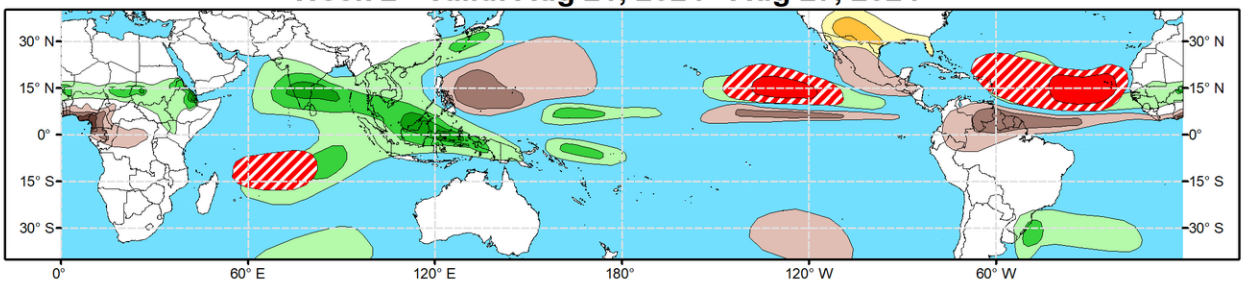
Global Tropics Hazards Outlook

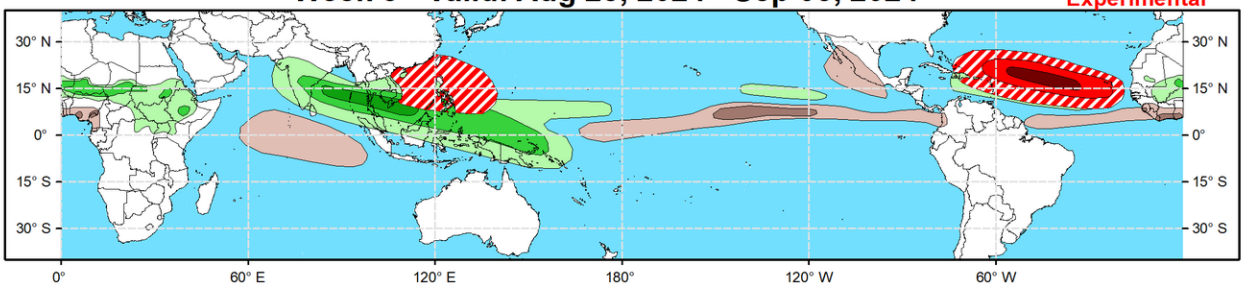
Climate Prediction Center

Week 2 - Valid: Aug 21, 2024 - Aug 27, 2024



Week 3 - Valid: Aug 28, 2024 - Sep 03, 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: 08/13/2024
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.

As previously forecast, the RMM observations continue to show signs of renewed, eastward propagating MJO activity over the Western Hemisphere. The upper-level velocity potential pattern has been somewhat disorganized, mostly due to continued competing interference with other modes of tropical variability (namely wave-2 Kelvin wave activity), however the enhanced convective envelope appears better defined in recent days with the leading edge extending further eastward into the Indian Ocean. Looking ahead, dynamical models have been consistently advertising a robust Indian Ocean MJO event that propagates eastward into the Maritime Continent in both RMM space and in the upper-level velocity potential anomaly forecasts during the next several weeks. A canonical wave-1 pattern is favored to emerge during the next week or so, and objective wave filtering continues to favor both equatorial Kelvin and Rossby wave activity over Africa and the Indian Ocean. The constructive interference between these modes and the reorganizing MJO lead to very enhanced signals in the velocity potential anomaly fields. In the lower levels, there is good agreement in extended range solutions featuring a band of strong lower-level westerly anomalies overspreading the tropical Atlantic and extending into sub-Saharan Africa, as this later feature is suggestive a northward displaced African Easterly Jet to incite a number of easterly waves. As a result, the large-scale environment looks to be quite favorable for additional Tropical Cyclone (TC) development in the Main Development Region (MDR) in-line with an increasingly active climatology for late August and early September. Tied to the suppressed phase of the MJO downstream, an enhanced trade regime is expected to overspread the Maritime Continent and equatorial Pacific, decreasing chances for TC development in the western Pacific.

