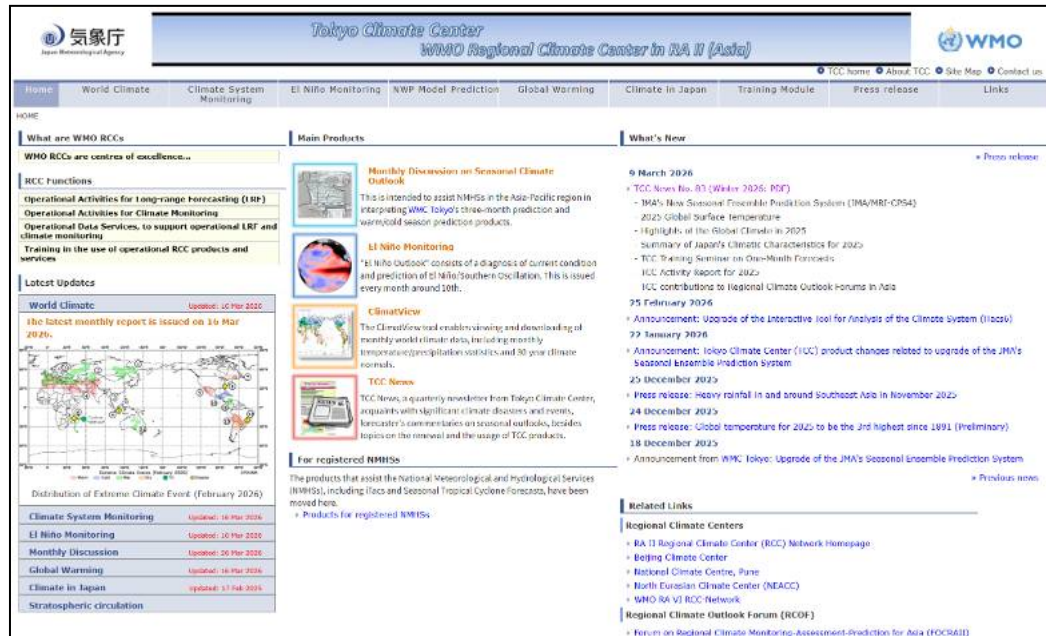


Introduction of Recent Updates of Tokyo Climate Center (TCC)'s Services



TCC Website

<https://www.data.jma.go.jp/tcc/tcc/index.html>

YAMADA Ken

Tokyo Climate Center (TCC)
Japan Meteorological Agency (JMA)
tcc@met.kishou.go.jp

SASCOF-34

28 – 30 Apr. 2026, Male, Maldives

Overview of TCC/GPC's Products

Recent Updates of TCC/GPC's products

- New version of iTacs (version6) has been launched!
- Prediction System Update for One-month Guidance Tool
- TCC Advisory Panel on Extreme Climate Events
- Information of heavy rain in Southeast Asia
- Efforts toward the implementation of OSFs in EASCOF

For Reference: WMO Youth Action Plan

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Overview of TCC/GPC's Products

- **RCC Tokyo (TCC; Tokyo Climate Center)** and **GPC-LRF/SSF (WMC) Tokyo** are collaborating to provide **various climate information/Tools** for National Meteorological and Hydrological Services (NMHSs) in Asia-Pacific region.

Sub-Seasonal(1,2,3-4week) forecasts

Long-range(1,3,6month) forecasts

Reanalysis data

El Niño Monitoring and Outlook

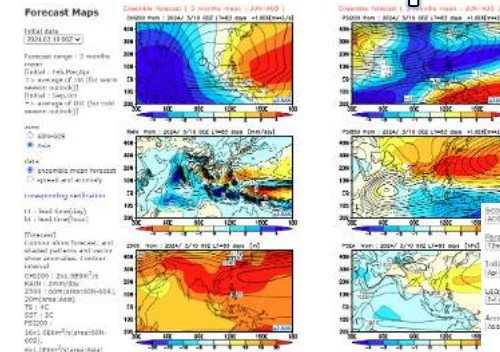
Climate System Monitoring

Global Warming Monitoring and Projection

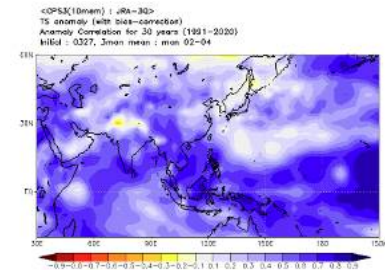
Climate Risk Management

TCC(RCC Tokyo), NWP(GPC-LRF/SSF Tokyo)

Forecast Maps



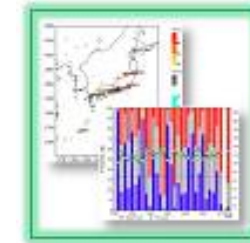
Verification Maps



iTacs



Guidance Tool



ClimatView



Etc...

Overview of TCC/GPC's Products

Recent Updates of TCC/GPC's products

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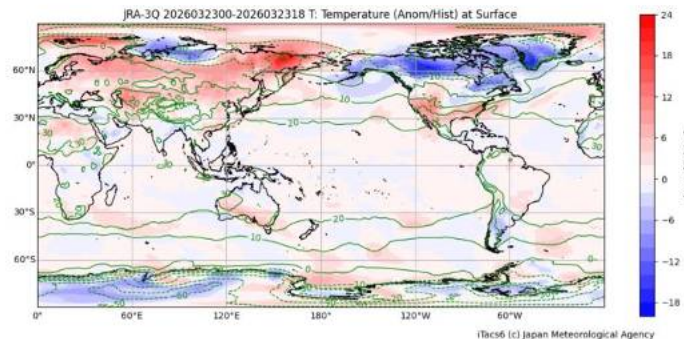
For Reference: WMO Youth Action Plan

New version of iTacs (version6) has been launched!

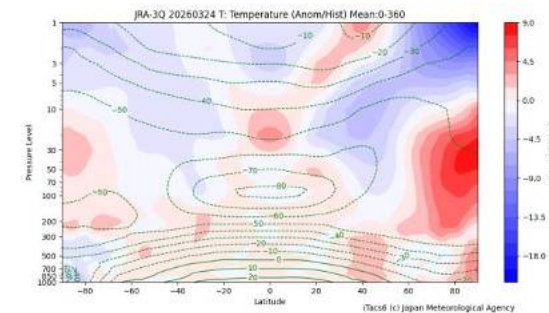
- TCC provide iTacs, a **web-based application for climate data visualization and analysis**, offering a wide range of figures and statistical analyses.
- New iTacs (iTacs6) offers a more **intuitive drawing experience with an improved UI** and is built on a Python-based framework.
- Although iTacs6's functions are limited at first (e.g. Regression, Trend analysis), **full functionality of iTacs6 is expected to be released in mid-2026**.



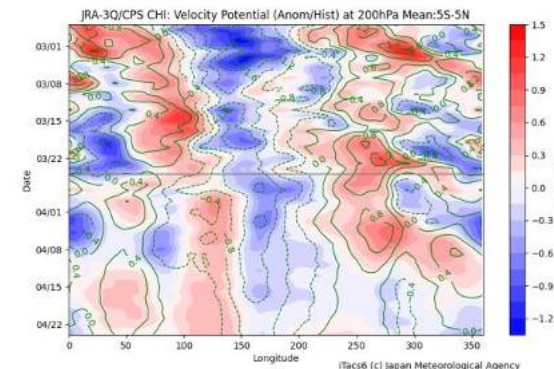
Horizontal map



<https://extreme.kishou.go.jp/itacs6/itacs.html>



Vertical cross section



Time cross section

NOTE: iTacs5 ID/password is no longer usable. **To use iTacs6, please contact us for the new ID/password.**

Prediction System Update for One-month Guidance Tool

- TCC provide One/Three-month Guidance Tool, which enables guidance (statistical post-processing) calculation in simple steps.
- The prediction system used for One-month Guidance Tool has been changed** from the JMA's Global Ensemble Prediction System (GEPS) to the JMA's Seasonal Ensemble Prediction System (JMA/MRI-CPS4), which is based on the coupled ocean-atmosphere general circulation model.

[NWP Model Prediction \(TCC Website\)](#) > TCC's One-month Guidance Tool

TCC's One-month Guidance Tool ([Three-month Guidance Tool](#), [Commentary](#))

Initial date: → The beginning and ending date of the valid time will be automatically set on the next pull-down menu.

Forecast period: / / - / /

Predictor: -- No.2 -- -- No.3 --

Station and observation data: (Sample text data: [Temperature](#), [Precipitation](#))

ファイルの選択 ファイルが選択されていません

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2021. 6. 25. 23. 3. 22. 1. 21. 5. 23. 4. 25. 5. 20. 1. 25. 1. 24. 0. 24. 2. 26. 7
2021. 6. 26. 24. 2. 23. 5. 22. 3. 24. 1. 24. 1. 21. 4. 23. 9. 22. 9. 25. 6. 28. 0
2021. 6. 27. 23. 7. 22. 8. 22. 4. 23. 8. 23. 7. 21. 1. 24. 3. 23. 4. 26. 6. 26. 9
2021. 6. 28. 24. 4. 23. 4. 22. 6. 24. 9. 24. 9. 19. 8. 25. 1. 23. 6. 25. 7. 26. 6
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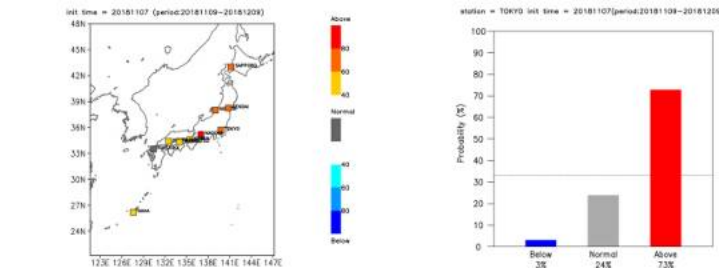
↓ Detailed Options ↓

Submit

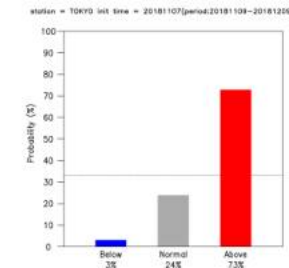


https://extreme.kishou.go.jp/cgi-bin/simple_guidance/index.cgi

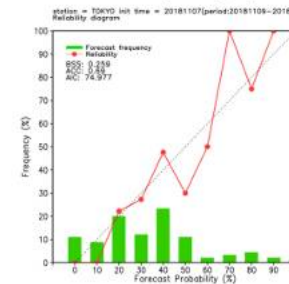
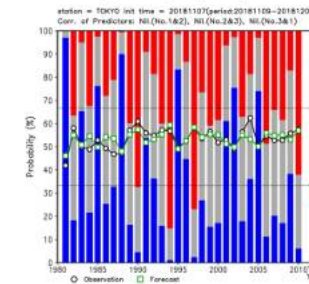
Probability : Temperature, Precipitation



Sample temperature probability forecast map for each category. Cool-, grey- and warm-colored marks denote below-, near- and above-normal probability, respectively.



Sample temperature probability forecast for three categories. Blue, grey and red bars denote below-, near- and above-normal probability, respectively.



Verification: Time series of probability, Reliability diagram

How to access iTacs6 and Guidance Tool

- TCC Website layout has been slightly updated.



The screenshot shows the Tokyo Climate Center website interface. At the top, there are logos for the Japan Meteorological Agency, Tokyo Climate Center, and WMO. Below the logos is a navigation menu with items like Home, World Climate, Climate System Monitoring, El Niño Monitoring, NWP Model Prediction, Global Warming, Climate in Japan, Training Module, Press release, and Links. The main content area is divided into several sections: 'What are WHO RCCs', 'Main Products' (with sub-sections like Monthly Discussion on Seasonal Climate Outlook, El Niño Monitoring, ClimatView, and TCC News), and 'What's New' (with a list of recent news items). A yellow callout box highlights a link for 'Products for registered NMHSs' in the 'Main Products' section.

Products for Registered NMHSs

As a WMO Regional Climate Center, the TCC provides products to support National Meteorological and Hydrological Services (NMHSs). Only registered NMHSs can access these products. Please refer to the link for more information.

- 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.
- Seasonal Tropical Cyclone Forecasts**
Seasonal numerical prediction outputs of tropical cyclones in the western North Pacific based on the JMA's seasonal ensemble prediction system.
- Forecast Products in Support of Early Warnings for Extreme Weather Events**
The Extreme Forecast Index (EFI) as an early warning product for extreme weather and climate events up to two weeks in advance.
- One-month and Three-month Guidance Tool**
A web-based interactive tool enabling the generation of statistical guidance for station points in support of operational seasonal forecasts.
- Animation for One-month Prediction**
Seven-day running mean maps of analyses and forecasts based on the reanalysis dataset and the JMA's seasonal ensemble prediction system, respectively.

iTacs

Guidance Tool

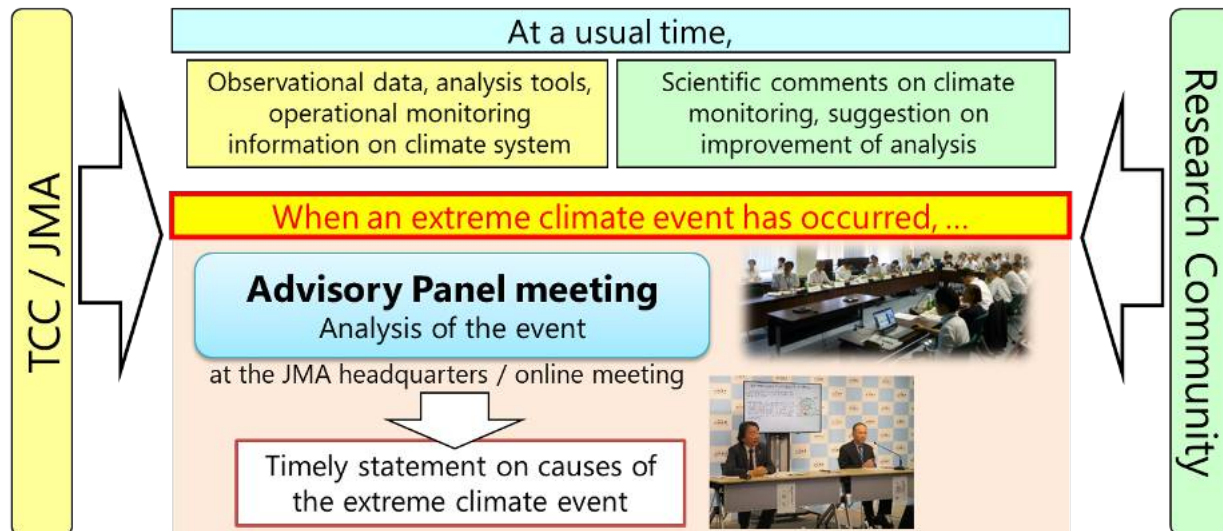
For registered NMHSs

TCC Website

<https://www.data.jma.go.jp/tcc/tcc/index.html>

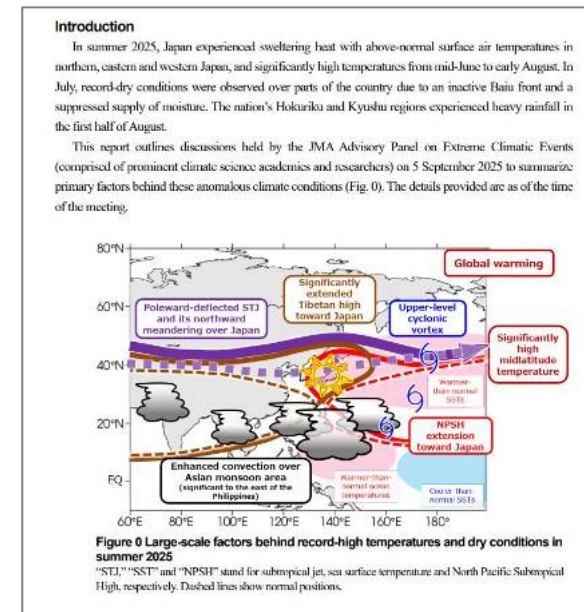
TCC Advisory Panel on Extreme Climate Events

- The TCC Advisory Panel on Extreme Climatic Events is a JMA body composed of prominent climate science experts.
 - **Routine phase:** Information sharing on the climate system
 - **Event-driven phase:** Advisory panel meeting and provision of a timely assessment
 - **Post-event phase:** Publication of analysis results as a paper (e.g., Takemura *et al.*, 2025, Sato *et al.*, 2024, etc.)
- In 2025, an extraordinary meeting was held regarding **record-high summer temperatures over Japan**, etc., and a special report was issued.



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

<https://ds.data.jma.go.jp/tcc/tcc/products/clisys/reports/index.html>



Special report

Information of heavy rain in Southeast Asia

- TCC issued a special report on Heavy rainfall in and around Southeast Asia in November 2025 for supporting NMHSs in the region with the support of the TCC Advisory Panel.

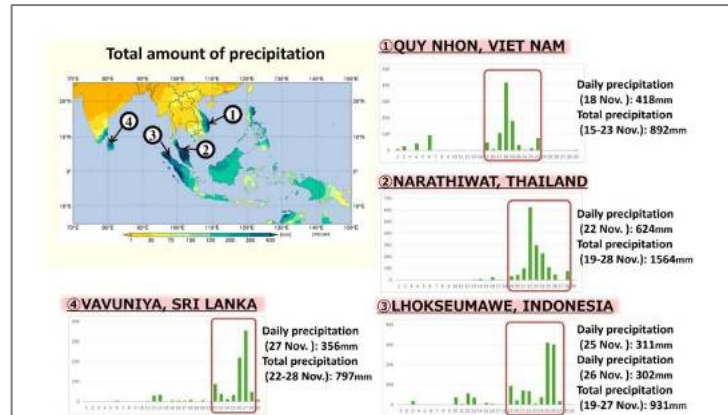


Figure 1. Precipitation over Southeast and South Asia in late November 2025
Top left: Total precipitation (unit: mm) from 15 to 29 November 2025. Right/bottom left: Time-series representation of daily precipitation at individual observation stations, together with observed precipitation amounts. Red boxes: periods of approx. 10 mm+ precipitation. Days based on 00:00 UTC. Based on SYNOP reports submitted from NMHSs around the world.

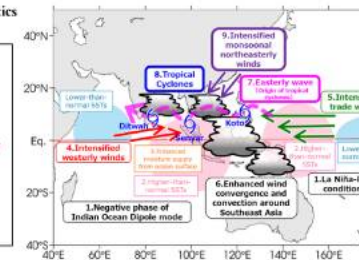
Table 1. Observed precipitation

Based on SYNOP reports submitted from NMHSs around the world.

Country	Observation Station	Period	Total Precipitation (mm)	Maximum Daily Precipitation (mm)
VIET NAM	QUY NHON	15-23 Nov.	892	418
	NHA TRANG	15-21 Nov.	537	172
THAILAND	NARATHIWAT	19-28 Nov.	1564	624
	PATTANI	18-28 Nov.	1510	338
MALAYSIA	HAT YAI AIRPORT	19-26 Nov.	1282	370
	KOTA BHARU	19-25 Nov.	1188	486
INDONESIA	KUALA LUMPUR	20-28 Nov.	374	128
	LHOKSEUMAWE	19-27 Nov.	931	311
SRI LANKA	BANDA ACEH	21-27 Nov.	290	147
	VAVUNIYA	22-28 Nov.	797	356
	TRINCOMALEE	20-27 Nov.	583	236

Large-scale background characteristics from October 2025 onward

- La Niña-like conditions and negative phase of Indian Ocean Dipole mode*
- Higher-than-normal SSTs around Southeast Asia
- Enhanced moisture supply from the eastern Indian Ocean surface
- Intensified westerly winds over the Indian Ocean
- Intensified trade winds over the tropical Pacific
- Enhanced wind (4&5) convergence and associated enhanced convection around Southeast Asia



Characteristics during heavy rainfall period (second half of November 2025)

- Easterly wave propagation westward from the Pacific; further enhanced convection around Southeast Asia
- Tropical cyclogenesis and successive area-wide heavy rainfall events
- Possible enhanced wind convergence from intensified monsoonal northeasterly winds

Indian Ocean Dipole (IOD) mode

A negative (positive) IOD phase occurs when SSTs in the eastern and western Indian Ocean are above (below) and below (above) normal, respectively. The IOD generally occurs in boreal summer and autumn (from June through November) every few years, and significantly affects climate conditions in countries around the Indian Ocean.

Figure 2. Atmospheric and oceanic characteristics behind heavy rainfall over Southeast Asia, November 2025

Produced in collaboration with the JMA Advisory Panel on Extreme Climatic Events. Based on JRA-3Q (Kosaka et al. 2024) and MGDST (Kurihara et al. 2006).

