

Introduction to Tokyo Climate Center (TCC) and TCC Training Seminar 2015 ~One-month Forecast~

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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
- El Nino Outlook
- Report on extreme events
- Global warming
- Climate system analysis
- Reanalysis data

Capacity Development

- Training seminar
- Expert visit

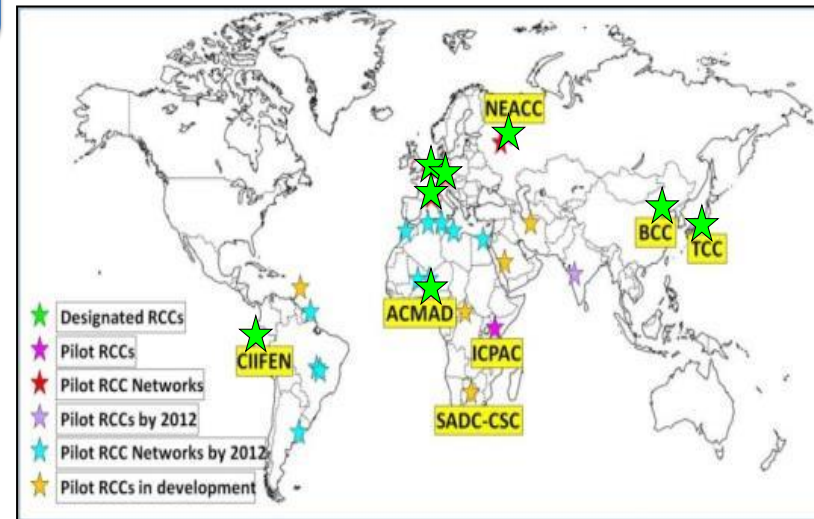
NMHSs

Asia and Pacific region

Provision of climate information using TCC data based on national requirements

Utilization of Climate Information

Disaster risk reduction, Food security, Water resource management etc.



Current status of establishment of RCC
TCC was designated as RCCs in RA II in 2009.

TCC Website

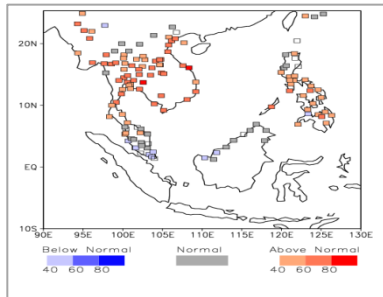
The image shows a screenshot of the Tokyo Climate Center website. At the top, there are logos for the Japan Meteorological Agency (JMA) and the World Meteorological Organization (WMO). The main header reads "Tokyo Climate Center WMO Regional Climate Center in RA II (Asia)". A navigation bar contains links for "TCC home", "About TCC", "Site Map", and "Contact us". Below this is a main menu with categories: "World Climate", "Climate System Monitoring", "El Niño Monitoring", "NWP Model Prediction", "Global Warming", "Climate in Japan", "Training Module", and "Press release".

Callout boxes highlight the following features:

- World Climate**: Points to the "World Climate" menu item.
- Climate System Monitoring**: Points to the "Climate System Monitoring" menu item.
- El Niño Monitoring**: Points to the "El Niño Monitoring" menu item.
- NWP Model Prediction**: Points to the "NWP Model Prediction" menu item.
- Global Warming**: Points to the "Global Warming" menu item.
- Climate in Japan**: Points to the "Climate in Japan" menu item.
- Training Materials**: Points to the "Training Module" menu item.

