



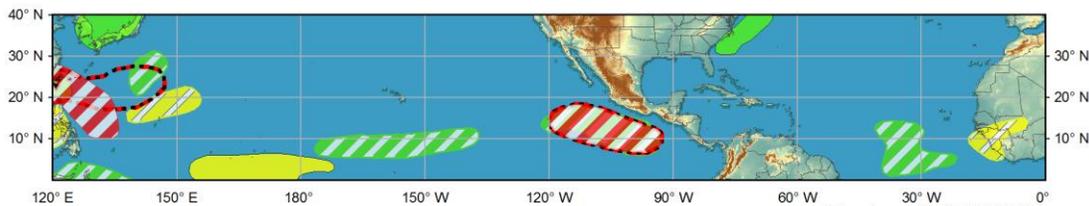
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Jul 31 2021 - Aug 03 2021



Week 2 - Valid: Aug 04 2021 - Aug 10 2021



Confidence
High Moderate

Produced: 07/30/2021
Forecaster: Allgood

- 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.



As anticipated, the Kelvin wave now crossing the Atlantic has separated from the primary MJO envelope currently crossing the Pacific. Despite the low frequency state supporting suppressed convection across central Pacific, the MJO presentation at the upper levels remains quite impressive, with the CPC velocity potential based index showing amplification despite the now Wave -2 asymmetry in the spatial anomaly field. Dynamical model MJO index forecasts continue to show uncertainty with regard to the strength of the MJO due to interference from the Kelvin wave, but have trended towards a stronger event across the Western Hemisphere since earlier this week. Tropical cyclogenesis is strongly favored for the East Pacific, with the National Hurricane Center now monitoring three distinct potential formation areas during the next five days. The Joint Typhoon Warning Center is monitoring a disturbance southeast of Japan that has a high potential for formation within the next 24 hours. Following this system, dynamical model guidance has trended a bit less active across the West Pacific, but still shows the potential for one or more additional formations near Taiwan or northwest of Guam. Across the Atlantic, no tropical cyclone (TC) formations are anticipated during the remainder of the outlook period, though the latest runs of the GFS show a brief closed low forming over the central MDR during Week-2. Brief cyclogenesis is also possible along a stalled frontal boundary just offshore of the Carolinas, but these formations will likely remain non-tropical in structure. Based on the current state of

the MJO, there is growing confidence for increased TC activity across the tropical Atlantic during mid-August.

The original discussion released on 27 July 2021 follows.

Both the CPC velocity potential based and RMM-based MJO indices depict a robust intraseasonal event, with the enhanced phase now over the Pacific. Zonal wind anomalies near the equator at both the upper and lower levels of the troposphere are consistent with an MJO event, and the upper-level velocity potential field exhibits a strong Wave-1 asymmetric pattern. Only the OLR anomalies are less consistent with a canonical major MJO event, as much of the enhanced convection is currently developing away from the Equator across the Monsoon regions of South and Southeast Asia and over the Northwest Pacific. A time-longitude analysis of the OLR field shows a robust Kelvin wave crossing the East Pacific, which is currently still near the leading edge of the MJO enhanced convective envelope but will soon separate. As this occurs, the strong projections on the MJO indices may begin to weaken due to the destructive interference. Additionally, an evolving SST-driven low-frequency state across the Pacific favors suppressed convection, which may also be limiting the extent of the MJO enhanced phase. Accordingly, dynamical model RMM-index forecasts all show a weakening signal, with most models depicting a rapid jump towards the Indian Ocean as the Kelvin wave becomes the more prominent feature while the slower evolving MJO weakens over the Pacific. Therefore, as the forecast lead time increases, the role of the MJO in the evolution of the tropical convective pattern becomes more uncertain. Dynamical models do show an enhancement of the North Pacific ITCZ which will likely tie into increased tropical cyclone activity. Any MJO influence on Atlantic tropical cyclone activity would largely occur near the end of or beyond the Week-2 period, if at all.

Tropical Storm Nepartak developed east of Japan and is currently nearing landfall over northern Honshu island. Dry air entrainment has resulted in poor presentation on satellite imagery, with most of the convection well removed from the circulation center. The Joint Typhoon Warning Center forecasts further weakening of Tropical Storm Nepartak ahead of and following the landfall. During both Week -1 and Week-2, an enhanced and northward displaced monsoon gyre will provide a wide region of favorable conditions and incipient circulations for tropical cyclogenesis over the Northwest Pacific. Dynamical model forecasts show multiple closed lows and tropical cyclones developing near and north of 20N extending from the vicinity of Taiwan to near 150E over the next two weeks. With steering currents fairly weak, interests in Japan, mainland China, and Taiwan should monitor the latest forecasts from their local meteorological agencies. Tropical cyclone development is also favored for the East

Pacific in the wake of the strong Kelvin wave, with the National Hurricane Center currently monitoring two areas south and southwest of Mexico for potential formation. A favorable environment for additional tropical cyclone development is forecast to persist into Week-2, prompting a moderate confidence hazard on the outlook. No tropical cyclones are anticipated to form across the Main Development Region of the Atlantic during the outlook period, though conditions are anticipated to become slightly more favorable towards the end of Week-2, with dynamical models showing a disturbance emerging off the coast of Africa. Should the MJO or additional Kelvin waves cross the Western Hemisphere during Week-2, conditions may become more favorable for development during the Week-34 time frame.

The precipitation outlook during the next two weeks is based on a consensus of GEFS, CFS, and ECMWF guidance, with some consideration given to precipitation composites based on prior MJO events. 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.