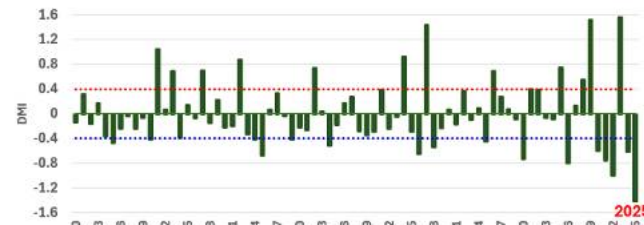


Figure 3. Interannual time-series representation of three-month (September – November) mean Indian Ocean dipole mode index (DMI)

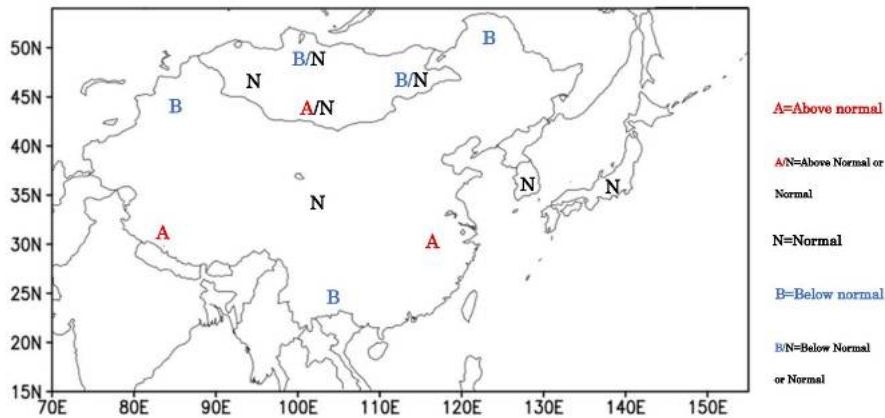
The DMI is based on differences in area-averaged monthly-mean SST deviations between the tropical western Indian Ocean [50°–70°E, 10°S – 10°N] and the southeastern tropical Indian Ocean [90°–110°E, 10°S – Equator]. Positive (negative) Indian Ocean dipole events are identified when the three-month running mean DMI is +0.4°C or above (–0.4°C or below) for at least three consecutive months between June and November. For details of DMI calculations, see <https://www.data.jma.go.jp/tcc/tcc/products/elnino/iodevents.html>.

Efforts toward the implementation of OSFs in EASCOF

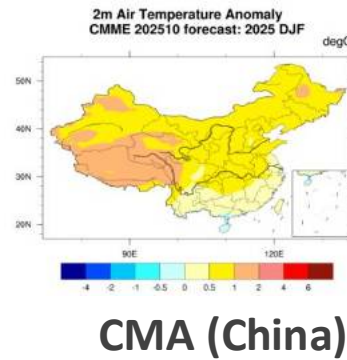
- EASCOF (East Asia winter Climate Outlook Forum) has been seeking the optimal style of objective seasonal forecasts (OSF), taking into account the circumstances specific to EASCOF.
- To ensure a certain level of traceability and reproducibility of seasonal outlook, **forecast maps based on numerical models are included in summary report of EASCOF-13**, held in Mongolia in November 2025.
- The EASCOF-14 is scheduled to be held in Tokyo in autumn 2026.

Seasonal Prediction of the East Asian Winter Monsoon (temperature)

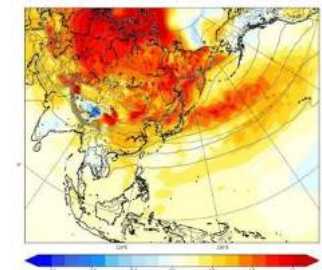
a) Prediction: Temperature [EASCOF-13, for DJF 2025/2026]



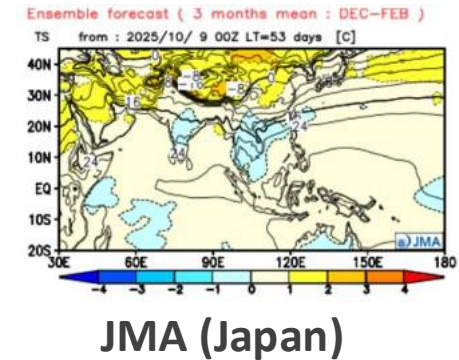
Forecast maps provided by each organization



(a) GloSea6 MME Forecast for 2m Temperature anomaly: DJF



KMA (Republic of Korea)



NAMEM (Mongolia)

Overview of TCC/GPC's Products

Recent Updates of TCC/GPC's products

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For Reference: WMO Youth Action Plan

For Reference: WMO Youth Action Plan

- The 1st WMO Youth Focal Point Coordination Meeting was held in January 2026 at JMA Headquarters in Tokyo.
- The gathering followed the adoption of the WMO Youth Action Plan at the extraordinary Congress in October 2025, seeking to enhance productive youth engagement in the activities of WMO and NMHSs.
- The event served as a platform for discussions on concrete action toward the plan's implementation.



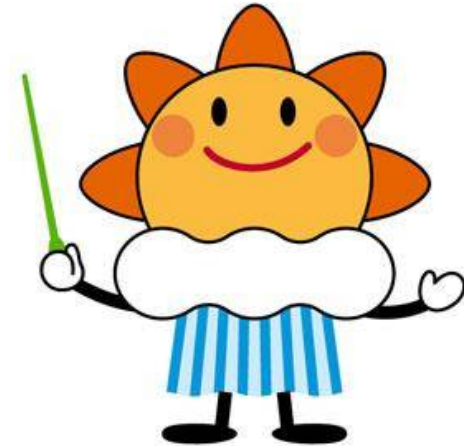
Thank You !!

Information on Tokyo Climate Center

Mailing Address : Tokyo Climate Center
Climate Prediction Division
Atmosphere and Ocean Department
Japan Meteorological Agency
3-6-9 Toranomom, Minato City, Tokyo 105-8431
Japan

Web Site : <https://ds.data.jma.go.jp/tcc/tcc/index.html>

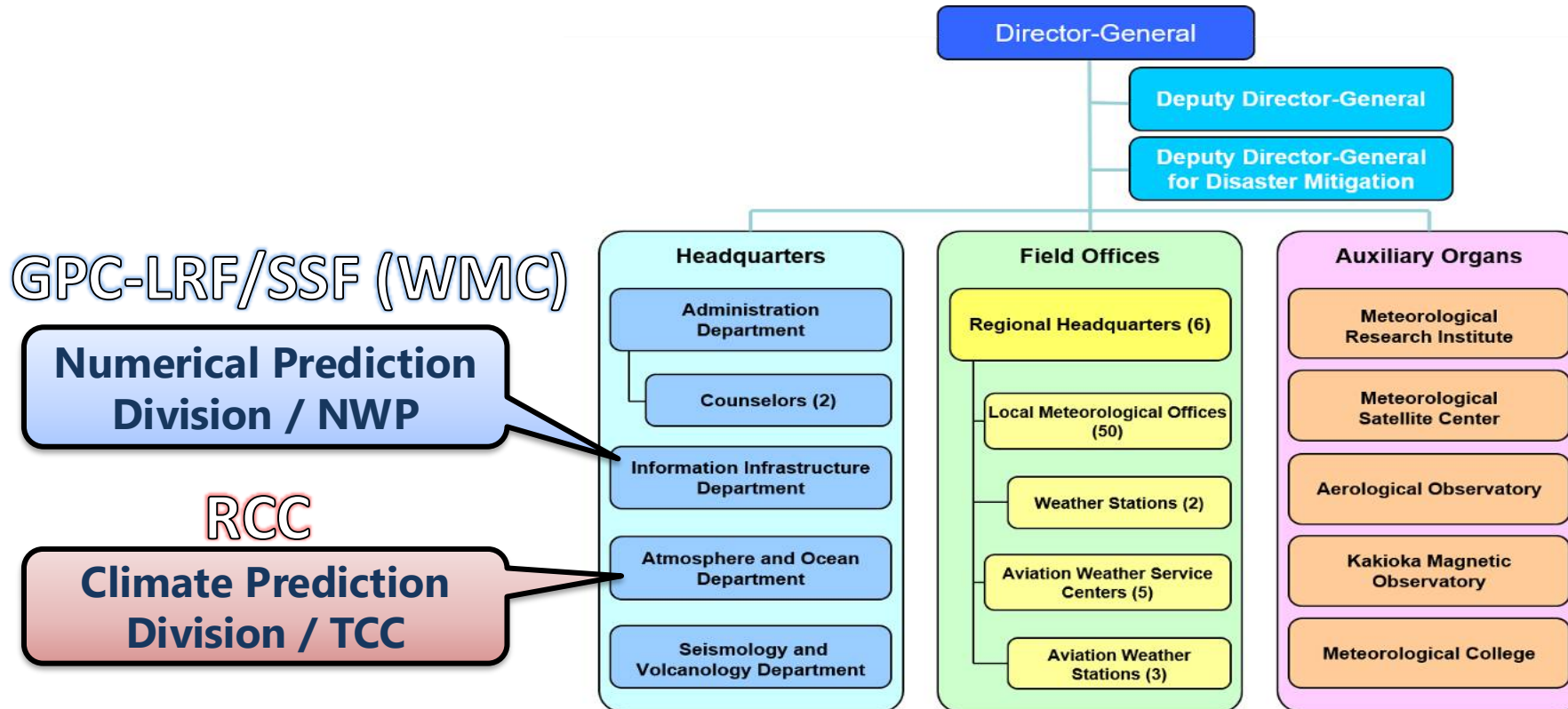
E-mail : tcc@met.kishou.go.jp



SUPPLEMENTAL MATERIAL

Structure of the Japan Meteorological Agency

- **GPC-LRF/SSF(WMC) Tokyo** and **RCC Tokyo** belong to the different divisions of the “**NWP, Information Infrastructure Department**” and “**TCC, Atmosphere and Ocean Department**”, respectively.
- **GPC-LRF/SSF(WMC) Tokyo** and **RCC Tokyo** are collaborating to provide climate information.



<https://www.jma.go.jp/jma/en/Background/organization.html>

- JMA serves as a WMO Global Producing Centre for Long-range/Sub-Seasonal Forecasts (GPC-LRF/SSF Tokyo).
- LRF products consist of 3-month and warm/cold season forecasts, SSF products is composed of 1,2,3-4week forecasts.
- Forecast and verification products of GPC-LRF/SSF Tokyo are accessible from the TCC website.

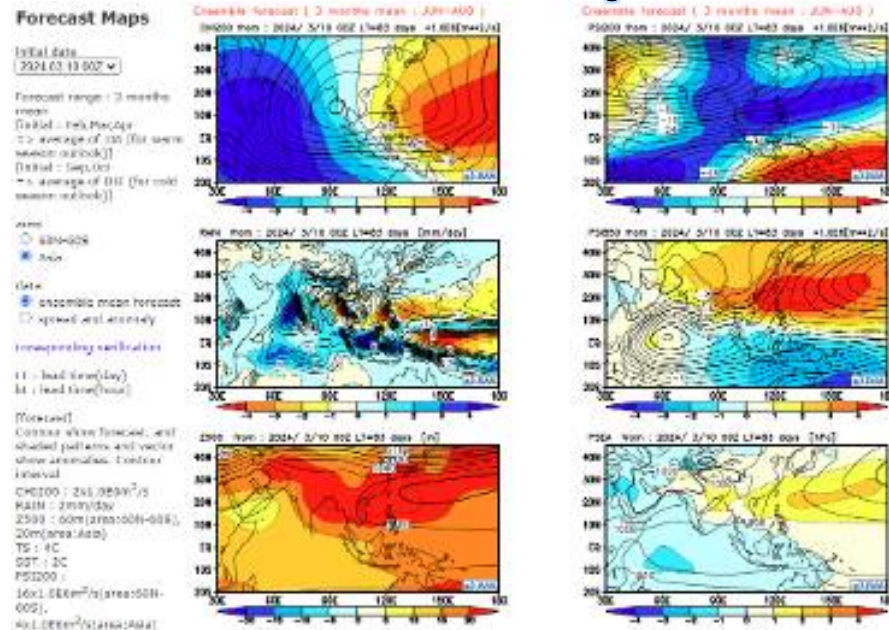


The screenshot shows the 'World Meteorological Centre Tokyo' website. The 'NWP Model Prediction' menu item is highlighted with a red box. Below the navigation bar, the page title is 'JMA's Ensemble Prediction System (Products for Sub-Seasonal and Seasonal Prediction of WMC Tokyo)'. The main content area is divided into 'Notice' and 'Main Products'. The 'Main Products' section is further divided into 'One-month Prediction', 'Three-month Prediction', and 'Warm/Cold Season Prediction'. The 'One-month Prediction' and 'Three-month Prediction' sections are highlighted with red boxes. A blue callout box labeled 'SSF Products' points to the 'One-month Prediction' section, and another blue callout box labeled 'LRF Products' points to the 'Three-month Prediction' section. The 'Notice' section contains several announcements, including the upgrade of the JMA's Seasonal Ensemble prediction System on 18 December 2025, the launch of the TCC's Three-month Guidance Tool on 25 July 2024, the termination of CPS2 six-month forecasts on 16 May 2022, and the upgrade of Global EPS for one-month prediction on 14 March 2022.

<https://www.data.jma.go.jp/wmc/products/model/index.html>

- JMA provides ensemble forecasts and the related verification maps. The verification results using the re-forecast (hindcast) dataset are also available to conduct **the predictability assessments**.

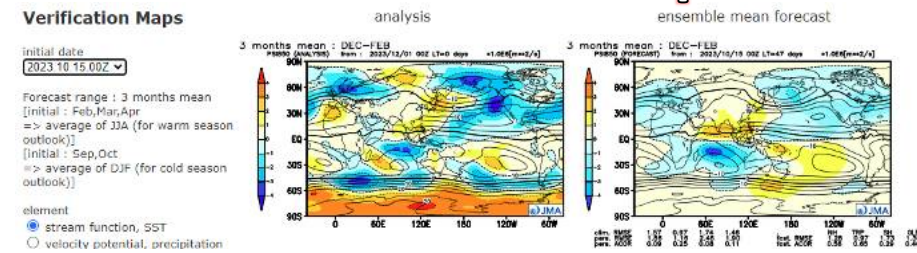
Forecast Maps



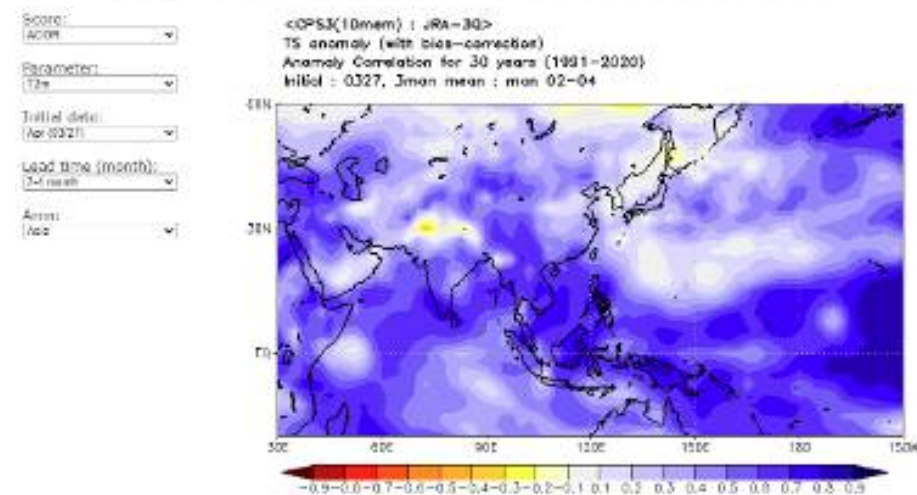
Update Date of forecast maps

- One-month Forecast: Every Thursday
- Three-month Forecast: Every month
- Warm season Forecast: Feb., Mar. and Apr.
- Cold season Forecast: Sep. and Oct.

Verification Maps



Re-forecast Verification



- Time-series data from past observations (temperature and precipitation) and previous CPS3 forecasts (i.e., hindcasts) are used to produce the guidance.
- Statistical relations are estimated by multiple linear regression modeling using these two data types for the verification period (30-year period from 1991 to 2020 by default). The results are used to calculate current values in real-time forecasts.

[NWP Model Prediction \(TCC Website\)](#) > TCC's Three-month Guidance Tool

TCC's Three-month Guidance Tool [experimental] ([One-month Guidance Tool](#), [Commentary](#))

Initial date: → The beginning and ending month of the valid time will be automatically set on the next pull-down menu

Forecast period: / - /

Predictor: -- No.2 --

Station and observation data: (Sample text data: [Temperature](#), [Precipitation](#))