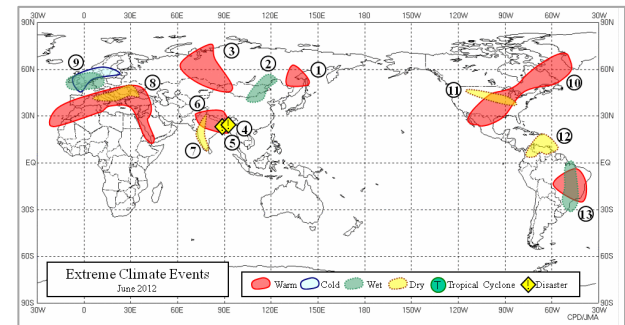
The main content area includes sections for "What are we doing?", "RCC Functions", "Operational Activities for Long-range Forecasting", "Operational Activities for Climate Monitoring", "Operational Data Services, to support operational LRF and climate monitoring", "Training in the use of operational RCC products and services", "Main Products", "ClimatView", "Introduction to ITACS", and "Links". The "Links" section lists various resources such as "General information on climate of Japan", "Japanese 55-year Reanalysis (JRA-55)", "Climate Risk Management", "Monthly Climate Statistics for Japan", "Tokyo Global Information System Centre (GISC Tokyo)", "World Data Center for Greenhouse Gases (WDCGG)", "Satellite Imagery of MTSAT-2", "RSMC Tokyo - Typhoon Center", "Meteorological Research Institute, JMA", "Meteorological Satellite Center, JMA", "WMO RA II Pilot Project", "Pilot Project on Information Sharing on Climate Services", "Regional Climate Centers", "RA II Regional Climate Center (RCC) Network Homepage", "Beijing Climate Center", "North Eurasian Climate Center (NEACC)", and "WMO RA VI RCC-Network".

Examples of climate information, data and products

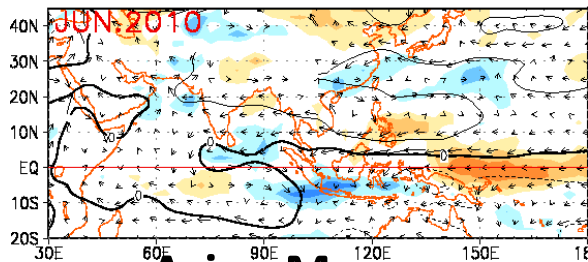


One-month Probabilistic Forecast for Southeast Asia

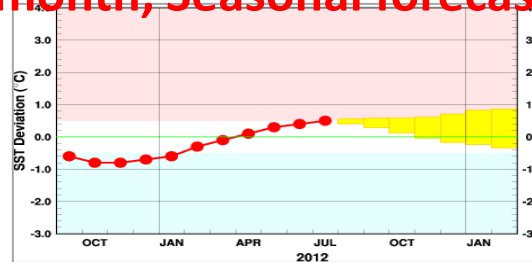
Binary Gridded Data provision (1-month, 3-month, Seasonal forecast)



