1. Overview

1.1 During June 2020, the region between 5°S and 15°N predominately experienced above-average rainfall (Figure 1). The largest positive anomalies (wetter conditions) were recorded over northern Sulawesi, southern Thailand, southern Viet Nam, and western Borneo based on both satellite-derived rainfall estimates datasets (GSMaP-NRT and CMORPH-Blended). For the Mainland Southeast Asia, above-average rainfall inland conditions were observed over northern Myanmar and northern Laos, whereas below-average rainfall conditions were observed along coastal regions of western Myanmar and northern Viet Nam. Below-average rainfall was also recorded over northern parts of the Philippines and some parts of the eastern Maritime Continent (Java and Nusa Tenggara, Indonesia).

1.2 The observed large-scale rainfall anomaly patterns (i.e. above-average rainfall conditions in the equatorial regions and below-average conditions in northern parts of the Philippines and coastal parts of northern Viet Nam) are broadly consistent with the predictions in the subseasonal weather outlooks for the first and second fortnights of June 2020, except for some parts of the eastern Maritime Continent region where drier conditions were observed.

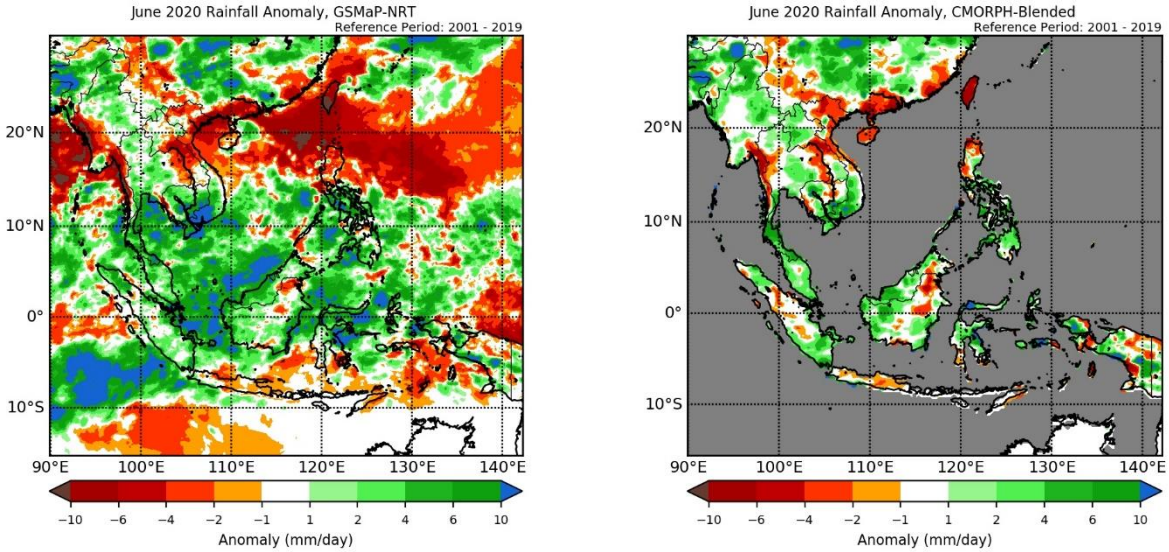

Figure 1: Rainfall anomalies for the month of June 2020 based on GSMaP-NRT data (left) and CMORPH-Blended data (right). The climatological reference period is 2001-2019. Green colour denotes above-average rainfall (wetter), while orange denotes below-average rainfall (drier).

1.3 Most parts of equatorial Southeast Asia experienced near-average temperature during June 2020 (Figure 2), coinciding with areas that experienced wetter conditions during the same period. Warmer anomalies (≥ 0.5°C) are concentrated over Mainland Southeast Asia, northern parts of the Philippines and eastern Maritime Continent.

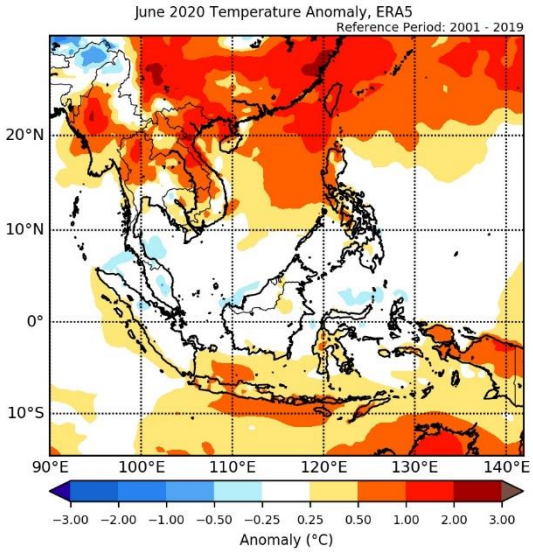

Figure 2: Temperature anomalies for June 2020 based on ERA-5 reanalysis. The climatological reference period is 2001-2019. Red colour denotes above-average temperature (warmer), while blue denotes below-average temperature (colder).

2. Climate Drivers

2.1 The Madden-Julian Oscillation (MJO) signal propagated eastwards from Phase 1 (Western Hemisphere) to Phase 2 (Indian Ocean) during the first two weeks of June. Typically for the region in June, Phases 1 and 2 bring drier conditions in northern Southeast Asia while Phase 2 brings wetter conditions in the western Maritime Continent. Subsequently the MJO then stalled, before weakening and becoming indiscernible by early part of the third week of June, obscured by other equatorial atmospheric waves. Towards the last few days of June, a new MJO signal re-emerged in Phase 1 (Western Hemisphere).

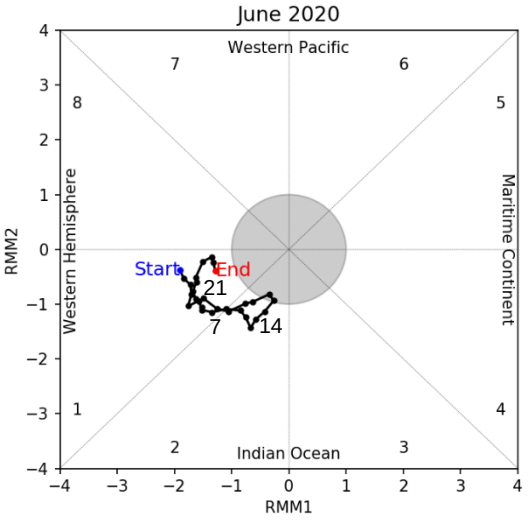

Figure 3: The MJO phase diagram. The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator (denoted in the text with the first day of the month in blue and the last day of the month in red). The distance of the index from the centre of the diagram is related to the strength of the MJO. Values within the grey circle are considered weak or indiscernible (data from the Bureau of Meteorology, Australia).