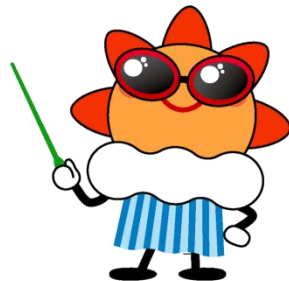


# ***Introduction to Tokyo Climate Center and its activities***

***TCC Training Seminar on  
Global Warming Projection Information  
26-30 January 2015***



# Tokyo Climate Center (TCC)

- TCC serves as a WMO Regional Climate Center in the RA II.
- TCC supports NMHSs through data/information provision and capacity development activities.

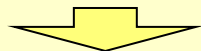
## Tokyo Climate Center (TCC)

### ● Provision of climate data and information via the Internet

- Seasonal forecasts
- Report on extreme events
- Climate system analysis
- Global warming
- Climate monitoring
- Reanalysis data

### ● Capacity Development

- Training seminar
- Expert visit

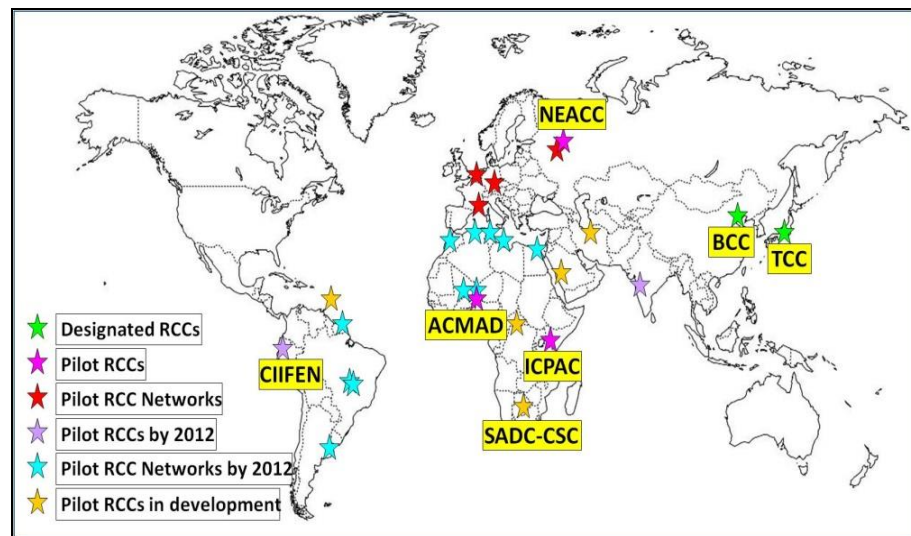


### NMHSs in Asia

- Provision of climate information using TCC data based on national requirements



- Natural disaster reduction
- Food security
- Water management



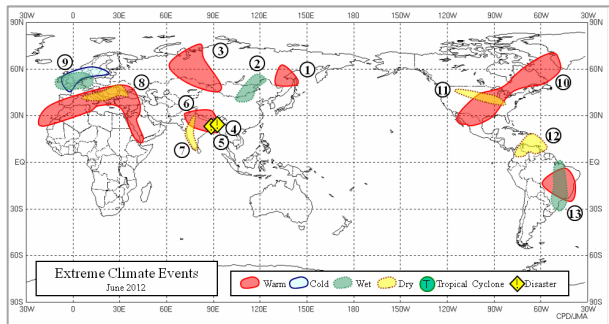
### Current status of establishment of RCC

TCC and BCC were designated as RCCs in RA II in 2009.

