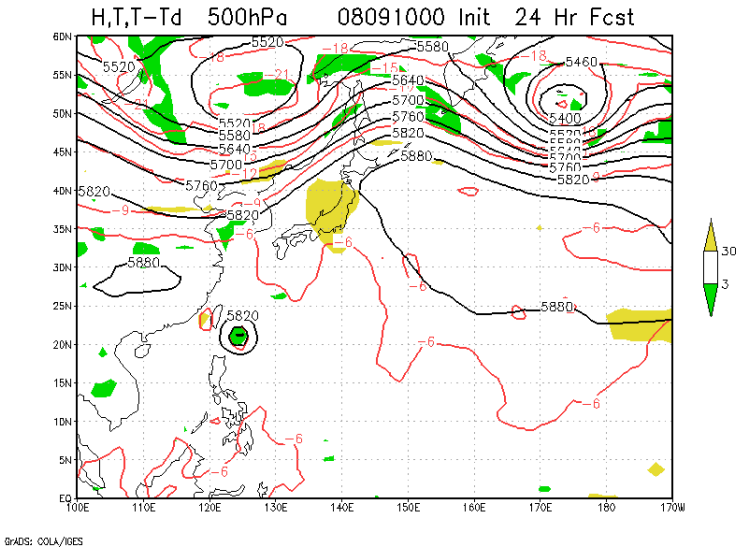

Figure 2 Sample picture of a GSM deterministic forecast

Directories are prepared for each initial time in each month's directory. Binary data are provided as restricted-access content.

2.2 JMA global analysis data (JCDAS)

The pictures of six-hourly JCDAS global analysis data are provided. The elements included are the same as those of GSM deterministic forecasts. Directories are prepared for each date in each month's directory. Binary data are provided as restricted-access content.

2.3 Satellite data

Half-hourly MTSAT-1R images from four channels (IR1 (i1), water vapor (wv), VIS (vs) and short-wave IR (i4)) are provided in PNG format covering 100°E – 170°W and EQ – 60°N.

Visual representations of QuikSCAT wind distribution are also provided. These QuikSCAT data are originally provided by Remote Sensing Systems (http://ssmi.com/). The representations for descending (ascending) passes are treated as observed at 09 UTC (21 UTC).

For both types of satellite data, directories are prepared for each month. Binary data are provided as restricted-access content.

2.4 Dvorak TC analysis

The results of six-hourly Dvorak TC analysis are overlaid on MTSAT-1R IR1 images (Fig. 3). Directories are prepared for each month.

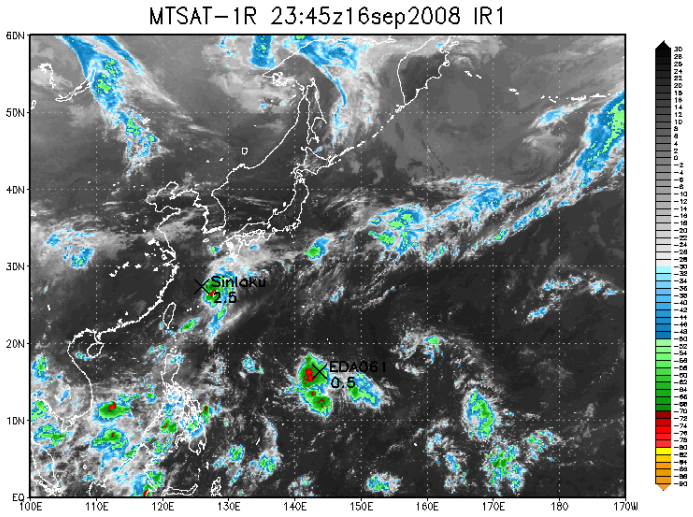

Figure 3 Dvorak TC analysis overlaid on an MTSAT-1R IR1 image

2.5 Map of upper-sounding availability

Maps plotting upper-sounding observation stations and global analysis from three hours before to three hours after each analysis time are provided.

3. Restricted-access content (for special users)

Restricted-access content is provided from the Special Datasets page at http://tparc.mri-jma.go.jp/special/special.html (Fig. 4), accessible from the homepage of the T-PARC website. A user ID and password provided by the administrator (thorpex@mri-jma.go.jp) are required to access the data.

