

The background MJO state has more or less evolved as expected over the past few days, with the enhanced MJO phase centered over the Maritime Continent. Eastward propagation is forecast with a phase speed near the center of the MJO envelope, though plenty of interference from westward-moving variability, including tropical cyclones (TCs), is expected.

A recent uptick in tropical cyclone activity has continued over the East Pacific basin during the past few days. Hurricane Fernanda weakened as it tracked westward over the central Pacific, and it is forecast to pass north of Hawaii as a post-tropical depression. Tropical Depression Eight dissipated without becoming a named system, while Tropical Storm Greg is forecast to track westward then northwestward over the next five days. Over the weekend it is expected to reach hurricane intensity before weakening due to less favorable environmental conditions. Tropical Depression Nine formed on 21 July near 9N/93W, and is forecast to track northwestward while intensifying to hurricane strength by early next week.

The West Pacific became active this week, with multiple tropical cyclones forming. Tropical Storm Noru formed near 28N/158E on 20 July. Tropical Storm Kulap also formed fairly far north and west at 27N/177E on 21 July. These TCs were not well forecast at long leads in part due to their relatively high latitude. These systems are forecast to interact near 30N over the next several days, with the various dynamical solutions forecasting Noru to become the stronger of the two systems. The recent deterministic runs depict Noru becoming a typhoon and remaining fairly stationary during the next week. Tropical Depression Eight formed on 21 July near 17N/115E, within the depicted development region from the original outlook. This system is forecast to become a weak tropical storm before landfalling over Hainan on 22 July.

Transitioning to forecast development over the upcoming period, one TC is forecast to develop over the East Pacific, while two or more TCs could form over the West Pacific. In the West Pacific, cyclogenesis is forecast just northeast of the Philippines, as well as farther southwest. During the updated Week-2 period, a third high-latitude TC could form south of strong upper-level ridging forecast to persist over the North Pacific. Following the recent surge in TC activity, the East Pacific is forecast to see a lull in new TC formation during the updated Week-2 period, in part due to forecast MJO evolution. The Atlantic is forecast to remain quiet for the time being.

The various shapes favoring above- and below-average rainfall were updated to reflect the forecast tracks of existing and future TCs, as well as the latest dynamical model guidance from the CFS and ECMWF ensemble systems.

The original discussion, issued 18 July, follows below.

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There appears to have been some organization of a coherent MJO signal over the past one to two weeks, though other convective variability continues to make for a complicated picture. The RMM index and the CPC MJO index place the enhanced MJO phase over the western Maritime Continent with modest amplitude, though pronounced eastward propagation has been slow to develop. The latest time-longitude OLR and velocity potential diagrams (filtered for various modes of tropical variability) suggest that the enhanced phase of an equatorial Rossby wave is constructively interfering with the MJO signal but inhibiting obvious eastward propagation. Based on recent observations, statistical guidance, and dynamical model guidance, propagation of a weak, but coherent, MJO signal is favored over the upcoming one to two weeks.

Tropical Storm Don formed in the North Atlantic near 11N/53W on 17 July. It is forecast to remains a fairly weak and disorganized storm as it takes notably southern track near 12N over the next one to two days. There was a somewhat unexpected flurry of activity over the East Pacific basin during the past week. Hurricane Fernanda was well forecast to develop and became a major hurricane, with peak winds at 125 kts on 15 July. Fernanda is forecast to dissipate rapidly over the coming days, though its remnants could bring locally heavy rainfall to the Hawaiian Islands later in Week-1. Tropical Storm Greg formed on 17 July near 14N/105W, and is forecast to remain a tropical storm before becoming post-tropical this weekend. On 18 July, Tropical Depression Eight developed near 15N, 119W. This system is expected to become Tropical Storm Hilary, but is expected to remain fairly weak as it tracks generally westward over the next week. The latest NHC discussion suggests there is some possibility that it becomes absorbed by Tropical Storm Greg. Tropical Storm Talas formed over the South China Sea in the West Pacific basin on 15 July. It was a short-lived storm reaching peak winds of 50 kts.

There is a moderate confidence of TC formation in each of the three major Northern Hemisphere basins during Week-1. The best chance of formation is likely in the East Pacific, where the various models are consistently showing tropical cyclogenesis. Over the West Pacific, on either side of the Philippines, the ECMWF and GEFS ensemble systems continue to hint at one or two tropical cyclones developing over the next week. These systems are forecast to be on the weaker side, though the threat lingers into Week-2. Over the Atlantic basin, a borderline moderate confidence shape is depicted over the main development region, though the latest model guidance has not been particularly bullish on development. During Week-2, other than the shape in the West Pacific, only a low risk of formation persists in the East Pacific, potentially related to the remnant of Tropical Storm Don moving westward into the Pacific. In the wake of the recent uptick in activity, the ongoing MJO is expected to favor a reduction in activity over that region by Week-2.

Above-average rainfall is most likely during Week-1 for a northwest to southeast tilted region extending from northern India to the West Pacific. This shape is well indicated by model guidance and consistent with ongoing MJO evolution. Above-average rainfall is also expected associated with ongoing and forecast TC activity over the East Pacific basin. Below-average rainfall is favored over the Indian Ocean, again consistent with forecast MJO evolution and dynamical model guidance. Elsewhere, shapes are based largely on the model consensus between the ECMWF, the GEFS, and the CFS.

During Week-2, some eastward propagation is noted based on forecast MJO activity, but all shapes are depicted with moderate confidence given continued uncertainty. Below-average rainfall is more likely over Central America based on forecast MJO evolution and the ECMWF dynamical model forecast, while the potential for lingering TC activity increases the odds for above-average rainfall over the East Pacific. A reversal from above- to below-average rainfall is indicated for parts of India and Southeast Asia from Week-1 to Week-2.

Forecasts over Africa are made with moderate confidence in consultation with CPCs international desk, and can represent local-scale conditions in addition to global-scale variability.