

Introduction to TCC services

Yasushi Mochizuki

Tokyo Climate Center
Japan Meteorological Agency

Tokyo Climate Center (TCC)

- TCC has served as a WMO Regional Climate Center in the RA II since 2009.
- 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

Asia and Pacific region

NMHSs

Provision of climate information using TCC data based on national requirements

Utilization of Climate Information

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



Status of RCCs or RCC-Networks implementation in and around RA-II

- designated RCC
- RCC in demonstration phase
- RCC proposed
- designated RCC-Network
- RCC-Network in demonstration phase
- RCC-Network proposed

TCC website and RCC mandatory functions



Tokyo Climate Center

WMO Regional Climate Center in RA II (Asia)



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[Home](#) [World Climate](#) [Climate System Monitoring](#) [El Niño Monitoring](#) [NWP Model Prediction](#) [Global Warming](#) [Climate in Japan](#) [Training Module](#) [Press release](#) [Links](#)

HOME

What are WMO RCCs

WMO RCCs are centres of excellence...

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

Latest Updates

[World Climate](#) Updated: 15 Feb 2016

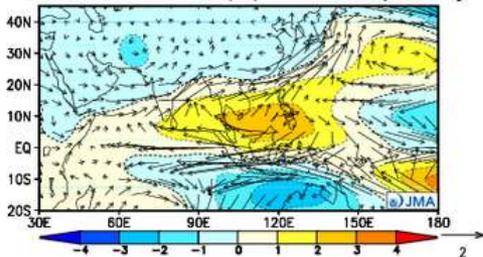
[Climate System Monitoring](#) Updated: 15 Feb 2016

[El Niño Monitoring](#) Updated: 10 Feb 2016

[Monthly Discussion](#) Updated: 24 Feb 2016

Monthly Discussion on Seasonal Climate Outlook No.24 is issued on 24 February 2016.

PSIB50 & wind850 from : 2016/ 2/10 00Z LT=20 days +1.0E6[m**2/s]

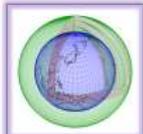


Main Products



iTacs

iTacs, Interactive Tool for Analysis of the Climate System, is a web-based application to assist NMHSs to analyse extreme climate events and to monitor climate status.



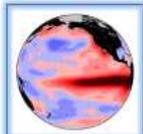
GPC Tokyo

Products of long-range forecast from Global Producing Center (GPC) Tokyo are available. These products are based on JMA's ensemble prediction system.



Monthly Discussion on Seasonal Climate Outlook

This is intended to assist NMHSs in the Asia-Pacific region in interpreting GPC Tokyo's three-month prediction and warm/cold season prediction products.



El Niño Monitoring

"El Niño Outlook" consists of a diagnosis of current condition and prediction of El Niño/Southern Oscillation. This is issued every month around 10th.



ClimatView

The ClimatView tool enables viewing and downloading of monthly world climate data, including monthly temperature/precipitation statistics and 30-year climate normals.



TCC News

What's New



25 February 2016 NEW

▶ [TCC News No. 43 \(Winter 2016: PDF\)](#)

- State of the Global Warming for 2015 — The year 2015 was the warmest year since 1891—
- Highlights of the Global Climate in 2015
- Summary of Japan's Climatic Characteristics for 2015
- The JRA-55 Atlas
- Renewed statistical products regarding the impacts of tropical SST variability on the global climate system
- TCC Activity Report for 2015

1 February 2016 NEW

▶ [Press release: Global temperature for 2015 was the highest since 1891](#)

14 January 2016 NEW

- ▶ TCC has updated its products regarding a statistical relationship between El Niño-Southern Oscillation (ENSO) and the global climate system
 - [Impacts of Tropical SST Variability on the Global Climate](#)
 - [Composite analysis of atmospheric circulation](#)

» [Previous news](#)

» [Press release](#)

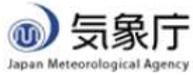
Links

Regional Climate Centers

- ▶ [RA II Regional Climate Center \(RCC\) Network Homepage](#)
- ▶ [Regional Climate Centers](#)

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

TCC website and RCC mandatory functions



Tokyo Climate Center

WMO Regional Climate Center in RA II (Asia)



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What are WMO RCCs

WMO RCCs are centres of excellence...