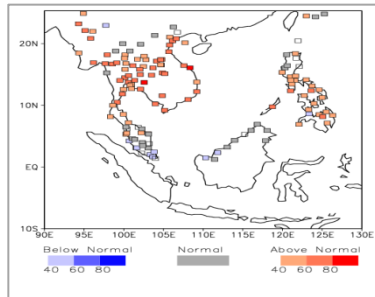
# TCC website

The image shows a screenshot of the Tokyo Climate Center (TCC) website. At the top, the header includes the Japan Meteorological Agency logo, the text "Tokyo Climate Center WMO Regional Climate Center in RA II (Asia)", and the WMO logo. A navigation bar contains links for "Home", "World Climate", "Climate System Monitoring", "El Niño Monitoring", "NWP Model Prediction", "Global Warming", "Climate in Japan", "Training Module", and "Press release". A red box highlights this navigation bar. Below it, several callout boxes point to specific content areas: "World Climate", "Climate System Monitoring", "El Niño Monitoring", "NWP Model Prediction", "Global Warming", "Climate in Japan", and "Training Materials". The main content area features a "RCC Functions" section, a list of "Operational Activities", "Main Products" like "ClimatView" and "Introduction to ITACS", and a "News" section with various updates and reports. A "Regional Climate Centers" and "International Organization" section is also visible.

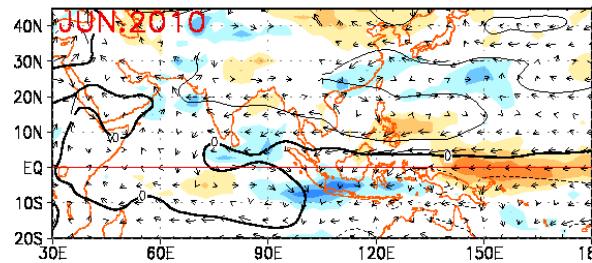
# Examples of climate information, data and products



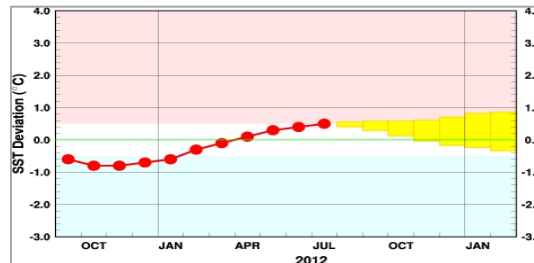
**Monitoring of Extreme Climate Events**



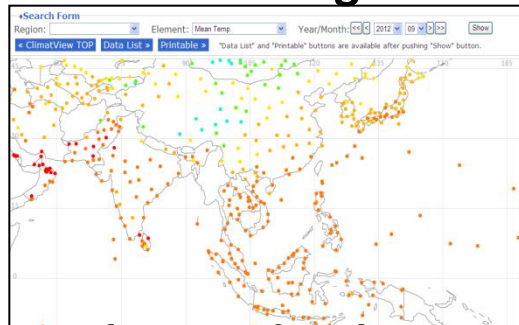
**One-month Probabilistic Forecast for Southeast Asia**



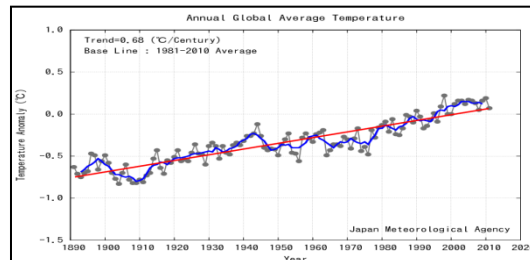
**Asian Monsoon Monitoring**



**El Niño outlook**



**Climate database**



**Global Average Surface Temperature Anomalies**

**Unseasonable weather conditions in Japan in August 2014**  
 -Summary of analysis by the TCC Advisory Panel on Extreme Climate Events-

The TCC Advisory Panel on Extreme Climate Events<sup>1)</sup> at its extraordinary session held at the Japan Meteorological Agency on 3 September 2014, issued a statement on primary factors causing cloudy and rainy conditions in Japan in August 2014.

