Activity Report of the Tokyo Climate Center for 2007

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The Tokyo Climate Center (TCC) of the Japan Meteorological Agency (JMA) has prepared the *Activity Report of the Tokyo Climate Center for 2007*, covering climate-related activities made by TCC in 2007 and its action plans for 2008.

1. TCC website and products

The Tokyo Climate Center (TCC) of the Japan Meteorological Agency (JMA) launched a new website (http://ds.data.jma.go.jp/tcc/tcc/index.html) in March 2007. As one of the new services offered via the site, an online web-based interactive climate database called *ClimatView* was made available, enabling users to view and download data on monthly mean temperatures and monthly total precipitation derived from CLIMAT reports. *Monthly Highlights on Climate System*, focusing on monthly highlights of the climate, atmospheric circulation and oceanographic conditions, has been available on the website since April 2007.

The TCC website will be renewed in early 2008 with several new types of content including downscaled prediction products for one-month prediction in Southeast Asia. A new publication, *Annual Report on Climate System 2007* will be issued in early 2008, covering topics on extreme climate events around the world as well as a summary of the climate system in 2007.

2. JRA-25 and COBE-SST

A joint project between JMA and the Central Research Institute of Electric Power Industry on the long-term global atmospheric reanalysis known as *Japanese 25-year Reanalysis (JRA-25)* was completed in March 2006. The data assimilation system used in JRA-25 is operated as the JMA Climate Data Assimilation System (JCDAS). Both JRA-25 and JCDAS data (1979–present) are available through the JRA-25 official website (http://jra.kishou.go.jp/index_en.html).

3. Extended- and long-range EPS

JMA's one-month ensemble prediction system (EPS) was upgraded in March 2007, introducing new climatology of aerosol optical depth based on satellite observation and an improved cumulus convection scheme. For three-month and warm/cold season predictions, a new atmospheric model (GSM0703C) was introduced, consisting of a low-resolution version of the model used in the one-month prediction described above. The number of ensemble members increased from 31 to 51 and uncertainty in prescribed sea surface temperature (SST) was considered in addition to uncertainty in the initial condition.

In 2008, new elements of GPV data (700 hPa temperature and its anomaly) will be added to one-month prediction, which will be available to registered NMHSs.

4. ODAS and El Niño prediction system

Since 1999, JMA's Meteorological Research Institute (MRI) has been developing a new Ocean Data Assimilation System (ODAS) named MOVE (Multivariate Ocean Variational Estimation) and an ocean prediction model named MRI.COM (MRI Community Ocean Model). A new ocean analysis system and a coupled ocean-atmosphere prediction model (JMA/MRI-CGCM) are scheduled to be put into operation in March 2008.

5. Global warming projection

JMA has implemented a projection of the atmospheric and oceanic climate around Japan toward the end of this century with a regional coupled ocean-atmosphere model developed in JMA/MRI and an improved version of the global coupled ocean-atmosphere model, named MRI-CGCM2.3.

Both the global and regional features of the projected climate and ocean currents will be published as *Global Warming Projection Volume 7* in March 2008.

6. RCC and GPC

TCC as well as the Beijing Climate Center (BCC) of the China Meteorological Administration (CMA) applied for Regional Climate Center (RCC) status at WMO RA II. At the Working Group on Climate-Related Matters (WGCRM) at RA II held in Beijing in April 2007, the Group recommended to the President of RA II that both BCC and TCC be designated as RCCs. In June 2007, a website for the Regional Climate Center Network at RA II (http://www.rccra2.org/detail/index.htm) was established in close cooperation with BCC.

JMA was designated as one of the Global Producing Centers (GPC) of Long-Range Forecasts (LRF) for the WMO at an extraordinary session of the WMO's Commission for Basic Systems (CBS) in 2006, and was approved as a GPC at the 59th session of the Executive Council of the WMO held in May 2007.

7. Capacity building

JMA has conducted annual training courses in meteorology for experts of National Meteorological and Hydrological Services (NMHSs) since 1973 as one of a number of courses provided by the Japan International Cooperation Agency (JICA). The training course in 2007 was held from September to December with emphasis on the operational use of numerical weather prediction, satellite meteorology and climate information. In a climate information session, staff members of the Climate Prediction Division gave lectures on climate system monitoring, long-range forecasting, El Niño outlook and global warming projection. In 2008, the training course will be renewed and its curriculum is now under consideration.

The *Training Course on Interpretation of Climate Products and Climate Downscaling* was held at the Malaysian Meteorological Department (MMD) in October 2007. At the invitation of MMD, TCC's staff members attended the Training Course for lectures on various topics including JMA's numerical/seasonal prediction models, ensemble prediction

system and making guidance, statistical downscaling, access to GPV data and its application using R Language, and reanalysis data (JRA-25) and its application.

8. International conferences and workshops

JMA held the *International Workshop on Applications of Advanced Climate Information in the Asia-Pacific Region* from 20–22 February 2007 in Tokyo under the auspices of Japan's Ocean Policy Research Foundation. The *Third WCRP International Conference on Reanalysis* took place in January 2008 in Tokyo. A seminar on climate and seasonal prediction meeting on East Asian winter monsoons is scheduled for autumn 2008 in Tokyo.