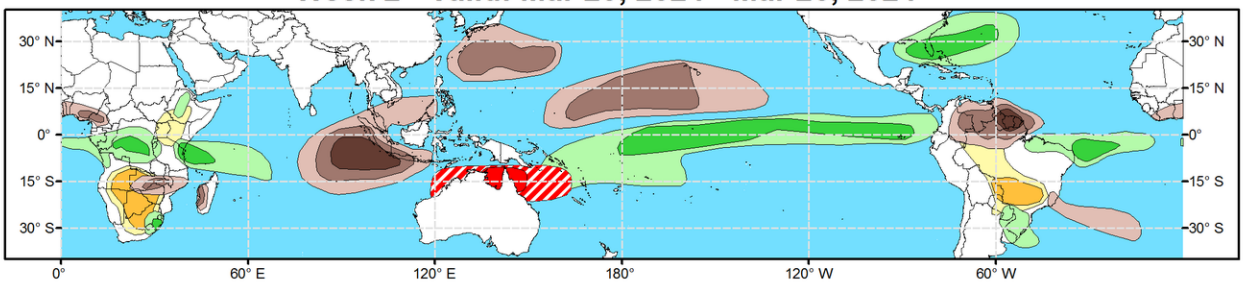
Global Tropics Hazards Outlook

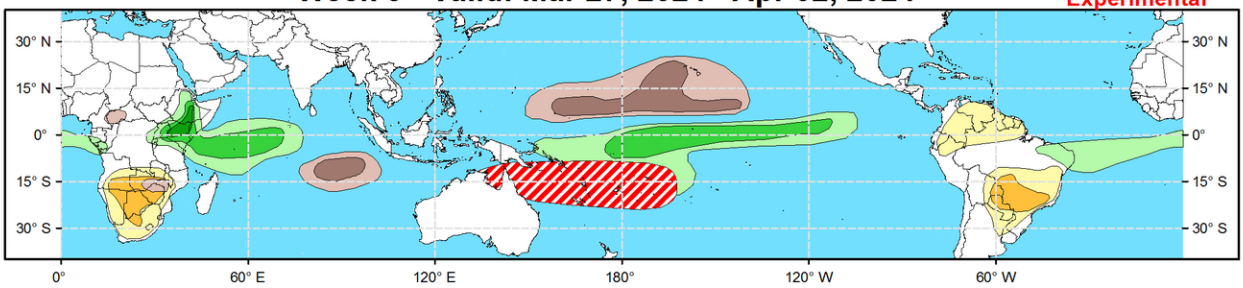
Climate Prediction Center

Week 2 - Valid: Mar 20, 2024 - Mar 26, 2024



Week 3 - Valid: Mar 27, 2024 - Apr 02, 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: 03/12/2024
Forecaster: Allgood

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.

The Madden-Julian Oscillation (MJO) remained robust during the past week, with the enhanced convective phase propagating from the Indian Ocean to the Maritime Continent. The RMM-based MJO index and CPC upper-level velocity potential based index both show strong amplitude, with clearly established eastward propagation at a phase speed consistent with canonical MJO activity. Widespread enhanced convection erupted over the eastern tropical Indian Ocean northwest of Australia, the strongest convection observed in that location for months, as the MJO destructively interfered with the low frequency El Nino base state. During the next two weeks, dynamical model MJO index forecasts show MJO activity propagating to the Pacific, with remarkable consistency among the various model systems and ensemble members depicting a strong, fast moving event. The forecast phase speed of the MJO as it propagates to the Pacific is more consistent with a convectively coupled Kelvin wave, and it is possible that constructive interference between the MJO, a Kelvin wave, and Rossby wave activity over the Pacific is helping to generate the strong projection of the index. Beyond Week-2, dynamical models still favor continued MJO activity across the Western Hemisphere, with spread among the ensemble members increasing. Based on these outlooks, the MJO is favored to play a substantial role in the evolution of the tropical convective pattern over the next several weeks. Constructive interference between the MJO and the decaying ENSO signal is favored for much of this outlook, which could lead to an enhancement of southern stream moisture across the southern tier of the CONUS. Although a trade wind disruption is likely to occur as the MJO crosses the Pacific, cooler water prevails across the upper layer of the Pacific basin, so any downwelling oceanic Kelvin wave activity will be shallow and short lived. If the MJO persists beyond Week-3, a trade wind surge across the Pacific could bring an end to El Nino conditions.

Two tropical cyclones (TCs) formed during the past week. Tropical Storm Filipo formed over the Mozambique Channel on March 10, making landfall over Mozambique and then re-emerging over open water. Forecasts from the Joint Typhoon Warning Center (JTWC) show no additional threats to land from this system. Tropical Cyclone 18S formed on March 11 over the southeastern Indian Ocean, and is favored to gradually intensify. Impacts to Australiaâ€™s Kimberley Coast are possible within the next week. During the outlook period, strong MJO activity is tied to increased favorability for tropical cyclogenesis in the vicinity of Australia during Week-2, with potential formation areas shifting towards the Coral Sea as the MJO propagates eastward. Dynamical model forecasts show an increased chance for TC genesis over the Gulf of Carpentaria, warranting a 40 percent chance for formation during Week-2. During Week-3, the South Pacific is favored to become increasingly active, with the GEFS ensembles in particular depicting potential formations even east of the Date Line. Although the MJO can generate early season formations over the northwestern Pacific, dynamical model guidance is not supportive of development in that basin.

Forecasts for above- and below-normal precipitation are based on an anticipated continuation of the atmospheric response to above-normal sea-surface temperatures (SSTs) across the central and eastern Pacific, though upwelling of colder water will soon bring an end to the warmer SSTs, especially across the far eastern Pacific. The MJO will also play a role in the overall precipitation pattern, both through constructive interference with the ENSO base state and potentially increasing convection across the South Pacific Convergence Zone (SPCZ) region, and suppression across the eastern Indian Ocean and Maritime Continent. Across the Western Hemisphere, enhanced precipitation is favored during Week-2 for the southeastern CONUS with an active southern jet. Persistent heat is favored to continue across portions of South America and southern Africa.

For hazardous weather conditions in your area during the coming two-week period, please refer to your local NWS office, the Medium Range Hazards Forecast produced by the Weather Prediction Center, and the CPC Week-2 Hazards Outlook. Forecasts made over Africa are made in coordination with the International Desk at CPC.