- In August 2014, western Japan experienced record high precipitation, and record low sunshine duration. From 30 July to 26 August, heavy rainfall events occurred over the country.
- These weather conditions were caused by continuous westerly winds moist air flow in association with low cyclonic moving northward sea or over western Japan from late July to early August and the westward shift and significant weakening of the jet stream around Japan from middle to late August. One of causes of the significant weakening of the jet stream is considered to be the suppressed Asian monsoon activity in association with above-normal sea surface temperature in the eastern Pacific and in the eastern Indian Ocean, and rapid intra-seasonal oscillation<sup>2)</sup>.

1. Climate System (Figures 1 and 2, Table 1)  
 After 30 July 2014, cloudy and rainy days were dominant anticyclone except in Okinawa/Amami and the Kanto region.  
 The monthly precipitation rate to the normal averaged over the Pacific side of western Japan for

Figure 1 Primary factors contributing to the unseasonable weather conditions of August 2014 in Japan

**Report on extreme climate event (Unseasonable weather conditions in Japan in August 2014)**

Screenshot of the Tokyo Climate Center website showing a list of binary gridded data files. The page title is 'Welcome to Tokyo Climate Center'. The main content is an 'Index of /tcc/tcc/gpv/model/4mE/GPV/200901' with a table listing files.

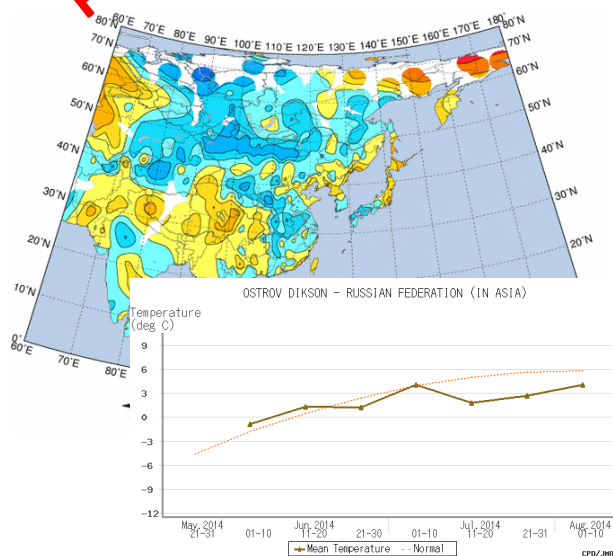
Name	Last Modified	Size	Description
gh_p500_en_200901	18-Jan-2009 12:00	62K	
gr_surf_en_200901	18-Jan-2009 12:00	62K	
h1_surf_en_200901	18-Jan-2009 12:00	62K	
h2_surf_en_200901	18-Jan-2009 12:00	62K	
h3_surf_en_200901	18-Jan-2009 12:00	62K	
h4_surf_en_200901	18-Jan-2009 12:00	62K	
h5_surf_en_200901	18-Jan-2009 12:00	62K	
h6_surf_en_200901	18-Jan-2009 12:00	62K	
h7_surf_en_200901	18-Jan-2009 12:00	62K	
h8_surf_en_200901	18-Jan-2009 12:00	62K	
h9_surf_en_200901	18-Jan-2009 12:00	62K	
h10_surf_en_200901	18-Jan-2009 12:00	62K	
h11_surf_en_200901	18-Jan-2009 12:00	62K	
h12_surf_en_200901	18-Jan-2009 12:00	62K	
h13_surf_en_200901	18-Jan-2009 12:00	62K	
h14_surf_en_200901	18-Jan-2009 12:00	62K	
h15_surf_en_200901	18-Jan-2009 12:00	62K	
h16_surf_en_200901	18-Jan-2009 12:00	62K	
h17_surf_en_200901	18-Jan-2009 12:00	62K	
h18_surf_en_200901	18-Jan-2009 12:00	62K	
h19_surf_en_200901	18-Jan-2009 12:00	62K	
h20_surf_en_200901	18-Jan-2009 12:00	62K	
h21_surf_en_200901	18-Jan-2009 12:00	62K	
h22_surf_en_200901	18-Jan-2009 12:00	62K	
h23_surf_en_200901	18-Jan-2009 12:00	62K	
h24_surf_en_200901	18-Jan-2009 12:00	62K	
h25_surf_en_200901	18-Jan-2009 12:00	62K	
h26_surf_en_200901	18-Jan-2009 12:00	62K	
h27_surf_en_200901	18-Jan-2009 12:00	62K	
h28_surf_en_200901	18-Jan-2009 12:00	62K	
h29_surf_en_200901	18-Jan-2009 12:00	62K	
h30_surf_en_200901	18-Jan-2009 12:00	62K	

**Binary Gridded Data provision**

# Examples of climate information, data and products

**New Product!**

TCC launched 3 new products last year.



