

TCC Activity Report for 2023

In 2023, the Tokyo Climate Center (TCC) continued to support Asia-Pacific National Meteorological and Hydrological Services (NMHSs) by providing and enhancing data and products, as well as hosting the East Asian Seasonal Climate Outlook Forum (EASCOF), holding training seminars, publishing quarterly newsletters and participating in international meetings.

1. Enhancement of online data/products/tools

1.1 Special reports on extreme events

In a mandate role as a WMO Regional Climate Centre (RCC) in Regional Association II (RA II), TCC monitors world climate conditions with focus on Asia and its surrounding area. The Center issues reports on extreme climate events and summaries of the Asian summer/winter monsoon on its website

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

During the 2023 Baiu season, enhanced frontal activity brought heavy rain over wide areas from western to northern parts of the country, accompanying stationary linear mesoscale convective systems elsewhere. From mid-July onward, record-high temperatures were observed in northern/eastern Japan and elsewhere. The average temperature for northern parts of the country in late July was the highest for the region since records began in 1946, and that for eastern Japan was the second highest for the region. The average temperature for the Sea of Japan side of eastern and western Japan in early August was also the highest ever. In this context, the Japan Meteorological Agency (JMA), with the help of the Advisory Panel on Extreme Climatic Events (see TCC News No. 28), investigated atmospheric and oceanic conditions considered to have contributed to such climate extremes and summarized related primary factors. A comprehensive report is available at

https://www.data.jma.go.jp/tcc/data/news/press_20230928.pdf

1.2 Upgrade of JMA's Global Ensemble Prediction System for One-month Prediction

WMC/JMA upgraded its Global Ensemble Prediction System for One-month Prediction in March. The area relating to two-tier sea surface temperatures (SSTs) based on prediction using the Seasonal Ensemble Prediction System (Seasonal EPS) was expanded from tropical and subtropical oceans to the whole global ocean. Model topography will also be upgraded using high-quality Digital Elevation Model (DEM) data.

1.3 Commencement of JRA-3Q utilization in diagnosis products and iTacs

The fundamental dataset used in diagnosis products and iTacs was changed from JRA-55 to JRA-3Q (see as per TCC News No. 72).

2. Capacity development

TCC conducts annual training seminars as part of capacity-development activities related to its role as an RCC in RA II. In addition to running annual training seminars, it also arranges expert visits to and hosts visitors from NMHSs to support exchanges of views on climate services and the effective transfer of technology.

2.1 Expert visits

In February, TCC experts visited the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) to provide follow-up training on one-month forecasts and basic operation of TCC's Interactive Tool for Analysis of the Climate System (iTacs; see TCC News No. 71).

In June, a TCC expert and a Global Producing Centre (GPC) Tokyo expert visited the Meteorological Service Singapore (MSS)/Centre for Climate Research Singapore (CCRS) to enhance collaboration between both parties (see TCC News No. 73).

In December, TCC experts visited the Thai Meteorological Department (TMD) to provide follow-up training on global warming and basic iTacs operation (see TCC News No. 75).

3. International meetings

3.1 Regional climate outlook forums

RCCs are expected to actively contribute to and lead profound discussions in Regional Climate Outlook Forums (RCOFs). In 2023, TCC hosted the 11th Session of the East Asia Winter Climate Outlook Forum (EASCOF-11), and TCC experts also participated in the following RCOFs in Asia together with GPC-Tokyo experts:

19th session of the Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II (FOCRA II-19) in Nanning, China, from 8 to 10 May

25th session of the South Asian Climate Outlook Forum (SASCOF-25) online, from 27 to 29 April

26th session of the South Asian Climate Outlook Forum (SASCOF-26) online, from 26 September to 3 October

21st session of the ASEAN Climate Outlook Forum (ASEANCOF-21) online, from 17 to 23 November

11th session of the East Asia winter Climate Outlook Forum (EASCOF-11) with hosting at JMA headquarters, from 8 to 10 November (including a special session for introduction to objective seasonal forecast toward a consensus outlook)

TCC attendees gave presentations on seasonal predictions based on JMA's numerical model, and participated in discussions toward a consensus on regional forecasts.

In collaboration with TCC, a representative from the World Meteorological Centre Tokyo (WMC Tokyo) attended SASCOF-25, SASCOF-26 and ASEANCOF-21 online.

4. Publications

TCC has published its newsletter (TCC News) on a quarterly basis since 2005. The publication is intended to enhance communication and provide information to NMHSs and related communities about recent TCC developments, events and activities as well as details of the Center's reports on the state of the climate, monitoring results and outlooks. In 2023, TCC News No. 71 - 74 were issued and made available on the TCC website.

5. Plans for 2024

– Contribution to the Global Framework for Climate Services (GFCS)

RCCs are expected to play a major role in GFCS implementation. In this context, TCC plans to further strengthen its activities and lead RA II contributions to the framework. These efforts will include the provision of ongoing assistance to NMHSs for better climate services, as well as maintenance of a site for information sharing on climate services in RA II.

– Product/tool provision

TCC/JMA plans to start provision of online information on seasonal tropical cyclone forecasting for the western North Pacific around May/June.

TCC also plans to release a new experimental three-month forecast guidance tool online in addition to its one-month guidance tool.

– Capacity development

TCC will host a dozen experts at its annual training seminar in later FY 2024, and will continue to dispatch experts to NMHSs as necessary and host visitors from NMHSs upon request.

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