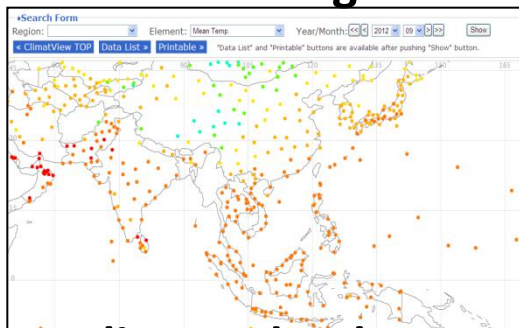
Monitoring of Extreme Climate Events



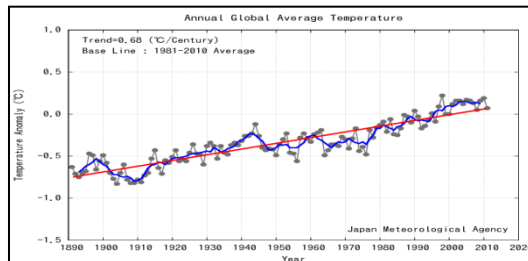
Asian Monsoon Monitoring



El Niño outlook



Climate database



Global Average Surface Temperature Anomalies

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

Recent Activities on TCC

● Products launched in 2014-2015

Forecast Products in Support of Early Warnings for Extreme Weather Events

Upgrade of Seasonal Ensemble Prediction system

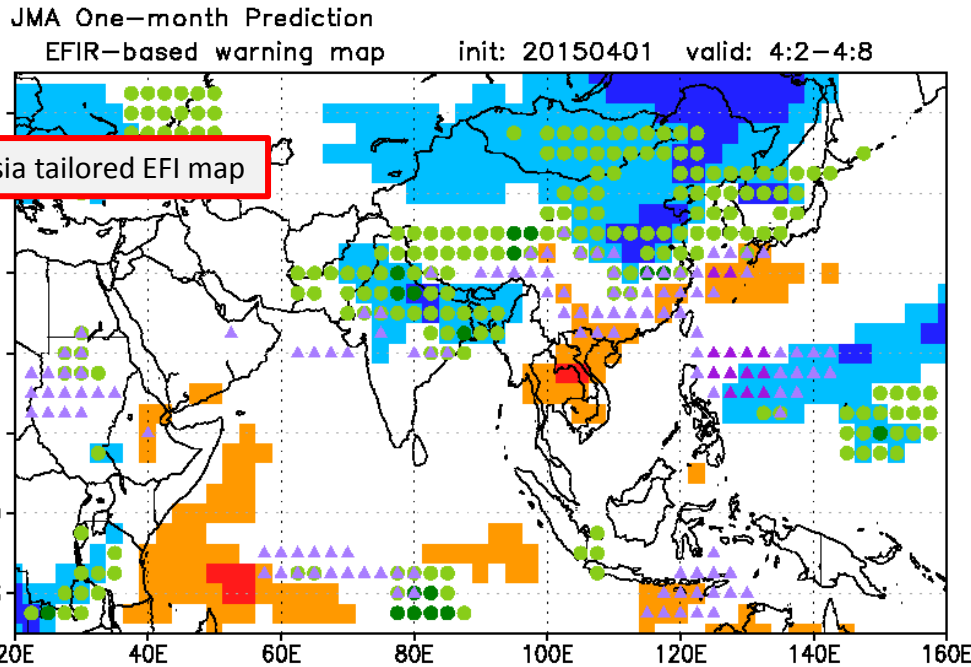
Upgrade of the Interactive Tool for Analysis of the Climate System (iTacs)

● Plan for 2015

Investigation of ENSO's impact on the global climate using the JRA-55

Forecast Products in Support of Early Warnings for Extreme Weather Events

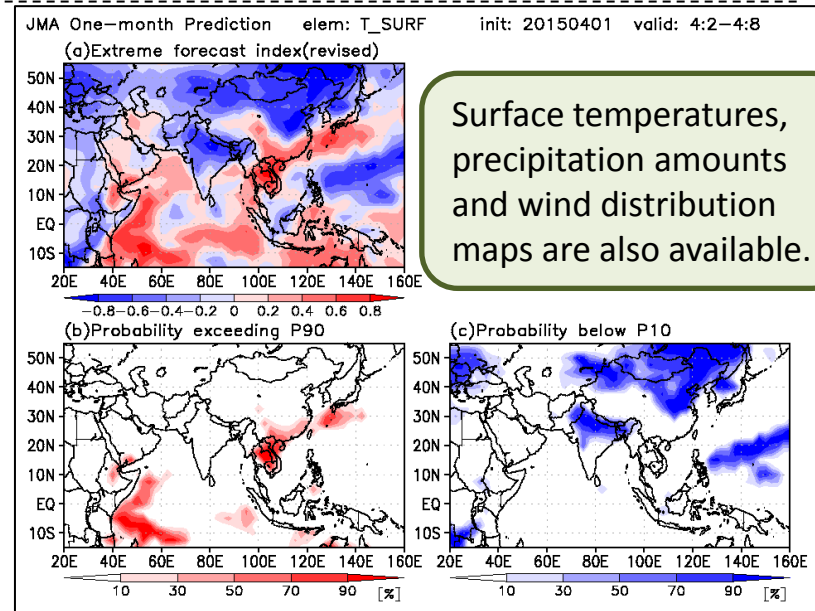
To support the Asia-Pacific NMHSs in the provision of early warnings for extreme events, TCC developed a set of extreme weather warning products based on JMA's operational one-month ensemble prediction system.



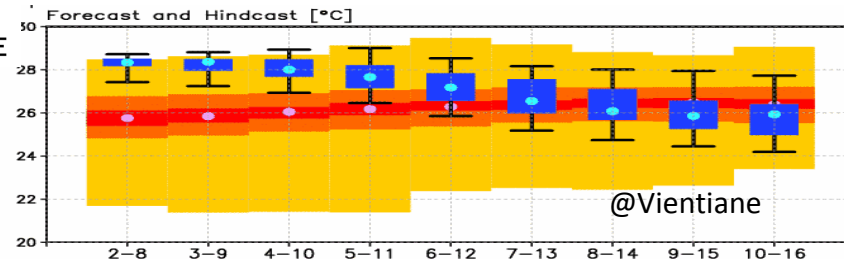
Time-series representations of EFI and EPSgrams are also provided for selected major cities.