## Monthly Discussion on Seasonal Climate Outlooks (No. 6)

(25 August 2014)

Tokyo Climate Center (TCC)  
Japan Meteorological Agency (JMA)

### 1. Summary and Discussion

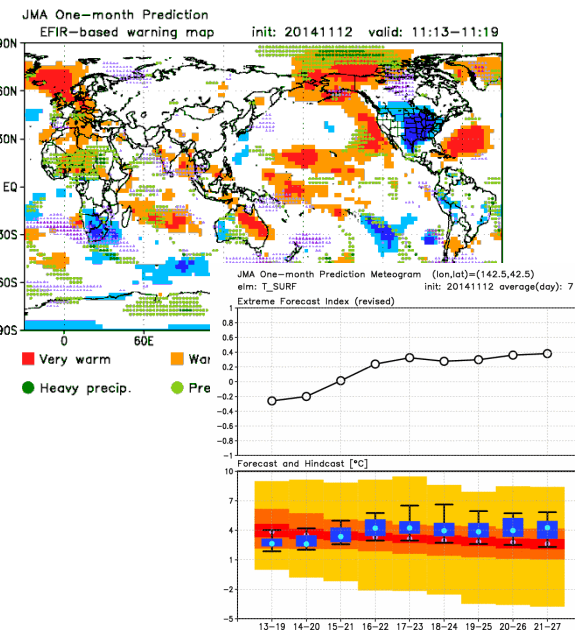
- ENSO neutral conditions continued in the equatorial Pacific. The NINO WEST and Indian Ocean Basin Wide (IOBW) indices showed near-normal values.
- The possibility of development of El Niño conditions during boreal autumn and winter decreased, and is comparable to that of continuation of ENSO neutral conditions.
- For September-October-November 2014 (SON 2014), it is likely that convective activity in the tropics will be enhanced over the Pacific and suppressed over the Indian Ocean except its eastern equatorial part.
- In the lower troposphere, cyclonic circulation anomalies to the east of the Philippines are predicted. Westerly wind anomalies from the eastern equatorial Indian Ocean to the western equatorial Pacific are predicted.
- A high probability of above-normal rainfall in the western Pacific is predicted. A slightly high probability of above-normal rainfall around the eastern Indian Ocean and the Indochina Peninsula is predicted.
- A high probability of below-normal rainfall over the western Indian Ocean, the Bay of Bengal and parts of the Maritime Continent is predicted.
- A high probability of above-normal temperature in many parts of South Asia, Southeast Asia and East Asia is predicted.

## 10-day/Half-monthly Temperature and Precipitation (Regional Map)

<http://ds.data.jma.go.jp/tcc/tcc/products/climate/rmap/rmap.php>

## Monthly Discussion on Seasonal Climate Outlooks

[http://ds.data.jma.go.jp/tcc/tcc/products/model/monthly\\_discussion/latest.pdf](http://ds.data.jma.go.jp/tcc/tcc/products/model/monthly_discussion/latest.pdf)