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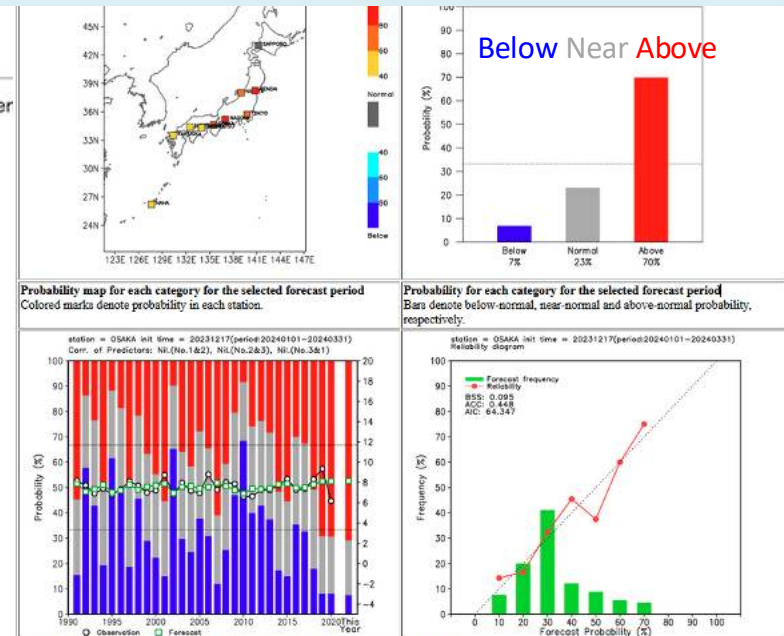
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1981,1,1,4.0,1.8,1.8,3.4,4.6,-3.3,3.1,2.8,5.3,15.6
1981,1,2,3.6,3.8,2.9,3.5,5.0,-2.2,3.3,4.6,2.7,13.4
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1981,1,4,3.4,4.2,1.9,1.7,2.9,-2.4,2.2,2.8,2.1,14.2
1981,1,5,3.2,1.4,0.0,1.8,2.7,-6.7,2.4,2.7,3.4,14.9
```

↓ Detailed Options ↓

Submit



Probability : Temperature, Precipitation



Verification: Time series of probability, Reliability diagram

Capacity Development

TCC conducts annual training seminars as part of capacity-development activities related to its role as an RCC in RA II.

- TCC held a training seminar on one-month forecasts in late January (online) and from 3 to 6 February (in-person at JMA headquarters) 2026. It was attended by 13 trainees from NMHSs in Asia.
- The seminar focused on climate system expertise and on skills in the analysis of atmospheric circulation fields and generation of one-month forecasts using the Interactive Tool for Analysis of the Climate System (iTacs) and the one-month guidance tool provided by TCC.
- All attendees gave final presentations on one-month forecasting in their respective countries and engaged in fruitful discussions with TCC staff.

TCC also arranges expert visits to and hosts visitors from NMHSs to support exchanges of views on climate services and the effective transfer of technology.

- (Aug. 2024) Experts Visit to NCHM Bhutan.
Content encompassed training on medium-to-long range forecasts and use of TCC resources, including iTacs and TCC's Three-month Guidance Tool.
- These activities are planned to continue in 2026.



JRA-3Q: Reanalysis for Three Quarters of a Century

- JMA is currently conducting the Japanese Reanalysis for Three-Quarters of a Century (JRA-3Q; Kosaka et al. 2024), which covers the period from September 1947 onward.
- JRA-3Q data are provided to users from several sites such as DIAS (<https://search.diasjp.net/en/dataset/JRA3Q>) and NCAR.

History of JMA Reanalysis data

JRA-25 (Co-project with CRIEPI)
(1979-2004)

JRA-55 (JRA Go! Go!) (1958-2022)

JRA-3Q (Three quarters)(1947-)



	JRA-55	JRA-3Q
Period	1958~	1947~
System	JMA's as of Dec2009	JMA's as of Dec. 2018
H. resol.	T _L 319 (~55 km)	T _L 479 (~40 km)
Levels	60 levels up to 0.1 hPa	100 levels up to 0.01 hPa
Scheme	4D-Var (T106 inner)	4D-Var (T _L 319 inner res.)
Rad. temp. bias corr.	~2006: RAOBCORE V1.4 2007~: RAOBCORE V1.5	RISE (RICH with solar elevation dependent) v1.7.2
Sat. Rad	RTTOV-9.3	RTTOV-10.2
Land surf,	Offline SiB	Cycle of land surf. forecast
SST and sea ice	COBE-SST: 1deg	MGDSST (0.25-degree): 1985~ COBE-SST2 (1deg): ~1990
Ozone	MRI-CCM1(T42L68)1979~ Climatology: ~1978	MRI-CCM2(T _L 159L64) offline

https://jra.kishou.go.jp/JRA-3Q/index_en.html

Climate System Monitoring using JRA-3Q

- JMA monitors the climate system focusing on atmospheric circulation, tropical convection, oceanographic conditions, and snow cover to understand/explain background factors of the present climate conditions.
- In May 2023, the products were refined to those based on **JRA-3Q** and the related oceanographic dataset (COBE-SST2 (Hirahara et al. 2014), MGDSST (Kurihara et al. 2006), and MOVE/MRI.COM-G3). The products based on the outgoing longwave radiation (OLR) were also updated to those based on the new dataset (NOAA/CPC Blended OLR).

HOME > Climate System Monitoring

Climate System Monitoring

■ ■ ■

Main Products

Report on Climate System

- ▶ Reports on Specific Events (01 Mar 2024)
- ▶ **Monthly Highlights on the Climate System (February 2024)**
- ▶ Seasonal Highlights on the Climate System (Winter, December 2023 - February 2024)

Monitoring and Statistical Analysis (Explanation)

- ▶ Analysis Charts and Monitoring Indices
- ▶ Asian monsoon monitoring (28 Mar 2024)
- ▶ Madden-Julian Oscillation (MJO) (28 Mar 2024)
- ▶ Stratospheric circulation (28 Mar 2024)
- ▶ Composite map for El Niño / La Niña and Indian Ocean Dipole events

Monthly Highlights on the Climate System

'Monthly Highlights on the Climate System' has been issued in PDF format since March 2007 as a monthly bulletin.

Highlights in February 2024

- Oceanic indicators that ongoing El Niño conditions in the equatorial Pacific have already peaked are increasing on 11 March 2024).
- Monthly mean temperatures were significantly above normal in eastern/western Japan and Okinawa/Amami, and were above normal in northern Japan.
- Convective activity was enhanced over the tropical central Pacific and the western to central parts of the Indian Ocean, and suppressed from the eastern Indian Ocean to Indonesia, and from

Monthly Mean Figures of Atmospheric Circulation and Snow Cover

Field: Northern Hemisphere | Hist/Norm: Hist & Anom

Element: 850hPa Temperature & Anomaly

Year: 2024 | Month: 2

Oldest: -1 month | +1 month | Latest | Animation | Start | Stop

Slow | Fast | Time Direction: Forward

Other figures

- 5-day Mean
- 10-day Mean
- Monthly Mean
- 3-Month Mean
- Time Cross Section

Monitoring Indices
Oceanographic Conditions

<https://www.data.jma.go.jp/tcc/tcc/products/clisys/>

Climate Change in Japan 2025

- In March 2025, Ministry of Education, Culture, Sports, Science and Technology (MEXT) and JMA published **Climate Change in Japan 2025** summarizing a physical science basis to serve as essential information for climate change action by the public, commercial enterprises and local/national government bodies.
- The main publication provides an **overview of observed/projected climate change**. Related content (in Japanese) includes:
 - Details: More detailed information (including evidence and references) intended for use by researchers and experts considering countermeasures in individual fields
 - Summary : Simplified slides of the main publication intended for use as-is in study sessions, presentations and other work
 - Leaflets by prefecture: Double-page leaflets providing overviews of observed/projected climate change for individual regions