Updated Every Thursday

<http://ds.data.jma.go.jp/tcc/tcc/gpv/EFI/index.php>



Surface temperatures, precipitation amounts and wind distribution maps are also available.



(password-protected)

Several kinds of forecasts issued by JMA

1 month

3 months

6 months

Forecast etc.

Daily Forecast

One-week Forecast

EWE*

5-14 days ahead

Every Monday and Thursday

One-month EPS (AGCM)

*EWE:

Early Warning Information on Extreme Weather

One-month Forecast

M1

Every Thursday

W1 W2 W34

Temp. Precip. Sunshine Snowfall

Three-month Forecast

M123 (3-month average)

Around 25th of the month

M1

M2

M3

Warm- season Forecast

Around 25th of February

Seasonal EPS Summer (JJA)

Cold- season Forecast

Around 25th of September

Winter (DJF) (CGCM)

El Niño Outlook

Around 10th of the month

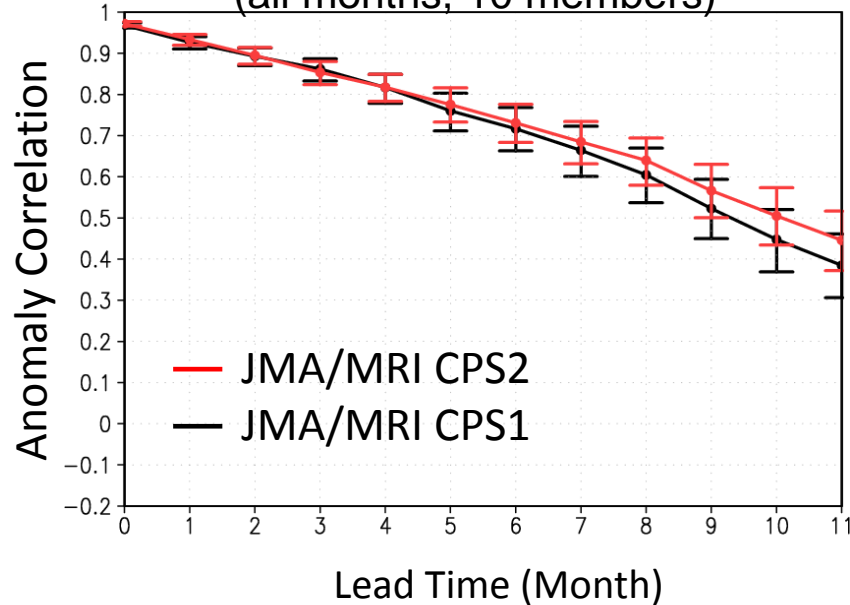
up to 6 months ahead

Upgrade of Seasonal Ensemble Prediction System

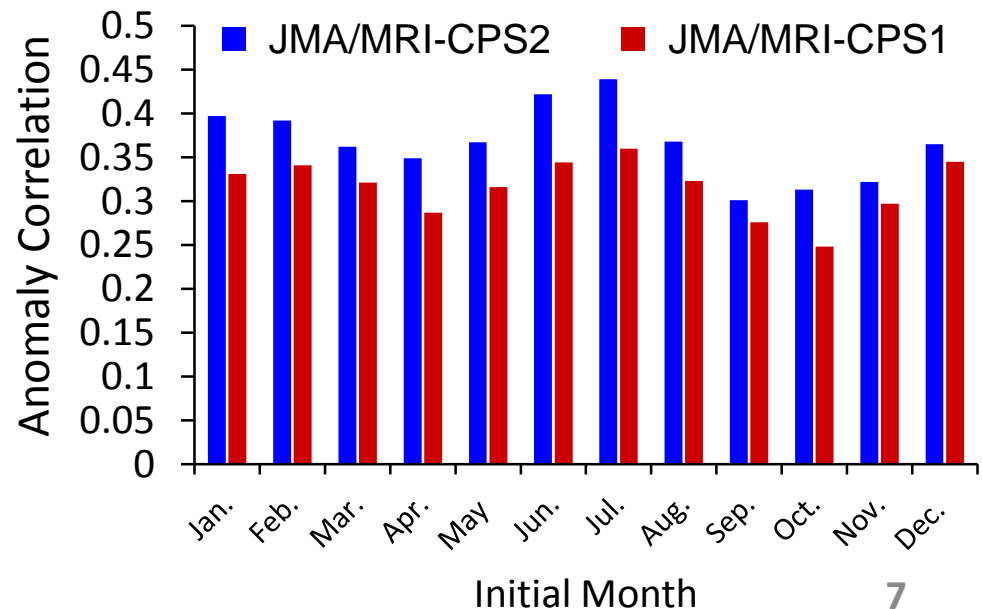
- ✓ Improved physics
- ✓ Interactive sea ice model
- ✓ GHGs
- ✓ Increased resolution
- ✓ Land initialization
- ✓ Stochastic physics