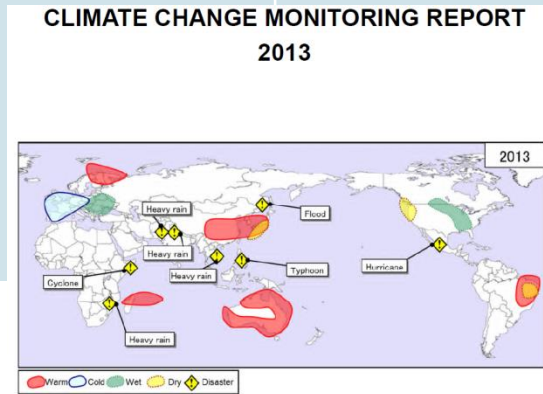
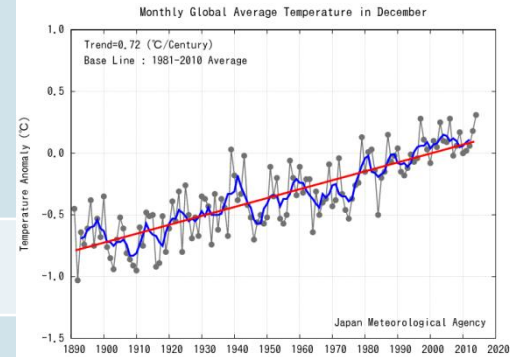
## Early Warnings for Extreme Weather Event

<http://ds.data.jma.go.jp/tcc/tcc/gpv/EFI/index.php> (Password-Protected)

# Provision of Climate Information

## - Global Warming Projection Information-

interval	product
monthly	<ul style="list-style-type: none"> <li>Global Average Surface Temperature Anomalies</li> </ul>
seasonal	<ul style="list-style-type: none"> <li>Global Average Surface Temperature Anomalies</li> </ul>
annual	<ul style="list-style-type: none"> <li>Global Average Surface Temperature Anomalies</li> <li>Summary of Global Average Surface temperature for the previous year</li> <li>Climate Change Monitoring Report</li> <li>Press release</li> </ul>



Tokyo Climate Center, Japan Meteorological Agency

### TCC News

No. 35 Winter 2014

#### Global Average Surface Temperatures for 2013

The annual anomaly of the global average surface temperature for 2013 was the second highest on record at +0.20°C above the 1981 – 2010 baseline.

Monitoring changes in temperature records on a decadal to centennial scale worldwide is of primary importance in ensuring scientifically sound diagnostics and understanding of the state of the global climate. In its role as one of the world's leading climate centers, the Japan Meteorological Agency (JMA) provides global mean surface temperature data (i.e., combined averages of near-surface air temperatures over land and sea surface temperature) on a monthly, seasonal and annual basis, thereby helping to raise public awareness of the changing climate.

The annual global average surface temperature anomaly for 2013 was +0.20°C with regard to the 1981 – 2010 baseline period. This ranks as the second-highest figure since 1891 – the earliest year of JMA's global temperature anomaly records (Figure 1, Table 1). The average temperature over land areas alone was the fourth highest on record at +0.34°C above the 1981 – 2010 average.

Warm temperature anomalies were most noticeable across much of the Eurasian Continent in Australia and over the central part of the North Pacific Ocean, while the equatorial Pacific experienced cooler-than-normal conditions (Figure 2).

22 December 2014  
Japan Meteorological Agency

Global temperature for 2014 to be the highest since 1891 (Preliminary)

The annual anomaly of the global average surface temperature for the year 2014 (i.e. the combined average of the near-surface air temperature over land and the sea surface temperature) is estimated at +0.27°C\* above the 1981-2010 average, likely to become the warmest record for the 124-year period since 1891 (Figure 1).

\* Note that this figure (hence its rank in the record, either) is still subject to change, because at the moment of this announcement it is only a preliminary result that was calculated based on temperature observations for the period of January to November in 2014.

In 2014, the monthly average air temperatures for April, May, June, August, September and October, and the seasonal average air temperatures for the boreal spring, summer and autumn were also the highest recorded since 1891.

Warm temperature deviations are seen not only across much of Asia and Europe but also over a wide area of oceans particularly the North Pacific (Figure 2).

On a longer time scale, the annual global average surface temperature has been rising at a rate of about 0.70°C per century.

