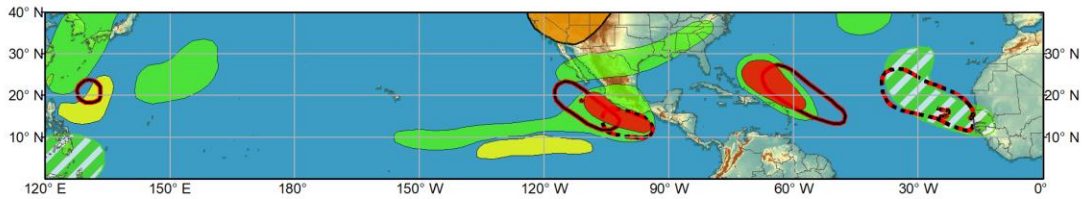




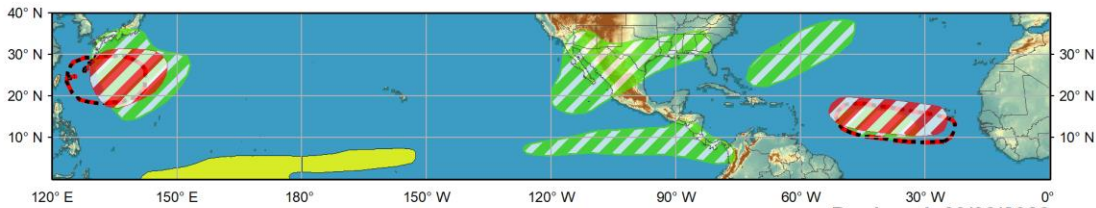
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Sep 03 2022 - Sep 06 2022



Week 2 - Valid: Sep 07 2022 - Sep 13 2022



Confidence
High Moderate

Produced: 09/02/2022
Forecaster: Novella

- 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 enhanced phase of the Madden Julian Oscillation (MJO) has continued to weaken over the Indian Ocean, which is reflected in the RMM observations showing the signal descending within the RMM unit circle in the past few days. Looking ahead, RMM forecasts from the dynamical models favor a rather tenuous intraseasonal signal, with large ensemble spread contributing to much uncertainty in the outlook. As the MJO is expected to reach the Maritime Continent at a low amplitude during the next week, extended range upper-level velocity potential anomaly forecasts from the GEFS and ECMWF reveal the development of secondary envelope of enhanced convection and anomalous upper-level divergence over the tropical Americas towards the middle of September. It is unclear whether this is a renewed expression of the MJO envelope following destructive interference with the low frequency La Nina footprint over the Pacific, or a convectively coupled Kelvin wave emerging over the region. Regardless, these enhanced upper-level conditions may create a favorable environment for tropical cyclogenesis in the Western Hemisphere, coinciding with peak climatological tropical cyclone (TC) activity in the eastern Pacific and Atlantic basins later in September.

Three TCs formed in the global tropics during the past few days. In the western Pacific, Tropical Depression 13W developed late on 8/30 and expired on 9/1 after being absorbed by Typhoon

Hinnamnor. The proximity and resultant binary interaction of these two systems, combined with the position of the steering subtropical ridge, led to the deceleration and weakening of Typhoon Hinnamnor since earlier this week. However, the Joint Typhoon Warning Center (JTWC) expects Hinnamnor to soon turn poleward away from the upwelling cooler waters and gradually restrengthen to category 3 intensity as it accelerates over (or to) the East China Sea. Locally heavy precipitation amounts and high winds remain possible for parts of Taiwan, Japan and the Korean Peninsula during the next several days before Hinnamnor eventually undergoes extratropical transition over the Sea of Japan next week.

In the western Hemisphere, TCs Javier and Danielle formed in the eastern Pacific and Atlantic basins, respectively, during the past few days. Javier is currently located a few hundred miles from Cabo San Lucas, Mexico, and the National Hurricane Center (NHC) forecasts this system to maintain Tropical Storm intensity over the weekend and then track westward into cooler waters while weakening into a depression next week. With anomalous 500-hPa ridging and anomalously warm temperatures established over the Great Basin of the CONUS, much of the enhanced mid-tropospheric moisture advection associated with Javier is favored to funnel more to east, bringing possible heavy precipitation amounts over northern Mexico and the south-central U.S. during the early period. Over the north-central Atlantic, the NHC forecasts Hurricane Danielle to strengthen to category 2 intensity and meander over open waters near 38N/44W under a light steering and low shear environment this weekend. Danielle is anticipated to become absorbed in the westerlies by next week.

For the days 1-4 period, a pair of high confidence areas for TC formation are posted in the updated outlook associated with a tropical disturbance located to the south of Mexico and another to the east of the Lesser Antilles where the NHC designates an 80% and 70% chance of formation during the next 5 days, respectively. As the former invest area (93E) in the eastern Pacific is favored to deepen and track towards the Gulf of California in the latest model guidance, there are increased chances for the reinforcement of ample tropical moisture and heavy precipitation throughout northern Mexico, and the southern tier of the CONUS in the wake of Tropical Storm Javier. Across the eastern Main Development Region (MDR), environmental conditions have become much less favorable for TC development, resulting in the removal of the corresponding TC area in the initial outlook. For the days 5-11 period, moderate confidence still exists for additional TC development over the MDR given some support in the model guidance as well as the aforementioned possible development of Kelvin wave activity later in September. Across the western Pacific, the updated outlook continues to feature a moderate confidence area for TC genesis to the south of Japan, but is shifted eastward based on the latest ensemble mean solutions.