- Improved ENSO prediction skills (NINO3, NINO3.4 SST)
- Improved 3-month and warm/cold season prediction skills (in particular for surface temperature over land)

Anomaly correlation coefficients of Nino3 SST (all months, 10 members)



ACCs of 3-month prediction at 1-month lead time for surface temperature in the northern hemisphere



Upgrade of the Interactive Tool for Analysis of the Climate System (iTacs)

➤ Renovated Graphical User Interface to reduce network traffic and user burdens

iTacs ver. 5

User Information

Logout

Reload

Help

Analysis Dataset

Forecast Dataset

Analysis Dataset

Select parameters

Graphic Options

Data 1

Dataset	Element	Data type	Area	Level	Averaging period	Showing period
JRA-55	Pressure Levels ψ (Stream Function)	HIST	ASIA Lat: -10 - 85 Lon: 30 - 190	200hPa 200hPa	Year average <input checked="" type="checkbox"/> Ave <input type="checkbox"/> Time filter	RANGE 2000 2014 7 7

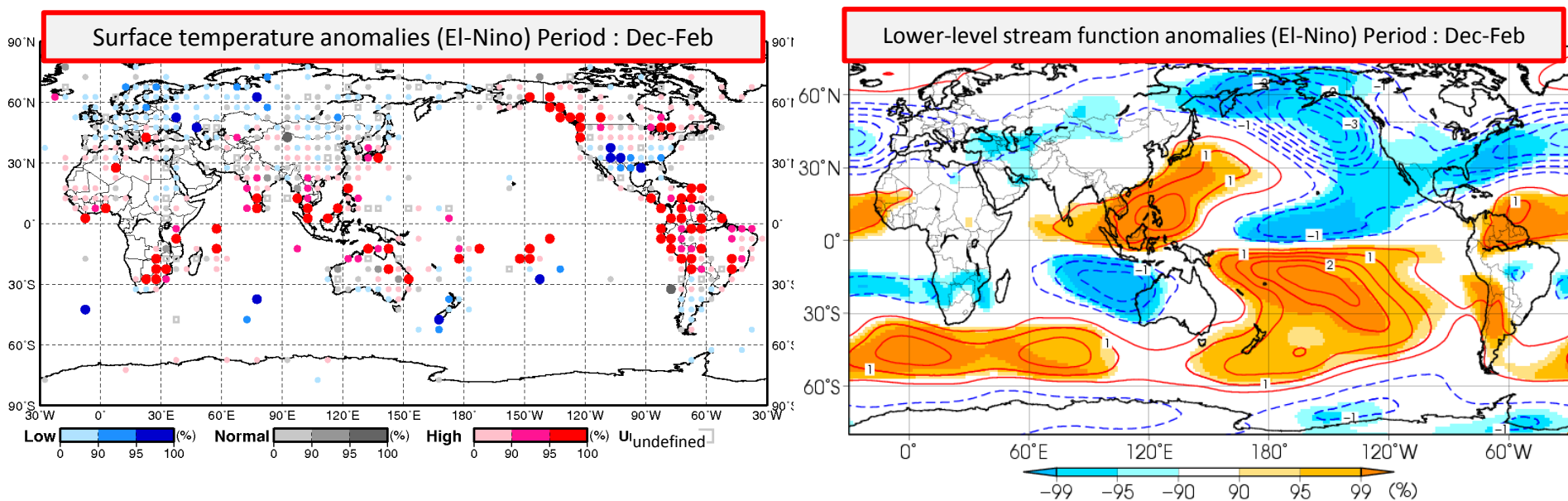
Vector SD
Derivative: lon lat

Analysis method: -Analysis method-

iTacs is a web-based application for analyzing and monitoring climate. It's available on web browsers, no additional software or plug-ins are required.