During the past week, four TCs formed in the Western Pacific, and one in the Atlantic. Since forming on 8/7 near 25N/141E, TC Maria peaked at Category 1

strength while tracking northward and curving to the west toward Japan. Maria made landfall as a Tropical Storm on 8/12 over the Tohoku region of northeastern Japan, and brought high winds, and heavy rainfall accumulations leading to an increased risk of flooding and mudslides in the region. Since yesterday, TCs Son-Tinh, Wukong, and Ampil formed near 32N/151E, 26N/150E, and 23N/136E, respectively. The Joint Typhoon Warning Center (JTWC) expects Son-Tinh to be a short-lived storm but may bring increased precipitation and elevated winds as it tracks northward over parts of northern Japan in the wake of TC Maria. Wukong is similarly forecast to track northward, but is expected to curve eastward over open waters under a steering subtropical ridge later this week. Further south, TC Ampil bears watching during the next several days. While there remains a good deal of uncertainty with the eventual track of the system later this week, the official forecast from the JTWC shows this system intensifying to Category 3 strength, while tracking towards central Japan near Tokyo. Regardless of landfall, heavy precipitation accumulations and high sustained winds are possible for portions of eastern Honshu Japan. As these systems eventually dissipate in the western Pacific, it is worth noting that their extratropical transition may lead to the amplification of mid-level height pattern downstream over Alaska. In the tropical Atlantic, Tropical Storm Ernesto formed on 8/12. This system is expected to bring heavy rainfall, with possible mudslides and flash flooding for parts of the Leeward Islands, USVI and Puerto Rico in the next few days. Later this week, the National Hurricane Center (NHC) expects Ernesto to turn northward under a weakness in the subtropical ridge. While the official track places Ernesto in proximity to Bermuda by this weekend, it is too soon to know what impacts this system could bring as ensemble spread remains high in the models. Please follow the JTWC and the NHC for regular updates for these active systems.

Across the Eastern Hemisphere, the band of anomalous lower-level westerlies that likely contributed to multiple TC formations north of 20N in the Western Pacific are favored to weaken and be replaced by enhanced trades overspreading much of the basin. Given this, the suppressed phase of the MJO, and lessening support in the probabilistic TC genesis tools for additional TC activity, the western Pacific looks to take a hiatus, and no shapes are posted for week-2. By week-3, guidance does show conditions becoming gradually more favorable, particularly over the South China Sea and just east of the Philippines, and 20% chances are posted for week-3. With the enhanced phase of the MJO gaining amplitude over the Indian Ocean, there is good model support for a Westerly Wind Burst (WWB) event during the next week or so between 70-80E. Despite being out of season, probabilistic tools continue to feature elevated chances for TC formation south of the equator. While such development would be extremely rare, it is not unprecedented according to August climatology, and 20% chances are posted from approximately 55E to 80E. Consistent with a WWB event, 20% chances for TC genesis were also considered north of the equator to the east of India in the Arabian Sea, however there is a lack of support for this realization in the ECMWF where Indian monsoonal shear is favored to prevail.

In the eastern Pacific, both the GEFS and ECMWF ensembles have been fairly consistent favoring mean low pressure formation during week-2, despite the large-scale environment becoming more unfavorable over the basin. Objective wave filtering of the ECMWF velocity potential anomaly fields reveal both Kelvin and Rossby wave activity destructively interfering with the suppressed MJO envelope, which looks to provide a window for development. Based on increased trends in the probabilistic tools, 40% chances are posted with a broad area of 20% chances extending from approximately 150E to 110E for week-2. While much of the enhanced precipitation is favored to the southeast of the Hawaiian Islands, any development in the central Pacific bears monitoring for potential impacts to the state. For week-3, there are some signals in the TC tools, however these appear residual from any tropical low formation during week-2, and no corresponding area is posted for additional development.

For the tropical Atlantic, both the ensembles and probabilistic tools have been surprisingly muted in regards to TC potential in spite of an eastward propagating MJO over the Indian Ocean. The overall lack of support in the guidance, particularly during week-2, invariably lowers forecast confidence in the Main Development Region (MDR). Notwithstanding, it is recognized that some of these tools have been slow to converge on TC potential associated with TCs Debby and Ernesto since late July, and it is hard to ignore the reemergence of intraseasonal activity that would highly favor TC genesis in the MDR. As a result, 40% chances are posted in the eastern MDR given climatology and MJO composites, with a broader area of 20% chances extending into the Caribbean. Due to better support in the probabilistic TC tools during week-3, with more easterly waves favored to exit West Africa towards the end of the month, 60% chances are issued from 35W to 55W where negative shear anomalies are favored to be strongest heading into September.

Forecasts for enhanced and suppressed precipitation for weeks 2 and 3 are based on historical composites of Indian Ocean and Maritime Continent MJO events, anticipated TC tracks, and a skill weighted consensus of the CFS, GEFS, ECMWF, and ECCC model systems, with some consideration of ENSO cold phase composites. Increased chances for above-normal temperatures, along with possible excessive heat conditions are forecast for the south-central CONUS 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 issues over Africa are made in coordination with the Africa Desk at CPC.