RCC Functions

- Operational Services for long-range Forecasting
- Operational Activities for Climate Monitoring
- Operational Data Services to support operational WMO climate monitoring
- Training in the use of operational RCC products and services

RCC Mandatory Functions (summarized)

Latest Updates

World Climate Updated: 15 Feb 2016

Climate System Monitoring Updated: 15 Feb 2016

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Main Products

- iTacs**
iTacs, Interactive Tool for Analysis of the Climate System, is a web-based application to assist NMHSs to analyze extreme events and trends in climate data.
- GPC Tokyo**
Products of long-range forecast from Global Producing Center (GPC) Tokyo are available. These products are based on JMA's ensemble prediction system.
- Monthly Discussion on Seasonal Climate Outlook**
This is intended to assist NMHSs in the Asia-Pacific region in interpreting GPC Tokyo's three-month prediction and warm/cold season trend from products.
- El Niño Monitoring**
El Niño Outlook consists of a diagnosis of current condition and prediction of El Niño/Southern Oscillation. This is issued every 10 days.
- ClimateView**
The ClimateView tool enables viewing and downloading of monthly world climate data, including monthly temperature/precipitation statistics and 30-year climate normals.
- TCC News**

What's New



25 February 2016 **NEW**

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Press release
Products launch

Links

Regional Climate Centers

- RA II Regional Climate Center (RCC) Network Homepage
- Other Climate Centers

iTacs

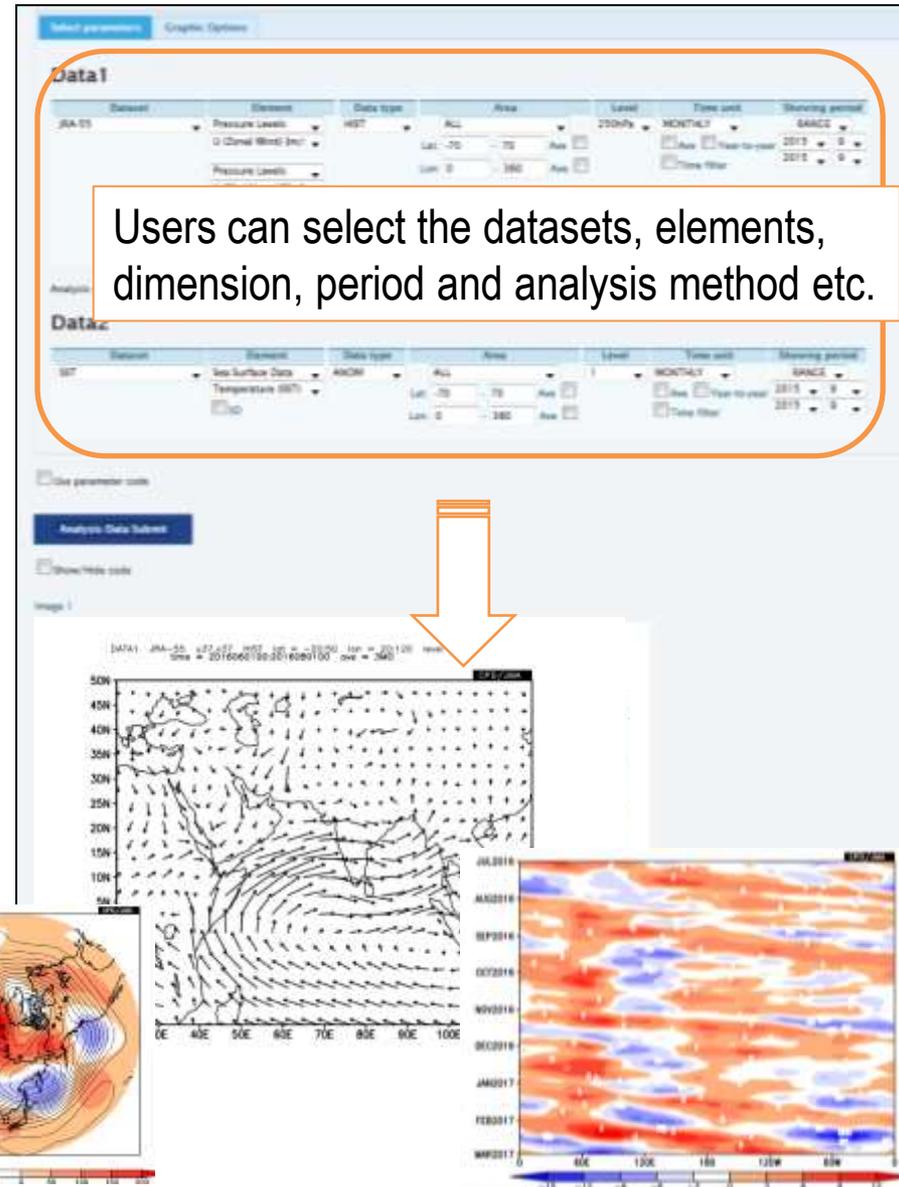
One of the GFCS Contributing Projects

One of the candidate for Climate Service Toolkit contents

- iTacs (Interactive Tool for Analysis of the Climate System) is a web-based application for climatological analysis.
- Additional software or plug-ins or development of own data archive are **NOT** required.
- Users can draw various kinds of figures and operate statistical analysis through a web browser.

Less time to visualize the data,
More time to diagnose the
climate system!

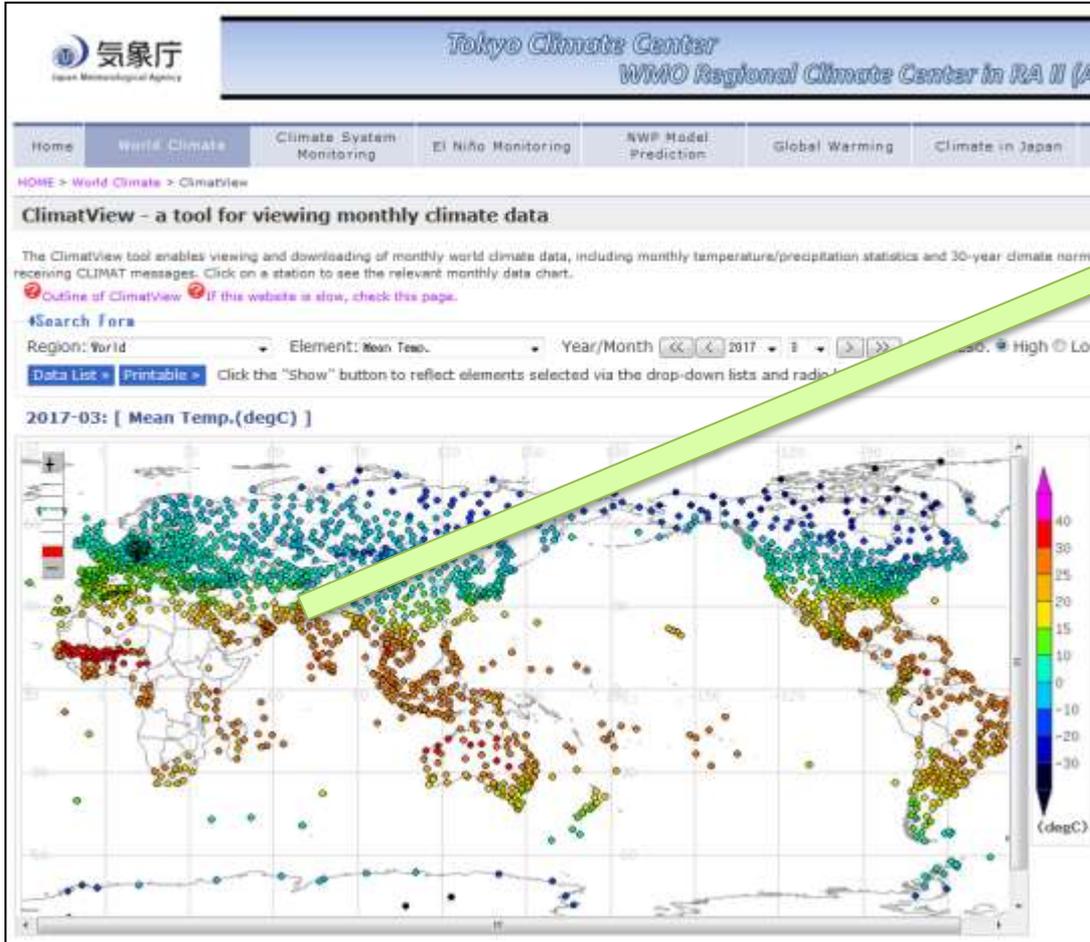
<http://extreme.kishou.go.jp/tool/itacs-tcc2015/>