Investigation of ENSO's impact on the global climate using CLIMAT and the JRA-55 (1958-2012)

In order to promote the understanding of the influence of ENSO on global climate system, TCC is currently producing new statistical products using CLIMAT and the second Japanese global reanalysis data (JRA-55), which covers the period starting from 1958, and plans to update the web contents of the ENSO statistics.



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
Nov. 2015	One-month Forecast	15: Bangladesh, Cambodia, Indonesia, Hong Kong, Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Viet Nam



Purposes of the Training Seminar on One-month Forecast and Schedule

- To familiarize the participants with outputs of JMA's numerical prediction model and tools for forecasting
- To assist the participants in improving skills in generating one-month prediction products using statistical downscaling methods

Day 1 (16th Nov.)	Introduction to Climatology	lecture
	Introduction to the Japanese 55-year Reanalysis (JRA-55)	lecture
	Introduction to Interactive tool for Analysis of the Climate System (iTacs) and its basic operations	lecture exercise
Day 2 (17th Nov.)	JMA seasonal ensemble system and numerical prediction products	lecture
	Seasonal forecast	lecture
	Concept of the guidance for seasonal forecast	lecture
	Explanation to the exercise	lecture
	Generating one-month prediction products together	exercise

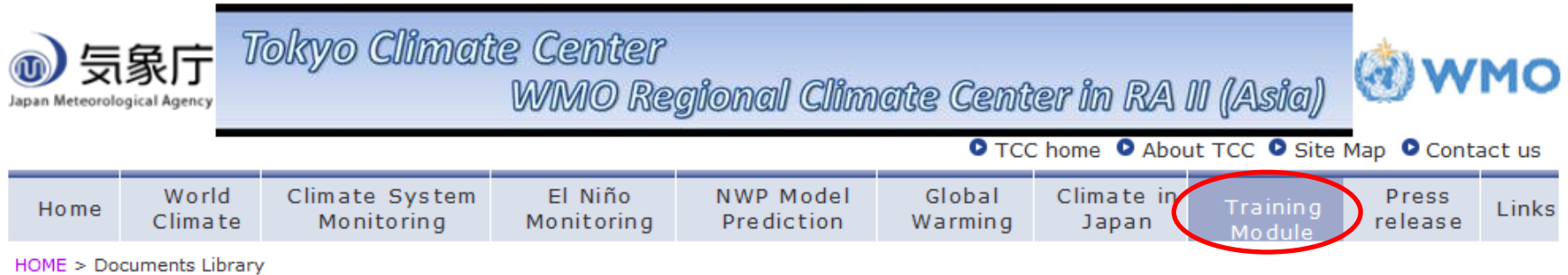
Purposes of the Training Seminar on One-month Forecast and Schedule

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Day 3 (18th Nov.)	Generating one-month prediction products for your own country Preparation of the presentation	exercise
Day 4 (19th Nov.)	Generating one-month prediction products for your own country (cont.) Preparation of the presentation (cont.)	exercise
	Presentation by participants	presentation!
Day 5 (20th Nov.)	Presentation by participants (cont.)	presentation!

Training Module on the website

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



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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 \(4-6 November 2008\)](#)

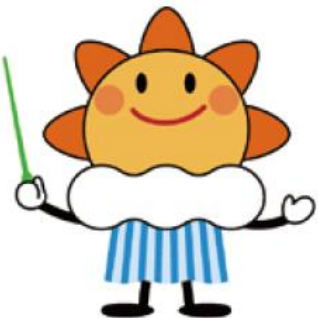
Abstracts and Presentations by JMA

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.

The JMA mascot



Harerun

JMA's mascot is named Harerun (from hare – the Japanese word for “fine weather”), and incorporates elements of sun, cloud and rainfall. Harerun holds a green baton representing hopes for a peaceful and disaster-free world. The mascot helps to raise public awareness of meteorological services as well as natural disasters and global environmental issues at various events.