Seasonal outlook of the East Asian Summer in 2015

Motoaki TAKEKAWA
Tokyo Climate Center, Japan Meteorological Agency

1. Oceanic conditions

Tropical oceanic conditions are the most important signal for the summer outlook in view of its predictability and have effects on variability of Asian summer monsoon which plays a key role in East Asian summer climate.

In February 2015, the NINO.3 SST was near normal. SSTs were above normal in the western and the central equatorial Pacific and below normal in the eastern part. Subsurface temperatures were above normal in the central equatorial Pacific and below normal in the eastern part. Easterly winds in the lower troposphere in the central equatorial Pacific were near normal. These oceanic and atmospheric conditions indicate that El Niño event, which had emerged since boreal summer 2014, is likely to have ended.

The JMA's CGCM predicts that the NINO.3 SST will be near normal until the Northern Hemisphere early spring, and will be above normal thereafter. In conclusion, it is more likely that El Niño conditions will redevelop by boreal summer than that ENSO neutral conditions will continue.

The SST in the tropical western Pacific region are predicted to be near normal or below normal and in the tropical Indian Ocean are predicted to be mostly near normal both until boreal summer.

2. Outlook for Asian summer monsoon

According to JMA’s CGCM forecast, in association with the SST anomaly patterns, convective activity is predicted to be stronger than normal in the equatorial central and eastern Pacific while weaker than normal over the Indian subcontinent and the Maritime continent. These anomaly patterns are consistent with those seen in El Niño conditions and imply that the Asian summer monsoon will be generally weaker than normal. In association with the weak Asian summer monsoon, the Tibetan anti-cyclone will be less developed than normal and the sub-tropical jet stream will shift southward compared to its normal position. These atmospheric conditions suggest cool summer climate in East Asia. However, the subtropical high southeast of Japan is predicted to be not weaker than normal associated with westerlies meandering around Japan which is seen in El Niño conditions. Additionally, it is necessary to consider overall temperatures in the troposphere are expected to be higher than normal, particularly on the lower latitudes side of the westerlies, reflecting recent warming tendency and high SSTs in the equatorial Pacific.

3. Summary of the summer outlook for Japan

JMA issued its outlook for the coming summer (June – August) 2015 over Japan in February and updated it in March and April. This article outlines the outlook updated on 25 March. Mean temperatures in summer are expected to be near normal or above normal, both with a 40% probability, in eastern Japan. The remaining regions have no particular features. Total precipitation amounts in summer are expected to be near normal or above normal, both with a 40% probability, in northern Japan. The remaining regions have no particular features.