ClimatView

One of the candidate for Climate Service Toolkit contents

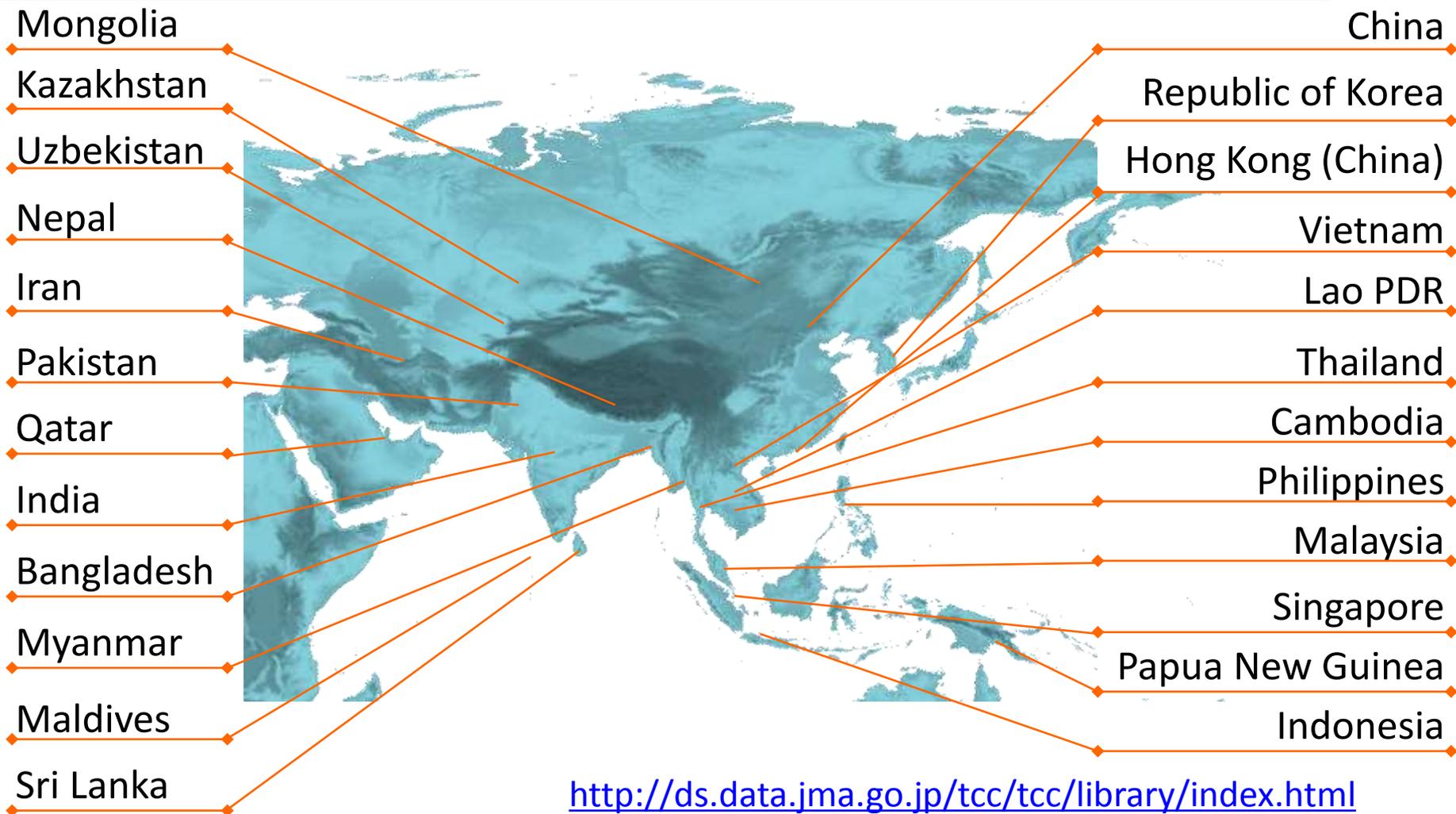
A Powerful tool for overviewing and downloading monthly world climate data. It allows the user to see and obtain monthly mean temperatures, monthly total precipitation amounts and its anomaly or ratio at all available stations.