Forecasts for above- and below-normal rainfall have been updated based on the latest dynamical model guidance, various modes of tropical variability, and anticipated TC tracks

----- Previous discussion from August 30, 2022 is below -----

As previously forecast, the Madden Julian Oscillation (MJO) has shown better signs of organization which is supported in both CPCs velocity potential anomaly based MJO index as well as RMM observations indicating the intraseasonal signal having steadily increased in amplitude over the Indian Ocean (phase 2) during the past week. However, the renewed MJO activity is likely to be short-lived, as the latest RMM observations show a sharp downtick in amplitude and there is good agreement in the dynamical models favoring the MJO signal to continually weaken and fall within the RMM unit circle, while propagating eastward across the Indian Ocean and Maritime Continent during the next two weeks. Although these forecasts advertise a less coherent MJO during the outlook period, the large-scale environment is still anticipated to be conducive for tropical cyclone (TC) formation across the Pacific and Atlantic heading into September.

During the last week, one TC formed in the western Pacific (Hinnamnor) on 8/28 and has since strengthened to Super Typhoon intensity to the south of Honshu, Japan. While a remarkably small system, the Joint Typhoon Warning Center (JTWC) forecasts Hinnamnor to maintain category 4 strength while tracking westward during the next day or so. Beyond this time, there is much uncertainty in the forecast due to binary interaction with another neighboring tropical disturbance (98W), which has rapidly consolidated during the 24 hours resulting in a high confidence TC area for week-1. Additionally, a competing steering synoptic pattern favored over the western Pacific is likely to cause Hinnamnor to slow and meander to the east of Taiwan later this week. Because of this latter factor, upwelling is likely to weaken the system, though deterministic GFS and ECMWF solutions favor Hinnamnor to track northward into the East China Sea by this weekend, and eventually become absorbed in the westerlies. Regardless of this uncertainty in terms of strength and track, locally heavy precipitation and high winds are possible for parts of Taiwan, Japan and over the Korean Peninsula during week-1. For week-2, a moderate confidence TC area is posted over the northern Philippine Sea where there is fair agreement in the ensembles favoring a broad area of deepening low pressure in the region next week. Across the Indian Ocean, tropical cyclone development is possible south of the equator tied to a equatorial westerly wind burst event favored in the dynamical models during the next few days. While model solutions are unanimous with a closed low near 85E/10S by the outset of the week-1 period, no corresponding TC shape is issued due to a lack of confidence of the low consolidating to meet TC wind speed criteria and the absence of TC activity in the basin, climatologically.

In the eastern Pacific, the National Hurricane Center (NHC) is currently monitoring two areas for TC formation to the south of Mexico. The first area is associated with a tropical wave located a few hundred miles to the south of Alcapulco, Mexico with a 70% chance of formation during the next 5 days

and a high confidence area is posted for week-1. Despite lower odds for genesis tied to the second area (30%) by later this week, there is good agreement between the GEFS and ECMWF ensembles favoring the formation of a closed low that tracks northwestward towards Baja California late in week-1. Therefore, a moderate confidence area is issued and partially overlaps the aforementioned high confidence area for week-1. For week-2, there are increased signals in the probabilistic tools for TC activity in the eastern Pacific, however these appear to be residual TC activity from week-1, and ensembles are unsupportive of additional development resulting in no TC shapes being issued for the later period.

The NHC is also monitoring a pair of easterly waves across the Main Development Region (MDR) of the tropical Atlantic. High confidence for TC formation exists for week-1 associated with the first wave located near 48W/15N where the NHC designates a 80% chance of formation during the next 5 days. Regardless of formation, this disturbance is favored to track northwestward over the adjacent waters of the Caribbean and likely bring enhanced precipitation amounts during the next week. While the NHC designates a 40% chance of formation supportive of a moderate confidence area associated with the second easterly wave located just off the coast of West Africa, it is worth noting the GEFS and ECMWF are divided in regards to another easterly wave strengthening near the Cape Verde islands this weekend. To address this uncertainty, the moderate confidence area is broadened to account for these two potential tropical systems over the eastern Atlantic for week-1. For week-2, there is some support in the probabilistic TC tools and ECMWF guidance for additional development across the MDR. While the GEFS remains less onboard with this realization, objective filtering of forecast velocity potential anomaly fields from the CFS, GEFS and ECMWF indicate Kelvin wave activity traversing the basin, and a broad moderate confidence area is issued over the MDR for week-2, also coinciding with the climatological peak of TC activity for the Atlantic.

The precipitation and temperature outlooks during the next two weeks is based on a consensus of GEFS, CFS, and ECMWF model solutions, La Nina precipitation composites, and also considerations from the MJO over the Indian Ocean. 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.