

During the past week, the RMM-based MJO index rapidly weakened back into the unit circle following a more amplified signal across the Western Pacific in early June. However, despite the weakening, some coherency remained in its propagation across the Western Hemisphere, and the phase speed has been suggestive of a Convectively Coupled Kelvin Wave (CCKW). Following constructive interference with a westward propagating Equatorial Rossby Wave (ERW) across the Americas, the CCKW weakened as it reached Africa and Eurasia due to destructive interference with the persistent suppressed convective envelope over that region. By week-2, a similar pattern is forecast to take shape as dynamical models indicate increased upper-level divergence developing over the Western Pacific. RMM-based forecasts from the ECMWF and GEFS depict a bimodal distribution of ensemble members, with a clustering of some members within the eastern Indian Ocean and Maritime Continent, and others depicting a stronger signal quickly emerging across the Western Hemisphere indicative of CCKW activity moving across the Pacific.

The interaction between the CCKW and ERW led to increased upper-level divergence aloft across the Americas in the past week. While increased wind shear limited tropical cyclone development across the Atlantic Basin, the favorable upper-level pattern resulted in a continuation of the quick start to the Eastern North Pacific Hurricane Season with 2 additional TC formations during the past week. Tropical Storms Dalila (6/13) and Erick (6/17) both formed to the south of Mexico. While Dalila was short-lived and remained offshore, Erick is forecast to impact the southern Mexico coast at hurricane intensity later this week. Additional CCKW activity during week-2 is likely to continue the fast start to the season, and individual ensemble members from the GEFS and ECMWF depict surface lows spinning up to the south of Mexico and Central America during this timeframe. Therefore, 40-60 percent chances of TC development are posted across the Eastern Pacific during week-2, and 20-40 percent chances continuing into week-3. The GEFS also depicts an enhanced signal for TC activity across the western Caribbean and Gulf of America, but has overdone the potential thus far, precluding any areas for potential TC development from being designated.

Contrary to the Eastern Pacific, the Western North Pacific has seen an

extremely slow start to its TC season, although there are some signs activity is beginning to increase. TC Wutip developed across the South China Sea and tracked into the Gulf of Tonkin making 2 landfalls in southeastern China, the second at minimal typhoon intensity. Enhanced convection is forecast to develop across the Western North Pacific by week-2, and combined with the increasing climatology for the basin, this supports a 40-60 percent chance of TC formation from the Philippines to about 140 deg E, with a 20-40 percent chance over the South China Sea. The GEFS and ECMWF indicate a meandering convective envelope by week-3, with a low frequency enhanced convective envelope possibly persisting across the Western Pacific into early July. This justifies a 20-40 percent chance of TC development during week-3, although there is larger uncertainty regarding higher frequency modes of variability which may further enhance or suppress TC development.

Absent clear subseasonal to seasonal forcing modes, the forecasts for aboveand below-normal rainfall are based heavily on a consensus of operational dynamical model guidance. Enhanced convection across the Maritime Continent into the Western Pacific during weeks 2 and 3 increases confidence for abovenormal rainfall from India eastward across southeastern Asia and into the Western Pacific. Above-normal rainfall is also predicted over the Southern Hemisphere, over Indonesia and Papua New Guinea. In contrast, below-normal rainfall is forecast across the Indian Ocean (week-2), extending into the southwestern Pacific (south of 10 deg N). Below-normal rainfall is also forecast across the Eastern Pacific and over parts of central South America during week-2, with below-normal rainfall indicated across the Equatorial Atlantic and eastern Caribbean. By week-3, there is more uncertainty in the overall convective pattern across the Western Hemisphere further reducing forecast confidence.

A heat wave is predicted across the eastern U.S. beginning this weekend into next week supporting elevated probabilities for above-normal temperatures during week-2.

For hazardous weather concerns in your area during the next two weeks, please refer to your local NWS office, the Medium Range Hazard Forecast produced by the Weather Prediction Center (WPC), and the CPC Week-2 Hazards Outlook. Forecasts issued over Africa are made in coordination with the International Desk at CPC.