TCC Activity Report for 2009

The Tokyo Climate Center (TCC) of the Japan Meteorological Agency (JMA) has prepared the *Activity Report of the Tokyo Climate Center for 2009*, detailing the climate-related activities of TCC in 2009 and its plans for 2010.

1. Designation of TCC as an RCC in RA II

TCC was formally designated as one of the first Regional Climate Centers (RCCs) in Regional Association II (Asia) together with the China Meteorological Administration's Beijing Climate Center (BCC) at the 61st session of the WMO's Executive Council held in Geneva, Switzerland, from 3 to 12 June 2009. TCC and BCC started their operational climate-related activities as RCCs on 1 July. As a result of close cooperation between the two centers, the Regional Climate Center Network in RA II website has been launched at http://www.rccra2.org/detail/index.htm.

Ms. K. Hayashi, Head of TCC, gave a presentation titled "Activity of Regional Climate Centers in Asia" at the World Climate Conference-3 (WCC-3) held in Geneva from 31 August to 4 September 2009, introducing climate-related activities embarked upon by TCC and BCC and future plans being formulated by the RCCs in RA II. The presentation file is available on the WCC-3 website at http://www.wcc3.org/wcc3docs/pdf/I3_Hayashi.pdf.

2. TCC website

TCC operates a website providing climate-related operational data and products as well as presentation materials used in meetings and training events (http://ds.data.jma.go.jp/tcc/tcc/index.htm).

The Center renewed its El Niño Monitoring and Outlook page (http://ds.data.jma.go.jp/tcc/tcc/products/elnino/index.html) and began providing SST monitoring and prediction information in newly defined SST monitoring regions called IOBW (covering the tropical Indian Ocean) and NINO.WEST through the website. On the renewed page, SST deviation diagnosis and six-month outlooks for IOBW and NINO.WEST are available.

The following content has been added to the TCC website:

a) Madden-Julian Oscillation (MJO) information

b) Monthly and annual anomalies of JMA's global surface temperature data averaged in 5° x 5° grid boxes

c) Gridded global sea surface temperature data sets (COBE-SST) from 1891 onward

d) Statistical relationships (atmospheric circulations regressed on El Niño monitoring indices) (renewed content)

3. Climate information services (monitoring, climate reviews, etc.)

TCC provides a number of regular reports, such as *Monthly Report of Worldwide Extreme Climate Events*, *Monthly Highlights on Climate System*, *El Niño Outlook*, *Global Average Surface Temperature Anomaly* and *Annual Report on Climate System*.

JMA has developed a useful web-based tool for climate diagnosis referred to as ITACS, which stands for Interactive Tool for Analysis of the Climate System. ITACS enables users not only to monitor current climate status but also to analyze the complicated system that lies behind climatic conditions. The system is now available on the TCC website, which is intended for use by National Meteorological and Hydrological Services (NMHSs) and related research institutes. For more details, including information on how to apply, refer to http://jra.kishou.go.jp/itacs-info/tcc/conditions.html.

4. Long-range forecasting (monthly, seasonal, longer-range forecasts issued and disseminated based on model simulations or statistical methods)

JMA improved its one-month ensemble prediction system in March 2008 (see TCC News No. 12 for details). Accordingly, GPV products for one-month forecasts were upgraded in April 2009 with the change of data format from GRIB1 to GRIB2 and the provision of new products (daily GPV data for individual ensemble members and hindcast data) on the TCC website.

5. Training activities

TCC held the Training Seminar on Climate Analysis using Reanalysis Data from December 1 to 4 2009 with 11 invited participants from Asian and Pacific countries (Bangladesh, Indonesia, Laos, Malaysia, Mongolia, Pakistan, Papua New Guinea, the Philippines, Sri Lanka, Thailand and Vietnam). The attendees deepened their knowledge and grasp of practical techniques for climate analysis, in particular learning how to use ITACS through lectures and hands-on exercises (see Article 4).

JMA has run 3-month courses in meteorology for NMHS experts since 1973 as part of the training initiatives provided by the Japan International Cooperation Agency (JICA). The 2009 course was held from September to December with an emphasis on the operational use of numerical weather prediction, satellite meteorology and climate information. In the climate information session, staff members from the Climate Prediction Division gave lectures on climate system monitoring, long-range forecasting, El Niño outlook and global warming projection to four participants from Bhutan, Cambodia, Myanmar and Mongolia.

6. Future plans

In February 2010, JMA will introduce a coupled ocean-atmosphere general circulation model (CGCM) for operational seasonal forecasts, which is expected to improve prediction skill, especially in subtropical areas. GPC (Global Producing Center) Tokyo will start providing products generated using the CGCM (see Article 1).

However, TCC recognizes that it is necessary to provide tools and guidance for the handling and interpretation of these products from GPC. In order to facilitate their utilization, TCC plans to hold a training seminar on seasonal prediction in the coming autumn or winter. Furthermore, guidance materials on using the products will be made available on the TCC website, which will help NMHSs generate their own forecast products to meet user requirements. The Center also plans to develop new tools for prediction products within a few years.