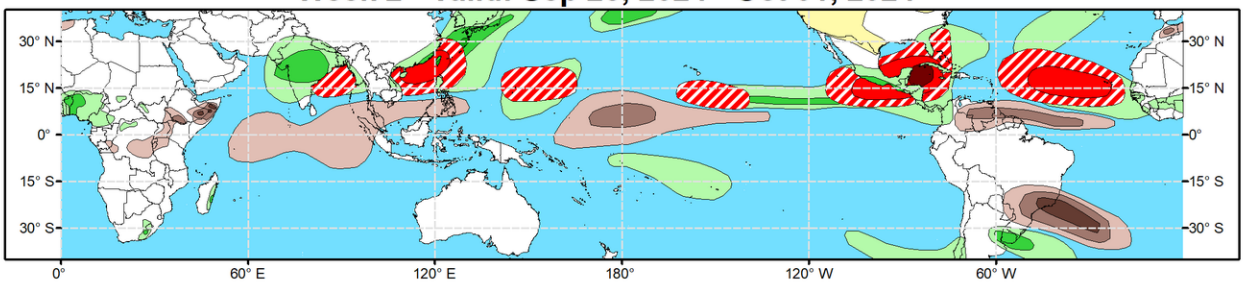
Global Tropics Hazards Outlook

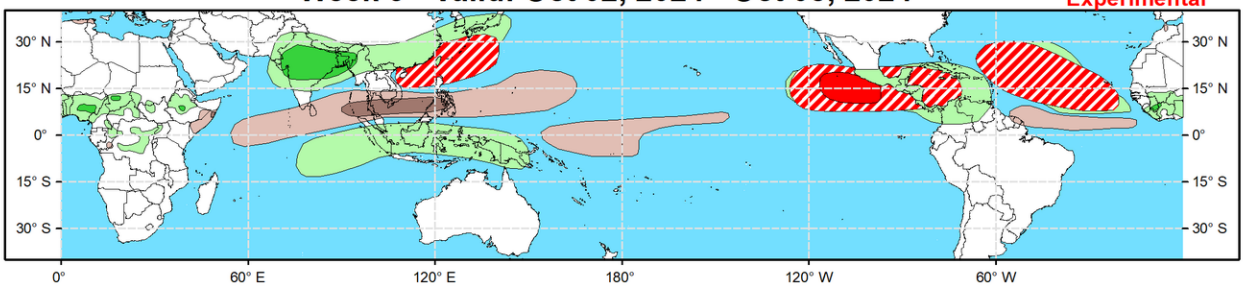
Climate Prediction Center

Week 2 - Valid: Sep 25, 2024 - Oct 01, 2024



Week 3 - Valid: Oct 02, 2024 - Oct 08, 2024

** Experimental **



Tropical Cyclone (TC) Formation Probability
>20% >40% >60%
Tropical Depression (TD) or greater strength

Above-Average Rainfall Probability
>50% >65% >80%
Weekly total rainfall in the Upper third of the historical range

Below-Average Rainfall Probability
>50% >65% >80%
Weekly total rainfall in the Lower third of the historical range

Above-Average Temperatures Probability
>50% >65% >80%
7-day max temperatures in the Upper third of the historical range

Below-Average Temperatures Probability
>50% >65% >80%
7-day min temperatures in the Lower third of the historical range

Issued: 09/17/2024
Forecaster: Novella

This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only.
Consult your local responsible forecast agency.

RMM observations show the MJO signal has struggled to fully propagate out of the Maritime Continent since late August. The stalling nature of the MJO signal appears to be related to continued Rossby wave activity in the western Pacific and Maritime Continent which has led to fluctuations of amplitude over this part of tropics in recent weeks. However, the signal has regained amplitude while resuming its eastward propagation more recently, and there is better confidence in the outlook that the MJO will continue to propagate into the Western Pacific and enter the Western Hemisphere during the next several weeks based on improved agreement in the RMM forecasts. While there remains some disagreement in regards to the strength and evolution of the MJO in the upper-level velocity potential forecasts among the models, objective wave filtering suggests that other modes of tropical variability are expected to be important contributors to Tropical Cyclone (TC) potential in the outlook. Specifically, strong Kelvin wave activity moving ahead of the enhanced convective MJO envelope looks to provide favorable conditions for tropical cyclogenesis over the tropical Americas, where continued signs of equatorial Rossby wave activity and a low frequency response aloft is expected to keep the western Pacific active through the end of September. Any reorganizing MJO is also expected to lead to an interruption of an enhanced trade regime over the equatorial Pacific, which may have implications on the favored transition to La Nina conditions later this fall.

