

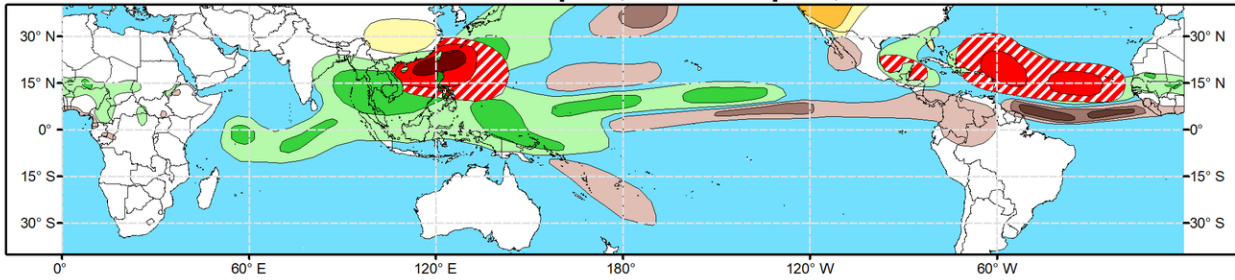


Global Tropics Hazards Outlook

Climate Prediction Center

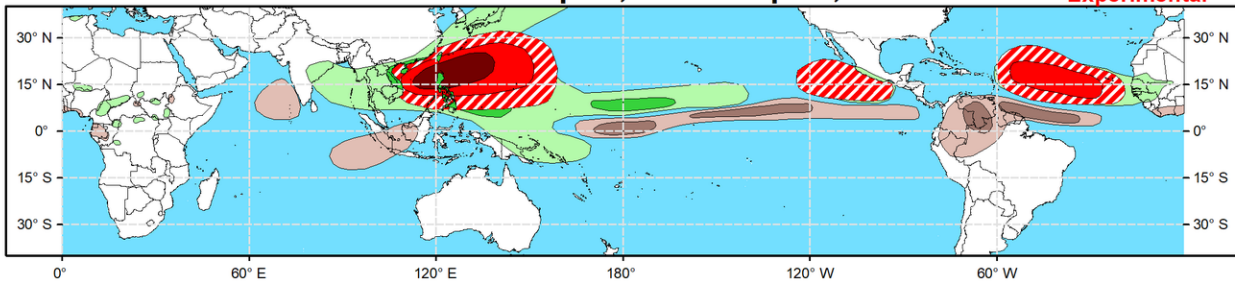


Week 2 - Valid: Sep 04, 2024 - Sep 10, 2024



Week 3 - Valid: Sep 11, 2024 - Sep 17, 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: 08/27/2024
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.

The MJO has been largely coherent and has continued to propagate eastward over the Indian Ocean at a fairly high amplitude since the middle of August. The ongoing intraseasonal activity has endured competing interference with other modes of tropical variability, though more recent interference with strong equatorial Rossby wave activity has led to marked loss in amplitude as it recently entered the Maritime Continent. This is reflected in the latest RMM index observations (now in phase 4), as well as upper-level velocity potential anomaly fields revealing a less coherent wave-1 structure. However, RMM forecasts suggest that this weakening will be short-lived, as dynamical models remain supportive of the MJO regaining amplitude and continuing to propagate eastward over the Maritime Continent during the next two weeks. A notable consequence of this realization is the favored development of enhanced trades overspreading much of the equatorial Pacific, where any associated upwelling looks to aid in the transition to La Nina conditions entering boreal autumn.

Compared to prior forecasts though, there is added uncertainty in regards to the coherence of the MJO before the enhanced phase reaches the Western Pacific towards mid-September. In particular, the GEFS features a more canonical and robust evolution of the MJO in both the RMM and upper-level velocity potential forecasts, whereas the ECMWF has trended more towards higher frequency variability becoming a more predominant driver, resulting in a more disorganized upper-level pattern at this lead. Regardless of these discrepancies in the guidance, a restrengthening MJO heading into September is expected to provide large scale conditions favorable for additional Tropical Cyclone (TC) development in the Western Pacific, with continued chances for formation in the Western Hemisphere. Should the MJO remain coherent by the time it reaches the Western Pacific, this historically favors increasingly less favorable conditions for development in the Eastern Pacific and tropical

Atlantic. However, any lowered TC potential is likely to be counteracted by a very active climatology, more than sufficiently warm SSTs, as well as other modes of transient variability to contribute to TC genesis in these basins.