# TCC Annual Training Seminar

As part of TCC's capacity-building activity in its role as RCC, TCC holds annual training seminars on the application of its climate monitoring and prediction products.

Each seminar deals with a different theme depending on TCC's progress in climate and analysis capabilities, such as the introduction of upgraded climate models.

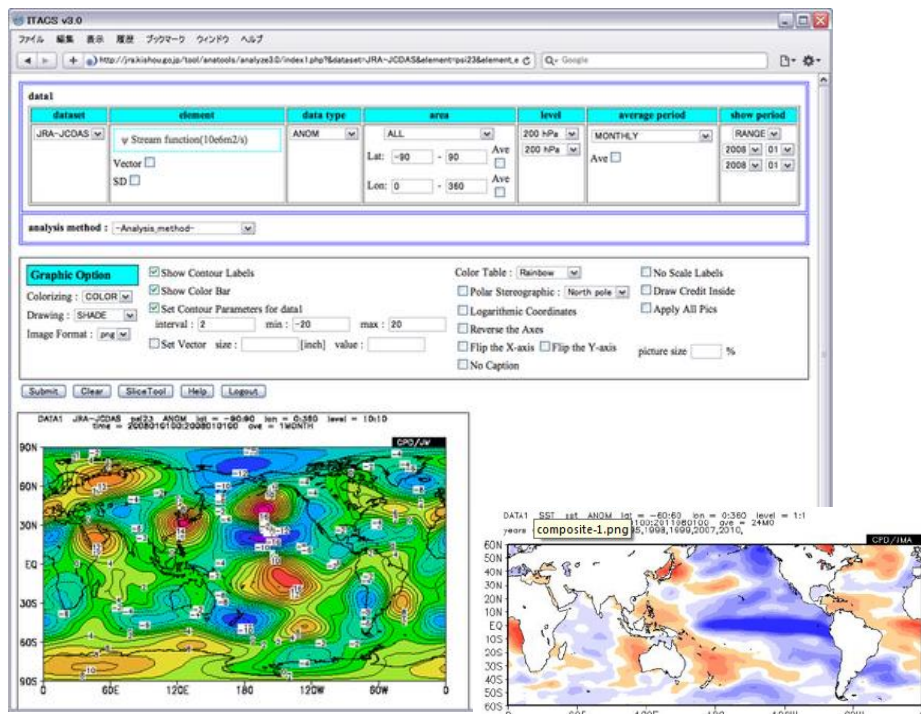
	Theme	Participants
Nov. 2008	Climate Information and Forecasting	13: China, Hong Kong, India, Indonesia, Iran, Korea (2), Lao, Malaysia, Mongolia, Philippines, Thailand, Viet Nam
Dec. 2009	Climate Analysis using Reanalysis Data	11: Bangladesh, Indonesia, Laos, Malaysia, Mongolia, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand, Viet Nam
Jan. 2011	Application of Seasonal Forecast Gridded Data to Seasonal Forecast Products	19: Bangladesh, Hong Kong, Indonesia, Kazakhstan, Laos, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Philippines (2), Qatar, Singapore, Sri Lanka, Thailand, Uzbekistan, Viet Nam
Nov. 2011	One month Forecast Products	13: Bangladesh, Cambodia, Hong Kong, Indonesia, Laos, Malaysia, Mongolia, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand, Viet Nam
Nov. 2012	Climate Analysis Information	12: Bangladesh, Hong Kong, Indonesia (2), Laos, Malaysia, Mongolia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Viet Nam
Nov. 2013	Seasonal Forecast Products	16: Bangladesh, Cambodia, Hong Kong, Indonesia (3), Laos, Malaysia, Mongolia, Myanmar, Nepal, Papua New Guinea, Philippines, Sri Lanka, Thailand, Viet Nam
Jan 2015	Global Warming Projection Information	13: Bangladesh, Cambodia, Indonesia, Hong Kong, Laos, Malaysia, Mongolia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Viet Nam



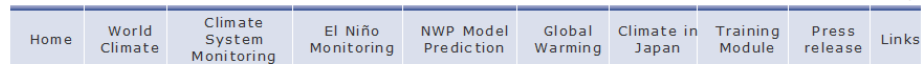
# TCC Development tools and GPV

In the past training seminar on the application of climate monitoring and prediction products, TCC introduce several tools and various kind of GPV (Grid Point Value). TCC website also provides such useful tools and GPV just only for the registered NMHSs.

