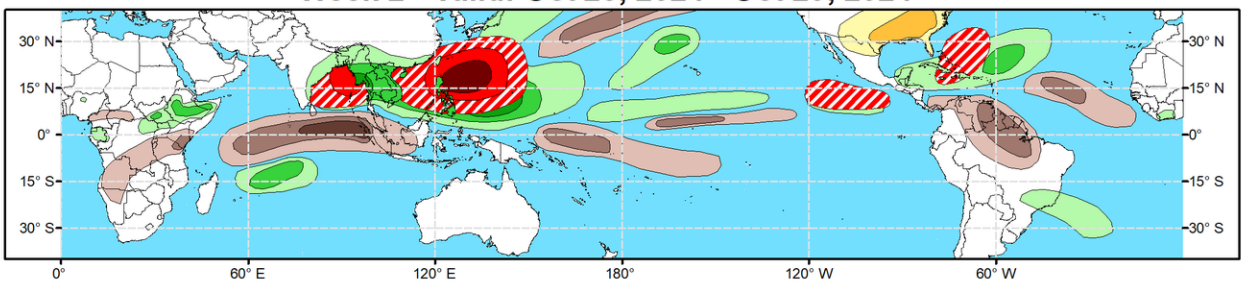
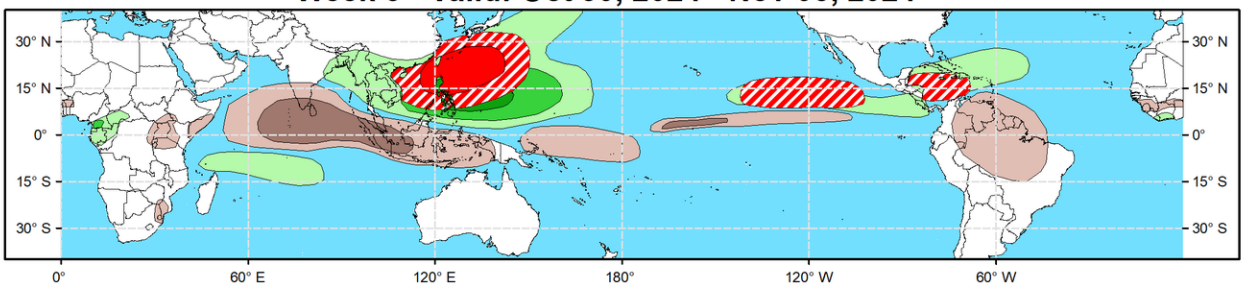
Global Tropics Hazards Outlook

Climate Prediction Center

Week 2 - Valid: Oct 23, 2024 - Oct 29, 2024



Week 3 - Valid: Oct 30, 2024 - Nov 05, 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: 10/15/2024
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.

During the past week or so, RMM observations depicted a slowed and low amplitude Madden-Julian Oscillation signal (MJO) over the Indian Ocean, but it has recently gained amplitude and entered the Maritime Continent (phase 4). The weakening appears to be tied to competing interference with other tropical modes, however upper-level velocity potential anomaly fields suggest more coherent subseasonal activity, having depicted a fairly defined wave-1 pattern with the enhanced convective envelope advancing into the Maritime Continent. Looking ahead, there has been good consistency in the dynamical models favoring an amplifying signal over the Maritime Continent that propagates eastward into the Western Pacific towards the end of week-2. By this lead, however, uncertainty arises in the outlook mainly due to continued differences in the forecast phase speed of the subseasonal signal in the models once the enhanced convective envelope reaches the Western Pacific. The GEFS remains on the slow end, whereas the ECMWF and CFS continues to be bullish with faster solutions, placing the signal back in the Western Hemisphere by the start of November, and appearing to fall more in line with a convectively coupled Kelvin Wave. Regardless of the uncertainty in the evolution, both the amplification and eastward propagation of the subseasonal signal is evident in the guidance, where the large-scale environment is expected to bring increased chances of Tropical Cyclone (TC) development over the Indian Ocean and Western Pacific during the next several weeks. Conversely, there are decreased chances for additional TC development over the western Hemisphere tied to the suppressed phase of the MJO, however the outlook is not ruling out late season genesis initiated by higher frequency tropical modes, mostly likely in the form of equatorial Kelvin Wave passages favored over the Eastern Pacific and Atlantic over the next several weeks.

Following a busy period of multiple TCs forming in the tropics earlier in

October, only one TC formed during the past week in the western Pacific near Mukojima, Japan on 10/12. This short-lived storm quickly became subtropical depression and dissipated. With the MJO favored to gain amplitude over the Maritime Continent during week-1, a strong surge of anomalous lower-level westerlies is favored near 90E which looks to contribute to TC development on both sides of the equator in the Indian Ocean during week-1. In the Western Hemisphere, the National Hurricane Center (NHC) is eyeing two areas of low pressure, one tracking westward in the western Main Development Region (MDR), and the other located in the southwestern Caribbean, with 50% and 20% chances for development (as of 1:40 pm EDT), respectively, during the next seven days. While development appears more likely to occur during week-1 with the former disturbance (94L), 20% chances are issued for week-2 from the south of Cuba into the southwestern Atlantic due to increased signals in the probabilistic genesis tools related to any delay in development, or a secondary low that is favored to form east of the Bahamas in some of the latest deterministic solutions by the middle part of next week. Despite relatively lower chances for development for the latter disturbance in the Caribbean, both the GEFS and ECMWF ensembles show several low members crossing Central America and deepening to the south of Mexico. Given this, and added support from the probabilistic tools, 20% chances for genesis are posted from approximately 120W to 95W.

In the Eastern Hemisphere, a band of strongly anomalous lowel-level westerlies and anomalously low shear is favored to overspread the eastern Indian Ocean and western Pacific consistent with the eastward propagating MJO during week-2. 40% chances for TC formation are issued in the Bay of Bengal given good support in the ECMWF guidance (and notably the EC-AIFS) for development early in week-2, MJO composites, and basin climatology. Based on good agreement in the guidance for an area of deepening low pressure in the Philippine Sea, 60% chances are posted with a broader area of 40% and 20% chances covering the South China Sea to the Marianas. It is worth noting that the western Pacific is currently registering slightly above 50% of normal ACE for the season, and it appears improbable that this level of deficit would be sustained through the end of October.

For week-3, there is modest support in the probabilistic tools for additional TC development in the Caribbean as activity becomes climatologically quieter over the Atlantic in general entering November. However, objective wave filtering tools feature Kelvin wave activity in both the GEFS and ECMWF which could trigger genesis in the Caribbean where SSTs remain quite warm, and 20% chances are posted. A broad area of 20% chances is also posted where extended range ECMWF probabilistic guidance depicts increased signals between 140W and 100W, with some support in the GEFS. Even with the faster subseasonal phase speed in the ECMWF, TC potential is expected to remain elevated in the western Pacific based on lower-level wind guidance and MJO composites, prompting 40% chances being issued.

The precipitation outlook for weeks 2 and 3 is based on potential TC activity, a skill weighted blend of GEFS, ECMWF, CFS and Canadian ensemble guidance, the anticipated state of ENSO, with added consideration of Maritime Continent and Western Pacific MJO composites for Sep-Nov. While non-hazardous for autumn, above-normal temperatures are predominately favored for much of the CONUS associated with strong mid-level ridging 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.