TCC Annual Training Seminar

One of the GFCS Contributing Projects

- As part of TCC's capacity developing activity in its role as RCC, TCC holds annual training seminars on the application of its climate monitoring and prediction products.
- A total of **127 experts** from NMHSs of **24 nations/territories** in Asia-Pacific region have attended since 2008. (as of 2017)



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

Themes in the recent several training seminars

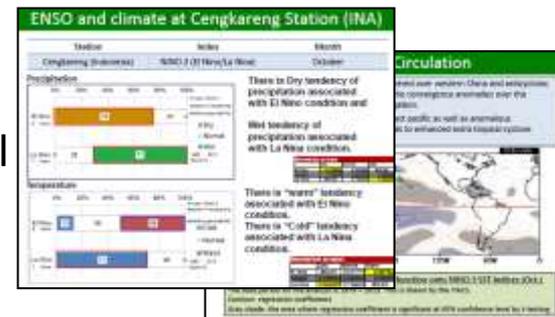
Each seminar deals with a different theme depending on TCC's progress in climate and analysis capabilities

◆ 4 and a half day course including lecture, **exercise and presentation**

[FY2017]

Climate
Analysis and
Monitoring

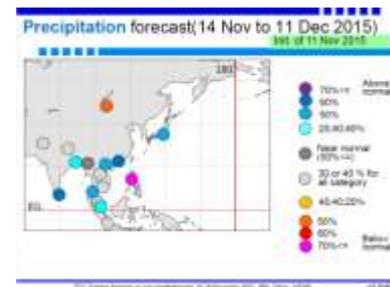
To understand statistical and dynamical relationship between primary modes of global climate variability (e.g., El Niño Southern Oscillation) and regional climate.



[FY2016]

One-month
and Seasonal
Forecast

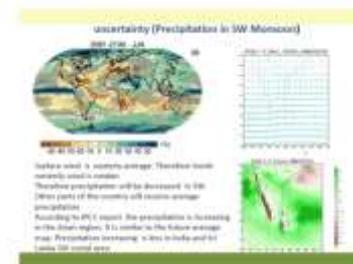
To understand and improve skills in generating one-month prediction products using statistical downscaling methods



[FY2015]

Global
Warming
Projection
information

To enhance knowledge on global warming and to improve skills in generating global warming projection information for their country using one of the latest global warming projection datasets.



