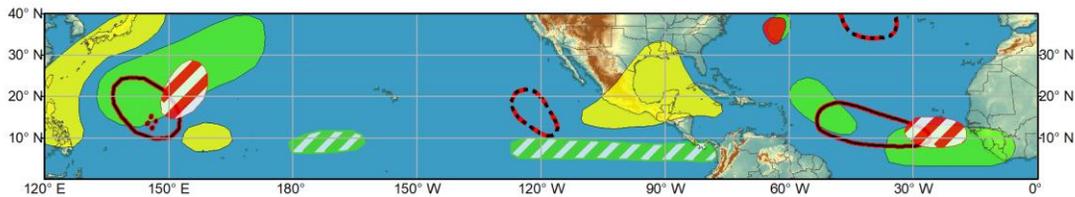




# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Sep 25 2021 - Sep 28 2021



## Week 2 - Valid: Sep 29 2021 - Oct 05 2021



Confidence  
High Moderate

Produced: 09/24/2021  
Forecaster: Collow

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Prior TC Formation Outlook** Tropical cyclone outlook from previous release.
- Above-average rainfall** Weekly total rainfall in the upper third of the historical range.
- Below-average rainfall** Weekly total rainfall in the lower third of the historical range.
- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

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



The RMM-based MJO index remains slightly amplified across the Indian Ocean and Maritime Continent, with the low frequency state continuing to become more dominant. A wave-1 asymmetry continues to be depicted globally in the velocity potential index, with enhanced convection from the Indian Ocean to the Western Pacific, and suppressed convection across much of the western Hemisphere. Dynamical models continue to favor this low amplitude MJO pattern to persist over the next two weeks with some eastward propagation of the intraseasonal signal over the Maritime Continent and West Pacific. The GEFS depicts more amplified ensemble members compared to the ECMWF and JMA, but may be indicative of Kelvin Wave activity over the Pacific as the ensemble means in all of the models keep the MJO close to the RMM unit circle.

Despite the suppressed convection, increased Kelvin Wave activity along with continued easterly wave activity emerging from the west coast of Africa have led to a recent uptick in tropical cyclone (TC) formation across the Atlantic Basin. Hurricane Sam quickly organized across the Main Development Region this past week and is projected to continue to rapidly intensify into a Major Hurricane and track generally to the west-northwest. Additional development is possible across the basin, with the National Hurricane Center (NHC), currently monitoring two disturbances, one located behind Sam (50% chance of

development), and the other near Bermuda (70% chance of development). Development over the MDR may hold off until the day 5-11 period, allowing the moderate confidence to remain in place for that timeframe in the updated outlook. The remnants of Odette are no longer forecast to redevelop into a TC.

The eastern Pacific is forecast to remain quiet, although a more active pattern may begin to emerge in early October, as indicated by the GEFS. Two TCs have formed over the West Pacific since the previous update, Minduelle, located over the Philippine Sea, and Dianmu over the South China Sea. Dianmu made landfall in Vietnam at tropical storm strength on 9/23, and its remnant continues to weaken over Thailand. Minduelle is forecast to strengthen into a typhoon and potentially track close to Japan over the next week. The GEFS indicates the possibility of additional TC development to the east of Guam during week-1, with a corresponding moderate risk area added in today's update. Tropical Storm Three developed on 9/24 over the Bay of Bengal and is forecast to track toward India over the next several days.

Forecasts for above and below normal precipitation have been modified to reflect the latest model guidance for the remaining outlook periods.

----- Previous discussion released on September 21, 2021 follows -----

A wave-1 asymmetry continues to be depicted in the upper-level velocity potential anomaly fields across the globe, with enhanced (suppressed) convection across the Indian Ocean, and the Maritime Continent (Western Hemisphere). This pattern has been generally stationary with a slight overall eastward shift when compared to last week's MJO velocity potential based index. The RMM based MJO index has increased in amplitude compared to last week where the intraseasonal signal is depicted over the Maritime Continent. Upper (lower) level westerly (easterly) wind anomalies have increased across the Pacific, suggestive of an enhanced Walker Circulation, and consistent with a trend toward La Nina conditions. While RMM forecasts from the GEFS and ECMWF ensembles depict a continued eastward propagation of the MJO, with some individual members increasing the amplitude, it is more likely that the enhanced signal is related to the emerging low frequency base state with Kelvin wave activity propagating across the Pacific.

Despite the suppressed convection over the Western Hemisphere, the tropics have remained active across the Atlantic Basin, although recent tropical cyclones (TCs) have been notably weak considering this is the climatological peak of the Atlantic hurricane season. Tropical Storm Odette developed well off

the East Coast of the U.S., reaching a peak intensity of 45-mph before becoming extratropical the next day. Tropical Storms Peter and Rose both developed across the central Atlantic on 9/19. Both of these systems are currently active, but are forecast to remain weak. Elsewhere across the global tropics, no new TCs have developed in the previous week.

Continued development across the Atlantic Basin remains forecast with a tropical wave, currently located across the eastern Main Development Region (MDR)(~ 30W). There is a 90% chance of development in the next 5 days according to the National Hurricane Center (NHC), prompting a high confidence formation area in the outlook. Model guidance indicates that this system has the potential to strengthen into a hurricane, possibly breaking the trend of weaker systems that have recently developed over the basin. The remnant low of Odette is also being monitored for possible regeneration into a subtropical storm across the North Atlantic (40% chance in the next 5 days according to NHC). TC development is also possible in the East Pacific (50% chance in the next 5 days according to NHC), but this system is expected to remain weak and far from land.

In the eastern Hemisphere, the enhanced convective envelope over the Indian Ocean favors moderate confidence for tropical cyclone development in the Bay of Bengal toward the end of week-1. Kelvin wave activity over the Pacific also favors increased chances of TC formation tied to invest 99W located near Guam, having a high chance of developing into a TC and tracking north to northeastward in the next week, possibly affecting Japan. There is more uncertainty in week-2 in terms of TC development, although both the GEFS and ECMWF indicate the Main Development Region in the Atlantic remaining active with another system possibly developing towards the end of September.

The highest confidence for above-normal rainfall is posted across portions of the eastern Indian Ocean, southeast Asia, and Maritime Continent during week-1, consistent with the enhanced convective envelope over these areas. Below-normal rainfall is more likely across Central America, the Caribbean, and the Gulf of Mexico. There is more uncertainty in week-2 as the intraseasonal signal continues to become dampened by the evolving low frequency state. Above-normal rainfall remains favored across parts of India and the Maritime Continent, but some drying out is likely across southeast Asia. Uncertainty in the future track of 99W in the West Pacific precludes a confident precipitation forecast, with some GEFS members taking the system close to Japan, and the ECMWF generally keeping the system out to sea. As the Atlantic looks to remain active, enhanced rainfall is forecast across much of the basin. During the week 3-4 period, the CFS and ECMWF indicate the potential for enhanced convection across the basin, which could signal additional TC activity, shifting from the MDR to closer to the Caribbean in accordance with the October TC formation climatology.

The precipitation outlook during the next two weeks is based on a consensus of GEFS, CFS, and ECMWF guidance, anticipated TC tracks, and precipitation composites of past Indian Ocean and Maritime Continent MJO events for Week-1. For hazardous weather concerns during the next two weeks across the U.S., please refer to your local NWS Forecast Office, the Weather Prediction Center's Medium Range Hazards Forecast, and CPC's Week-2 Hazards Outlook. Forecasts over Africa are made in consultation with the International Desk at CPC and can represent local-scale conditions in addition to global scale variability.