https://www.data.jma.go.jp/cpdinfo/ccj/2025/pdf/cc2025_gaiyo_en.pdf



Climate System Monitoring

- JMA monitors the climate system focusing on atmospheric circulation, tropical convection, oceanographic conditions, and snow cover to understand background factors of the present climate conditions.
- In 2023, the products based on JRA-3Q and the related oceanographic dataset (COBE-SST2 (Hirahara et al. 2014), MGDSST (Kurihara et al. 2006), and MOVE/MRI.COM-G3) were launched in May 2023. The products based on the outgoing longwave radiation (OLR) from January 1991 were also updated to those based on the new dataset (NOAA/CPC Blended OLR).

The screenshot shows the JMA Climate System Monitoring website. The navigation menu includes 'Home', 'World Climate', 'Climate System Monitoring' (highlighted with a red box), 'El Niño Monitoring', 'NWP Prediction', 'Global Warming', 'Climate in Japan', 'Training Module', and 'Products'. Below the menu, the page title is 'Climate System Monitoring'. The main content area is divided into sections: 'Main Products', 'Report on Climate System' (with links for 'Reports on Specific Events', 'Monthly Highlights on the Climate System (February 2024)', and 'Seasonal Highlights on the Climate System (Winter, December 2023 - February 2024)'), and 'Monitoring and Statistical Analysis (Explanation)' (with links for 'Analysis Charts and Monitoring Indices', 'Asian monsoon monitoring', 'Madden-Julian Oscillation (MJO)', 'Stratospheric circulation', and 'Composite map for El Niño / La Niña and Indian Ocean Dipole events').

Two callout boxes are present:

- Highlights on the Climate System:** This box contains the text 'Monthly Highlights on the Climate System' and 'Highlights in February 2024'. It lists several key findings: 'Oceanic indicators that ongoing El Niño conditions in the equatorial Pacific have already peaked and are gradually subsiding on 11 March 2024.', 'Monthly mean temperatures were significantly above normal in eastern/western Japan and Okinawa/Amami, and were above normal in northern Japan.', and 'Convective activity was enhanced over the tropical central Pacific and the western to central parts of the Indian Ocean, and suppressed from the eastern Indian Ocean to Indonesia, and from...'
- Analysis charts:** This box shows a map titled 'Monthly Mean Figures of Atmospheric Circulation and Snow Cover'. The map displays atmospheric circulation patterns over the Northern Hemisphere, with a color scale ranging from -12 to 12. The map is annotated with 'Analysis charts' and 'Monitoring Indices Oceanographic Conditions'.

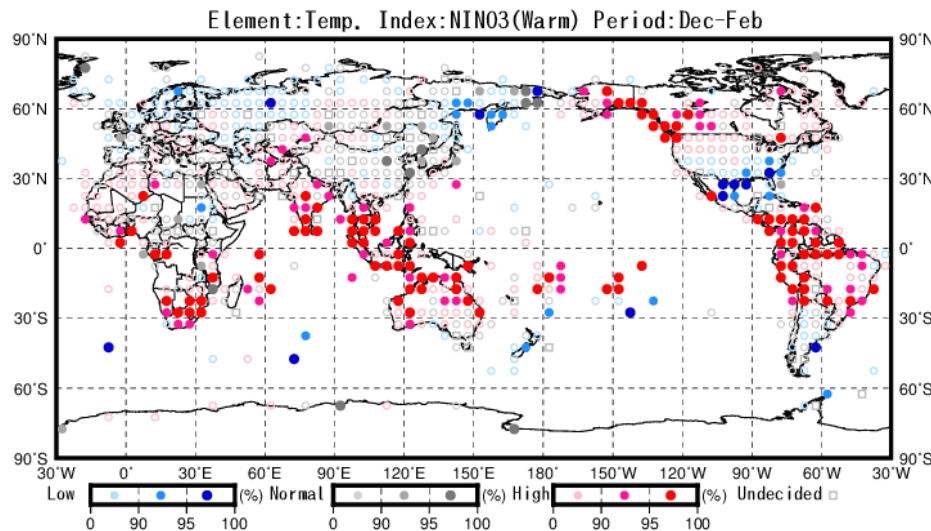
<https://www.data.jma.go.jp/tcc/tcc/products/clisys/>

Assessment of ENSO's impact on the climate

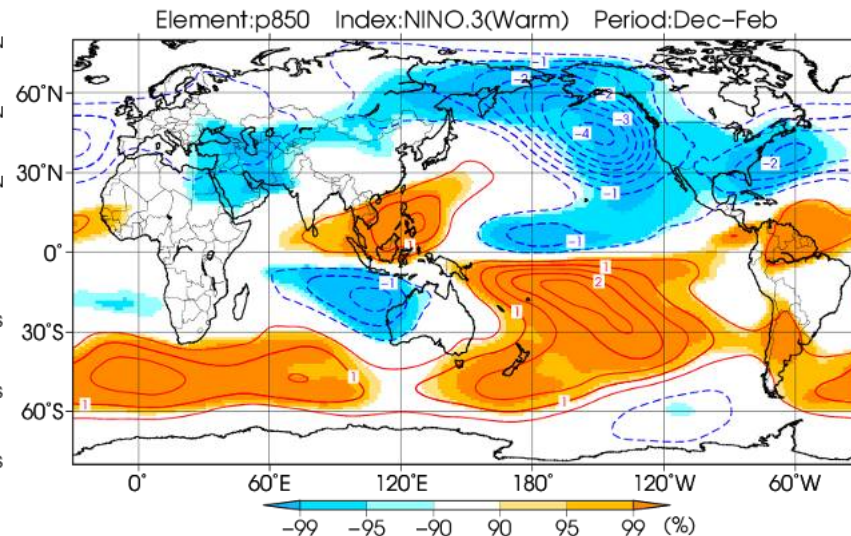
- To promote the understanding of the influence of ENSO on the global climate system, TCC provides statistical analysis results using the observation (CLIMAT reports) and the reanalysis data.
- In 2023, TCC updated the statistical results based on the new reanalysis dataset of JRA-3Q, which covers the period from 1948 to 2021.

Composite anomalies in DJF in El Nino years

Surface temperature anomalies (CLIMAT reports)



850hPa stream function anomalies (JRA-3Q)



World Climate

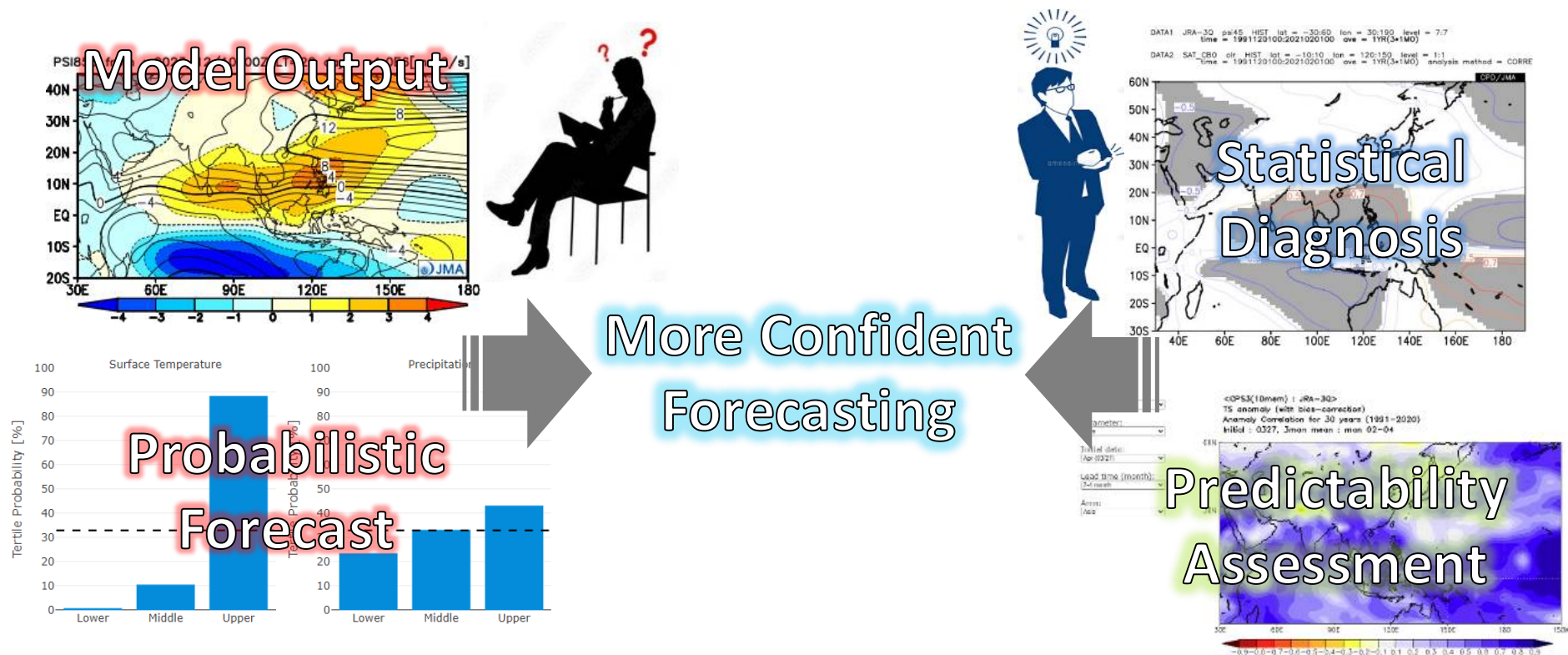
<https://www.data.jma.go.jp/tcc/tcc/products/climate/ENSO/index.htm>

Atmospheric Circulation

https://www.data.jma.go.jp/tcc/tcc/products/clisys/enso_statistics/index.html

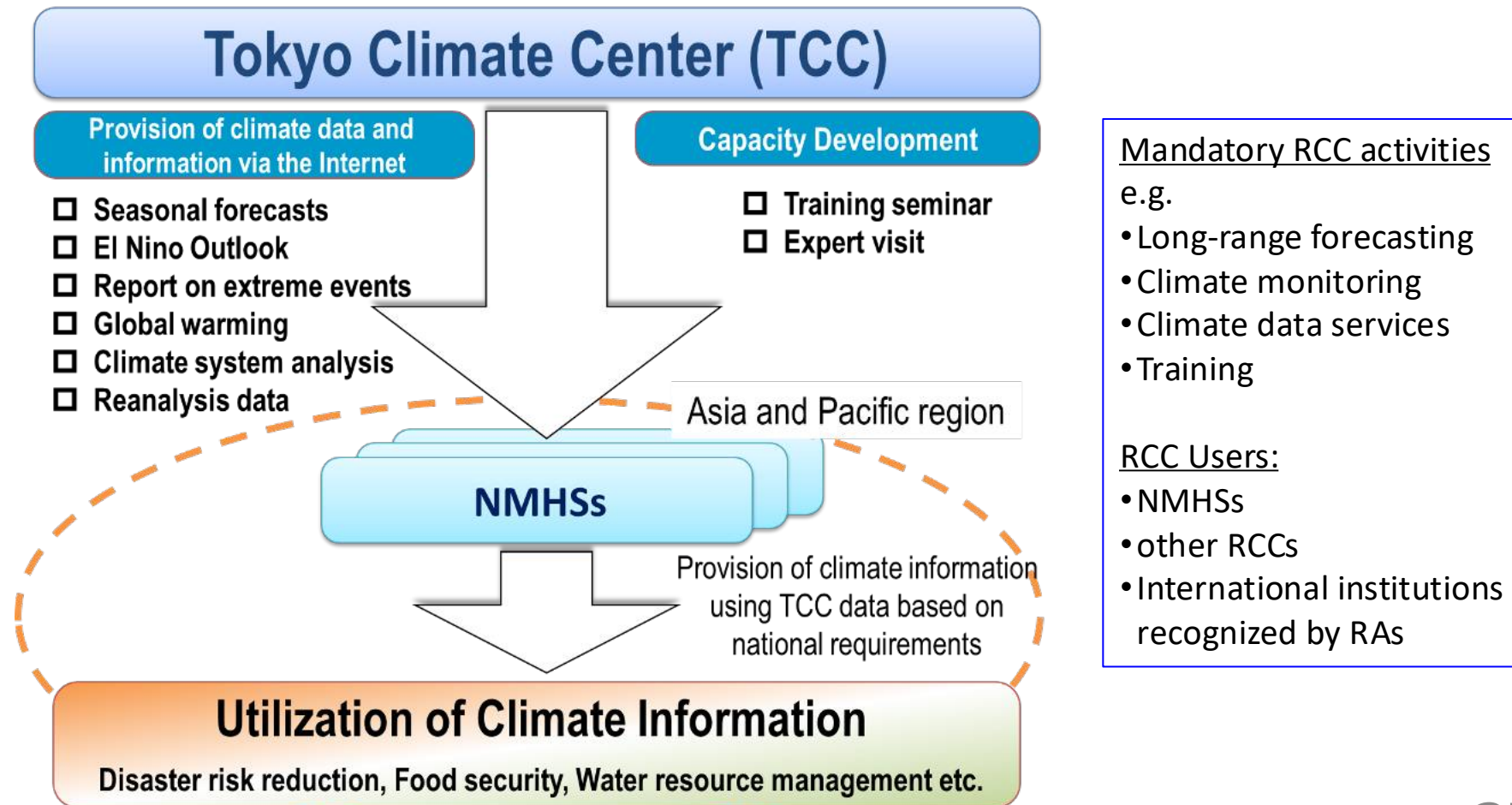
TCC Capacity Development Activities

- TCC conducts annual training seminar on such as climate analysis and seasonal forecasts to NMHSs in Asia and Pacific regions as the capacity development activities.
- Our seminars are designed to provide essential expertise for conducting operational seasonal forecasts with emphasis on dynamical interpretation and assessment of forecast model outputs.



TCC as Regional Climate Center (RCC)

- TCC has served as a WMO Regional Climate Center in RA II since 2009.
- TCC supports NMHSs through data/tool/information provision and capacity development activities.

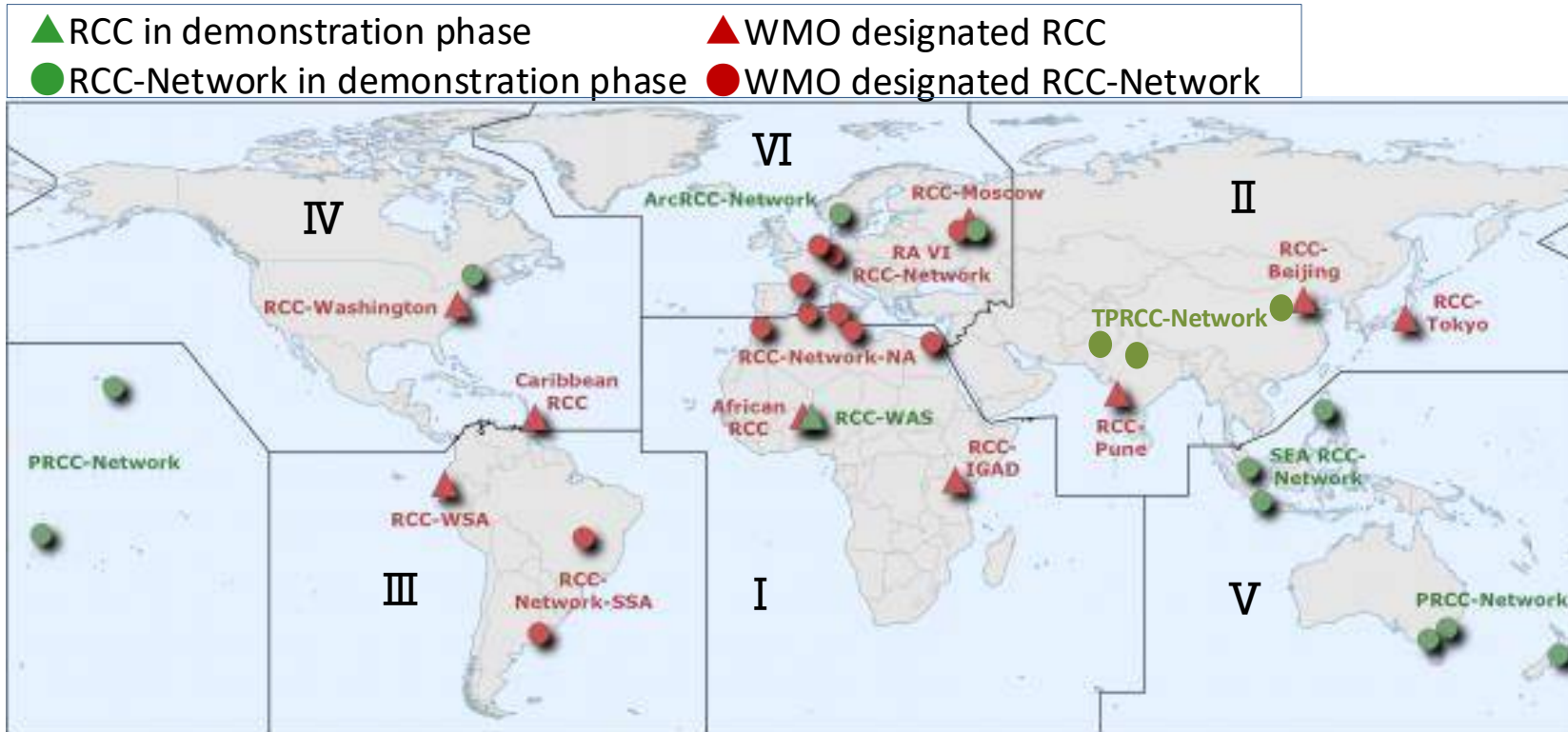


Regional Climate Center (RCC)

WMO Regional Climate Centers (RCCs) are centers of excellence that create regional climate products.

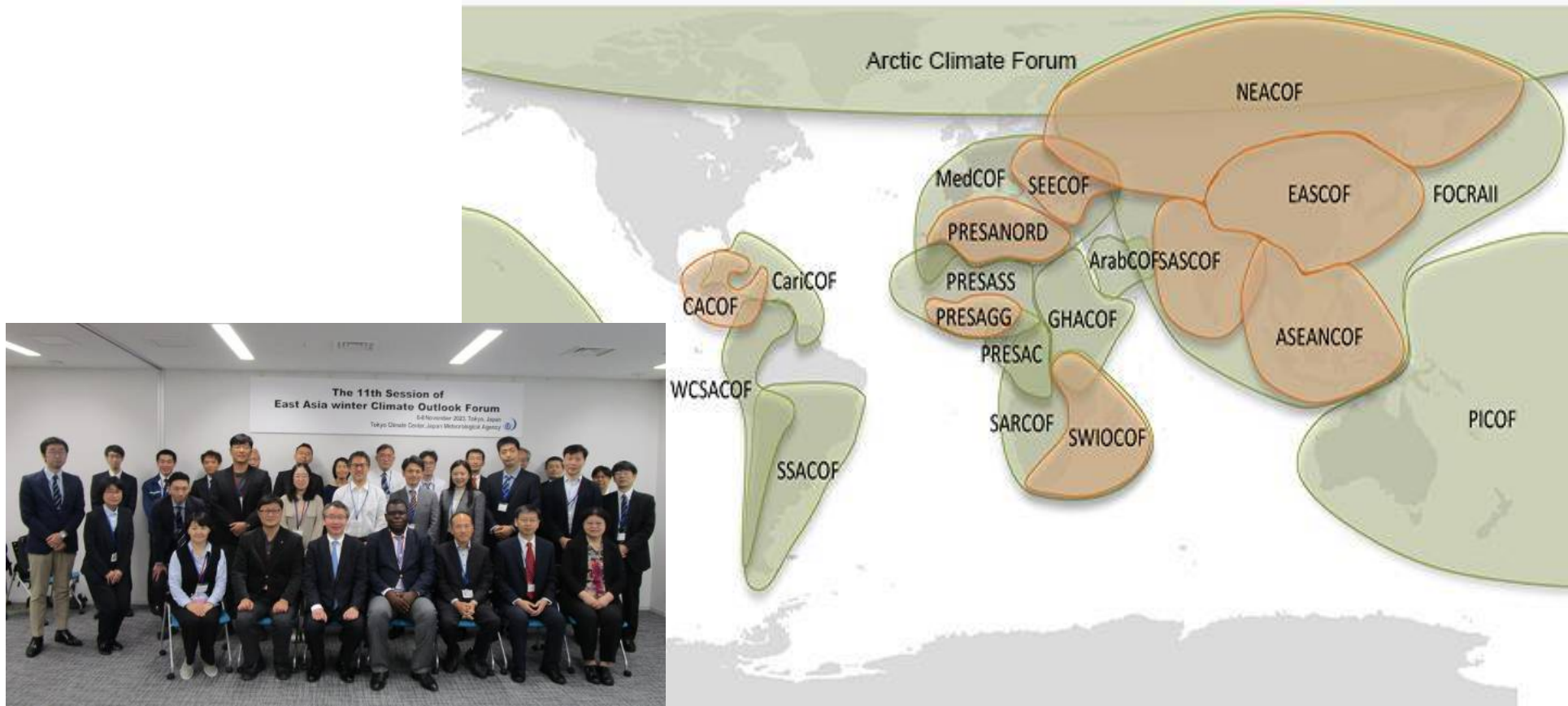
- RCCs are middle tier in a three-tiered WMO operational infrastructure
- RCCs strengthen the capacity of WMO Members in each region to generate and deliver the best climate services to national users
- RCC regional products include climate data sets, monitoring products and long-range forecasts.

Current status of establishment of RCC



Regional Climate Outlook Forums(RCOFs)

RCOFs produce **consensus-based, user-relevant climate outlook products** in real time in order to reduce climate-related risks and support sustainable development for the coming season in sectors of critical socioeconomic significance for the region in question.



Gaps, limitations and capacity needs for generating objective seasonal forecasts

Efforts toward the implementation of OSFs in the East Asia winter Climate Outlook Forum (EASCOF)

EASCOF-11 (Nov. 2023): Participants in EASCOF-11 agreed to continue discussions for seeking the optimal style of objective seasonal forecast for EASCOF, including such as

- Adding careful explanation about forecast (differences between issued forecasts and numerical predictions, why? How forecasters modified?)
- Including MME results into our final report as reference materials.

Recommendations on Objective Seasonal Forecasts for EASCOF (agreed in May 2025)

1. Enhancement of the explanation of seasonal outlook
2. Including forecast maps based on numerical models
3. Review the outlook for the previous winter season
4. Enhancement of the explanation of the verification of numerical models
5. Reiterate the importance of enhancing the user engagement into EASCOF

EASCOF-13 (Nov. 2025): In accordance with the recommendation on OSFs for EASCOF, forecast maps provided by each organization, such as CMA, JMA, KMA and NAMEM, are included in the summary report of EASCOF-13*.