**ITACS (Interactive Tool for Analysis of the Climate System)** is a web-based application software for climate analysis.



**1-month/3-month/seasonal prediction product (GPV) and its verification charts** are available on the website.



HOME > Download Gridded Data

## Download Gridded Data files

### Notice

- 6 March 2014  
The date of the provision of gridded data for One-month forecast has been changed from every Friday to every Thursday in association with the upgrade of One-month forecast model.

- Animation of One-month Model Prediction is experimental and not identical with the formal products (e.g. Weekly forecast maps, gridded datasets).

### Main Products

#### NWP Model Prediction

One-month (22 Jan 2015)

- > Daily Statistics
- > All Members

Three-month (15 Jan 2015)

- > Statistics
- > All Members

Seven-month (15 Oct 2014)

- > Statistics
- > All Members

#### Statistical Downscaling for Three-month and Warm/Cold Season Forecasts

- > Indices and Gridded Data (15 Jan 2015)

#### Hindcast Gridded Data

One-month

- > Daily data

Three-month

- > Monthly mean data

Seven-month

- > Monthly mean data

<http://ds.data.jma.go.jp/tcc/tcc/products/model/index.html>

Application is as follow:

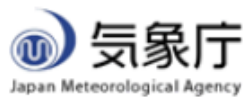
<http://ds.data.jma.go.jp/tcc/tcc/products/model/Application.html>

<http://extreme.kishou.go.jp/tool/itacs-tcc2011/>



# Training Module on the website

Materials and presentations of training seminars are available on the TCC website.



Tokyo Climate Center

WMO Regional Climate Center in RA II (Asia)



[TCC home](#) [About TCC](#) [Site Map](#) [Contact us](#)

<a href="#">Home</a>	<a href="#">World Climate</a>	<a href="#">Climate System Monitoring</a>	<a href="#">El Niño Monitoring</a>	<a href="#">NWP Model Prediction</a>	<a href="#">Global Warming</a>	<a href="#">Climate in Japan</a>	<a href="#">Training Module</a>	<a href="#">Press release</a>	<a href="#">Links</a>
----------------------	-------------------------------	-------------------------------------------	------------------------------------	--------------------------------------	--------------------------------	----------------------------------	---------------------------------	-------------------------------	-----------------------

[HOME](#) > Documents Library

## Library and Documents

This is the location of our documents/presentations on research and development activities and training modules for capacity building on climate monitoring and seasonal forecasting.

### Main Products

#### Training Modules

- ▶ [TCC Training Seminar on Seasonal Prediction Products \(11 - 15 November 2013\)](#) **W NEI**
- ▶ [TCC Training Seminar on Climate Analysis Information \(26 - 30 November 2012\)](#)
- ▶ [TCC Training Seminar on One-month Forecast Products \(7-9 November 2011\)](#)
- ▶ [TCC Training Seminar on Application of Seasonal Forecast GPV Data to Seasonal Forecast Products \(18-21 January 2011\)](#)
- ▶ [TCC Training Seminar on Climate Analysis using Re-analysis Data \(1-4 December 2009\)](#)
- ▶ [TCC Training Seminar on Climate Information and Forecasting \(4-6 November 2008\)](#)

#### Abstracts and Presentations by JMA

##### Forum on Regional Climate Monitoring, Assessment and Prediction for Asia (FOCRAII)

- ▶ [Tenth session \(23-25 April 2014, Beijing, China\)](#) **W NEI**
- ▶ [Ninth session \(8-10 April 2013, Beijing, China\)](#)

***Thank you for your attention.***

