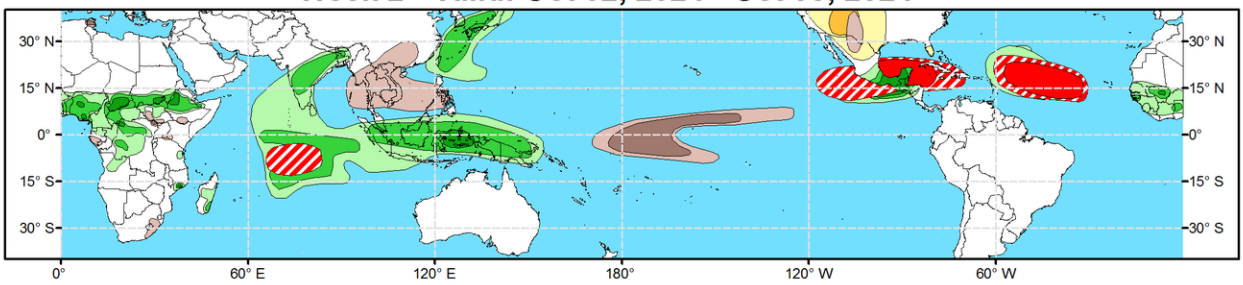
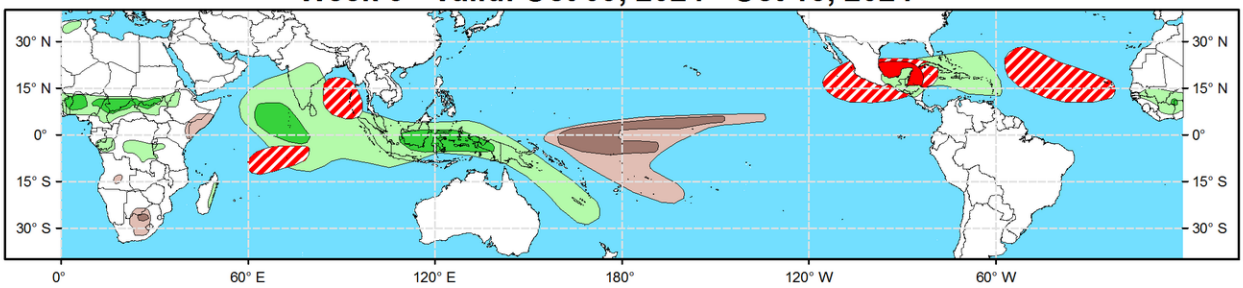
Global Tropics Hazards Outlook

Climate Prediction Center

Week 2 - Valid: Oct 02, 2024 - Oct 08, 2024



Week 3 - Valid: Oct 09, 2024 - Oct 15, 2024



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: 09/24/2024
Forecaster: Allgood

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.

Following a period of increased incoherence over the Maritime Continent, the RMM-based MJO index showed propagation over the Pacific during the past week, consistent with forecast guidance considered in the previous release of the Global Tropical Hazards Outlook. The inability for the signal to cross the Maritime Continent through much of early to mid September was due in part to the base state that continues to transition towards La NiÃ±a conditions, as well as alternatingly destructive and constructive interference with strong equatorial Rossby wave (ERW) activity over the far West Pacific and Maritime Continent. While east-central Pacific SSTs and upper-oceanic heat content continue to decline, the atmospheric response has been somewhat out of phase with a typical La NiÃ±a event, with increased suppression displaced to the east, over portions of the Western Hemisphere. This displaced response, coupled with enhanced West Pacific convection, helped to diminish tropical cyclone activity across the Atlantic basin during the climatological peak of hurricane season. During the next few weeks, dynamical model forecasts of the RMM index are in good agreement supporting continued eastward propagation of the MJO across the Western Hemisphere and Indian Ocean, followed by weakening and a potential quick return to the Maritime Continent. MJO events crossing the Indian Ocean typically result in reduced shear and low-level westerly winds across the Atlantic basin, which are favorable for tropical cyclone development. Additionally, the intraseasonal signal may help enhance the Central American Gyre (CAG) during much of the outlook period, which would promote increased convection and broad areas of low pressure across the far eastern Pacific, central America, and the western Caribbean. Therefore, the MJO is favored to play a substantial role in the overall evolution of the tropical convective pattern, primarily by reversing the previously persistent pattern of subsidence over the Western Hemisphere, yielding a window of favorability for late-season tropical cyclone development.

Since September 18, three tropical cyclones developed globally. On September 22, Tropical Storm 17 formed over the Taiwan Strait immediately before moving ashore over mainland China. On September 23, Hurricane John formed over the East Pacific just south of Mexico, undergoing a remarkably rapid intensification to Category-3 intensity on the Saffir-Simpson scale just before landfall near Punta Maldonado. On September 24, Tropical Storm Helene formed over the far western Caribbean. Forecasts from the National Hurricane Center (NHC) bring Helene northward over the next several days, with a potential landfall over Floridaâ€™s Panhandle of Big Bend regions. Tropical Storm Helene also has the potential for rapid intensification, and current forecasts show the system at major hurricane intensity (Category-3 on the Saffir-Simpson scale) just prior to landfall. Please refer to the NHC for further updates on this system.

During Week-2, low-level zonal westerlies are favored to develop across the far eastern Pacific and western Caribbean due to MJO activity, along with an enhanced CAG, support a continued active pattern, with additional tropical cyclone development possible over the East Pacific, southern Gulf of Mexico, and the western Caribbean. The highest probabilities for development extend from the Bay of Campeche eastward to the western Caribbean. Additionally, the Main Development Region (MDR) of the Atlantic is also favored to remain active, with tropical cyclogenesis favored in the region between the Lesser Antilles and the Cape Verde Islands. This enhanced activity may continue into Week-3, though dynamical model guidance becomes more diffuse. Additional development is possible over the far eastern Pacific, though the potential will decrease later into Week-3. A greater than 40-percent chance of formation is maintained across the Bay of Campeche and far western Caribbean during Week-3. Over the MDR, additional tropical cyclone development is possible, though tropical waves emerging during mid-October tend to take longer to develop. Elsewhere, a quieter pattern is favored for the West Pacific as the suppressed phase of the MJO overspreads the basin, though there is a slight chance for formations in the vicinity of Taiwan or north of the Philippines. Dynamical models indicate a potential for early season development across the south-central Indian Ocean, possibly in association with westerly wind bursts generated by MJO activity. During Week-3, dynamical models show a potential for development increasing over the Bay of Bengal as well.

Forecasts for above- and below-normal precipitation are based on composites of MJO activity when the signal crosses the Indian Ocean, along with an anticipated continuation of enhanced convection over the Maritime Continent due to the low frequency base state. A reversal of suppressed conditions is favored for portions of the Western Hemisphere, while trade winds are favored to re-strengthen over the central Pacific after a period of disruption caused by MJO activity. 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.