

1. Overview

1.1 The rainfall anomalies for April 2020 were a mix of above-, near-, and below- average (Figure 1). Above-average rainfall was experienced by much of the western and southern parts of the Maritime Continent (Peninsular Malaysia, Sumatra, Java, and western parts of Borneo) as well as parts of Mainland Southeast Asia (northern Lao PDR, northern Viet Nam, southern Cambodia, and southern Thailand). The largest positive anomalies (wetter conditions) were recorded over Sumatra based on both satellite-derived rainfall estimates datasets (GSMaP-NRT and CMORPH-Blended), as well as over Java (CMORPH-Blended only). Below-average rainfall was recorded over central and southern Philippines, as well as northern Borneo. The rest of the regions either experienced near-average rainfall for this time of year, or a mix between above- and below-average. The observed large-scale rainfall anomaly pattern over the Southeast Asia region during April (i.e. wetter over the southern parts of the Maritime Continent, and drier over central and southern Philippines, as well as northern Borneo) is broadly aligned with the model predictions depicted in the subseasonal weather outlooks for the [first](#) and [second](#) fortnights of April 2020, apart from the anomalies over Mainland Southeast Asia.

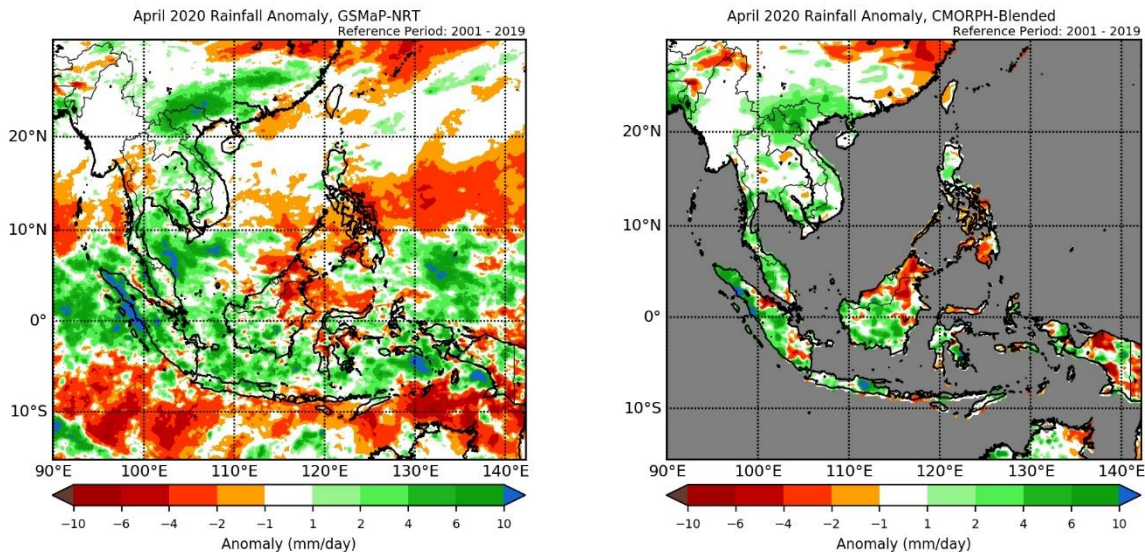


Figure 1: Rainfall anomalies for the month of April 2020 based on GSMaP-NRT data (left) and CMORPH-Blended data (right). The climatological reference period is 2001-2019. Green colour denotes above-average rainfall (wetter), while orange denotes below-average rainfall (drier).

1.2 Most parts of Southeast Asia south of 10°N experienced above-average temperature during April 2020 (Figure 2). The region between 10°N and 20°N experiences a range of below-average to above-average temperatures, while the northernmost parts of Southeast Asia (northern Myanmar, northern Lao PDR, and northern Viet Nam) experienced below-average temperature.

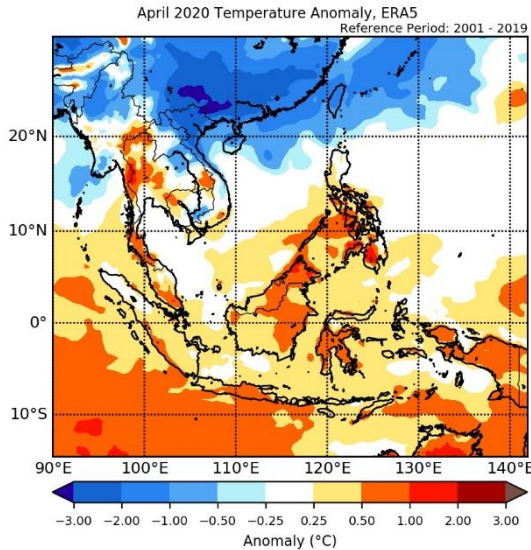


Figure 2: Temperature anomalies for April 2020 based on ERA-5 reanalysis. The climatological reference period is 2001-2019. Red colour denotes above-average temperature (warmer), while blue denotes below-average temperature (colder).

2. Climate Drivers

2.1 The Madden-Julian Oscillation (MJO) was active during April 2020. The MJO signal propagated eastwards from Phase 4 (Maritime Continent) to Phase 1 (Western Hemisphere) during the first two weeks of April. The MJO then stalled during the third week, before continuing to propagate eastward through Phases 2 and 3 (Indian Ocean) before reaching Phase 4 (Maritime Continent) at the end of the month. Typically for the region in April, Phases 7, 8, and 1 bring drier conditions, while Phases 3 to 5 bring wetter conditions, particularly in southern Southeast Asia.

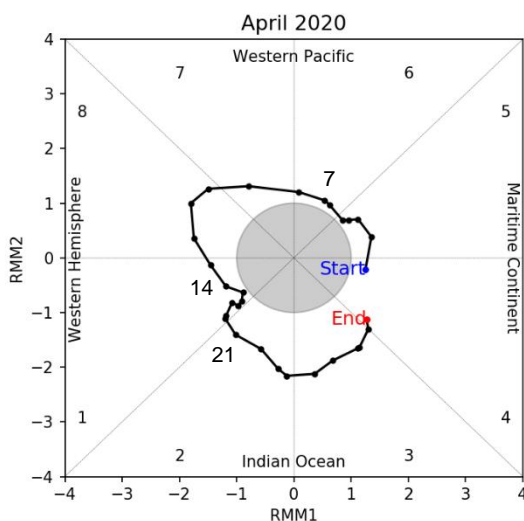


Figure 3: The MJO phase diagram. The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator (denoted in the text with the first day of the month in blue and the last day of the month in red). The distance of the index from the centre 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).