

# Seasonal outlook for summer 2017 over Japan

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JMA issued its outlook for the coming summer (June – August) over Japan in February and updated it in March and April based on output from its seasonal Ensemble Prediction System (EPS). The following outlook is based on the EPS products with the initial month of March.

## 1. Outlook summary (Table 1)

- Seasonal mean temperatures are expected to be above-normal all over Japan.
- Seasonal precipitation amounts are expected to be the near-normal all over Japan.

## 2. Grounds for outlook

Figure 1 summarizes expected large-scale oceanic/atmospheric characteristics for the coming summer. The grounds for the outlook are given below.

### (1) Outlook on Oceanic conditions

- The NINO.3 sea surface temperature (SST) is predicted to be slightly above normal. According to the El Niño Outlook issued on 10 March 2017, it is more likely that ENSO neutral conditions will persist during the boreal spring and summer (60%) than that El Niño conditions will develop (40%).
- Meanwhile, SSTs in the western tropical Pacific are also predicted to be above normal.

### (2) Outlook on atmospheric circulation fields

- In association with warmer SSTs in the western tropical Pacific, convections are predicted to be more active from Southeast Asia to the western tropical Pacific.
- The North Pacific High is predicted to be stronger than normal and to expand northwardly, in association with enhanced convection activities around the Philippines.
- In the lower troposphere, anticyclonic circulation anomalies are predicted over the northern Indian Ocean, suggesting weaker southwesterly flows in the western part of the Indian Ocean and stronger southwesterly flows in Southeast Asia. In the western tropical Pacific, cyclonic circulation anomalies are predicted, suggesting deeper-than-normal monsoon trough.
- In association with enhanced convections around Southeast Asia, the Tibetan High is predicted to be stronger-than-normal. Accordingly, the subtropical jet stream, which flows along the northern edge of the Tibetan High, is predicted to shift northward from its normal position.
- Since the North Pacific High is expected to be stronger than normal, the Baiu front is expected to be more active than normal due to moist southerly flows along the edge of the High. This tendency can bring slightly wetter conditions during Baiu all over Japan.
- Meanwhile, since the North Pacific High is expected to be expanded northwardly, it is expected to bring drier tendencies during mid-summer from northern to western Japan.

- Overall temperatures in the troposphere are expected to be higher-than-normal in association with the prevailing long-term trend. These tendencies are likely to increase the chance of above-normal temperatures.

Category		Temperature			Precipitation		
		-	0	+	-	0	+
Northern Japan	Sea of Japan side	20	30	50	30	40	30
	Pacific side	30	40	30	30	40	30
Eastern Japan	Sea of Japan side	20	30	50	30	40	30
	Pacific side	30	40	30	30	40	30
Western Japan	Sea of Japan side	20	30	50	30	40	30
	Pacific side	30	40	30	30	40	30
Okinawa/Amami		20	30	50	30	30	40

(Category - : Below normal,  
0 : Near normal,  
+ : above normal)

Probability (%)

Probability (%)

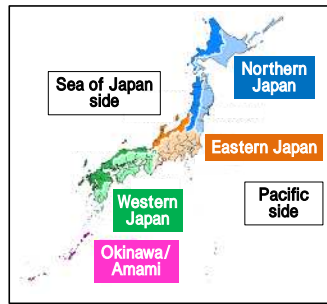


Table 1 Outlook for summer (JJA) 2017 tercile probabilities over Japan.

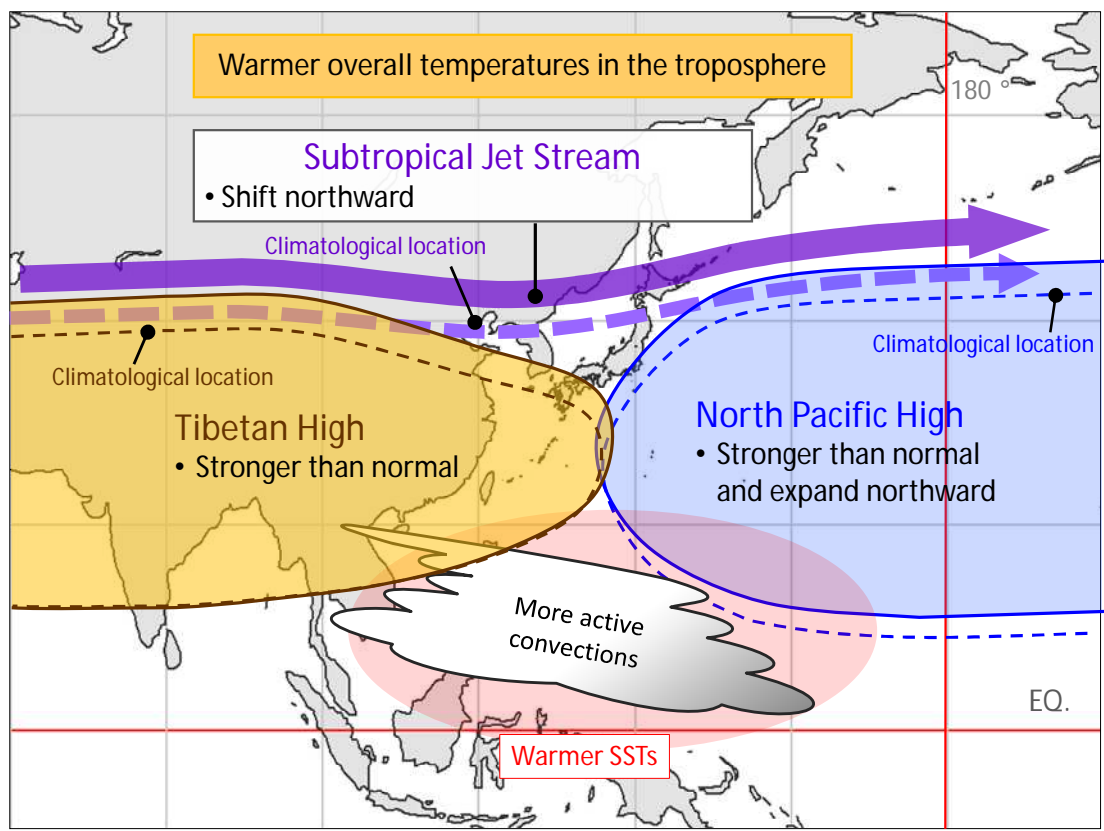


Figure 1 Conceptual diagram showing expected large-scale ocean/atmosphere characteristics for summer 2017