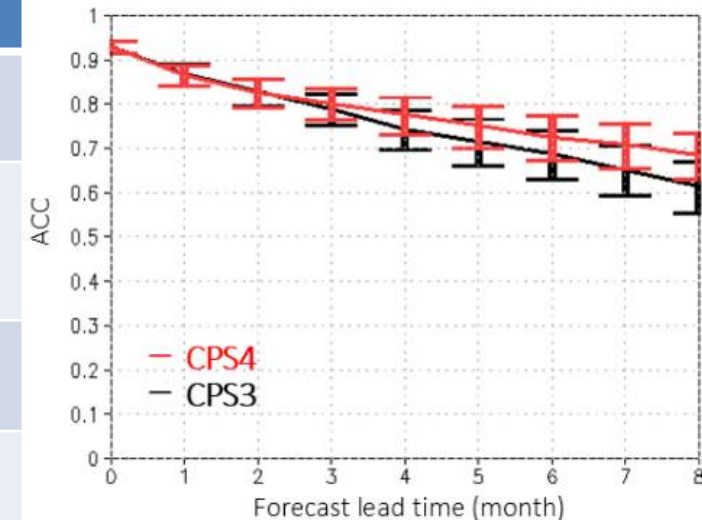
* https://ds.data.jma.go.jp/tcc/tcc/library/EASCOF/2025/Summary_Report_EASCOF13.pdf

Upgraded seasonal forecast model, CPS4

- On 22 January 2026, **JMA upgraded seasonal Ensemble Prediction System from CPS3 to CPS4**, which is based on the coupled atmosphere-ocean general circulation model.
- CPS4 has been used for one-month prediction, three-month prediction, warm/cold season outlook and El Niño Outlook.
- CPS4 shows **improved prediction of SST in the western tropical Pacific**.

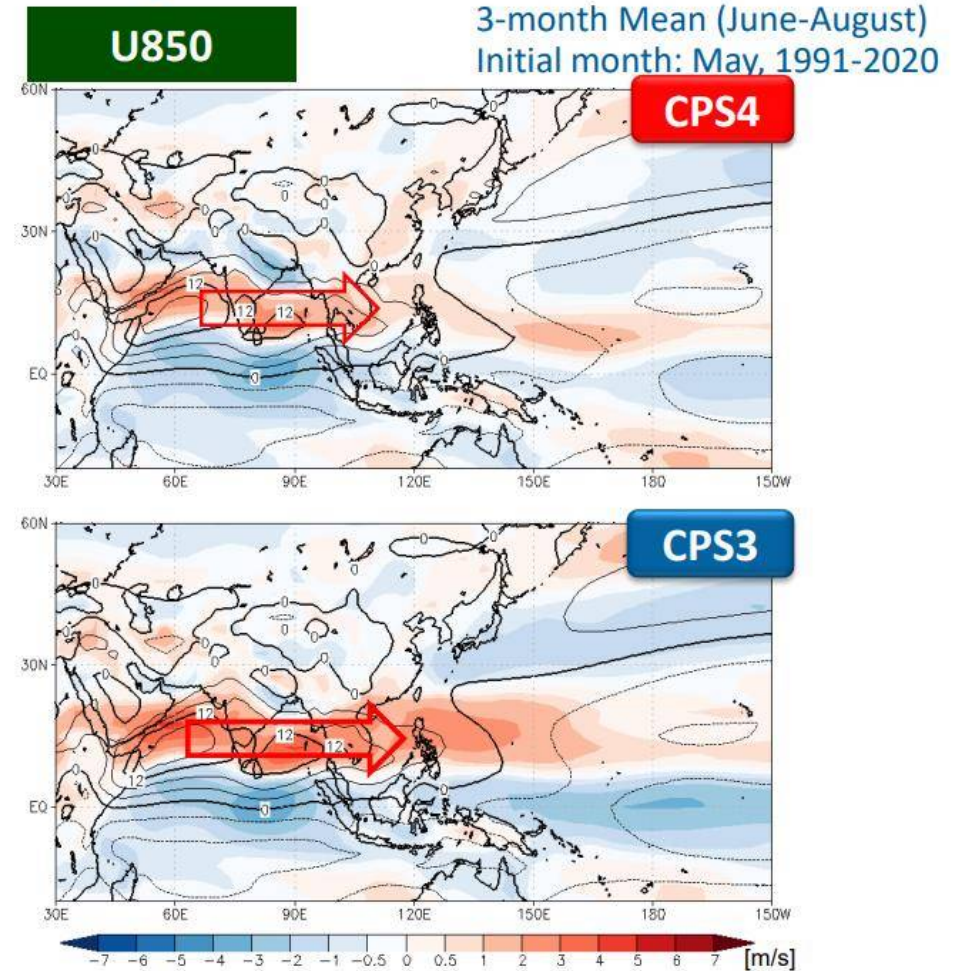
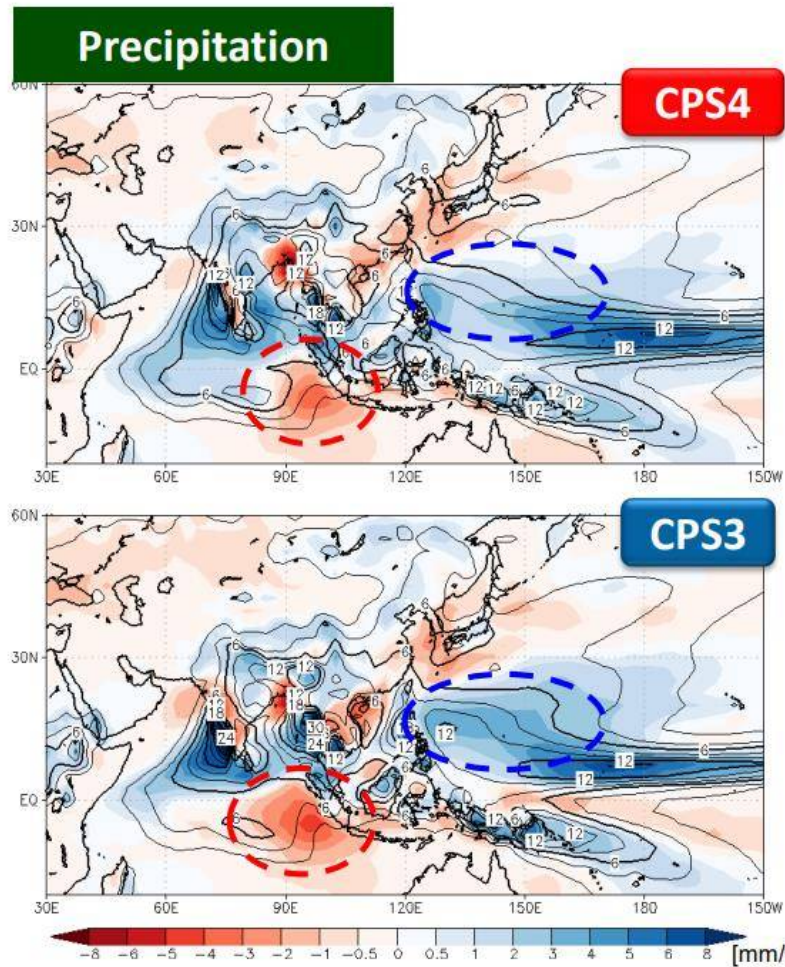
Table. Brief description of the model spec.

Model	JMA/MRI-CPS3 (February 2022 – January 2026)	JMA/MRI-CPS4 (since January 2026)
Vertical Layers of the atmosphere	100 levels (up to 0.01hPa)	128 levels (up to 0.01hPa)
Forecast Frequency	5 ensemble members per day	25 ensemble members up to 1-month every Tuesday and Wednesday 5 ensemble members per day
Initial Condition for Forecast	JRA-3Q (hindcasts) and the Global Analysis (GA; forecasts only)	JRA-3Q (hindcasts), GA (forecasts only) and Ozon Analysis
Initial Condition perturbation	The breeding of growing mode (BGM) method for the atmosphere Ocean perturbations calculated using 4DVAR minimization history The Lagged Average Forecast (LAF) method	The Singular Vectors (SVs) and Local Ensemble Transform Kalman Filter (LETKF) methods for the atmosphere Ocean perturbations calculated using 4DVAR minimization history The Lagged Average Forecast (LAF) method



Anomaly correlation coefficients for NINO.WEST SSTs

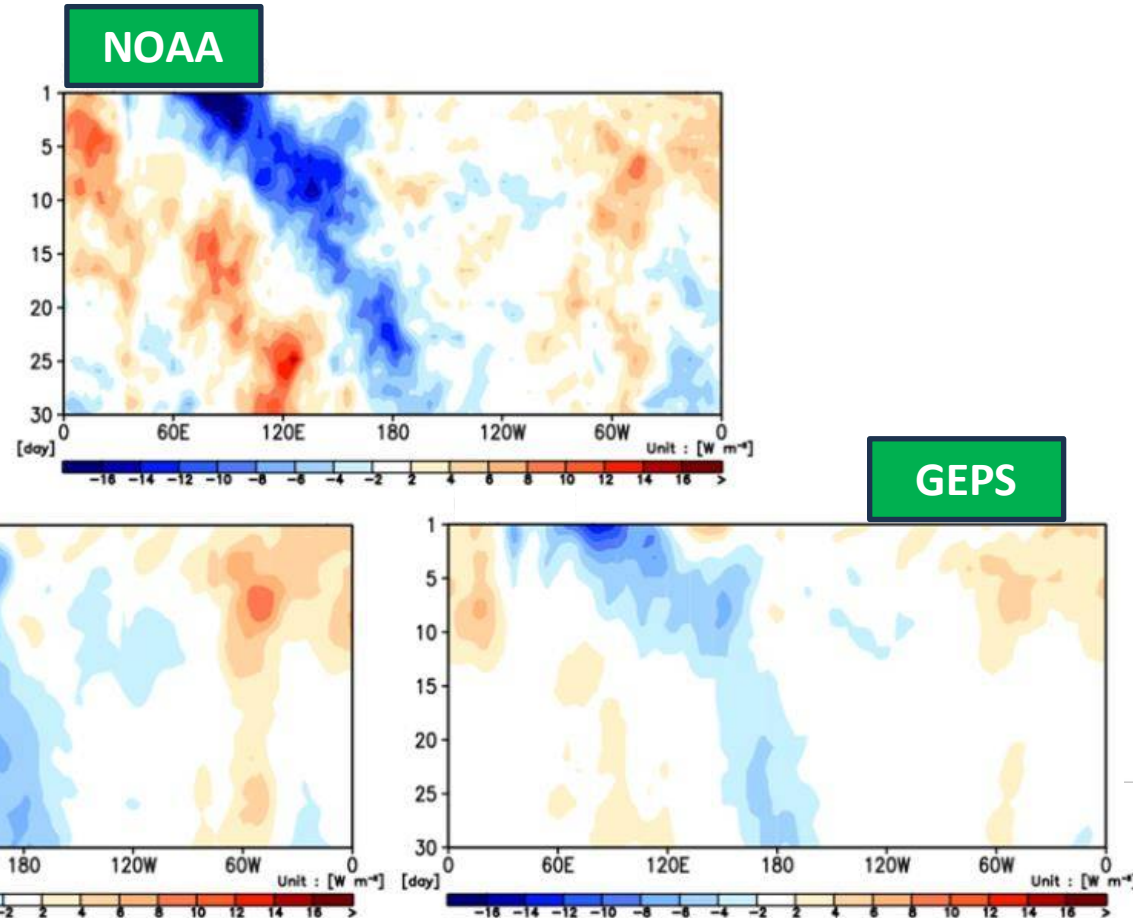
Mean Error of CPS4 for Precipitation and U850



- The excess precipitation biases over the tropical western North Pacific and under-biases over the southeastern tropical Indian Ocean are reduced.
- The biases in the lower troposphere such as excessively strong monsoon westerly winds are reduced.

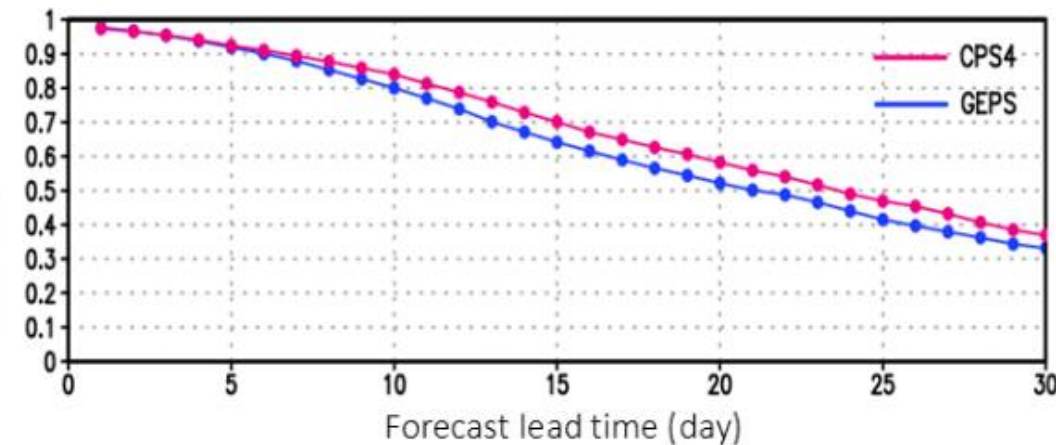
Improved MJO Prediction Skill with CPS4

- In one-month prediction, **CPS4 shows higher accuracy than the JMA's Global Ensemble Prediction System (GEPS) in prediction of tropical intraseasonal variability phenomena**, such as the Madden-Julian Oscillation and the Boreal Summer Intraseasonal Oscillation.



OLR anomalies

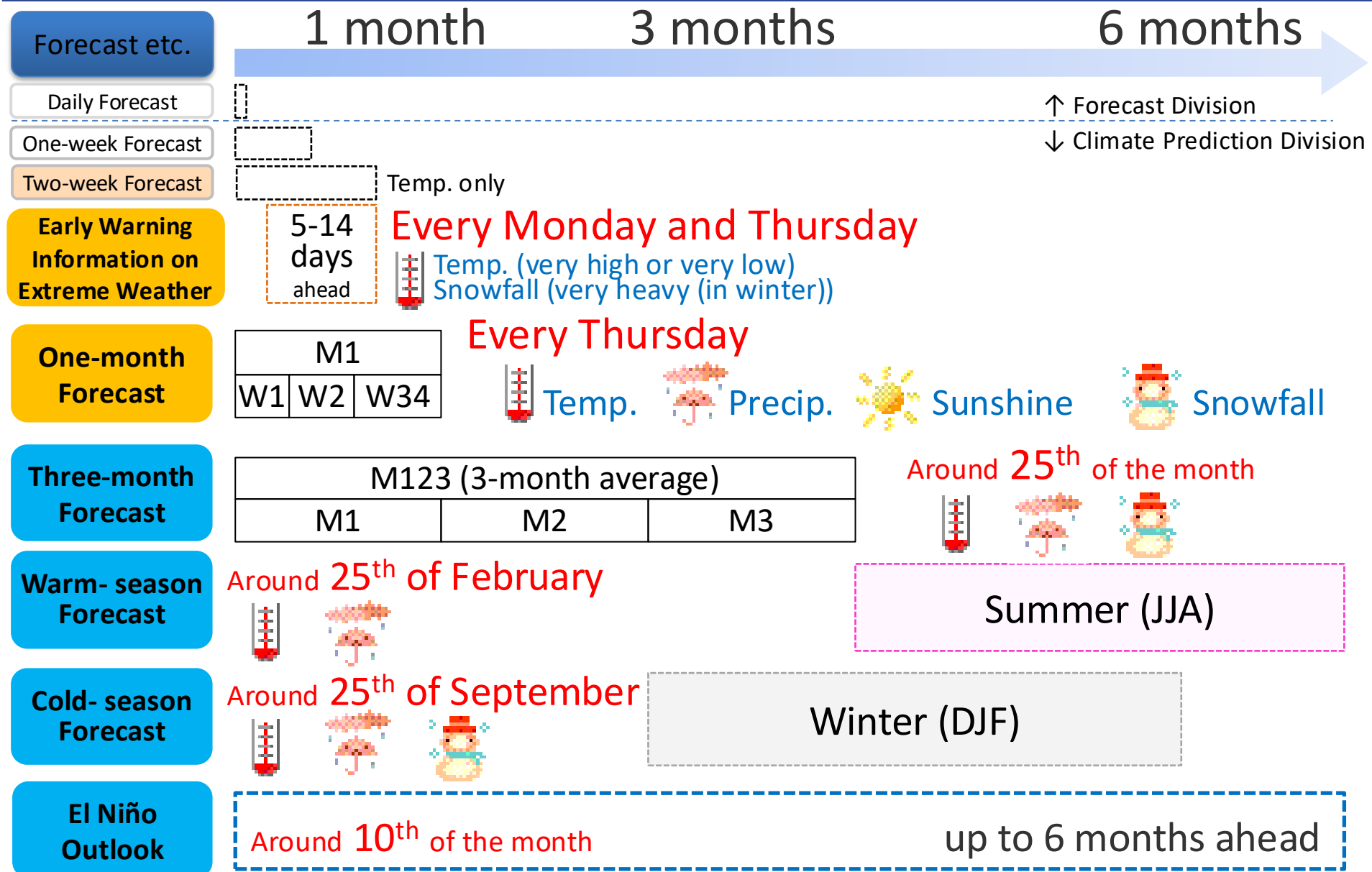
Bivariate correlation coefficient*



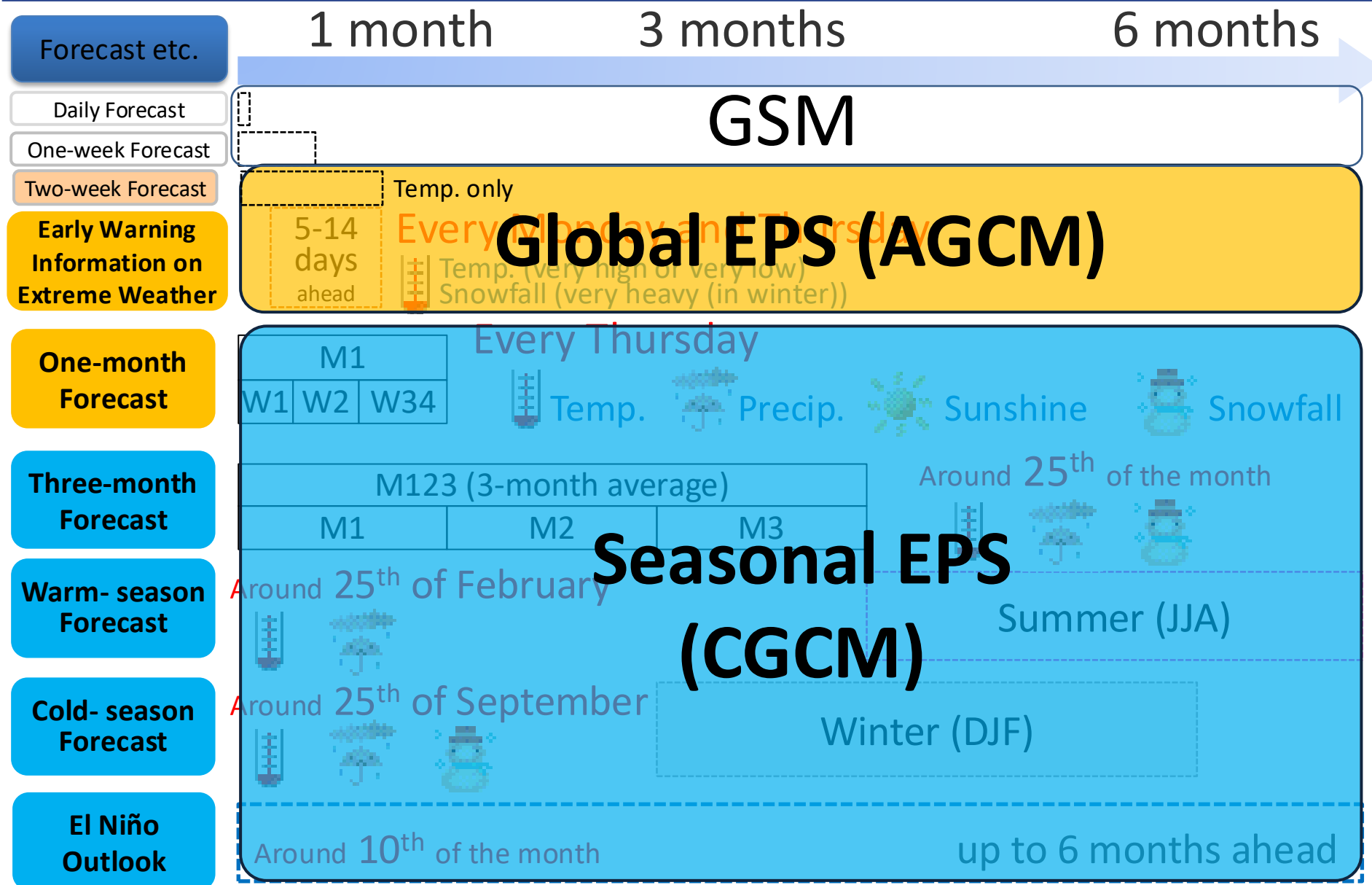
* Based on Wheeler and Hendon (2004)

Wheeler, M. and H. Hendon, 2004: An all-season real-time multivariate MJO index: Development of an index for monitoring and prediction. *Mon. Wea. Rev.*, 132, 1917-1932.

Seasonal forecast issued by JMA (domestic)



Seasonal forecast issued by JMA (domestic)



Animation map for one-month prediction

Animation for one-month prediction (7-days running mean)

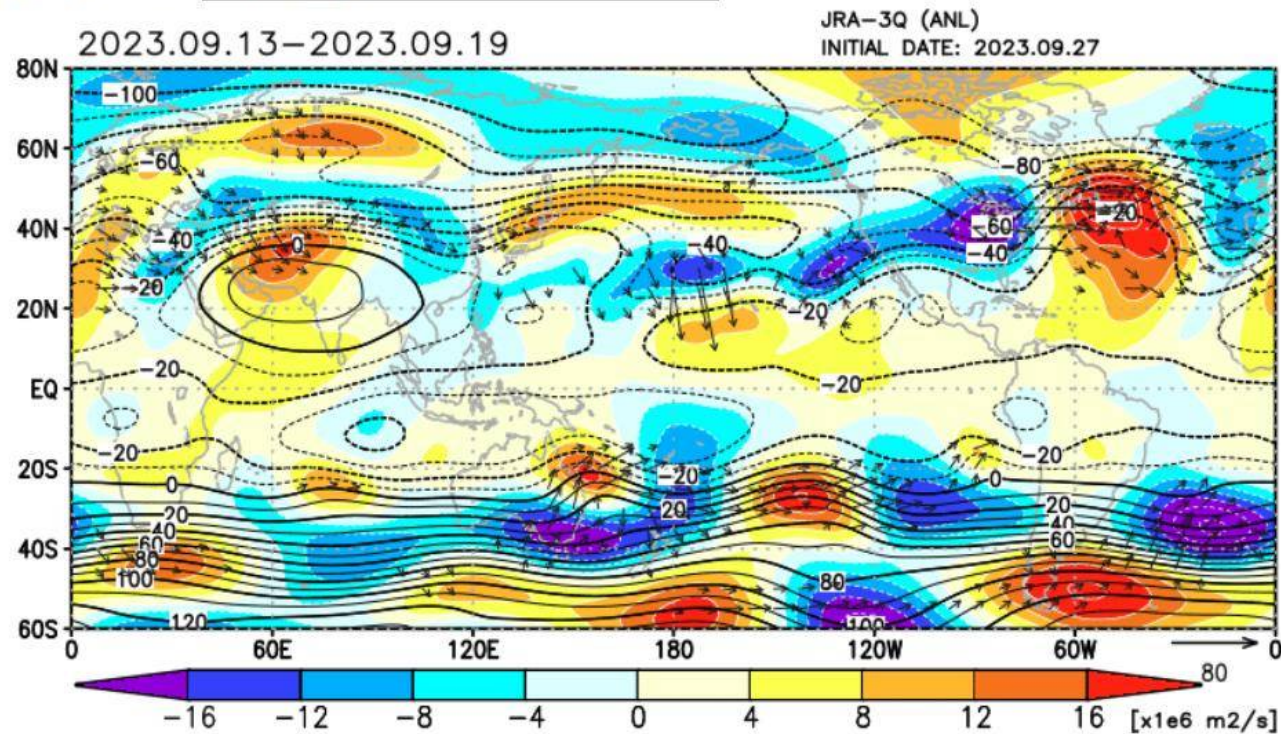
This product is displayed for use by National Meteorological and Hydrological Services (NMHSs). It does not constitute an official forecast for any nation.

Initial date: Forecast lead time:

Setting for Animation

Animation:

Parameter:

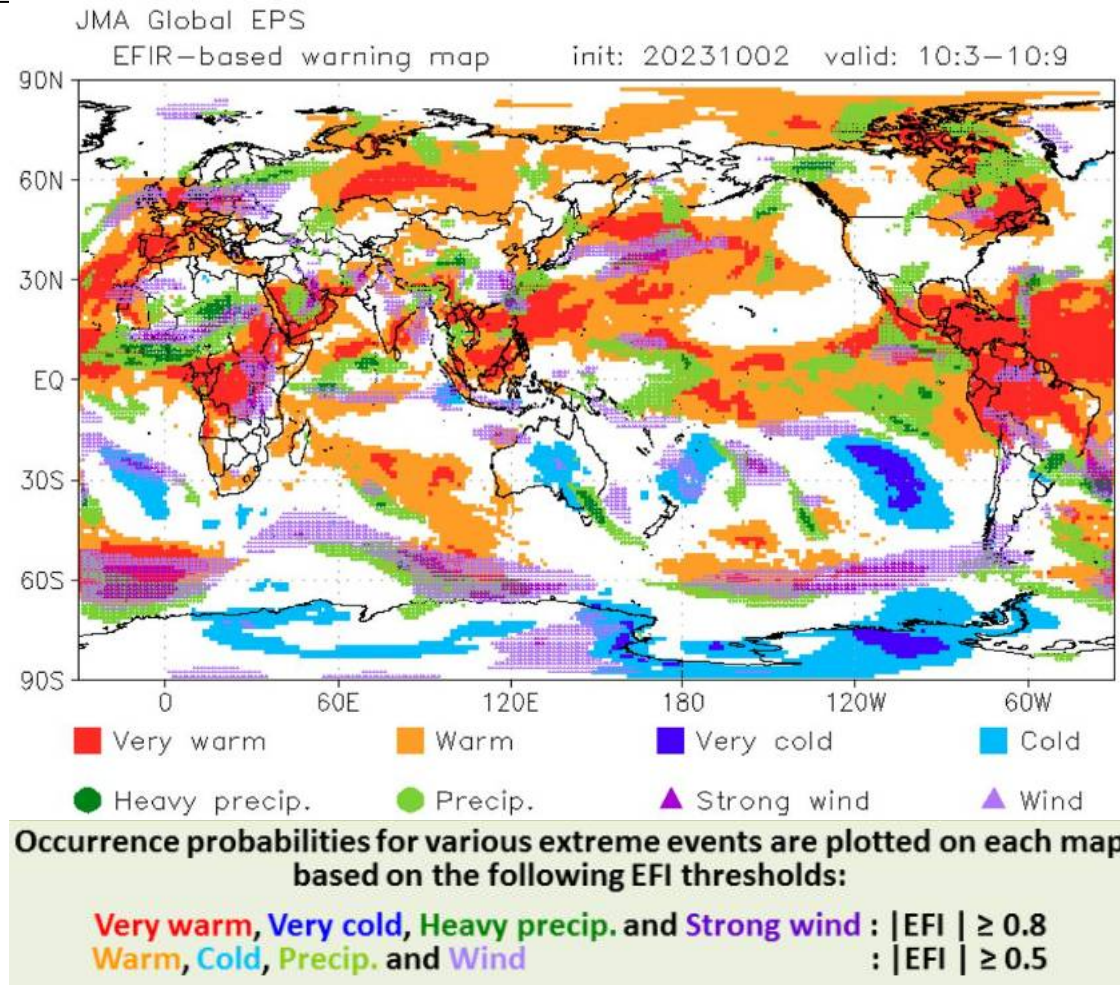


Forecast Products in Support of Early Warnings for Extreme Weather Events

This forecast products are prepared on the basis of Extreme Forecast Index (EFI), which is a measure of the difference between the probability distribution of a real-time forecast and a climatological distribution.

On the web page, available forecast products are geographical distribution (global and Asia) maps of

- Extreme Forecast Index (EFI),
- Extreme weather warning based on EFI,
- Probability above/below the 90th/10th percentile of the model climatology for covering the period up to two weeks ahead. This is updated everyday.

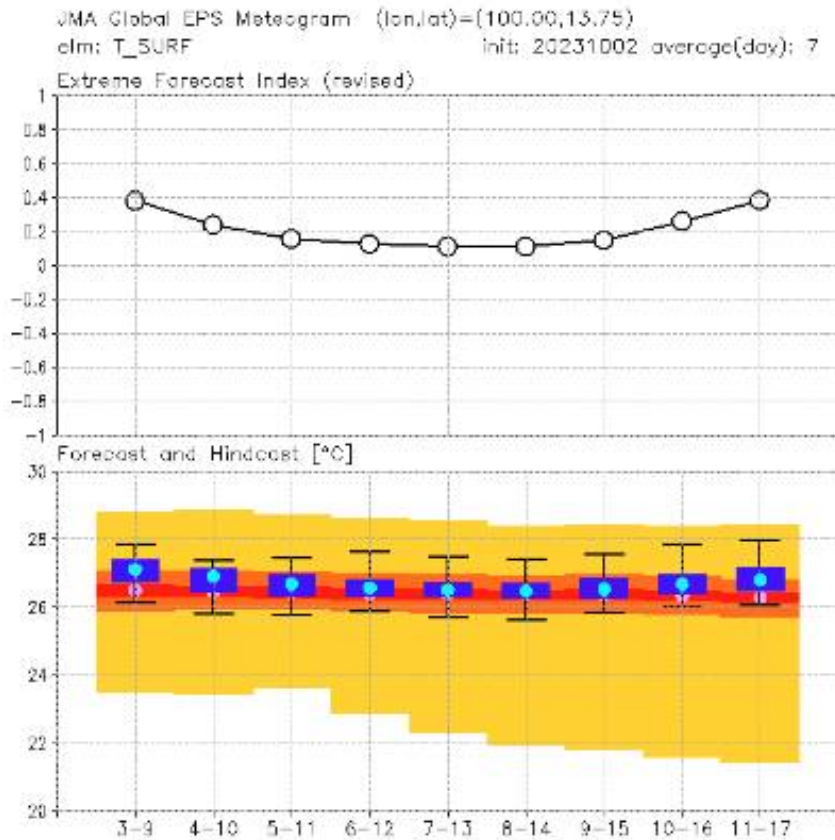


This product is available for NMHSs.

(Password Protected) <https://www.data.jma.go.jp/tcc/tcc/gpv/EFI/index.php>

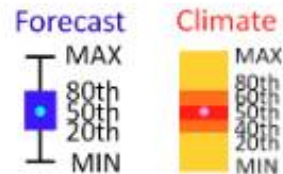
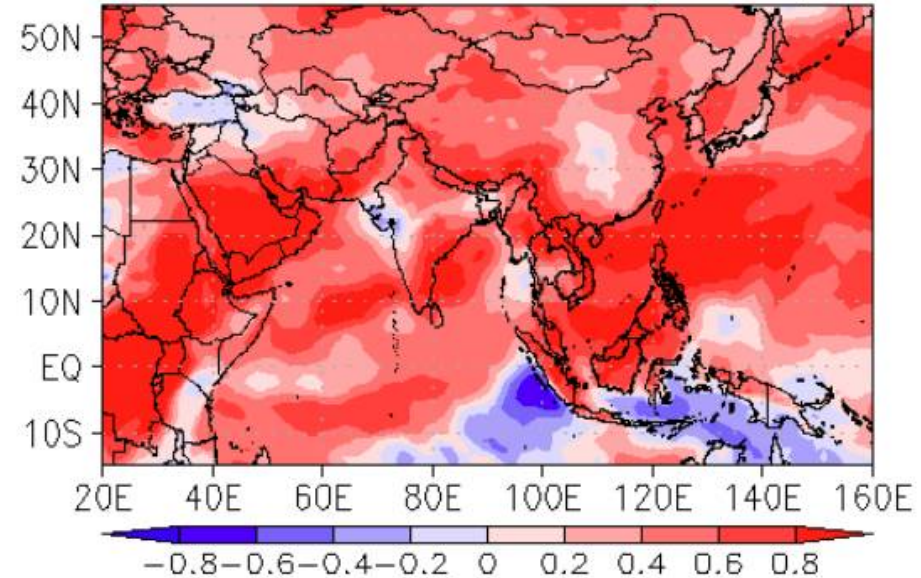
Forecast Products in Support of Early Warnings for Extreme Weather Events

Initial date: / Forecast lead time: / mean /
 Element / Area(map) / Point(meteorogram) *Refer to the nearest grid point.



JMA Global EPS elem: T_SURF

(a) Extreme forecast index (revised)

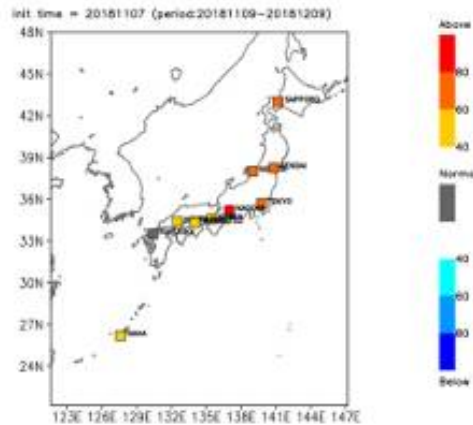


(Password Protected)

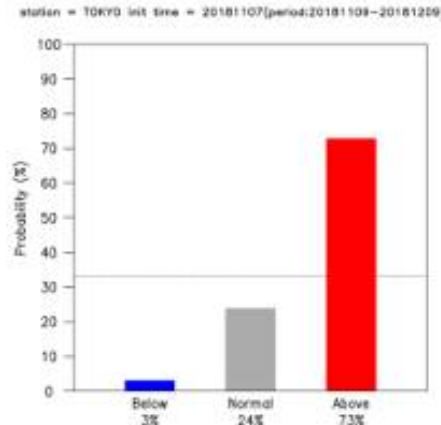
<http://www.data.jma.go.jp/tcc/tcc/gpv/EFI/index.php>

(top) Time series of EFI values.
 (bottom) Time series of the EPS forecast (cold color) and the model climate (warm color)

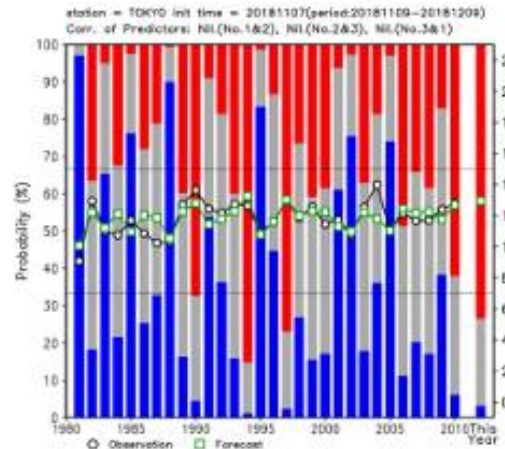
One-month Guidance Tool



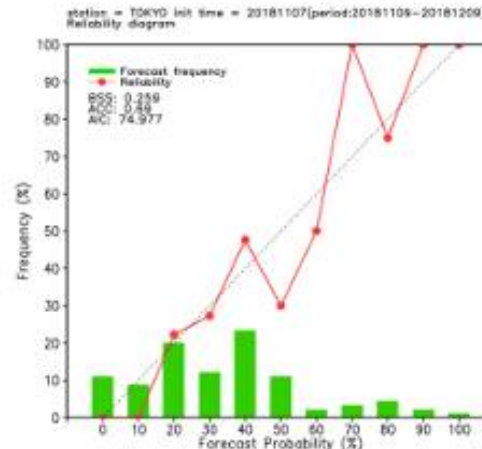
Sample temperature probability forecast map for each category. Cool-, grey- and warm-colored marks denote below-, near- and above-normal probability, respectively.



Sample temperature probability forecast for three categories. Blue, grey and red bars denote below-, near- and above-normal probability, respectively.



Sample temperature probability forecast for three categories. Blue, grey and red bars denote below-, near- and above-normal probability, respectively. Black and green lines are inter-annual timeseries representations of daily-mean observation and forecast anomaly data, respectively.



Sample reliability diagram. Red lines show reliability and green bars show forecast frequency.

TCC provides a web-based One-month Guidance Tool.

- Available via a web browser
- Provide three-level (tercile) probabilistic forecasts at specified points
- Forecast target: 2mT & total-P
- Max points: 10 points
- Outputs are four-type figures and CSV files
- Only registered NMHSs can access this guidance tool with password-protection

jica_2023/JICA2023

Valid by the end of 2023

Seasonal Tropical Cyclone Forecast Products

- In its role as a WMO Regional Climate Center, TCC began experimentally providing products for seasonal forecasting of tropical cyclones reaching tropical storm intensity or higher for the western North Pacific to support WMO Members in the Asia/Pacific region.