During the past week, three TCs developed in the global tropics. In the eastern Pacific, TC Ileana formed on 9/12 and peaked at Tropical Storm intensity as it neared Los Cabos, Baja California bringing heavy precipitation to the region. Before dissipating on 9/15, TC Ileana also brought heavy precipitation and high winds to parts of western Mexico. After forming on 9/11 near 16N/28W in the Atlantic, TC Gordon tracked westward across the Main Development Region (MDR).

Intensification had been kept at bay due to periods of high shear and dry air entrainment, and as a result, this system dissipated on 9/17. However, as of 1:30 pm EDT today, the NHC shows 40% chances of Gordon redeveloping, as its remnants enter a more favorable environment in the central Atlantic later this week. In the western Pacific, TC Pulasan formed on 9/16 near 18N/140E in the Philippine Sea, and the Joint Typhoon Warning Center (JTWC) expects this system to track northwestward into the East China Sea at Tropical Storm strength. Contrast to the slow moving TC Gordon in the Atlantic, the JTWC notes that constructive interference between a tropical upper tropospheric trough and a subtropical ridge is leading to an uncharacteristically high forward track speed of the system, where it is forecast to make landfall over eastern China in the next day or so. The JTWC is monitoring another tropical disturbance (98W) located over the northern Philippines with high chances of development, but has yet to form at the time of this writing.

Tied to the aforementioned Kelvin wave activity traversing the tropical Americas, there is good agreement in the models favoring the development of a band of anomalous lower-level westerlies extending from the south of Mexico into the western Caribbean and lower shear supportive of TC development. Based on good run-to-run continuity in both ensemble and deterministic solutions, and trends in the probabilistic TC genesis tools, 60% chances of TC formation are issued over the western Caribbean, with 40% chances covering both basins, and a broader 20% area extending into western Atlantic where tools also depict elevated signals during week-2. In the MDR, there is good support in the ensembles and probabilistic TC genesis tools favoring one or more easterly waves propagating off West Africa, and 40% chances are issued mainly east of 50W with a broad 20% area highlighted for much of the MDR for week-2. Inhibiting factors may still be periods of high dust and increased shear parts of the MDR, though the ITCZ looks to be in a more favorable position over the African Sahel. In the central Pacific, 20% chances are posted for week-2 approximately between 160W and 140W based on increased support in the ensembles for an area of deepening low pressure and probabilistic guidance. In the western Pacific, there is good agreement between GEFS and ECMWF favoring the persistence of anomalous lower-level westerlies extending from the South China Sea to the south of Japan. With several model solutions showing additional low pressure development, in the region 40% chances for development are issued. Further east, a separate area of 20% chances are also issued for the basin, where there is continued support in the probabilistic tools for development mainly east of the Marianas. Tied to Rossby wave activity predicted over eastern Indian Ocean and some support in the tools, 20% chances are also posted in the Bay of Bengal as this basin climatologically experiences its second mode of TC formations entering October.

Should the MJO remain coherent over the Western Hemisphere in October, this historically favors less favorable conditions for TC development in the western Pacific. However, 20% chances are issued over the South China and Philippines Seas during week-3 out of deference to the low frequency response favored in the velocity potential forecasts, as well as climatology. Conversely, a Western Hemisphere MJO would support an elevated potential for development in the Eastern Pacific, and 40% chances are issued to the south of Mexico, with 20% chances extending into parts of the Caribbean. While climatology continues to shift the TC formation potential more into the Caribbean, 20% chances are posted for a broad area in the MDR given modest support in the extended range tools.

Forecasts for enhanced and suppressed precipitation for weeks 2 and 3 are based on historical composites of Western Pacific and Western Hemisphere MJO events, anticipated TC tracks, and a skill weighted consensus of the CFS, GEFS, ECMWF, and ECCC model systems, with some consideration of ENSO cold phase composites. Tied to amplified 500-hPa ridging favored over much of North America, above-

normal temperatures are likely throughout the western and northern CONUS 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 Hazards Forecast from 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.