TCC Annual Training Seminar

Lecture and Exercise session



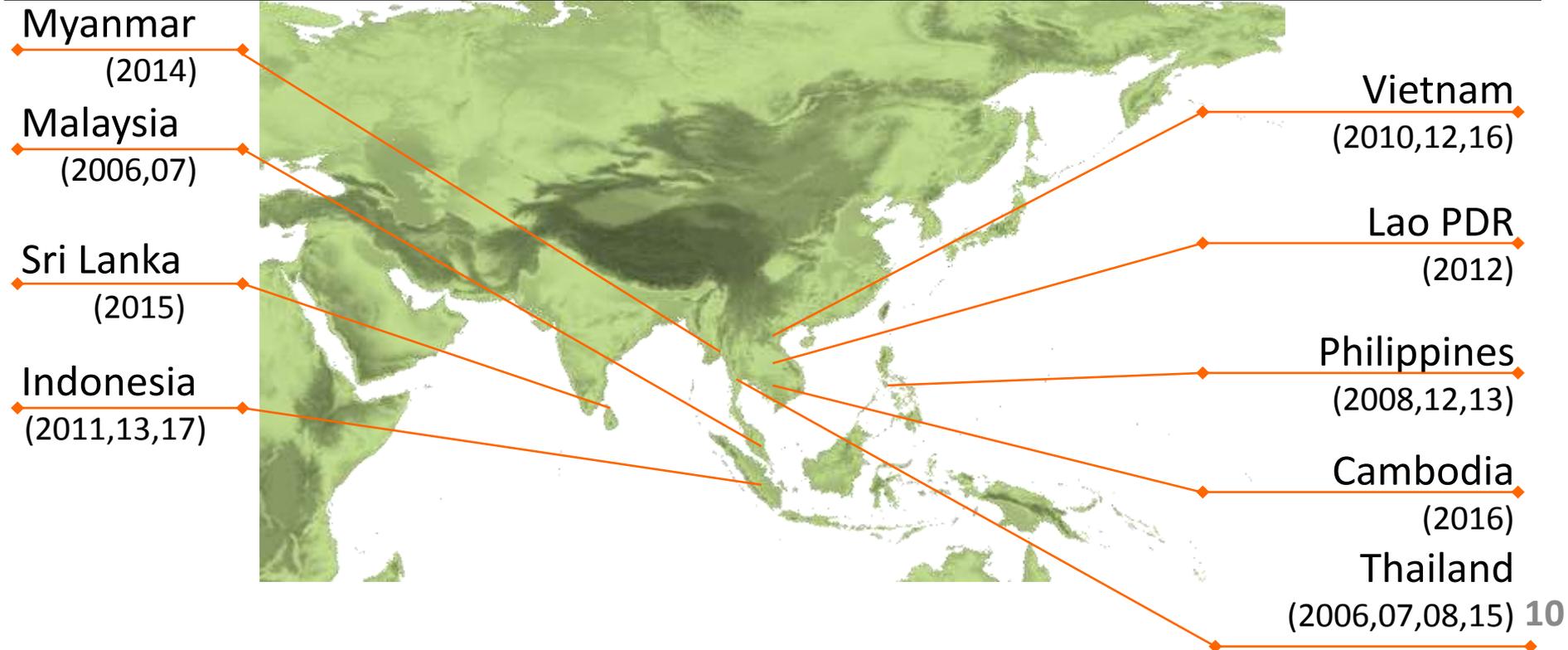
Presentation on results of the exercise

Certificate of Completion



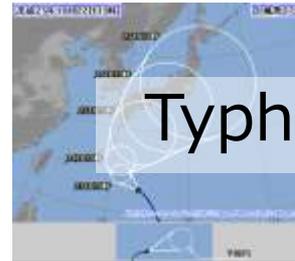
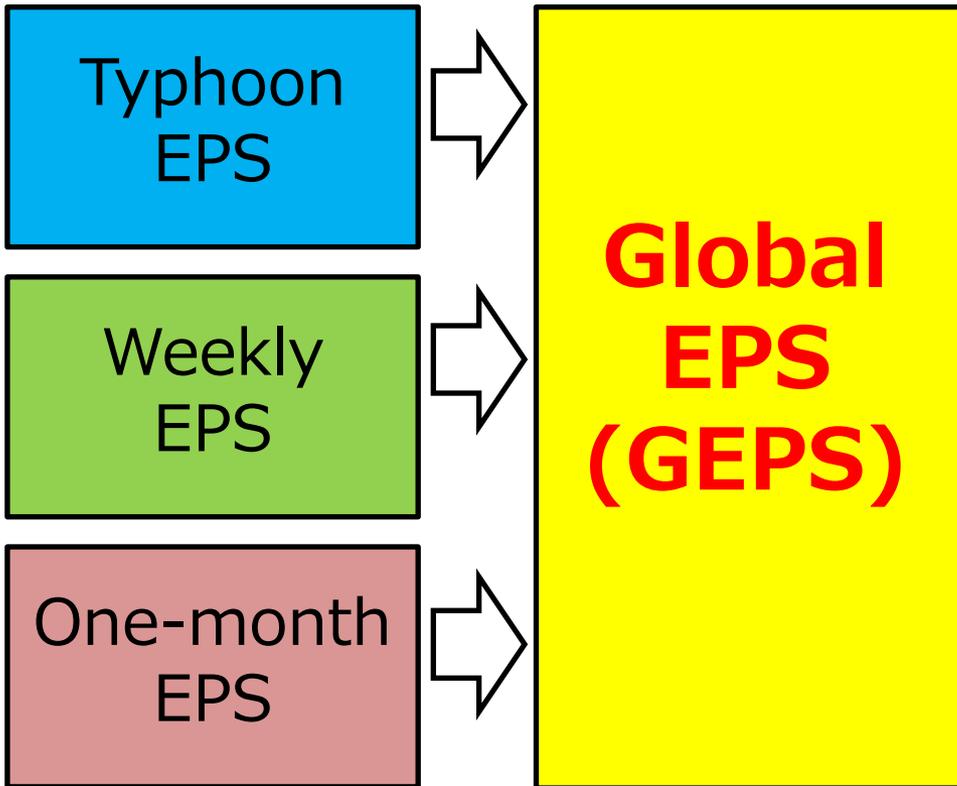
TCC Expert Visit

- TCC has arranged visits by TCC experts to the National Meteorological Services in Asia for discussions, technical transfer and training seminars since 2006.
- TCC experts visit also aims to share the current challenge of the climate services in each country and to discuss about the request to TCC and future cooperation.



GEPS: from weekly to monthly prediction

Global EPS (GEPS) is the basis to provide more **seamless** forecasts to users.



Typhoon Info.

2月26日8時 東京都の週間天気予報

日付	26 金	27 土	28 日	29 月	1 火	2 水	3 木
東京地方	晴時々曇	晴のち曇	曇時々晴	曇時々晴	晴時々曇	曇時々晴	曇
自然現象予報	☀️	☀️	☁️	☁️	☀️	☁️	☁️
降水確率	0	0	10	10	0	0	0
信頼度	A	A	A	A	A	A	A
最高(°C)	10	12	13 (10~16)	12 (10~15)	11 (8~13)	15 (12~17)	18 (15~21)
最低(°C)	—	2	4 (2~6)	4 (2~6)	2 (1~4)	3 (2~5)	6 (4~9)