The resource provides binary data from JCDAS global analysis, GSM forecasts, MTSAT-1R data, QuikSCAT data, JMA in-situ data, pictures and binary data from weekly, monthly and tropical cyclone ensemble forecasts and cyclone XML data. Most of the binary information except for JMA in-situ data can be read with GrADS. Control files to read the GrADS data are also provided.

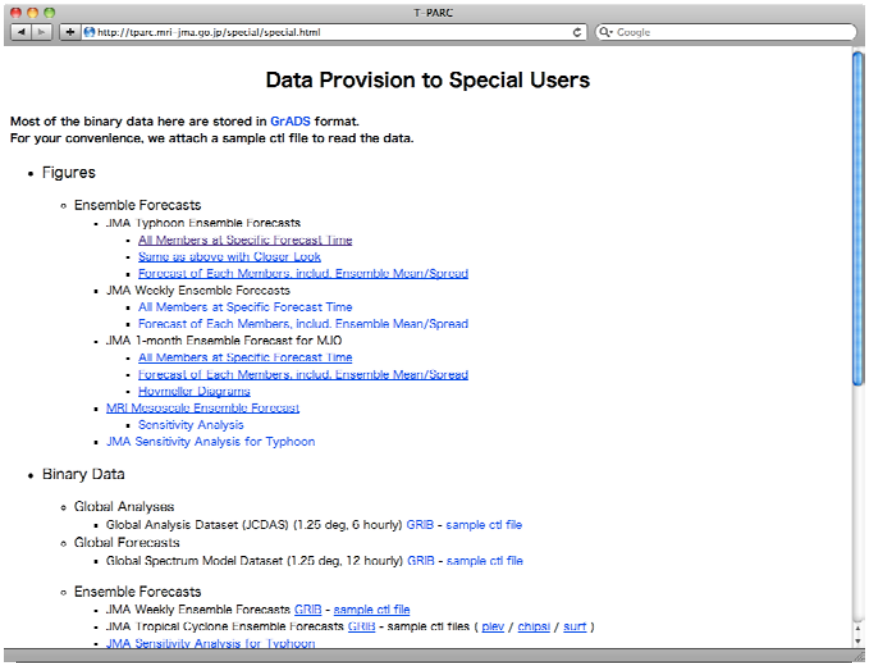

Figure 4 Top page of restricted-access content

3.1 Global analysis data

Six-hourly JCDAS global analysis data are provided in GRIB format with GrADS control files and GRIB index files. These are 1.25-degree-grid data outlining geopotential height, air temperature, specific humidity, dew point depression, zonal wind, meridional wind, cloud water content, and pressure reduced to MSL. Directories are prepared for each date in each month's directory.

3.2 Global forecast data

Twelve-hourly GSM deterministic forecast data are provided in GRIB format with GrADS control files and GRIB index files. GSM forecasts cover 1.25-degree grids and include surface total precipitation, mean sea level pressure, geopotential height, dew point depression, temperature, zonal wind, meridional wind and velocity potential. Directories are prepared for each month.

3.3 JMA ensemble forecast data

3.3.1 Weekly ensemble forecasts

The GSM weekly ensemble forecasts by day (with an initial time of 12 UTC for each day) are provided in visual and binary format. There are two kinds of pictures: those including all members at a specific forecast time (Fig. 5) and the time-series for each member with the ensemble mean and spread (Fig. 6).

Binary data are provided in gzip compressed format, and consist of GRIB data with GrADS control files and GRIB index files for each initial time. There are three data files for each member: the *plev* file contains, mean sea level pressure, geopotential height, temperature, relative humidity, u wind, v wind and pressure vertical velocity (omg) profiles; the *chipsi* file contains stream function (psi) and velocity potential (chi); and the *surf* file contains surface total precipitation, cloud cover, pressure reduced to MSL, relative humidity 2 m above ground level, temperature 2 m above ground level, and u and v winds 10 m above ground level. Pictures are provided in individual month/initial time directories for each kind, and binary data are provided in monthly directories.