- Registered users within NMHSs can access these products via the TCC website.
- The products are based on JMA's seasonal ensemble prediction system (JMA/MRI-CPS4), and updated around the 20th of every month from May to August.
- Prediction skill is verified by CPS4 30-years hindcast.

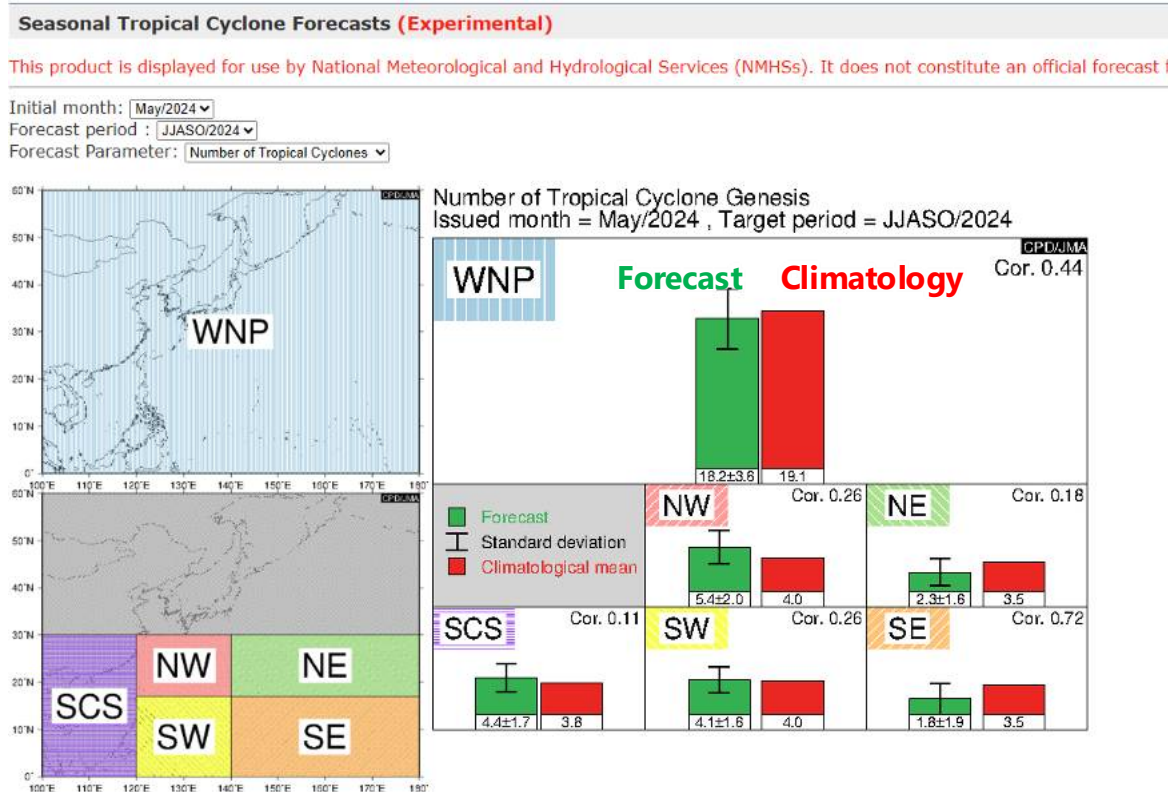
The image shows a screenshot of the Tokyo Climate Center (TCC) website, which is the WMO Regional Climate Center in RA II (Asia). The website features a navigation menu with categories like World Climate, Climate System Monitoring, El Niño Monitoring, NWP Model Prediction, Global Warming, Climate in Japan, Training Module, Press release, and Links. The main content area is divided into several sections: 'What are WHO RCCs', 'Main Products', and 'What's New'. The 'Main Products' section highlights several key offerings: 'Monthly Discussion on Seasonal Climate Outlook', 'El Niño Monitoring', 'ClimateView', and 'TCC News'. A callout box with a yellow arrow points to a specific section titled 'Products for Registered NMHSs', which lists several products: 'ITacs', 'Seasonal Tropical Cyclone Forecasts', 'Forecast Products in Support of Early Warnings for Extreme Weather Events', 'One-month and Three-month Guidance Tool', and 'Animation for One-month Prediction'. A blue callout box with the word 'Here' points to this section. Another blue callout box at the bottom left says 'For registered NMHSs'.

Here

For registered NMHSs

Seasonal Tropical Cyclone Forecast Products

- A sample of **Forecast** page

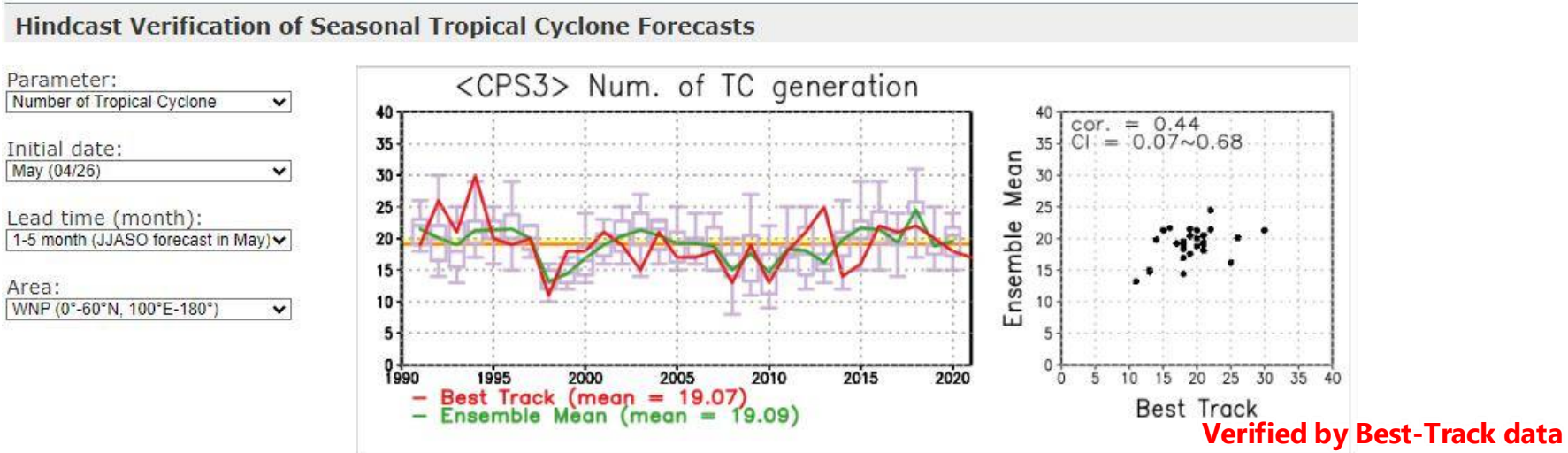


Regional histograms are shown for three forecast parameters:

- Number of Genesis
- TC frequency
- Accumulated Cyclone Energy (ACE)

Seasonal Tropical Cyclone Forecast Products

- A sample of **Verification** page



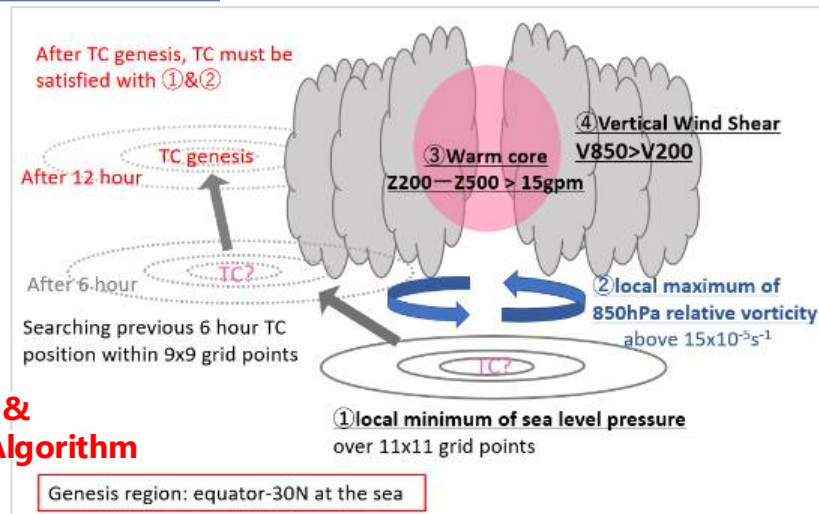
- A sample of **Explanation** page

Explanation of objective algorithm for detecting and tracking tropical cyclones

The product focuses on tropical cyclones of tropical storm (TS*) intensity and employs five criteria as discussed below. The intensity and structure of similar number of typhoons forming in the WNP from this product to observation.

1. Grid points over the ocean between the equator and 30°N with a local maximum of relative vorticity.
2. Relative vorticity must be above a specified threshold. The threshold is $15 \times 10^{-5} \text{ s}^{-1}$.
3. TCs must have a warm core structure defined by a 500 to 200-hPa thickness gradient of $20 \text{ m} > 15 \text{ gpm}$.
4. TCs must have a wind structure such that the wind speed at 850 hPa is $V_{850} > V_{200}$.
5. Conditions 1 and 2 above must continue for at least 12 hours for detection.

* A TS is defined as a tropical cyclone with a maximum sustained wind speed of 17.5 m/s .



Detection & Tracking Algorithm

Provision of Binary gridded data

Download Gridded Data File

Notice

- 16 May 2022
Announcement: [Terminating the data provision of CPS2 six-month forecasts](#)
- 28 December 2021
Announcement: [Schedule for terminating the data provision of CPS2](#)
- 15 September 2020
Announcement: [Improvement of Extreme Forecast Index \(EFI\) products](#)
- 16 April 2020
Announcement: [Release of Global Gridded Datasets for 6-month Forecasts](#)

Main Products

NWP Model Prediction

Global EPS for one-month prediction (28 Sep 2023)

High resolution data; 1.25 degree grid *NEW*

- › [Daily Statistics \(1.25 degree grid\)](#)
- › [All Members \(1.25 degree grid\)](#)
- › [Systematic Errors \(1.25 degree grid\)](#)

Seasonal EPS for six-month prediction (CPS3) ***NEW*** (03 Oct 2023)

- › [Statistics](#)
- › [All Members](#)
- › [Indices](#)
- › [Systematic Errors](#)

Hindcast Gridded Data

Global EPS for one-month prediction
NEW

- › [Daily data \(1.25 degree grid\)](#)

Seasonal EPS (CPS3) ***NEW***

- › [Monthly mean data](#)

Animation of One-month Prediction

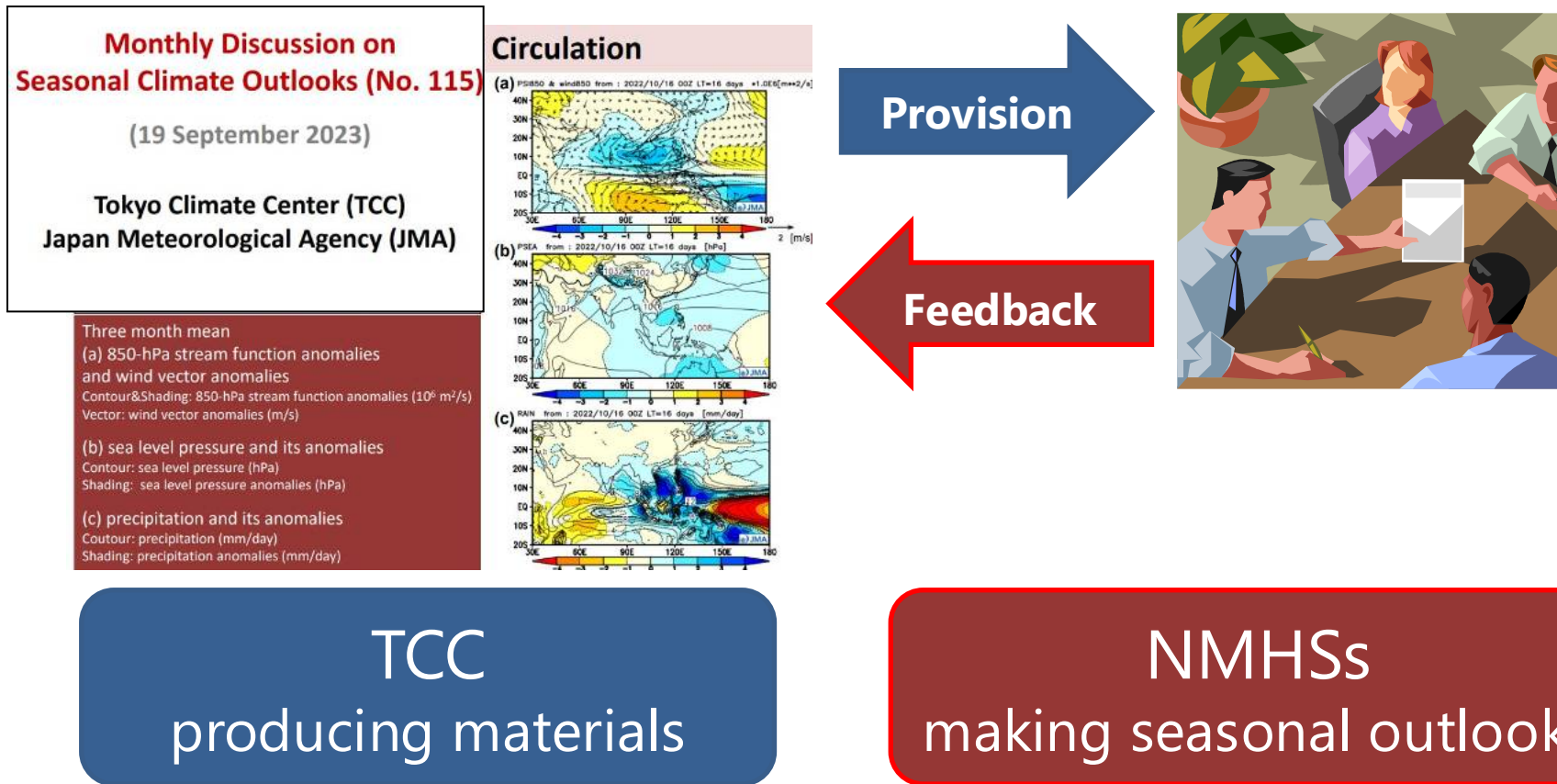
- › [Seven-days running mean *NEW*](#) (28 Sep 2023)

Tips

- › [Q&A](#)

Monthly Discussion on Seasonal Climate Outlook

- “Monthly Discussion on Seasonal Climate Outlook” issued every month around the 25th is intended to assist NMHSs in the Asia-Pacific region in interpreting GPC-LRF Tokyo's three-month prediction and warm/cold season prediction products.



TCC's El Niño monitoring and prediction

- JMA operates the Ocean Data Assimilation System and the El Niño Prediction System (an ocean-atmosphere coupled model) for ENSO monitoring and prediction.
- El Niño outlooks are updated every month around the 10th.

Home World Climate Climate System Monitoring **El Niño Monitoring** NWP Model Prediction Global Warming Climate in Japan Training Module Press release Links

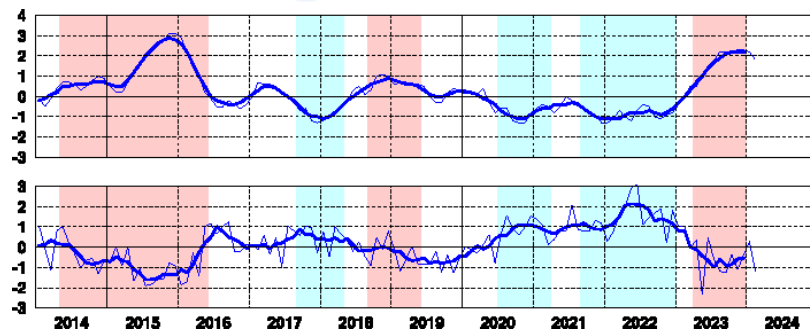
HOME > El Niño Monitoring > El Niño Outlook

El Niño Outlook (March 2024 - September 2024)

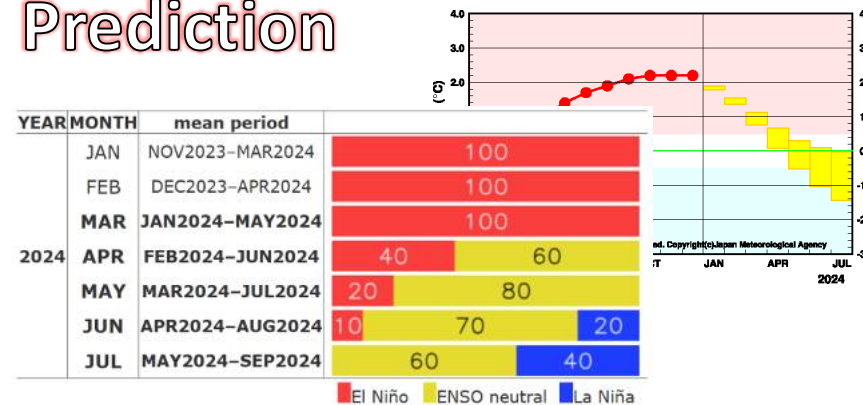
Last Updated: **11 March 2024**
(Next update will be on 10 April 2024)

- Oceanic indicators suggest that ongoing El Niño conditions in the equatorial Pacific have already peaked and are now gradually weakening.
- El Niño conditions are likely to transition to ENSO-neutral conditions during boreal spring (80%).
- During boreal summer, it is more likely that ENSO-neutral conditions will continue (60%) than La Niña conditions will develop (40%).

Monitoring



Prediction



<https://www.data.jma.go.jp/tcc/tcc/products/elnino/index.html>

<https://www.data.jma.go.jp/tcc/tcc/products/elnino/outlook.html>

Global climate with CLIMAT and SYNOP report and climate monitoring activity

World Climate: <https://www.data.jma.go.jp/tcc/tcc/products/climate/index.html>

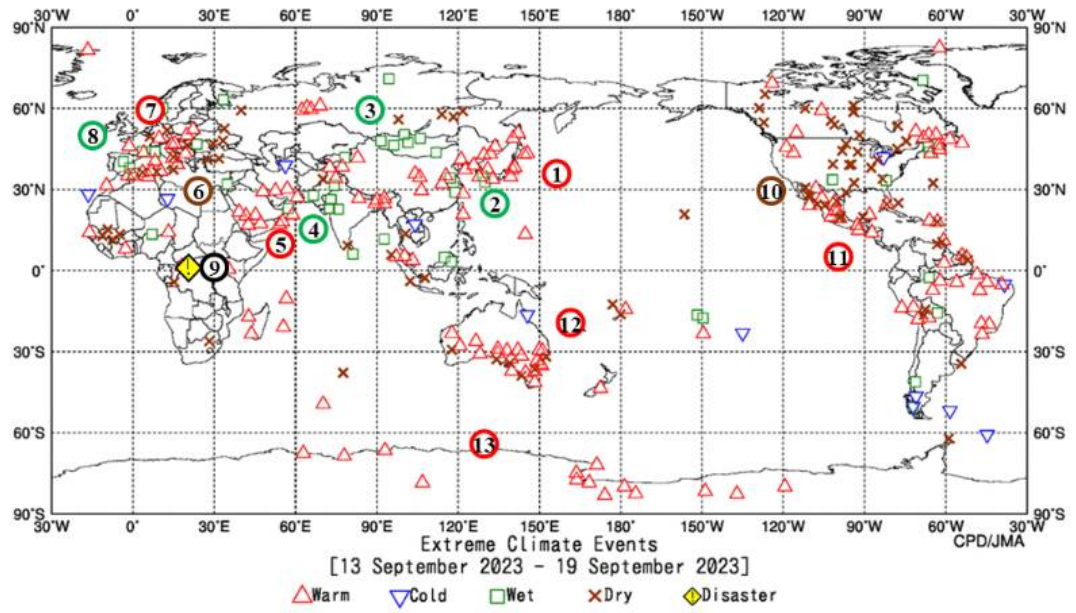
Climate System Monitoring: <https://www.data.jma.go.jp/tcc/tcc/products/clisys/index.html>

