TCC Activity Report for 2015

In 2015, the Tokyo Climate Center (TCC) continued to support the climate services of NMHSs in Asia-Pacific countries by providing and enhancing data and products, holding training seminars, dispatching experts and hosting visitors.

1. Highlights of 2015

1.1 Upgrade of JMA's Seasonal forecast model in June 2015

JMA introduced a new version of its Seasonal Ensemble Prediction System (JMA/MRI-CPS2) in June 2015. This seasonal ensemble prediction system (EPS) is used to produce three-month and warm/cold season predictions as well as El Niño monitoring and outlook work. Changes in the new system include enhanced resolution, improved physics in the model's atmospheric and oceanic components, and the introduction of an interactive sea ice model. The changes made improved predictive skill overall, among other things, ones for sea surface temperatures associated with El Niño-Southern Oscillation (ENSO), surface temperatures in the Northern Hemisphere and precipitation in the tropics. More detailed verification information is provided on the TCC website. In the new real-time operational suite, 51-member ensemble integration is carried out from consecutive initial dates with intervals of five days. An outline of the model's configuration and its operation is provided on the TCC website and in TCC News No. 40.

1.2 Upgrade of the Interactive Tool for Analysis of Climate System (iTacs)

In November 2015, TCC launched version 5 of its web-based application software named "iTacs". iTacs stands for "Interactive Tool for Analysis of the Climate System," and was developed by JMA/TCC to assist National Meteorological and Hydrological Services (NMHSs). iTacs supports the creation of various types of charts to enable analysis of the characteristics and structure of climate systems, various types of charts and it is also equipped with a variety of statistical functions, such as linear regression and correlation coefficients, EOF, SVD and FFT. In iTacs ver. 5, 30-year re-forecast (hindcast) datasets covering the period from 1981 to 2010 are additionally implemented with JMA's one-month ensemble prediction system. iTacs ver. 5 also provides more efficient connections between client PCs and web servers via a revamped web interface. Please refer to TCC News No. 42 for more information on this upgrade.

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

WMO Regional Association II recognized at its fifteenth session (2012) that it is important to share good practices and lessons learned for the successful implementation of the GFCS and thus adopted a new Pilot Project on Information Sharing on Climate Services. TCC plays a leading role in the implementation of the Project. As part of related work, it launched a dedicated website (http://ds.data.jma.go.jp/tcc/pilot/) to share information on climate services provided by NMHSs and on their Framework-related activities on 31 March 2014. In summer 2015, TCC again invited NMHSs in RA II to take part in this pilot project via a questionnaire survey. The aims of this work were to update the website's content and enhance information highlighting the concrete examples and good practices of climate information usage. The updated information is available on the website.

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

TCC strives to continuously extend its services in the provision of data, products and tools. In 2015, the following data and products were made available on its website:

June: Upgrade of JMA's Seasonal forecast model

13 November: Version upgrade of iTacs (Interactive Tool for Analysis of the Climate System)

Some of these new data/products were made available in response to requests by NMHSs, and are also expected to be useful to other parties. The Center will continue to accommodate requests from NMHSs wherever possible.

3. 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.

3.1 Training seminar

TCC hold a training seminar in its each fiscal year from April to March. In 2015, TCC held a seminar in November, with one-month forecasts as the subject. Details of the event are reported in TCC News No.42.

3.2 Expert visits and other follow-up activities

TCC experts visited the Thai Meteorological Department (TMD) in March and the Department of Meteorology (DOM) of Sri Lanka in Colombo in June, to hold a follow-up seminar on the generation of climate change projection information by using one of the latest global warming projection data. The visits were planned as follow-up to the TCC training seminar held in January 2015, and also provided an opportunity for TMD and DOM to discuss future cooperation with TCC (TCC News No.40 and TCC News No.41).

Other follow-up activities to previous TCC training seminars included accepting expert visits at the TCC and conducting teleconferences to provide technical supports.

4. International meetings

4.1 Regional Climate Outlook Forums

RCCs are expected to actively contribute to discussions in Regional Climate Outlook Forums (RCOFs). In 2015, TCC experts participated in the following RCOFs in Asia:

- Sixth Fifth session of the South Asian Climate Outlook Forum (SASCOF-5) held in Dhaka, Bangladesh, from 21 to 22 April
- Eleventh session of the Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II (FOCRA II) held in Beijing, China, from 11 to 13 May
- Third session of the East Asia winter Climate Outlook Forum (EASCOF) held in Seoul, Republic

of Korea, from 3 to 5 November

- Fifth session of the ASEAN Climate Outlook Forum (ASEANCOF) held in Singapore from 18 to 19 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.

4.2 Other meetings

In 2015, TCC head Dr Kazutoshi Onogi attended two meetings in Geneva, Switzerland to contribute to the implementation and management of GFCS. In April, he also attended the meeting of the Task Team on Monitoring and Evaluation of implementation of the GFCS as a member of this task team, and in October took part in the third session of the Management Committee of the Intergovernmental Board on Climate Services in Geneva.

Mr Atsushi Goto, a TCC expert and member of the CCl/CBS Joint Expert Team on Regional Climate Centres (ET-RCCs), participated in the session, held in conjunction with the Task Team on Regional Climate Outlook Forums (TT-RCOFs) in Melbourne, Australia in September.

5. 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 2015, TCC News Nos. 39 – 42 were issued and made available on the TCC website.

Other English-language publications related to the climate, such as Climate Change Monitoring Report 2014 and Annual Report on the Climate System 2014, were also published on the TCC website.

6. Staff changes

Ms. Teruko Manabe, who served as the Head of TCC for four years, moved to the Tokyo Regional Headquarters of the Japan Meteorological Agency on 1st April, to work as Director of the Disaster Mitigation Department there. She has been replaced with Kazutoshi Onogi (PhD) who has long contributed to the development of JMA's long-term reanalysis data and long-range forecast models.

7. Plans for 2016

- 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 and updating of the portal site for the Pilot Project on Information Sharing on Climate Services.

- New/upgraded data, products and tool development

TCC plans to implement a major upgrade of its Seasonal Ensemble Prediction System for operational one-month forecasting by early 2017.

To leverage the JRA-55, long-term reanalysis dataset, investigation on teleconnection indices (e.g., the Arctic Oscillation Index) is being prepared to enhance monitoring of atmospheric circulation. TCC plans to publish the investigation results and the indices on its website in 2016. In addition to its work on the above-listed products and tool, TCC is making efforts to develop information/products based on the Standard Precipitation Index (SPI) towards better monitoring of droughts worldwide.

- Capacity development

In the last quarter of the year, 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.