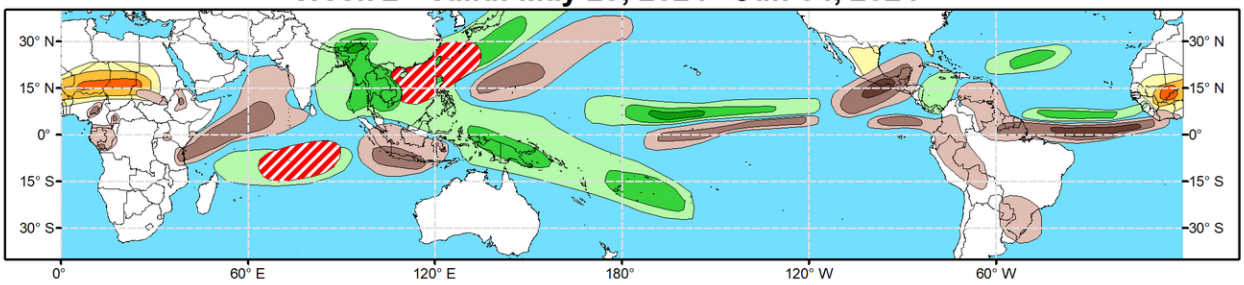
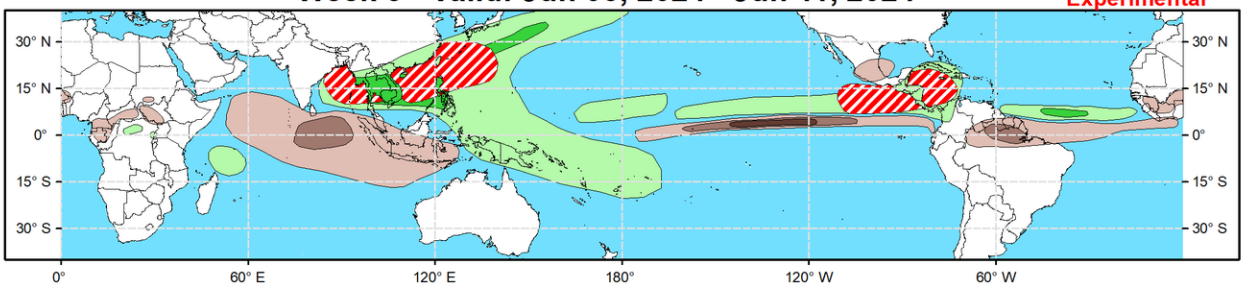
Global Tropics Hazards Outlook

Climate Prediction Center

Week 2 - Valid: May 29, 2024 - Jun 04, 2024



Week 3 - Valid: Jun 05, 2024 - Jun 11, 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: 05/21/2024
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 Madden-Juilan Oscillation (MJO) showed better signs of reorganization over the Indian Ocean during the past week. The renewal is well supported in RMM space which continues to depict an emerging and eastward propagating signal over phase 3, as well as the upper-level velocity potential anomaly fields which reveal a better spatial definition of the enhanced and suppressed envelopes across the global tropics. Objective wavenumber-frequency filtering of these anomaly fields also show a good deal of continued equatorial Kelvin and Rossby wave activity in the eastern Hemisphere, which has aided in the large-scale enhancement of convection and divergence aloft over the Indian Ocean.

The tropical perspective largely remains on track since last week, as dynamical models are supportive of the continued eastward propagation of the MJO over the Maritime Continent. Tropical Cyclone (TC) development remains favored in the Indian Ocean and western Pacific through the end of May, however the MJO picture becomes much less clear heading later into June. Consistent with the two previous trips of the MJO over the Maritime Continent this spring, RMM forecasts feature a rapid weakening of the signal over phase 5 early next month with some ensemble members reaching the western Pacific at a low amplitude. Upper-level velocity potential anomaly forecasts from the GEFS, CFSv2, and ECMWF have fallen more in-line with the weaker RMM guidance, but suggest that any disorganization may be tied to destructive interference with an emerging low frequency circulation response over the Maritime Continent. Such a response would be consistent, albeit early, with the transitioning ENSO state, as any western Pacific and/or western Hemisphere MJO activity may have difficulty maintaining a canonical wave-1 structure propagating eastward with time. Notwithstanding, objective filtering of these fields do show some semblance of MJO activity and enhanced divergence aloft reaching the tropical Americas

(mainly expressed north of the equator) by the week-3 period, which could provide more favorable conditions for tropical cyclogenesis over the eastern Pacific and the Caribbean later in June.

The recent amplification of the MJO, as well as the aforementioned modes of tropical variability traversing the Indian Ocean, resulted in a strong uptick in lower-level westerlies along the equator, and generated a pair of remarkably low-latitude, late season TCs forming in the southern basin. Since forming on 5/17 near 9S/53E, TC Ialy strengthened to Tropical Storm intensity while recurving northwestward under the steering influence of a subtropical ridge over eastern equatorial Africa. The Joint Typhoon Warning Center (JTWC) expects Ialy to succumb to dry air entrainment and fully dissipate in the next day or so, though its remnant circulation may bring elevated winds and increased precipitation amounts to parts of coastal Kenya and southern Somalia. Farther east, TC 25S formed near 2S/75E on 5/19 and dissipated earlier today. Despite being weak and short-lived, this TC is notable for forming so close to the equator where Coriolis is nearly zero, and underscores the potency of the strengthening equatorial westerlies associated with the renewed MJO.

During week-1, lower-level wind anomaly forecasts feature another surge of westerlies (possible wind burst event) between 80E to 90E along the equator favorable for additional TC development. Deterministic model solutions are nearly unanimous in forming a TC in the Bay of Bengal later this week, however a secondary signal emerges in the probabilistic TC genesis tools south of the equator late in week-1. Usually, climatology dictates that any TC potential south of the equator would be rather dubious for late May, but in light of the multiple TCs forming in the southern Indian Ocean during the past week, this potential is not being ruled out and 20% chances for genesis are posted from approximately 65E to 90E in the week-2 outlook. Following potential TC development favored to the east of the Philippines during week-1, 20% chances are also posted from the South China Sea to the south of Japan where anomalous lower-level westerlies and deepening mean low pressure are favored in the GEFS and ECMWF ensembles, with support from TC composites featuring increased chances above climatology during Apr-Jun phase 4 and 5 MJO events in the highlighted area.

Based on these composites and extended range probabilistic TC tools maintaining increased signals for TC development in the northern Indian Ocean and western Pacific, 20% chances are issued from the Bay of Bengal to the Philippine Sea for week-3. Higher chances (40%) were considered based on the GEFS, however the ECMWF remains more muted with this potential. Despite some of the uncertainties with the coherence of the MJO as it propagates eastward, there is good agreement between the GEFS and ECMWF featuring a flip from an enhanced trade regime to anomalous lower-level westerlies overspreading the tropical Americas during week-3. With more favorable upper-level conditions predicted to help relax shear, and record breaking warm sea surface temperatures in the Caribbean (much of the region is well in excess of 29 degrees C), 20% chances for TC development are also issued from the eastern Pacific to the southwestern Caribbean.

The precipitation outlook for weeks 2 and 3 are based on a historical skill weight blend of GEFS, CFSv2, ECCC, and ECMWF ensemble mean guidance, MJO composites, and anticipated TC tracks. For temperatures, pre-monsoonal heat is favored to persist across many parts of Sahelian and Saharan Africa where daytime highs may possibly exceed 110 degrees F in week-2 based on calibrated reforecast temperature tools. Excessive heat conditions may also persist over parts of southern Texas and Florida early in 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.