The screenshot displays the Tokyo Climate Center website, which is a WMO Regional Climate Center in RA II (Asia). The page features the logos of the Japan Meteorological Agency and WMO. A navigation menu at the top includes links for Home, World Climate, Climate System Monitoring, El Niño Monitoring, NWP Model Prediction, Global Warming, Climate in Japan, Training Module, Press release, and Links. The 'World Climate' and 'Climate System Monitoring' links are highlighted with a blue box. A blue magnifying glass icon is positioned over the 'Climate System Monitoring' link. The main content area is divided into several sections: 'What are WMO RCCs', 'RCC Functions' (with sub-sections for Long-range Forecasting, Climate Monitoring, and LRF services), 'Latest Updates', 'Main Products' (featuring 'iTacs' and 'GPC Tokyo'), and 'What's New' (with an RSS feed icon). The 'What's New' section lists recent announcements, including the availability of the 2015 Climate Change Monitoring Report and updates to Global Average Surface Temperature Anomalies.

Weekly monitoring products on climate extreme

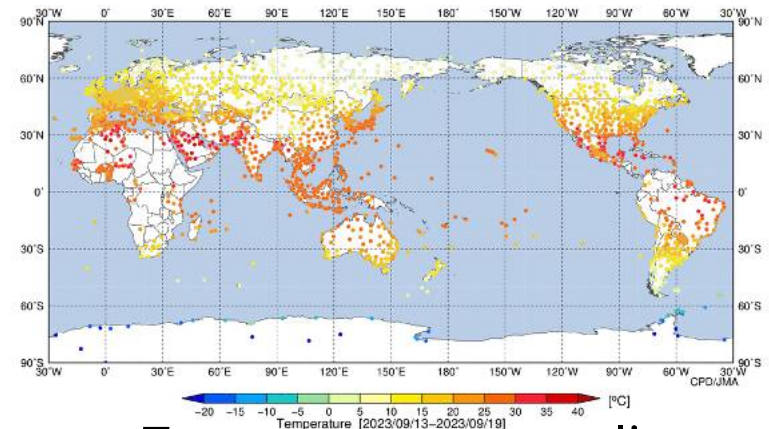
Weekly Report on Global Extreme Climate Events

Period: < > Show Figure:
Extreme climate events and weather-related disasters during this period

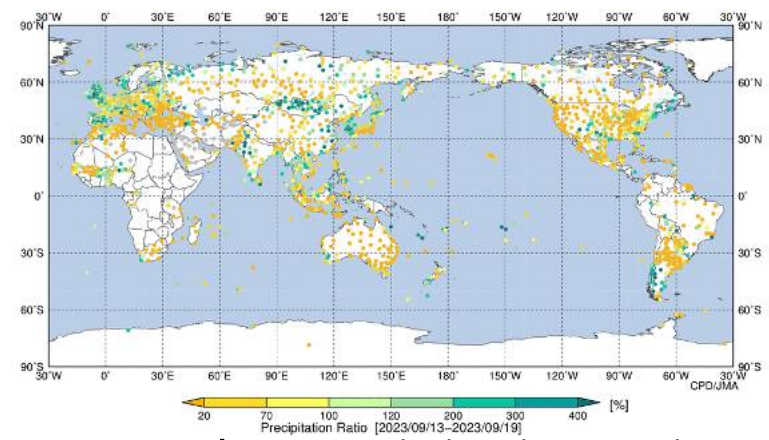


	Type	Area	Remarks
1	Warm	From southern Eastern Siberia to central China	
2	Wet	From the southern Korean Peninsula to eastern China	
3	Wet	Mongolia	
4	Wet	From northwestern India to Oman	<ul style="list-style-type: none"> It was reported that heavy rains caused at least 40 fatalities in India (the

Update
Every Wednesday

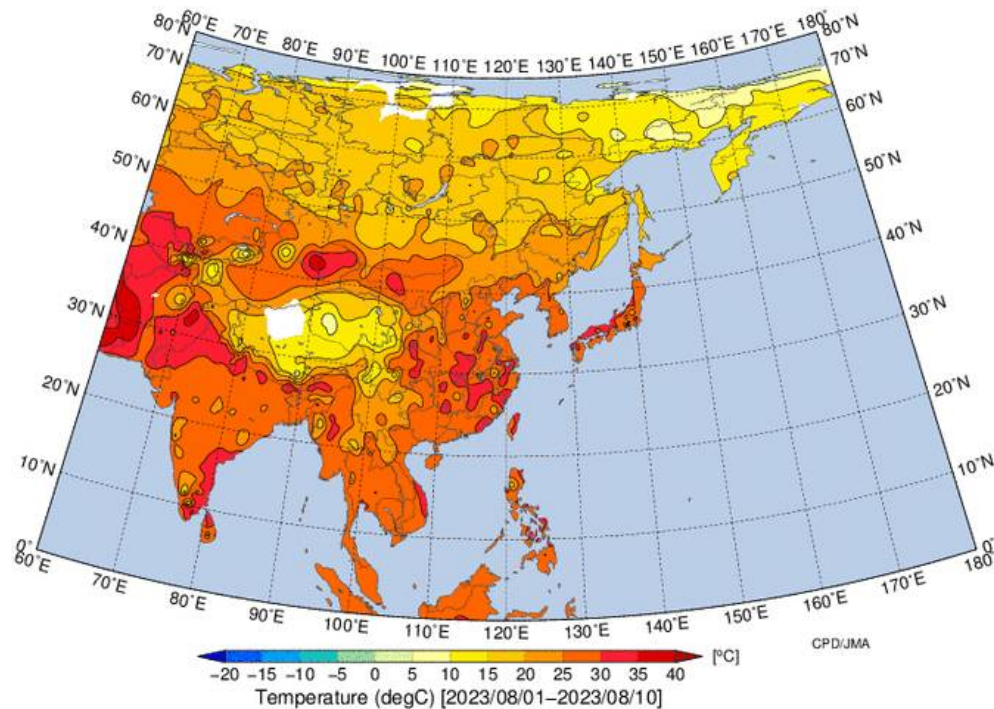


Temperature anomalies

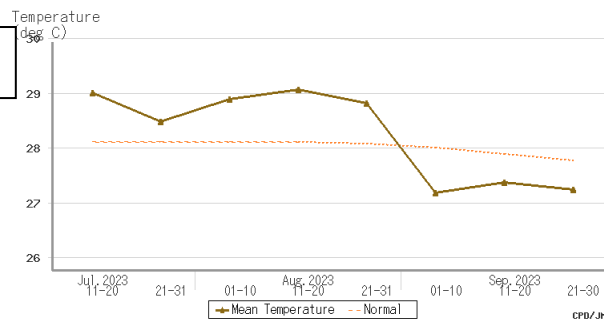


7-day precipitation ratios

10-day/half monthly temp./prec. products

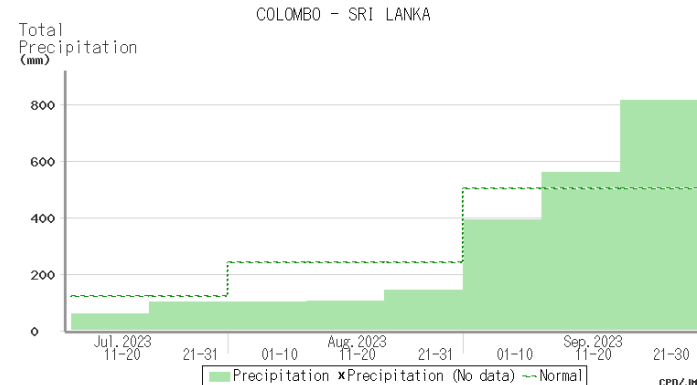


Temperature

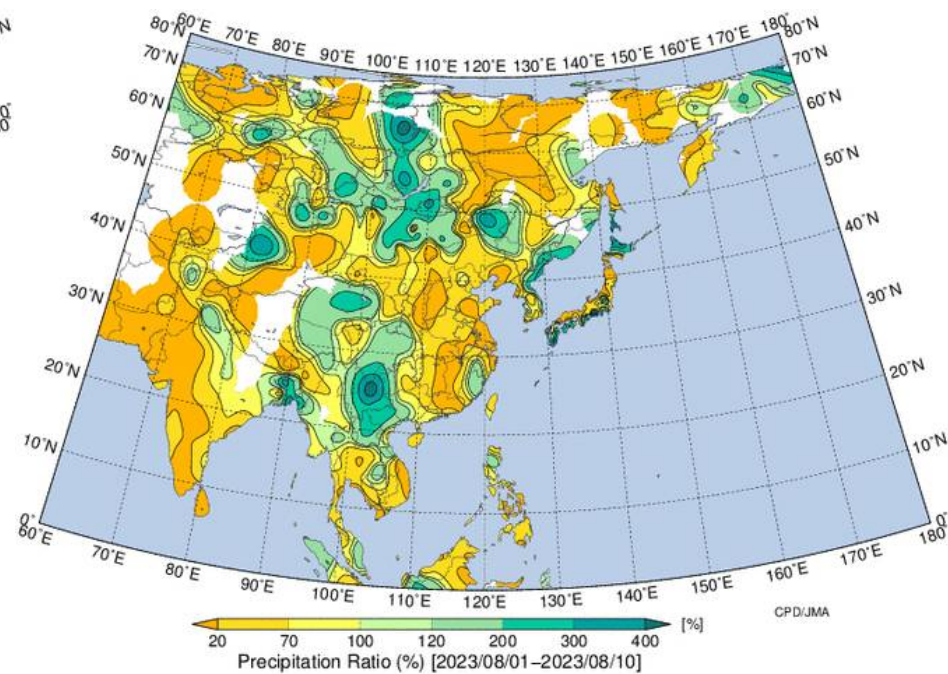


Update

- 10-day: Every month at 1st,11th,21st
- Half-month: Every month at 1st,16th



Light-green shading represents total precipitation since 1 Jul. 2023.
The green dotted line represents normal monthly total precipitation since Jul.

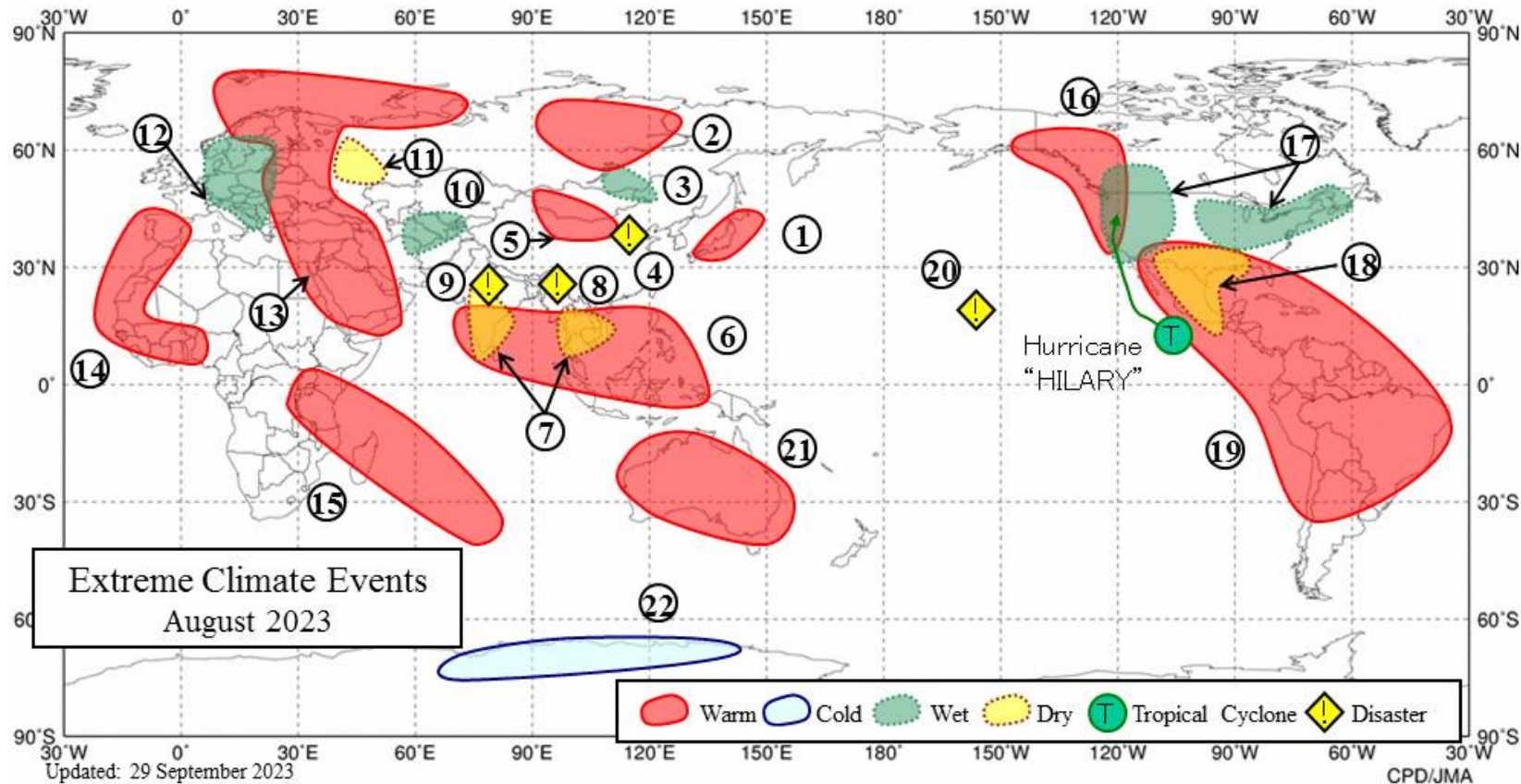


Precipitation ratio

Extreme climate monitoring

TCC issued weekly, monthly, seasonal and annual temperature/precipitation/hazardous climatic events (flood/drought/tropical cyclone) report using CLIMAT and SYNOP reports

Distribution of Monthly Extreme Climate Events (August 2023) based on CLIMAT



ClimatView : monthly base

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

ClimatView - a tool for viewing monthly climate data

The ClimatView tool enables viewing and downloading of monthly world climate data, including monthly temperature/precipitation statistics and 30-year climate normals. Data are available for the period since June 1982, when JMA started receiving CLIMAT messages. Click on a station to see the relevant monthly data chart.

[Outline of ClimatView](#) [Commentary on SPI](#)

Search Form

Region: Element: Year/Month: Map Reso. High Low

[Data List](#) [Printable](#) Click the "Show" button to reflect elements selected via the drop-down lists and radio button.

2023-08: [Mean Temp.(degC)]

Monthly data --- chart/table

Search Form

Year/Month: Term: SPI time scale:

HYDERABAD [PAKISTAN]

Upper panel: time series graph for temperature and precipitation
 — Mean Temp — Max Temp (Monthly Mean) — Min Temp (Monthly Mean) — Mean Temp. Normal — Precip. — Precip. Normal
 × No data (for Precip)

Lower panel: time series graph for SPI indices
 — SPI 3-Month — SPI 6-Month — SPI 12-Month
 (Note) Value exceeding 0 is plotted on the upper boundary, whereas below -2.5 on the lower boundary

HYDERABAD - PAKISTAN
 Lat.: 25.38 °N / Lon.: 68.42°E Height: 28(m)

----download in csv file

Year/Month	Observation			Normal		SPI		
	Mean Temp. [degC]	Max. Temp. (Monthly Mean) [degC]	Min. Temp. (Monthly Mean) [degC]	Mean Temp. [degC]	Precip. [mm]	3- Month	6- Month	12- Month
2021-09	31.7	36.9	27.7	46	30.5	27.1		
2021-10	29.3	35.8	23.0	0	29.6	5.8		

Time series of monthly max/mean/low Temp, monthly Precip and Standard Precip Index with 1, 2,5 and all years

ClimatView : daily base only in Japanese

Daily data version

- mean/max/min Temp & daily amount of precipitation
- ~2500 stations

世界の天候データツール (ClimatView 日別値)

世界の天候データツール (ClimatView 日別値) では、世界各国の気象機関から1日に数回送られてくる「地上実況気象通報」をもとに、気象庁で計算した世界各地の毎日の気温(日平均、日最高、日最低)と日降水量が確認できます。日本を除く全国各地のデータは世界協定時(UTC)の0時を1日の区切りとしているため、**各国の気象機関が発表する公式な値とは異なる場合があります。**以下の世界地図には約2500地点の代表的な観測地点が表示されており、図の観測地点のマークをクリックすると選択した地点のグラフと表を表示します。すべての観測地点のデータを取得するには「全データダウンロード」機能をご利用ください。🔗使用方法について 🔗ページの表示が極端に遅い場合について 🔗日データの計算方法について

◆地域・年月日選択フォーム

地域: 世界 要素: 日平均気温 <<<年 <<月 <<日 2023 年 7 月 30 日 日>> 月>> 年>>> 最新

地図解像度 高 低 表示

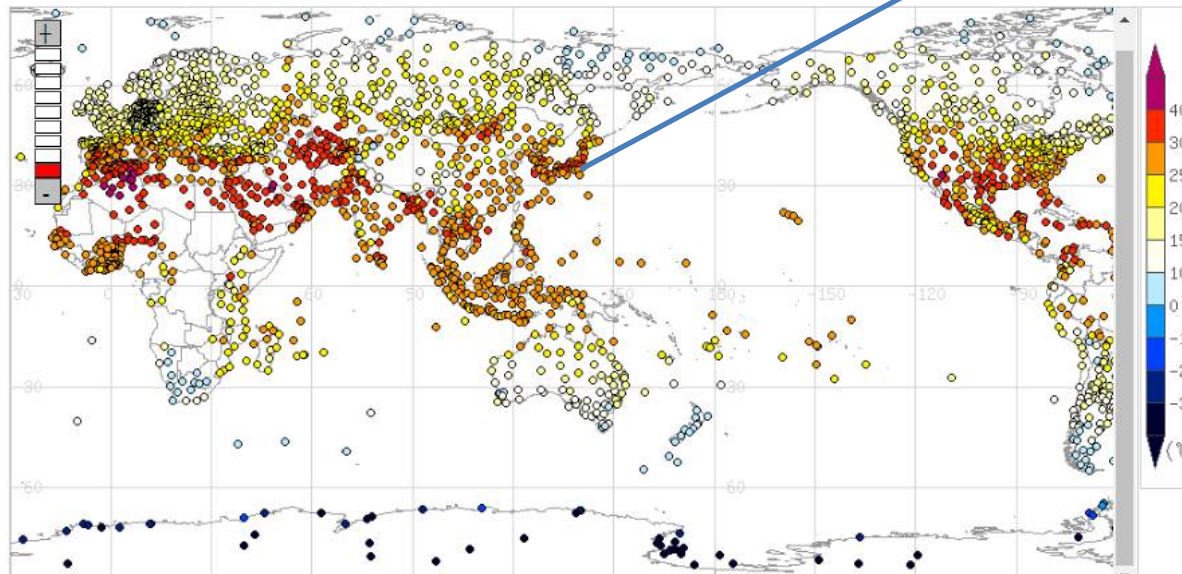
データリスト表示 >> 印刷用画面 >> 全データダウンロード 全データダウンロードボタンは、表示ボタンを押してからご利用ください。

月統計値マップの表示(新しいウィンドウが開きます)>>>

◆国・領域別地点検索フォーム

地域区分・地域名: ▼地域区分・地域名を選択してください▼ 国・領域: ▼国を選択してください▼ 地点検索 地点を選択すると「地点別データ・グラフ」のページに移動します。地域区分・地域名に対応する国や領域はこちらからご確認ください。

2023年07月30日: [日平均気温(°C)]



Tokyo

東京 (トウキョウ) 日本



東京(トウキョウ)-日本
緯度: 35.69° N / 経度: 139.75° E 高度: 25(m)

ダウンロード — OSVファイルでダウンロード

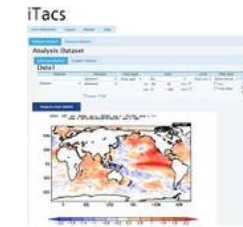
年月日	日別値			
	日平均気温 °C	日最高気温 °C	日最低気温 °C	日降水量 mm
2023年6月30日	26.3	30.5	23.8	3.0
2023年7月1日	25.3	27.8	21.5	13.5
2023年7月2日	25.0	31.2	20.2	2.5
2023年7月3日	27.3	32.2	23.8	--
2023年7月4日	25.9	30.6	21.3	1.0
2023年7月5日	25.2	28.2	22.5	0.0
2023年7月6日	26.4	33.4	22.0	13.0
2023年7月7日	26.4	34.2	23.8	--
2023年7月8日	27.8	30.9	25.2	0.0
2023年7月9日	26.6	33.0	26.1	0.0
2023年7月10日	30.2	36.5	25.7	--
2023年7月11日	29.4	34.3	25.3	--
2023年7月12日	30.8	37.5	26.1	0.0
2023年7月13日	29.0	30.2	24.2	0.0
2023年7月14日	27.4	30.5	24.8	0.0

Time series can be displayed for 1,2,3 and 5-months

Outcomes of the capacity development activities

● iTacs in support of generating nationally tailored products

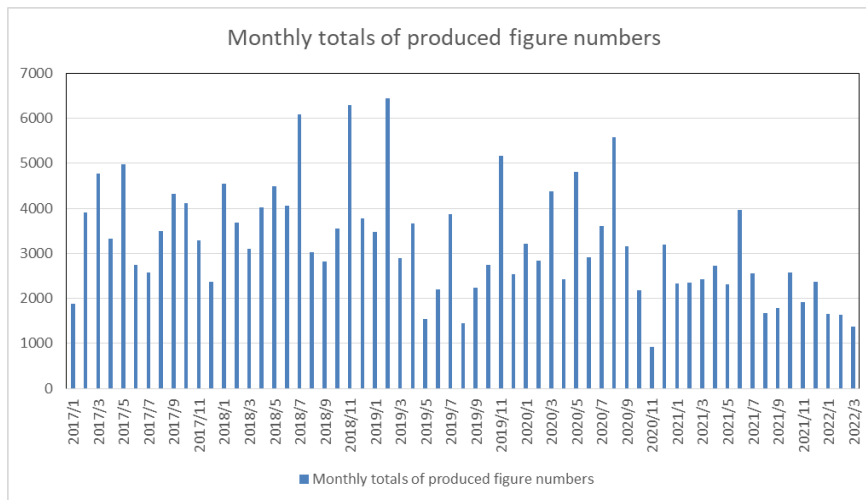
(One of the candidates for Climate Service Toolkit contents)



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.

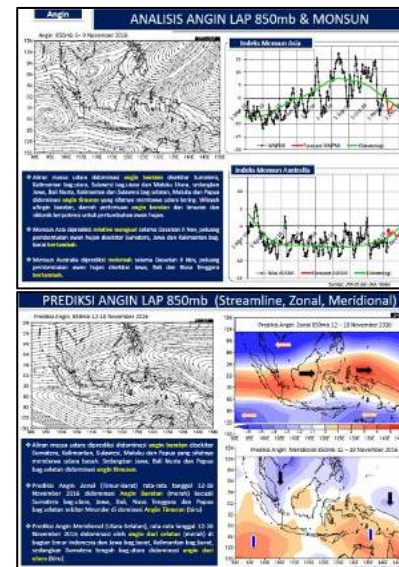
Number of monthly use by NMHSs (recent 5yrs)

Avg. 3200 figures/1month



- A case for Indonesia (BMKG) and Sri Lanka (DoM)
