

## Seasonal outlook for summer 2013 over Japan

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The Japan Meteorological Agency (JMA) employs prediction with ensemble models for seasonal forecast, which is a method to predict the probability distribution of forecast states. Forecasts of temperature and precipitation in each region of Japan are given in the three categories of below normal, near normal and above normal. The thresholds of each category are determined so that the climatological chance of occurrence for each category is 33.3% for the period from 1981 to 2010. JMA issued the seasonal outlook for the summer (June-July-August) 2013 over Japan on February 25, 2013. The outline is as follows.

JMA's coupled general circulation model predicts the ENSO neutral conditions in summer 2013. On the other hand, The SST in summer 2013 is predicted to be near normal or below normal in the tropical Indian Ocean region (IOBW) and slightly above normal in the tropical western Pacific region (NINO.WEST).

Three-month precipitation anomalies are predicted to be below normal in the tropical Indian Ocean and westerly wind anomalies in the lower troposphere are predicted from the equatorial Indian Ocean to Indonesia. Corresponding to these conditions, precipitation anomalies are predicted to be above normal from the Bay of Bengal to the east of the Philippines. As a result, the Tibetan high is predicted to be strong. The subtropical jet, which flows along the northern edge of the Tibetan high, is likely to shift northward from its normal position.

Around Japan, the North Pacific high is likely to be stronger than normal over Northern, Eastern and Western Japan. On the other hand, it is predicted to be weaker than normal over Okinawa/Amami.

Our synthetic judgment is as follows: Summer mean temperatures are expected to be near or above normal with 40% probabilities for both categories in Northern, Eastern and Western Japan. On the other hand, Okinawa/Amami has no particular features. Summer precipitation amounts are expected to be near or above normal with 40% probabilities for both categories in Okinawa/Amami. On the other hand, Northern, Eastern and Western Japan have no particular features.