

Heavy rainfall over the Indochina Peninsula for June – September 2011

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Tokyo Climate Center, Japan Meteorological Agency

1. Precipitation

In general, the Asian summer monsoon over the Indochina Peninsula lasts from around May to around October, and brings the rainy season. In 2011, precipitation over the Indochina Peninsula continued to be above normal from June to September, which caused floods over a wide area in the basins of the Chao Phraya River and the Mekong River. The flood has caused serious damage over the Indochina Peninsula especially in Thailand.

Four-month total precipitation from June to September 2011 was 120% – 180% of the normal for most meteorological observation stations over the Indochina Peninsula (Figure 1, center). Four-month total precipitation for the period amounts to 921mm (134% of the normal) at Chiang Mai in northern Thailand, 1251mm (140%) at Bangkok (the capital of Thailand), 1641mm (144%) at Vientiane (the capital of Laos) and 835mm (107%) at Phnom-Penh (the capital of Cambodia). It is unusual that heavier-than-normal rainfall continued through the rainy season over the entire area of the basins (Figures 1 and 2).

The heavier-than-normal rainfall over the basin of the Chao Phraya River continued in the first half of October 2011.

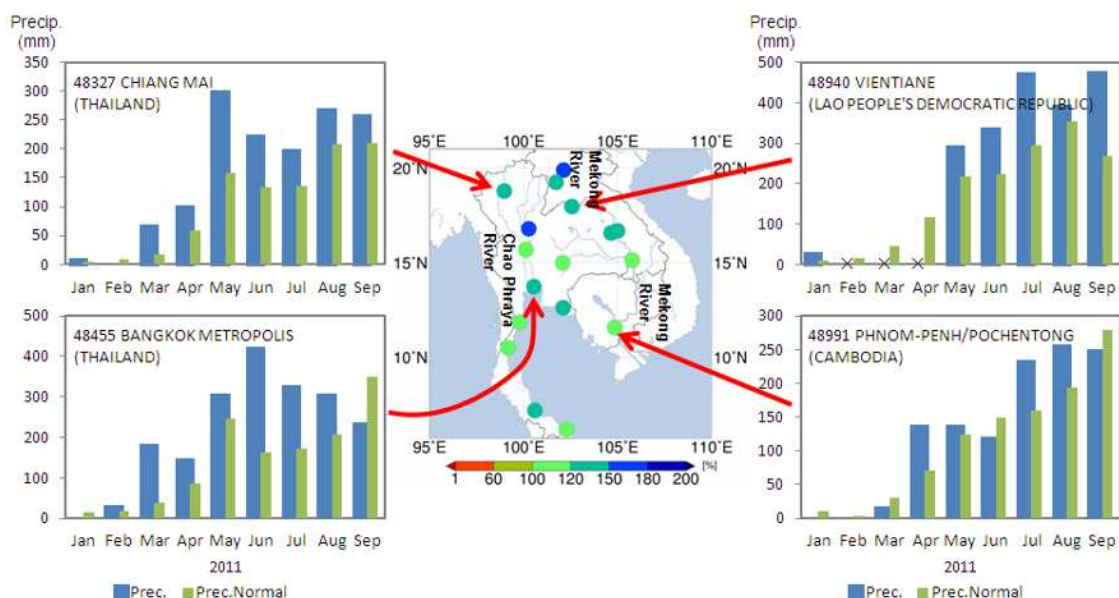


Figure 1 Spatial distribution of four-month precipitation ratio compared to normal (center) and the time series of monthly precipitation at Chiang Mai, Bangkok (Thailand), Vientiane (Laos), and Phnom-Penh (Cambodia)

The base period for the normal is 1981 – 2010. “X” in the figure for Vientiane represents that monthly data were not reported.

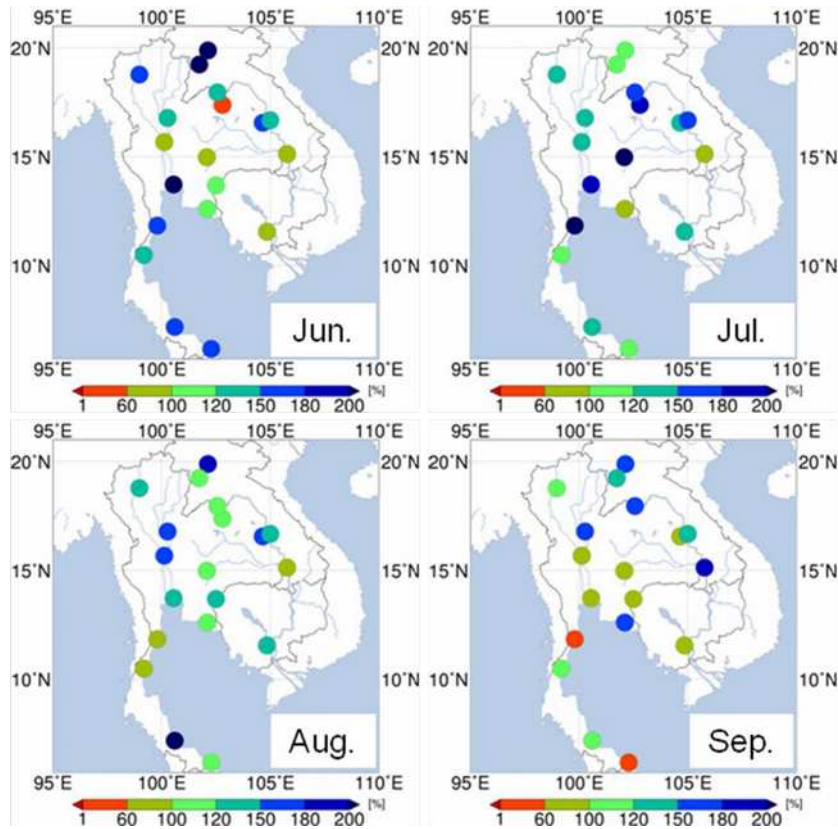


Figure 2 Spatial distributions of monthly precipitation ratio compared to normal for June – September 2011. The base period for the normal is 1981 – 2010.

2. Activity of the Asian summer monsoon

Four-month averaged cumulus convective activity for June – September 2011 was enhanced over 10° – 20°N of South and Southeast Asia (Figure 3), which indicates that the Asian summer monsoon was active. The heavy rainfall over the Indochina Peninsula has likely resulted from the active monsoon.

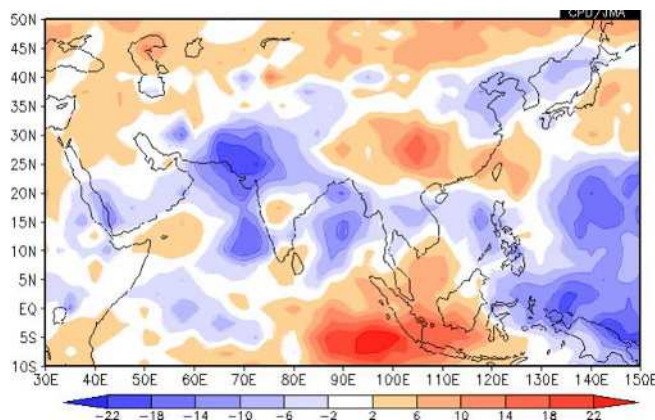


Figure 3 Cumulus convective activity (June – September 2011)

The shading indicates four-month averaged outgoing longwave radiation (OLR) anomaly (W/m^2) for June – September 2011. It can be inferred that negative OLR anomalies (blue-color) show enhanced cumulus convection compared to the normal. The base period for the normal is 1981 – 2010. Original data provided by NOAA.