

TCC Activity Report for 2019

In 2019, 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, dispatching experts and hosting visitors.

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

1.1 Launch of the new JMA's One-month Guidance Tool

TCC has launched a new interactive tool enabling the generation of statistical guidance for station points in support of operational seasonal forecasts covering periods of a month or less. This handy resource is in the form of a web-based application accessed via a browser on the TCC website at:

<https://ds.data.jma.go.jp/tcc/tcc/products/model/index.html> (see the bottom of the "One-month Prediction" section)

For more details and system specifications, see the online help page at https://extreme.kishou.go.jp/tool/simple_guidance/help/ (tool commentary). As the tool provides forecasts and related materials, access is exclusive to National Meteorological and Hydrological Service (NMHS) staff. To gain access, see application webpage at <https://ds.data.jma.go.jp/tcc/tcc/products/model/Application.html>.

1.2 Incorporation of Standardized Precipitation Index (SPI) for drought monitoring into the ClimatView tool

TCC began providing worldwide drought monitoring information via its interactive online ClimatView tool in March 2019 to assist National Meteorological and Hydrological Services (NMHSs) in their monitoring of current and historical drought statuses. For this resource, TCC uses Standardized Precipitation Index (SPI) data as a measure of the degree of prolonged rainfall deficit. The tool displays SPI values for periods of 3, 6 and 12 months to help users quantify precipitation deficits on multiple timescales. This detailed drought information can be accessed on the TCC website at <https://ds.data.jma.go.jp/tcc/tcc/products/climate/climatview/frame.php> (main page). Commentary on SPI and its calculation method is available at https://ds.data.jma.go.jp/tcc/tcc/products/climate/climatview/spi_commentary.html. The tool shows SPI values covering the period from June 1982 to the present in the various format, e.g. graphical distribution map, time-series graphs with corresponding data tables and downloadable CSV files, regional listings and printable figures.

1.3 Issuance of summaries of the Asian summer/winter monsoon

In a mandate role as a WMO Regional Climate Center (RCC) in Regional Association II (RAII), TCC monitors world climate conditions with focus on Asia and its surrounding area. The Center issues reports on summaries of the Asian summer/winter monsoon on its website (<https://ds.data.jma.go.jp/tcc/tcc/products/clisys/reports/index.html>).

1.4 Update of website on RA II Information sharing for Climate Services

For the improvement of climate services and successful implementation of the Global Framework for 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. However, such important information has not so far been fully shared among NMHSs in WMO RA II.

In response to related decisions taken at the 15th and 16th sessions of Regional Association II (RA II) to improve information sharing on climate services in the region, TCC operates a dedicated website (<http://ds.data.jma.go.jp/tcc/RaiiInfoshare/>, see [TCC News No.36](#) and [No. 50](#) for more information).

A July 2019 questionnaire survey conducted by TCC for updating of the website generated responses from more than 10 Members thanks to the kind cooperation of their involvement. Based on the information provided, the site was updated and refined in December 2019.

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 a training seminar in each of its fiscal years (from April to March), and also held a seminar on climate analysis information on extreme climate events in November 2019. Details of the events are reported in [TCC News No. 59](#).

2.2 Expert visits and other follow-up activities

TCC experts visited the National Agency for Meteorology and Environmental Monitoring of Mongolia (NAMEM) in July, to hold a “TCC follow-up training seminar on one-month forecasts and on the basic operation of TCC’s Interactive Tool for Analysis of the Climate System (iTacs)”. Discussions on future cooperation with NAMEM were also held ([TCC News No. 57](#)).

From 30 to 31 July 2019, five BMKG climate experts underwent training at JMA’s Headquarters to reinforce capacity in the development of fit-for-purpose climate information based on essential expertise in climate analysis and related application.

In November 2019, two TCC experts visited the Centre for Climate Research Singapore (CCRS) of the Meteorological Service Singapore to explore areas of scientific collaboration.

Other follow-up to previous TCC training seminars included hosting visiting experts at TCC and conducting teleconferences to provide technical support.

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 2019, TCC experts participated in the following RCOFs in Asia:

- Fifteenth session of the Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II (FOCRA II-15) held in Nanning, China, from 8 to 10 May
- Fourteenth session of the South Asian Climate Outlook Forum (SASCOF-14) held in Kathmandu, Nepal, from 18 to 23 April
- Fifteenth session of the South Asian Climate Outlook Forum (SASCOF-15) held in Thiruvananthapuram, India, from 23 to 25 September
- Seventh session of the East Asia winter Climate Outlook Forum (EASCOF-7) held in Ulaanbaatar,

Mongolia, from 5 to 7 November

- Thirteenth session of the ASEAN Climate Outlook Forum (ASEANCOF-13) held in Bangkok, Thailand, from 20 to 21 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.

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 2019, TCC News No. 55 – 58 were issued and made available on the TCC website.

The Japan Meteorological Agency's annual [Climate Change Monitoring Report](#) for 2018 is also available on the TCC website.

5. Plans for 2020

- 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

TCC plans to implement a major upgrade of its Global Ensemble Prediction System for operational one-month forecasting in spring 2020.

Another effort includes investigation of teleconnection indices (e.g., the Arctic Oscillation Index) to enhance monitoring of atmospheric circulation with the use of the JRA-55 long-term reanalysis dataset. TCC plans to publish the investigation results and the indices on its website as soon as material is ready.

- Capacity development

In the first quarter of 2021 (the last quarter of the fiscal year 2020), 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.

- Hosting of EASCOF

In autumn, TCC will host the eighth session of the East Asia Winter Climate Outlook Forum (EASCOF) with the participation of experts engaged in climate services at NMHSs and researchers from China, Japan, Mongolia and the Republic of Korea. At the event, the climate conditions of the previous season will be reviewed, and the current status of the climate system as well as the seasonal Asian winter monsoon forecast for winter 2020/2021 will be discussed.