Introduction to JMA's one-month model
– focusing on an extreme rainfall event during Asian monsoon season –

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It is important to appropriately predict extreme climate events that cause significant socio-economic impacts such as heavy rainfalls, severe heat waves and cold spells. In order to provide predicted information about these events, the Japan Meteorological Agency (JMA) has been improving its operational one-month prediction model.

According to long-run experiments, the JMA's one-month prediction model can generally reproduce spatial distribution of Asian summer monsoon rainfalls. And hindcast experiments indicate that the JMA's model can forecast the activity of Asian summer monsoon with significant skill and forecast the boreal summer intraseasonal oscillation (BSISO) in the western North Pacific at least two weeks ahead.

For example, the region around the Philippines and southern China experienced heavy rainfall from late July to early August 2012. This extreme event was associated with the BSISO that featured active convection areas moving northwestward from the equatorial western Pacific to the northern South China Sea. The JMA's model appropriately forecasted this BSISO two weeks before the occurrence, although related rainfall amounts were underestimated. The model also forecasted the strength of the Pacific High around Japan which was associated with the active convection around the Philippines and caused high temperatures in the country.

JMA provides one-month forecast products through the Tokyo Climate Center (TCC) website at http://ds.data.jma.go.jp/tcc/tcc/index.html for registered users and uploads them every Friday. Animated weather charts (seven-day average) for one-month forecast have been available since October 2011, and GPV data (ensemble mean) have also been available in the Interactive Tool for Analysis of Climate System (ITACS) since October 2011. (For more details, please contact TCC; tcc@met.kishou.go.jp)