During the past week, three TCs formed in the global tropics. As the first TC to have formed in the Central Pacific since 2019, TC Hone formed on 8/22 and strengthened to Category 1 Hurricane as it tracked westward, passing just south of the Big Island of Hawaii. Hone brought many adverse impacts to the state including torrential rainfall amounts (amounts exceeding two feet in a few local areas), flooding, landslides, and damages to infrastructure this past weekend. Since weakening to Tropical Storm to the west of the state, the National Hurricane Center (NHC) expects Hone to succumb to a hostile shear environment and become post-tropical low near the Date Line later this week. Farther east, TC Hector formed on 8/25 near 16N/122E and has continued to track westward, currently peaking as a Tropical Storm into the Central Pacific. Having tracked mostly in the wake TC Gilda (which formed back on 8/18), the cool upwelled waters have precluded Hector gaining much strength in the past few days, and the NHC forecasts Hector continue to gradually weaken to remnant low later this week. In the western Pacific, TC Shanshan formed on 8/21 near 17N/142E and has turned northwestward over Philippine Sea under the influence of subtropical ridge. Since strengthening to a category 3 Typhoon, the Joint Typhoon Warning Center (JTWC) forecasts Shanshan to slightly weaken before making landfall over Kyushu, Japan in the next few days. Shanshan is expected to rapidly weaken due to land interaction but likely bring heavy precipitation amounts and high winds for many parts of Japan. However, there is large uncertainty with the forecast track as models remain divided as to whether the low becomes trapped under the subtropical ridge and dissipates over Japan, or recurves and eventually undergo extratropical transition. Depending on the timing of the latter realization, this may lead to the amplification of the mid-level pattern downstream over North America.

For the upcoming week, model guidance and tools indicate additional TC development is possible over the western Pacific following TC Shanshan. Tied to the enhanced phase of the MJO, there are also increased signals in the probabilistic tools for development in both the Arabian Sea and Bay of Bengal, however any formation seems less likely in the northern Indian Ocean due to continued shearing from the Indian monsoon. In the western Hemisphere, the NHC continues to eye TC Gilma which has been downgraded to Tropical Storm intensity since peaking at Major Hurricane strength over open waters during the past week. Gilma is forecast to maintain a westerly track, but dissipate into an open trough as it nears the Hawaiian Islands later this week. Although ensembles show the highest precipitation amounts remaining offshore, locally heavy precipitation amounts, elevated winds, and large swells are possible for parts of the state.

Across the tropical Atlantic, there is good continuity in the dynamical models latching onto an easterly wave, where the NHC currently shows at least 20% chances for development in the Main Development Region (MDR) during the next seven days. Probabilistic TC genesis tools suggest the highest chances for formation are late in week-1 between 60W and 40W, however development could be delayed due to increased shearing; 40% chances for genesis are issued for the week-2 outlook given uncertainty with timing, with a broad area of 20% chances to account for increased spread of the wave later next week. Upstream, ensembles and probabilistic tools also point to potential development associated with another easterly wave in the eastern MDR. Anomalous lower-level westerlies are favored to be robust with lesser shearing in this part of the MDR during the first week of September, but confidence is tempered by any dust concentrations that are expected to linger (based on NASA GMAO-GEOS model) and inhibit formation in this region, resulting in 40% chances being posted for week-2. Farther west, a large frontal boundary is favored to sweep southward

over the southeastern CONUS early in week-2, and bring increased precipitation amounts over the Gulf of Mexico and western Atlantic. While support remains modest in the ensembles and probabilistic tools for development near the tail end of this surface feature, 20% chances for TC development are posted from the Bay of Campeche to the Gulf of Honduras for week-2. In the eastern Pacific, no TC shapes are issued given little to no support in the guidance and the suppressed phase of the MJO overhead. For week-3, the combination of anomalously warm SSTs, climatology, and possible Kelvin wave activity over the tropical Atlantic by mid-September supports 40% chances for TC genesis for much of the MDR. Guidance also shows conditions becoming more favorable for development in the eastern Pacific, and 20% chances are issued to the south of Mexico.

In the western Pacific, the continued eastward propagation of the MJO over the Maritime Continent historically supports increased chances for TC development in the South China and Philippine Seas based on composites. Despite some of the uncertainties with MJO between the GEFS and ECMWF entering the western Pacific, 60% chances are issued for both weeks 2 and 3 in the region due to good support in dynamical models. An eastward expansion of 40% and 20% chances into the Mariana Islands are posted for week-3 given increased signals over this part of the western Pacific in the extended range guidance.

Forecasts for enhanced and suppressed precipitation for weeks 2 and 3 are based on historical composites of Maritime Continent MJO events, anticipated TC tracks, and a skill weighted consensus of the CFS, GEFS, ECMWF, and ECCO model systems, with some consideration of ENSO cold phase composites. Tied to amplified ridging favored over south-central Canada, increased chances for above-normal temperatures are forecast for much of the CONUS west of the Mississippi. Similarly, above-normal temperatures are posted for parts of eastern Asia during week-2. For hazardous weather conditions 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.