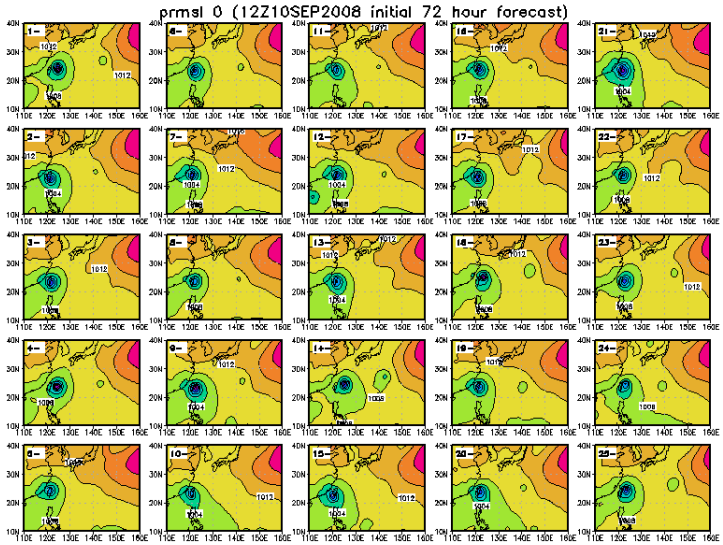

Figure 5 Sample of weekly ensemble forecasts at specific forecast times

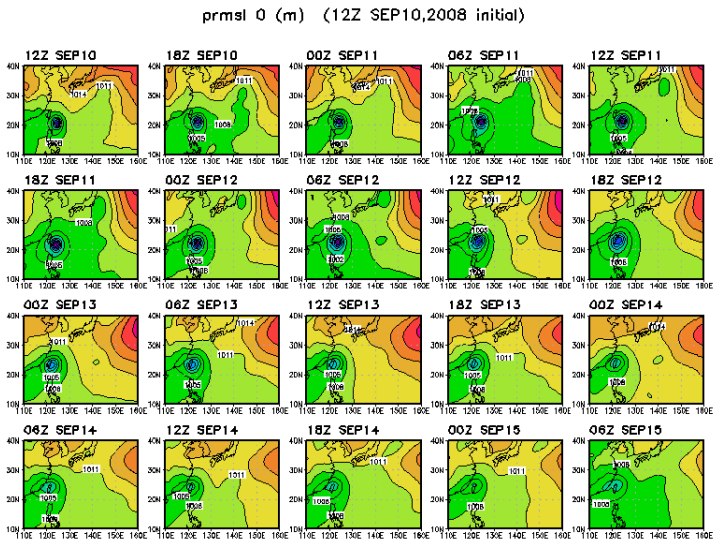

Figure 6 Sample of the time-series for the evolution of each member, the ensemble mean and the spread in the weekly ensemble forecast

3.3.2 Ensemble forecasts from JMA's typhoon model

The six-hourly ensemble forecasts from JMA's typhoon model are provided in the form of pictures and binary data.

There are three types of picture: those with all members at a specific forecast time; time-series representations for each member and the ensemble mean and spread; and 'closer look' representations. The first and second kinds are similar to those for weekly ensemble forecasts. The 'closer look' type is similar to these, but is zoomed in to focus on the TC center (Fig. 7).

These pictures are provided in individual month/initial time directories for each kind except for the closer-look type, which is provided in each TC directory. Binary data are provided in monthly directories.