- The iTacs are used to generate 10-days climate monitoring report in BMKG and one-month forecast products in DoM of Sri Lanka

BMKG



DoM of Sri Lanka

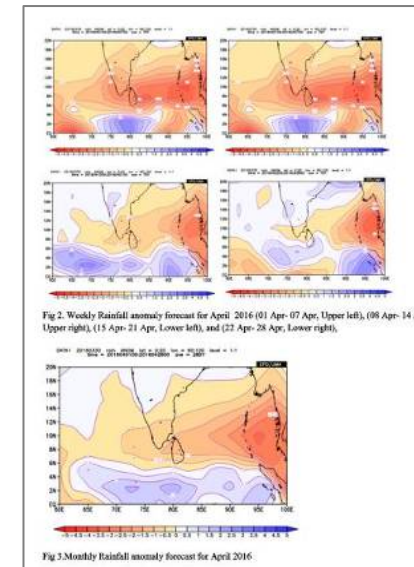


Fig 2. Weekly Rainfall anomaly forecast for April: 2016 (01 Apr-07 Apr, Upper left), (08 Apr-14 Apr, Upper right), (15 Apr-21 Apr, Lower left), and (22 Apr-28 Apr, Lower right).

Fig 3. Monthly Rainfall anomaly forecast for April 2016

Climate Risk Management (CRM)

This website includes information on the followings to support CRM activities

- Clarification of the basic CRM concept and related processes
- Good practices in CRM conducted by JMA together with partner organizations in the agriculture, apparel/fashion and drugstore industries

Best practices following areas are available from this page

<http://www.data.jma.go.jp/gmd/risk/en/index.html>

Agricultural sector

To take countermeasures against climate variability by controlling water depth in their rice fields



Apparel industry

- Control of goods in stock
- Arranging a sales plan

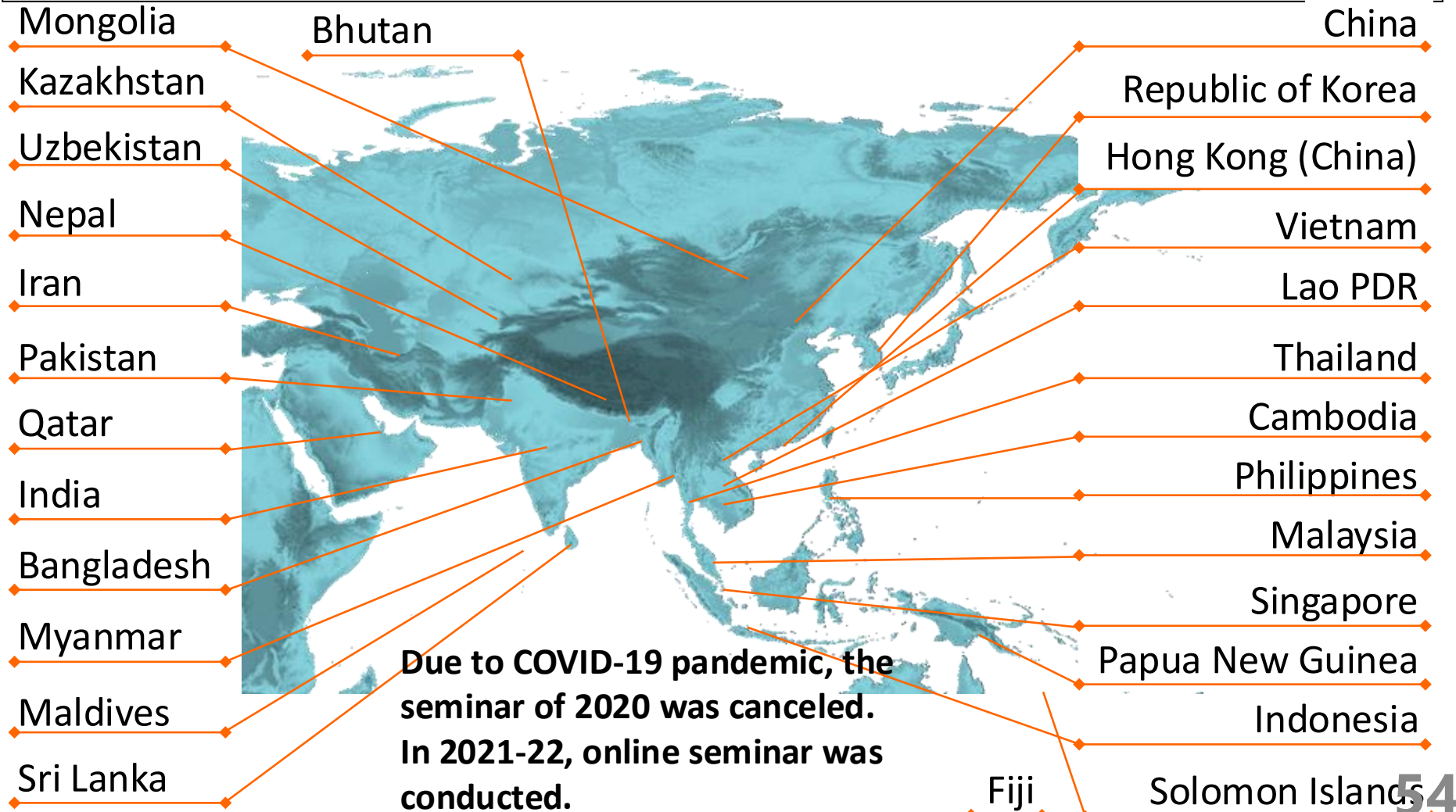


Drugstore company

- Highly affected by temperature

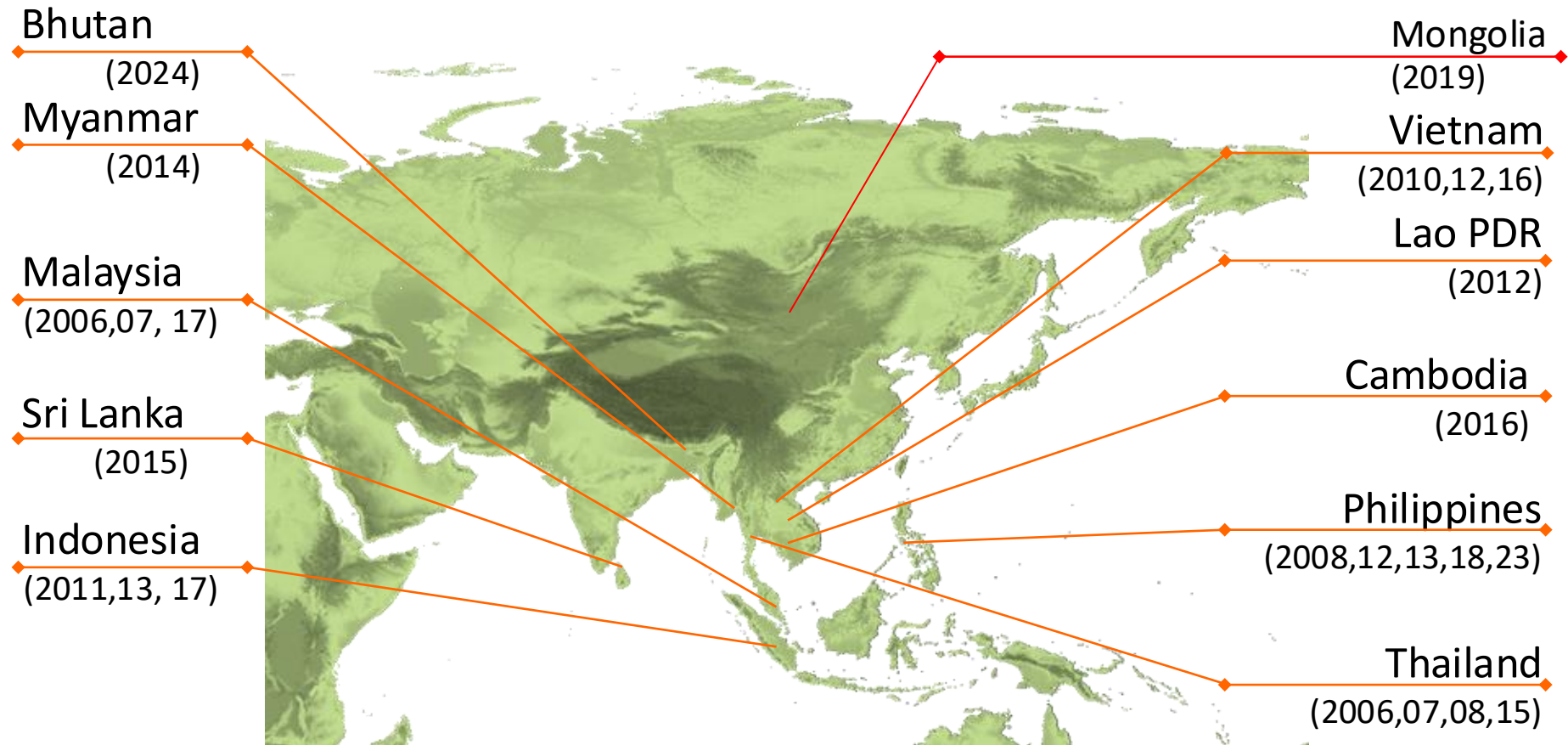
TCC Annual Training Seminar

- 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 **200 experts** from NMHSs of **27 nations/territories** in Asia-Pacific region have attended since 2008. (as of 2022)



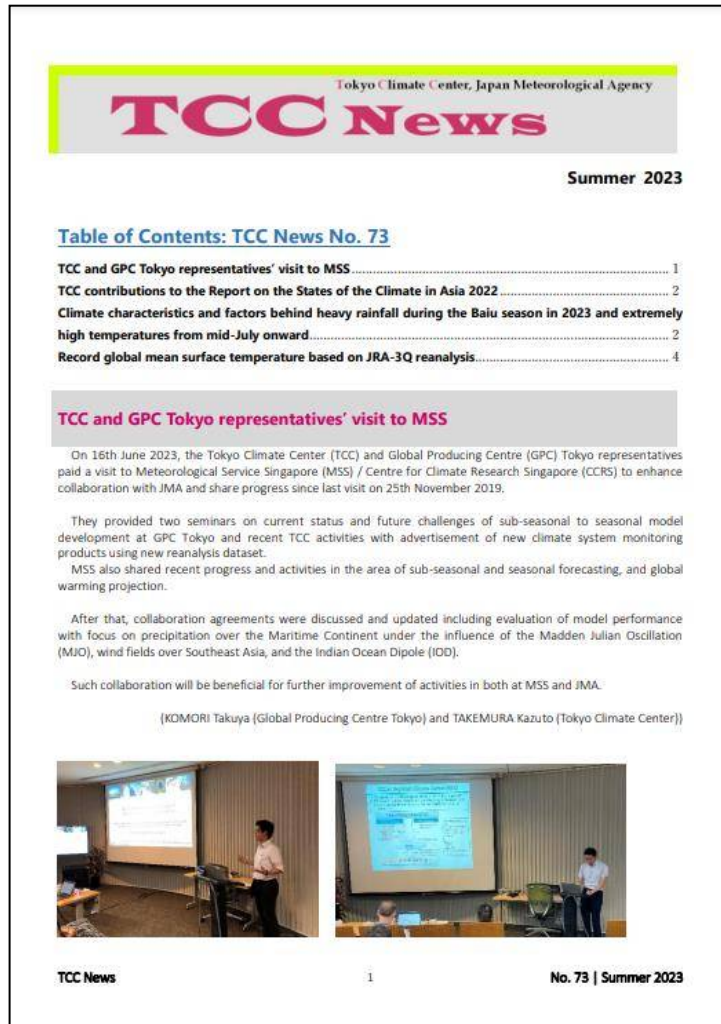
TCC Expert Visit

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



For recent two years, dispatch of experts has been stopped due to COVID-19.

TCC News and Press Releases



- TCC issues a quarterly newsletter **TCC News** in February, May, August, and November containing the following articles;
 - ✓ latest climate information (significant climate events, seasonal outlook)
 - ✓ introduction of TCC's new products
 - ✓ TCC's relevant activity
 - ✓ contribution to the RCOF
 - ✓ participation in the WMO meeting
 - ✓ annual training seminar
 - ✓ visits by TCC experts

<https://www.data.jma.go.jp/tcc/tcc/news/index.html>

TCC's Activities on Information Sharing on Climate Services in WMO RAI

The screenshot displays the Tokyo Climate Center website interface. At the top left is the logo of the Japan Meteorological Agency (気象庁). The main header identifies the site as the Tokyo Climate Center, WMO Regional Climate Center in RA II (Asia). A navigation bar includes links for Home, World Climate, Climate System Monitoring, El Niño Monitoring, NWP Model Prediction, Global Warming, Climate in Japan, Training Module, and Press release. Below the navigation bar, the 'HOME' section is visible, featuring several content blocks:

- What are WMO RCCs:** A section titled 'WMO RCCs are centres of excellence...' with a sub-section for 'RCC Functions' listing 'Operational Activities for Long-range Forecasting' and 'Operational Activities for Climate Monitoring'. Below this is a map showing 'Monthly mean 500hPa height and anomaly in the Northern Hemisphere (October 2017)'.
- Main Products:** A list of tools and services:
 - iTacs:** Interactive Tool for Analysis of the Climate System.
 - El Niño Monitoring:** 'El Niño Outlook' for diagnosis and prediction.
 - ClimatView:** Tool for viewing and downloading monthly world climate data.
 - TCC News:** A quarterly newsletter from the Tokyo Climate Center.
- What's New:** A section with an RSS icon, containing several announcements:
 - 26 October 2017: Announcement of a website for information sharing on climate services in WMO RA II.
 - 16 October 2017: Announcement of the 2016 edition of the Climate Change Monitoring Report.
 - 30 August 2017: Regional Climate Centers network homepage.
 - Regional Climate Outlook Forum (RCOF) events: FOCRAII, EASCOF, SASCOF, and ASEANCOF.
 - WMO RA II Climate Services: Information sharing on climate services.

At the bottom left, a vertical menu lists various services with their last update dates: El Niño Monitoring (10 November 2017), Monthly Discussion (25 October 2017), Global Warming (14 November 2017), Climate in Japan (10 November 2017), and STRATALERT TOKYO.



Information Sharing on Climate Services

For the improvement of climate services, it is important **to share information on the services, good practices and lessons** learned in climate-related activities, especially among NMHSs in climatologically similar region.

Viet Nam

Home Members Links Contact us

National Centre for Hydro-Meteorological Forecasting (NCHMF)

Last update: March 2014

I. Overall climate information services

- Climate information (data and products) provided operationally for the general public and/or for specific information users
 - Long-range forecasts
 - Analysis and assessment based on historical data
- URL of a portal website providing climate data/products.
 - <http://www.nchmf.gov.vn/> (in Vietnamese)
 - <http://www.nchmf.gov.vn/web/en-US/70/105/Default.aspx> (in English)

II. Long-range forecast

- Long-range forecast services (URL and language(s) used). Relevant forecasts, such as forecast for onset/end of rainy/dry season, drought advisory/warning and agrometeorological forecast, are also considered as services concerned.
 - Monthly predictions - 2 to 4 weeks
 - Ten-day Forecast
 - <http://www.nchmf.gov.vn/web/vi-VN/70/15/Default.aspx> (in Vietnamese)
 - Monthly Forecast
 - <http://www.nchmf.gov.vn/web/vi-VN/70/40/Default.aspx> (in Vietnamese)
 - <http://www.nchmf.gov.vn/web/en-US/70/105/Default.aspx> (in English)
 - Seasonal predictions - 3 to 6 months
 - <http://www.nchmf.gov.vn/web/vi-VN/70/16/Default.aspx> (in Vietnamese)
 - <http://www.nchmf.gov.vn/web/en-US/70/106/Default.aspx> (in English)
- Methods taken by NMHS to generate long-range forecast products (e.g., model and statistical application). (URLs and language(s) used) if relevant information is provided through the Internet.
 - Based on statistical methods
- Use of climate products provided by other NMHSs or meteorological institutes for long-range forecast
 - ECMWF, JMA/TCC, NOAA/CPC, IRI, BoM, APCC, WMO LC

III. Climate Monitoring