

TCC Activity Report for 2022

In 2022, the Tokyo Climate Center (TCC) continued to support the climate services of National Meteorological and Hydrological Services (NMHSs) in Asia-Pacific countries by providing and enhancing data and products, holding training seminars, publishing quarterly newsletters and participating in online international meetings.

1. Enhancement of data/products/tools on the TCC website

1.1 Issuance of special reports on extreme events

In a mandate role as a WMO Regional Climate Centre (RCC) in Regional Association II (RAII), 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>).

A series of heavy snowfall events hit Japan on the Sea of Japan side and elsewhere from late December 2021 to early January 2022, bringing unprecedented snowfall for this period in the Kinki region and other areas. TCC issued a press release on factors behind this snowfall and low temperatures around the country, and uploaded an English-language report to its website (https://www.data.jma.go.jp/tcc/tcc/news/press_20220201.pdf).

TCC also issued a press release on the summary of the heavy snowfall events during the whole winter season (https://www.data.jma.go.jp/tcc/tcc/news/press_20220329.pdf).

From late June to early July 2022, record high temperatures were observed in eastern and western parts of Japan. From mid-July to mid-August, many parts of Japan experienced record-heavy rain. 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. The comprehensive report is available on the website (https://www.data.jma.go.jp/tcc/tcc/news/press_20220914.pdf)

1.2 Upgrade of the JMA's Seasonal Ensemble Prediction System

JMA's Seasonal Ensemble Prediction System was upgraded in February 2022 to improve sub-seasonal and seasonal forecasts, including operational three-month predictions, warm/cold season outlooks and El Niño outlooks. The latest system, JMA/MRICPS3 (the Japan Meteorological Agency/Meteorological Research Institute-Coupled Prediction System version 3), is an atmosphere/ocean/land/sea ice-coupled prediction system featuring a variety of changes in its initialization and the forecast model used.

1.3 Upgrade of the Global Ensemble Prediction System for One-month Prediction

JMA upgraded its Global EPS for one-month prediction on 17th March 2022. In this upgrade, the horizontal resolution of the model was enhanced and the 2-tier SST method was updated with using SSTs predicted by the new Seasonal EPS (JMA/MRI-CPS3) for the forecast longer than 6 days.

1.4 Update of Weekly Report on Global Extreme Climate Events

The weekly report on global extreme climate events was updated on June 29, 2022. In this update, JMA newly provides users with weekly data on weather stations recording extreme climate conditions in HTML and CSV format files and new distribution maps showing such stations. The conventional overview of extreme climate events and meteorological disasters in the world is also provided as before. The URL of the update page is <https://www.data.jma.go.jp/tcc/tcc/products/climate/weekly/>.

2. Capacity development

TCC holds 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 Training seminar

TCC holds training seminars every fiscal year (April – March), with the November 2022 event covering the Global Warming. The seminar was held online as last year due to COVID-19. Details of the events are reported in TCC News [No. 71](#).

2.2 Hosting of NHMS staff

In response to request from BMKG (Indonesia) under an ongoing JICA project, TCC held the 2-days seminar at JMA on 13-14th December 2022 in order to learn climate-relevant expertise and do exercise in iTacs. Details are reported in TCC News [No. 71](#).

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 2022, TCC experts participated in the following RCOFs in Asia:

- Eighteenth session of the Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II (FOCRA II-18) held online, on 9 May
- Twenty-second session of the South Asian Climate Outlook Forum (SASCOF-22) held online, from 26 to 28 April
- Twenty-third session of the South Asian Climate Outlook Forum (SASCOF-23) held online, from 26-28 to 30 September
- Tenth session of the East Asia winter Climate Outlook Forum (EASCOF-10) held online, on 10 November
- Nineteenth session of the ASEAN Climate Outlook Forum (ASEANCOF-19) held online, from 21 to 25 November

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

In collaboration with TCC, a representative from the World Meteorological Centre Tokyo (WMC Tokyo) attended SASCOF-22, SASCOF-23, and ASEANCOF-19 on line.

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 2022, TCC News No. 67 – 70 were issued and made available on the TCC website.

5. Plans for 2023

-Eleventh session of the East Asia winter Climate Outlook Forum (EASCOF-11)

TCC will organize the EASCOF-11 as its host in autumn 2023. The details will be announced in due course.

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

RCCs are expected to play a major role in the implementation of the GFCS. TCC plans to further strengthen its activities and lead RA II's contribution to the Framework. Such activities include the provision of further assistance to NMHSs for better climate services, as well as maintenance of the portal site for Information Sharing on Climate Services in RA II.

- New/upgraded data, products and tool development

Enhancements of the new dataset are planned in the former half of 2023 include the utilization of JRA-3Q (Japanese Reanalysis for Three-Quarters of a Century), COBE-SST2 (Centennial in situ Observation-Based Estimates of the Variability of SST and Marine Meteorological Variables, version 2), and MOVE/MRI.COM-G3 (the Multivariate Ocean Variational Estimation/Meteorological Research Institute Community Ocean Model - Global version 3). These improvements will influence several products on the TCC website, including the interactive iTacs tool, with details to be provided in due course.

- Capacity development

Within the latter half of Japanese fiscal year 2023, TCC will hold its annual training seminar with a dozen invited experts as attendees. The Center will also continue to dispatch experts to NMHSs as necessary and host visitors from NMHSs upon request. The format of these activities (i.e., online or in person) will depend on COVID-19 developments.

Besides, TCC will dispatch experts to some NMHS to do a follow-up seminar of the last TCC training seminar.

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