Weekly Forecast



Early Warning Info. On Extreme Weather



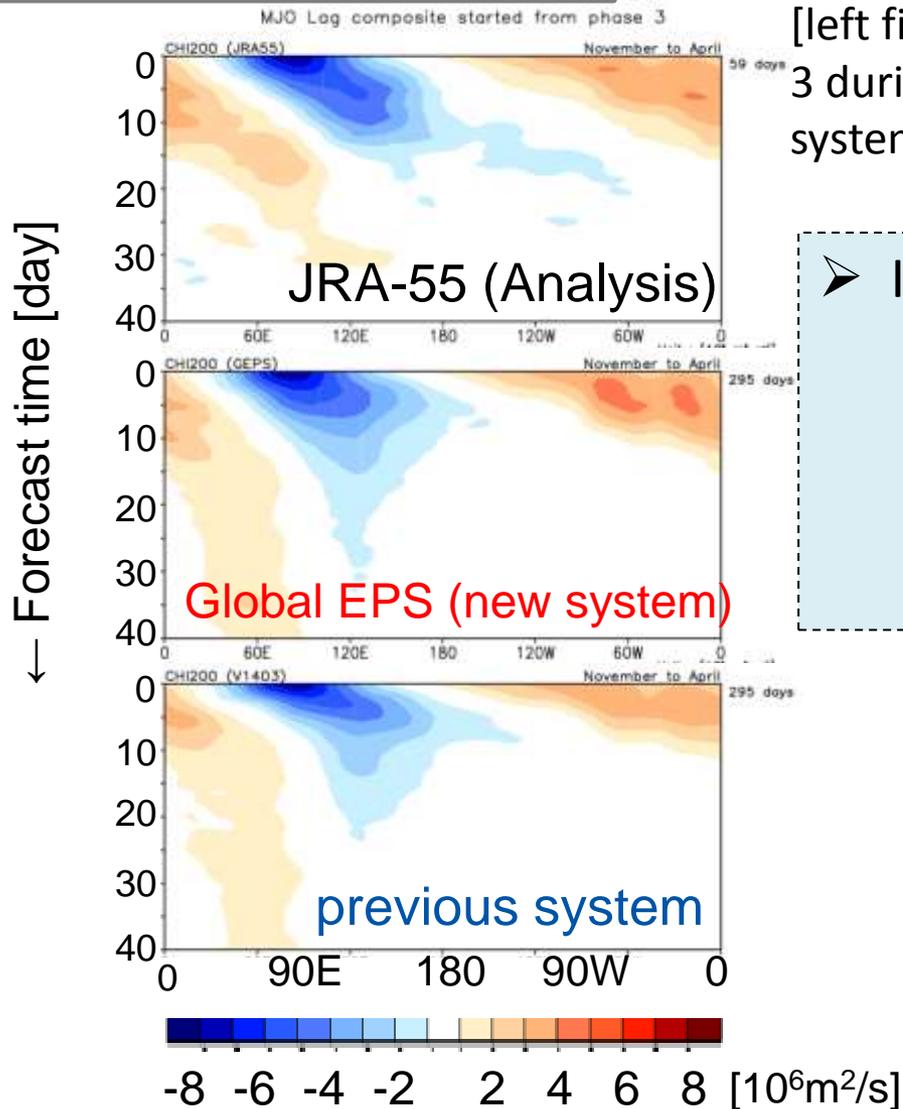
One-month Forecast

Operational **global** NWP models at JMA

	Main target	Horizontal resolution
Global Spectral Model (GSM)	<ul style="list-style-type: none"> •Short-range forecast 	20km
Global EPS (GEPS) <i>(in operation since March 23rd 2017)</i>	<ul style="list-style-type: none"> •Typhoon forecast •One-week forecast •Early Warning Info. on Extreme Weather •One-month forecast 	(~18days) 40km (18days~) 55km
Seasonal EPS	<ul style="list-style-type: none"> •Three-month, Warm & Cold Season forecast •El Niño outlook 	(a)110km (o)100km(lon) /50km(lat)

MJO in the Global EPS

velocity potential (200hP)



[left figures] MJO lag composite started from phase 3 during November to April. analysis (upper), new system (middle), current system (bottom)

- Improved MJO prediction skills
 - Improved phase speed
 - Improved amplitude
 - Improved RMSE and COR (not shown)

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.