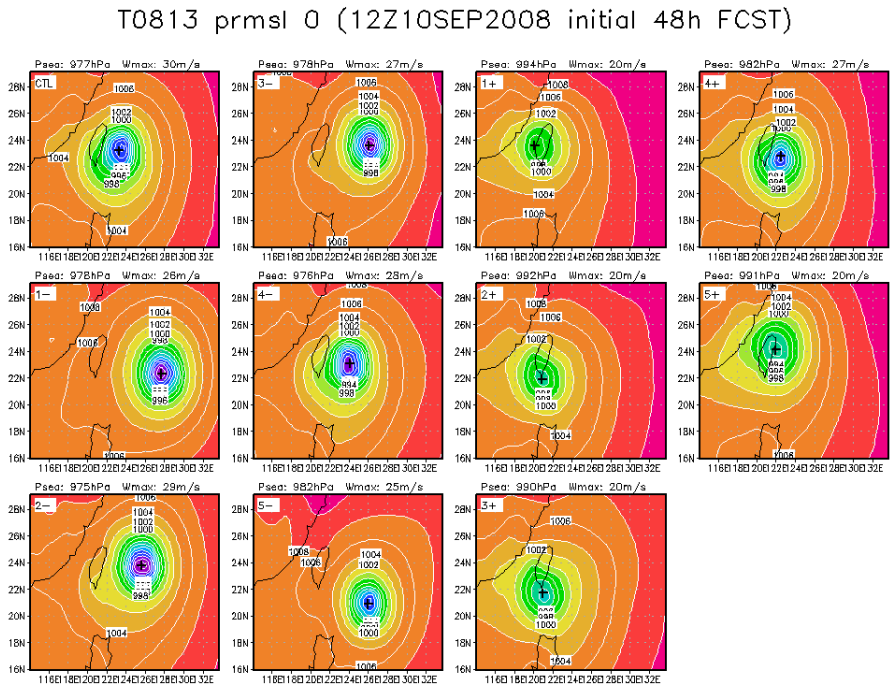

Figure 7　Sample ‘closer look’ pictures showing all 11 sets of member data for a specific forecast time

3.3.3 One-month ensemble forecasts

The results of one-month ensemble forecasts are provided in the form of pictures and binary data.

There are three kinds of picture: those with all members at a specific forecast time; time-series representations for each member and the ensemble mean and spread; and Hovmöller diagrams for each member and ensemble mean and spread (Fig. 8). The first and the second kinds are similar to those for weekly ensemble forecasts.

These pictures are made for mean sea level pressure, geopotential height at 500 hPa, wind speed, velocity potential (chi), divergence and vorticity at 850 hPa and 200 hPa. Binary data are individually provided for velocity potential (chi), pressure vertical velocity (omg), surface pressure (ps), mean sea level pressure (psea), stream function (psi), surface total precipitation (rain), temperature (t), temperature 2 m above ground level (ts), dew point depression (ttd), dew point depression 2 m above ground level (ttds), u wind (u), u wind 2 m above ground level (us), v wind (v), v wind 2 m above ground level (vs), vorticity (vor) and geopotential height (z).

Binary data are provided in each element directory for each initial time.

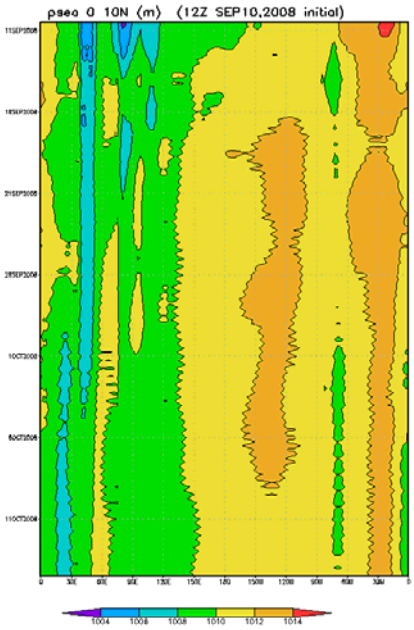

Figure 8　Sample Hovmöller diagram for a one-month ensemble forecast

3.3.4 Sensitivity analysis by JMA

Pictures of sensitivity analysis for the JAPAN, GUAM, TAIWAN and MVTY areas with one-day and two-day lead times are provided.

3.4 Satellite data

Gridded QuikSCAT data produced by Remote Sensing Systems are provided in GrADS format with control files.　As mentioned in Section 2.3, the descending (ascending) passes are treated as 09 UTC (21 UTC) observations.

3.5 JMA in-situ data

3.5.1 Surface observation

Ten-second and one-minute observation data from JMA's network of observatories are provided in binary format (not GrADS format).

3.5.2 Radar data

Radar observation data are provided (not in GrADS format).

3.5.3 Upper-sounding data

Upper-sounding data from Ishigaki-jima, Minami-daitou-jima, Naze, Hachijo-jima and from the Chofu-maru and Seifu-maru research vessels are provided in text format.

3.5.4 Wind profiler data

Wind profiler data from JMA's wind profiler network (WINDAS) are provided (not in GrADS format).

3.6 MTSAT-1R data

Half-hourly MTSAT-1R IR1 (ir1), water vapor (wv), VIS (vs) and short-wave IR (ir4) channel TBB data are provided in GrADS format with control files and in SATAID format.

3.7 Cyclone XML data

Cyclone XML data (http://www.bom.gov.au/bmrc/projects/THORPEX/TC/index.html) are provided in original XML format and in parsed HTML format. Directories are prepared for each month.

Acknowledgement

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