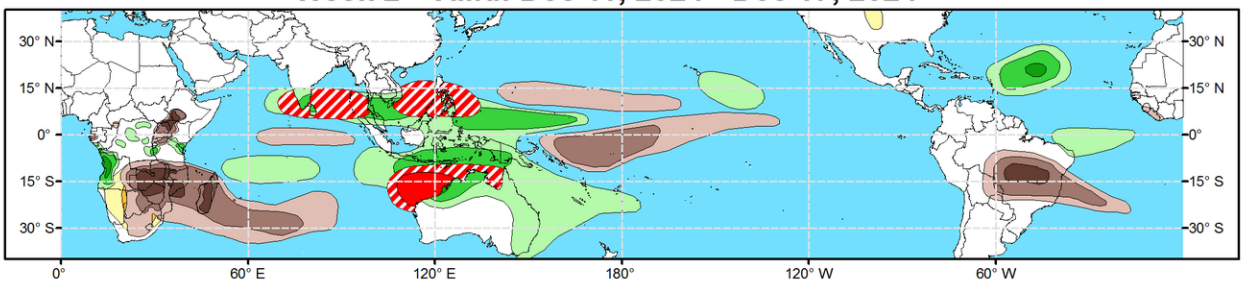
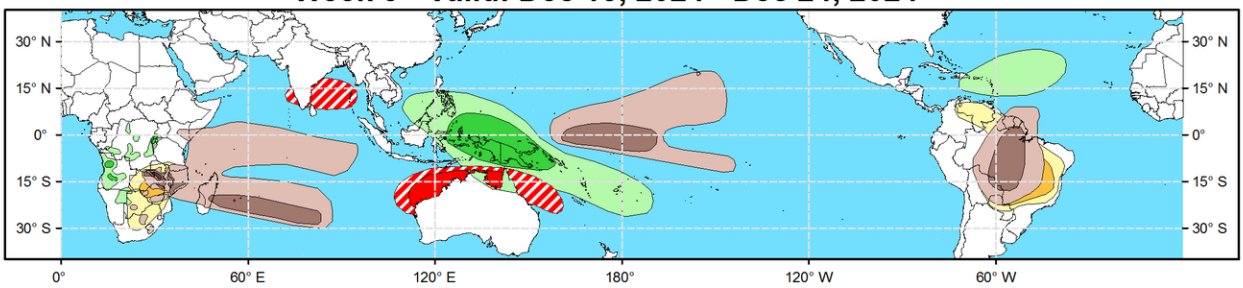
Global Tropics Hazards Outlook

Climate Prediction Center

Week 2 - Valid: Dec 11, 2024 - Dec 17, 2024



Week 3 - Valid: Dec 18, 2024 - Dec 24, 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

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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.

Recent observations of the global wind field and upper-level velocity potential anomalies indicate that an active Madden-Julian Oscillation (MJO) event continues to unfold into early December, with the enhanced convective phase now over the Maritime Continent. Strong Rossby wave activity is currently interacting with this intraseasonal signal, resulting in a slowdown of the eastward propagation and even a reversal of direction of the RMM-based MJO index during the last few days. The current position of the MJO is constructively interfering with the lower frequency base state of the tropics, which is trending slowly towards La NiÃ±a conditions over the Pacific and a growing negative Indian Ocean Dipole (IOD) event. The result of these confluent modes is an exceptionally strong westerly wind burst (WWB) over the east-central equatorial Indian Ocean and a trade wind surge across much of the Pacific. With strong low-level convergence and upper-level divergence present over the Maritime Continent, widespread enhanced convection is ongoing and favored to continue. Dynamical model MJO forecasts depict a complex evolution, with continued propagation of the intraseasonal signal favored in the upper-level velocity potential field, but a more stationary pattern resembling the low frequency state unfolding at the lower levels of the atmosphere. It is possible that a growing La NiÃ±a response coupled with the negative IOD event will disrupt the MJO signal over the next few weeks; however, the GEFS continues to depict a robust enhanced signal crossing the Pacific during the latter half of December. Should the MJO signal cross the Pacific and successfully generate widespread convection north and northeast of New Guinea, a further delay in the onset of cold ENSO conditions could occur, along with a potential pattern change back towards troughing over eastern North America. Should the low frequency base state emerge as the dominant mode, however, a more canonical La NiÃ±a response pattern may ensue.

The westerly wind burst over the east-central Indian Ocean resulted in the formation of twin tropical cyclones, north and south of the Equator. Tropical Storm Robyn formed on November 27 between Australia and Indonesia. While the cyclone did not make landfall as a closed low, copious rainfall fell across Sumatra and Java, resulting in multiple fatalities. On November 29, Tropical Storm Fengal formed over the Bay of Bengal, making landfall over the state of Tamil Nadu in India, also claiming multiple lives due to flooding. The Indian Ocean basin is expected to remain active over the next several weeks. Tropical cyclogenesis over the south-central Indian Ocean is possible during Week-1, with tropical cyclone activity in the region persisting into Week-2. Dynamical models and historical composites of activity during Maritime Continent MJO activity favor additional tropical cyclone development in the vicinity of Australiaâ€™s Kimberley Coast. In the northern hemisphere, a tropical cyclone may form during late Week-1 or early Week-2 just east of the Philippines, moving westward over the South China Sea during Week-2. Additional tropical cyclogenesis is also possible over the Bay of Bengal during late Week-2 or early Week-3. During Week-3, additional tropical cyclogenesis remains possible in the vicinity of Australia. Some dynamical models show increased activity over the southwestern Pacific during Week-3, but confidence remains too low to include a hazard at this time.

Forecasts for above- and below-average precipitation across the global tropics are based on historical composites of Maritime Continent and far western Pacific MJO events, an atmospheric response to growing La NiÃ±a conditions, and an ongoing negative IOD event. Widespread, persistent, and long lasting rainfall in addition to potential tropical cyclones will likely generate areas of flooding across the Maritime Continent, including northern Australia. In contrast, drier, hotter conditions are favored for portions of southern Africa. Heat and dryness are also favored for portions of the Amazon basin and Brazilâ€™s key interior agricultural regions, which is atypical of La NiÃ±a events and potentially fueled by the intraseasonal signal. For hazardous weather concerns in your area in the coming 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 made over Africa are made in coordination with the International Desk at CPC.