CLIMATE BULLETIN FOR SEA

Climate Monitoring Node – WMO-RCC-SEA – DOST-PAGASA **Issued: August 2023**

CLIMATE WATCH FOR RAINFALL DEFICIENCY

Areas of Concerned: Thailand, Cambodia, northern parts of Lao PDR and Vietnam, Southern Philippines and the Eastern sections of Indonesia

Areas of *moderate* to *severe* rainfall deficiencies have been observed in some parts of Southeast Asia region, in particular over Thailand, Cambodia,northern parts of Lao PDR and Vietnam, Southern Philippines and the Eastern sections of Indonesia as shown in Figure 1. This dry condition was consistent with 3-month below-normal rainfall being experienced for the period May 2023 – July 2023 (see attached 3-month SPI). Other parts of Southeast Asia recorded *moderate* rainfall deficiencies, but these were not as extensive.

In July, above average sea surface temperature anomalies (SSTAs) across the central and eastern equatorial Pacific further strengthened. The strong warming at the eastern equatorial Pacific were consistent to observe more than 3ºC warmer than average and expanding westward. However, near average SSTAs were observed in most of the western Pacific, east of the Philippines while in the South China Sea and around Indonesia, positive anomalies were also evident.

The IOD value were still within neutral levels for July, with the western equatorial Indian Ocean showing slightly warmer than average than the eastern equatorial Indian Ocean.

Inactive phase of the Madden–Julian Oscillation (MJO) over the Maritime Continent in July was observed characterized by suppressed convection and precipitation in most areas of the region.

MAPS

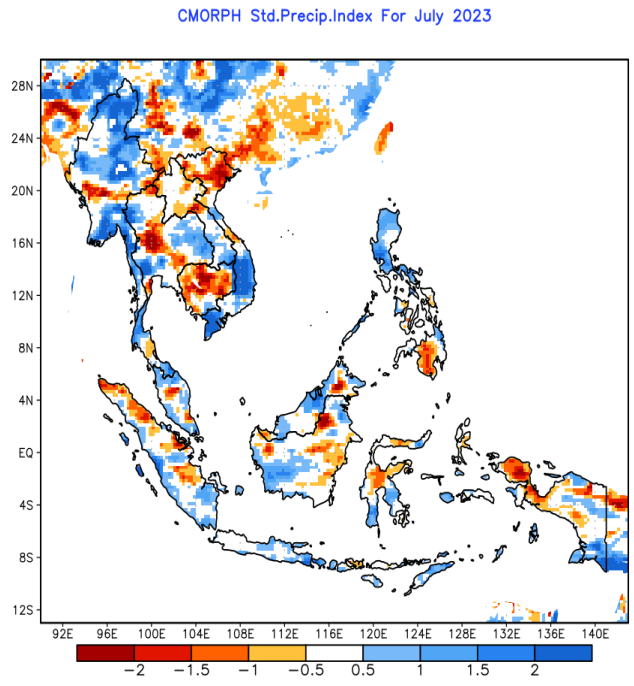

Figure 1: 1-month SPI for July 2023 (reference period, 1991-2020)

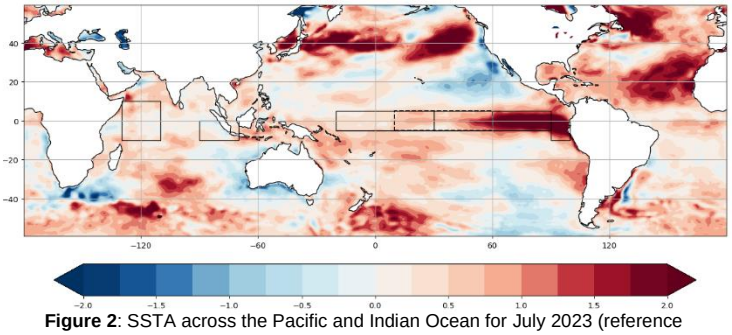

Figure 2: SSTA across the Pacific and Indian Ocean for July 2023 (reference climatology, 1991-2020, JMA-iTacs)

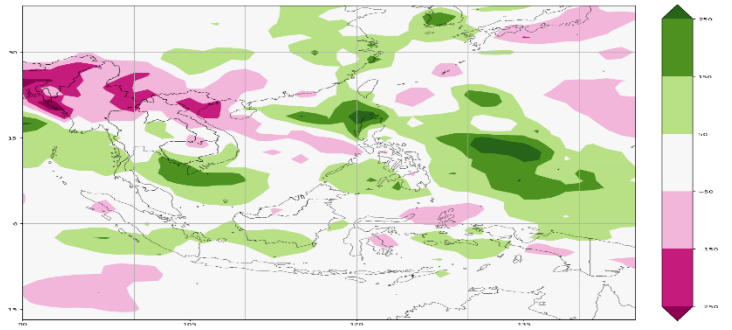

Figure 3: Rainfall Anomaly for July 2023 (reference period, 1991-2020)

OUTLOOK:

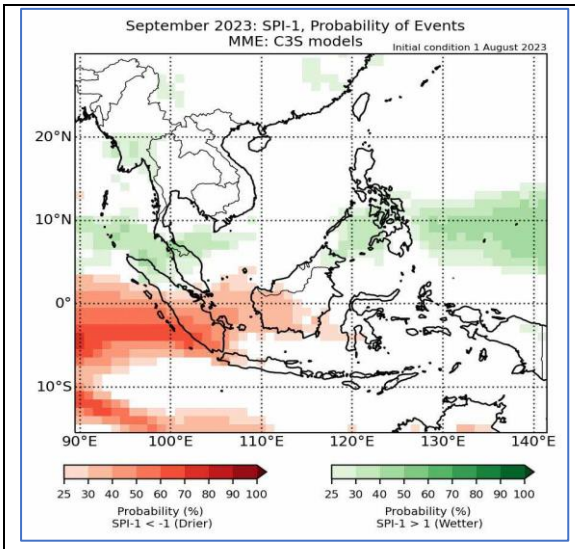

Figure 4: Probability of rainfall surplus or rainfall deficit based on the SPI-1 for September 2023. Red (green) shading shows increased chance of (wetter) conditions (based on ECMWF, NCEP, UKMO, JMA and ECCC seasonal models, downloaded from *Copernicus C3S*)

