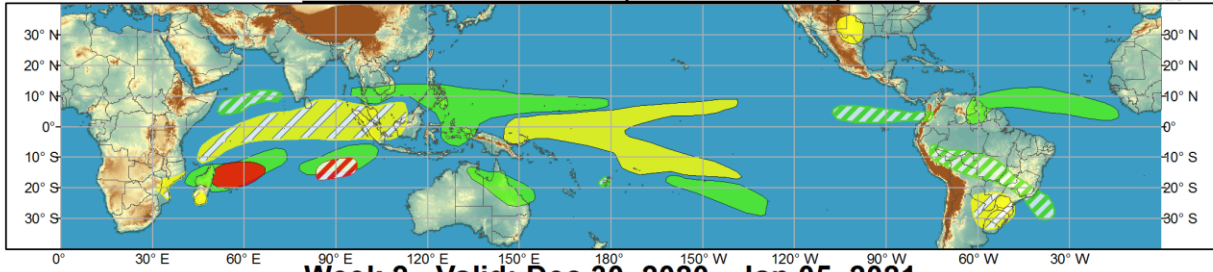




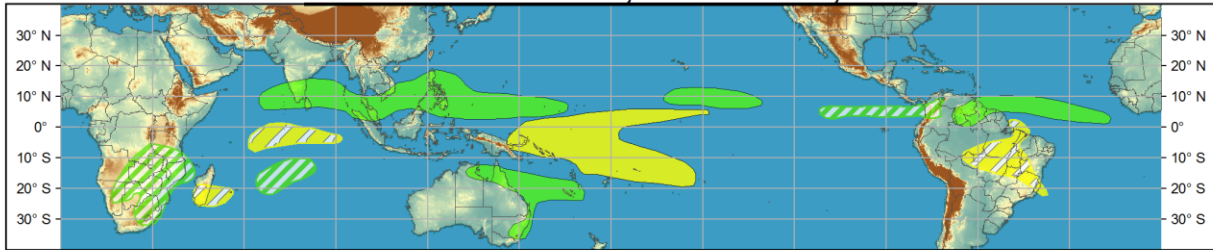
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Dec 23, 2020 - Dec 29, 2020



## Week 2 - Valid: Dec 30, 2020 - Jan 05, 2021



**Confidence**  
High Moderate

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- 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.

Produced: 12/22/2020

Forecaster: Allgood

Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.



Since late November, the RMM-based MJO index has depicted a variable signal meandering slowly eastward across the Maritime Continent, sometimes moving inside of the unit circle, and sometimes re-amplifying. The CPC velocity potential based MJO index shows a similar slowly evolving signal, with a phase speed slower than canonical MJO activity. Analysis of the OLR anomaly field reveals several discrete faster moving MJO-like events within this broader evolution, with an enhanced convective field crossing the Indian Ocean and Maritime Continent during mid- to late November, and a separate signal again propagating from the Indian Ocean across the Maritime Continent during December. As these signals reach the Pacific, destructive interference with the ongoing La Nina event prevents both the convective anomalies and the upper-level signal from circumnavigating the globe and returning to the Indian Ocean as is typical with MJO evolution. Instead, extratropical wavebreaking onto the tropics appears to be the driver initiating new convective events over the Indian Ocean. Dynamical model MJO index forecasts are broadly consistent and show a rapid weakening of the RMM index during Week-1, followed by a re-emerging signal over the Indian Ocean during Week-2. Rossby wave activity over the West Pacific in addition to La Nina conditions should both prevent further eastward propagation of the current enhanced convective envelope over the equatorial Pacific, resulting in the weakening of the RMM index. By Week-2, a new extratropical wavebreaking event may begin generating enhanced convection over South and Southeast Asia and adjacent waters, which is reflected by the re-emergence

of the signal over the Indian Ocean. Potential tropical cyclone activity over the southern Indian Ocean may also play a role in the evolving signal.

During the past week, Tropical Storm Krovanh became the fourteenth tropical cyclone to enter the South China Sea. The system has currently weakened to tropical depression intensity, and forecasts from the Joint Typhoon Warning Center (JTWC) show the system dissipating as its remnants bring enhanced rainfall to southern Vietnam. The southern Indian Ocean appears to be the most likely basin to be active over the next two weeks. The JTWC is currently monitoring two invests, 95S east of Madagascar, and 93S east of the Cocos Islands. While environmental conditions are currently marginally favorable for development in the vicinity of 95S, dynamical models indicate a high potential for formation as the system moves westward. Interests in Mauritius, Reunion Island, and Madagascar should monitor this potential activity via their local meteorological agencies. Conditions are less favorable for development of Invest 93S, but slow development may occur later in Week-1 as the disturbance moves west of the Cocos Islands over the open waters of the southern Indian Ocean. Elsewhere, an active pattern is forecast across northern Australia, with over-water convective activity progressing from the Kimberley Coast towards the Gulf of Carpentaria and the Coral Sea by Week-2. Vertical shear is generally too high for substantial tropical cyclone development, but there is a low potential for short term formation should a mesoscale convective system encounter a more favorable environment.

Forecasts for enhanced and suppressed precipitation are based on a consensus of CFS and ECMWF guidance. The enhanced convective envelope over the eastern Maritime Continent may help generate heavy precipitation over parts of the Maritime Continent and northwestern Pacific, but models strongly favor suppressed convection to remain entrenched across the equatorial West Pacific due to La Nina and Rossby wave activity interfering with the signal. The ECMWF favors enhanced rainfall over Fiji, which continues to recover from powerful Cyclone Yasa. Additionally, persistent dry conditions over the south-central US which are consistent with the La Nina response will continue to promote deteriorating drought conditions. During Week-2, widespread convection is favored to overspread South Asia, bringing unseasonable rainfall, as well as areas to the east located near 10N out to the northwestern Pacific. Unlike a canonical MJO event, substantial convection is not anticipated across the equatorial Indian Ocean. Enhanced rainfall is also favored to continue across parts of eastern Australia, including crop areas of eastern Queensland and New South Wales.

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.