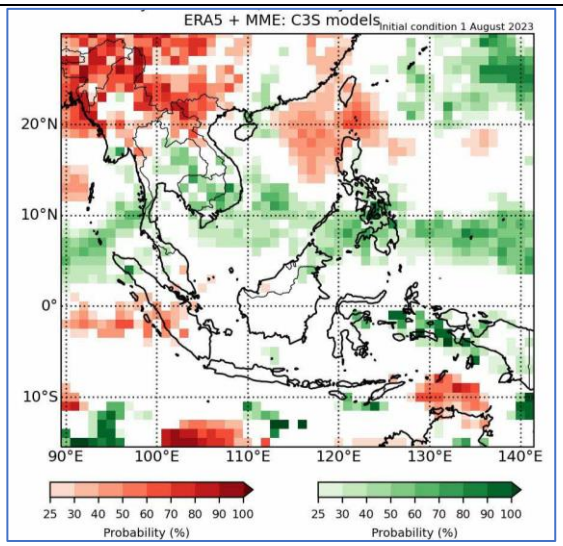

Figure 5: Probability of rainfall surplus or rainfall deficit based on the SPI-3 for July to September 2023. Red (green) shading shows increased chance of drier (wetter) conditions (based on ECMWF, NCEP, UKMO, JMA and ECCC seasonal models for August and September with ERA 5 for July, downloaded from *Copernicus C3S*)

From the outlook of SPI-1 over the region (Figure 4), there is only a small chance of the rainfall deficit continuing over the areas mentioned above in September (less than 25% chance).

However, for northern Lao PDR and Viet Nam, when considering the longer-term conditions for July to September 2023 (SPI-3, Figure 5), there is still a chance of rainfall deficit (40-60%). For Cambodia, there is a chance of rainfall surplus (30 – 50%) for July to September 2023 (SPI-3, Figure 5).

El Niño conditions are present and are predicted to strengthen in the Pacific in the coming months. A positive Indian Ocean Dipole is also predicted to develop. Both positive Indian Ocean Dipole and El Niño events can bring drier conditions to parts of Southeast Asia. These developing conditions are in line with increased chance of rainfall deficit in September (40-70%) over parts of the western Maritime Continent in Figure 4.

Next issuance will be on September 2023.

Attachment:

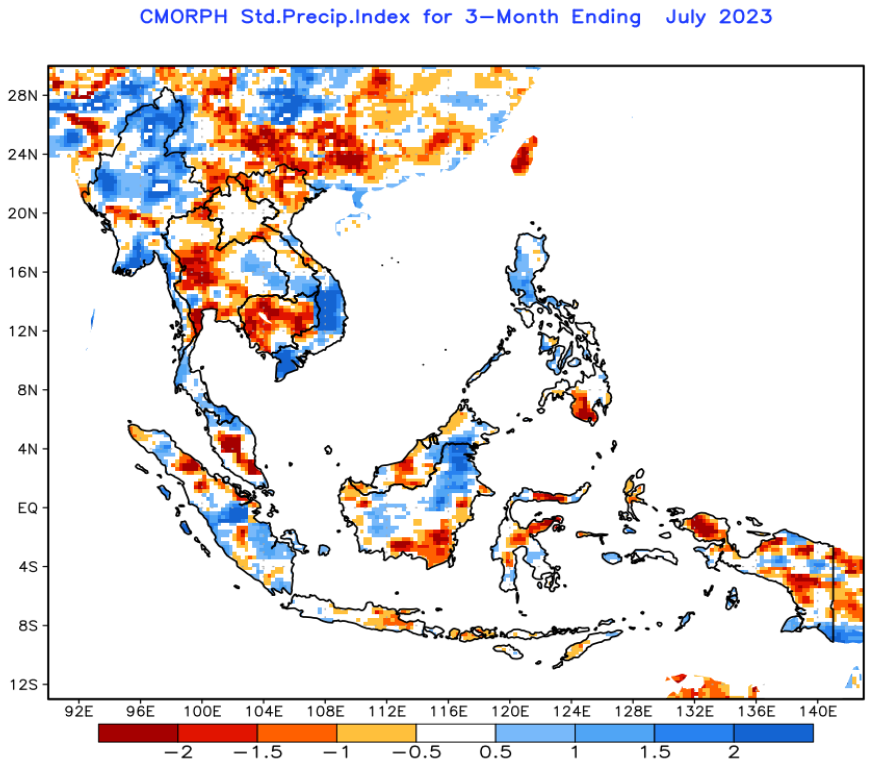

Figure 4: 3-month SPI for May - July 2023 (reference period, 1991-2020)

Table 1: McKee and others (1993) SPI value-classification table as recommended in World Meteorological Organization, 2012: Standardized Precipitation Index User Guide (M. Svoboda, M. Hayes and D. Wood). (WMO-No. 1090), Geneva.

Table 1. SPI values

2.0+	extremely wet
1.5 to 1.99	very wet
1.0 to 1.49	moderately wet
-.99 to .99	near normal
-1.0 to -1.49	moderately dry
-1.5 to -1.99	severely dry
-2 and less	extremely dry