

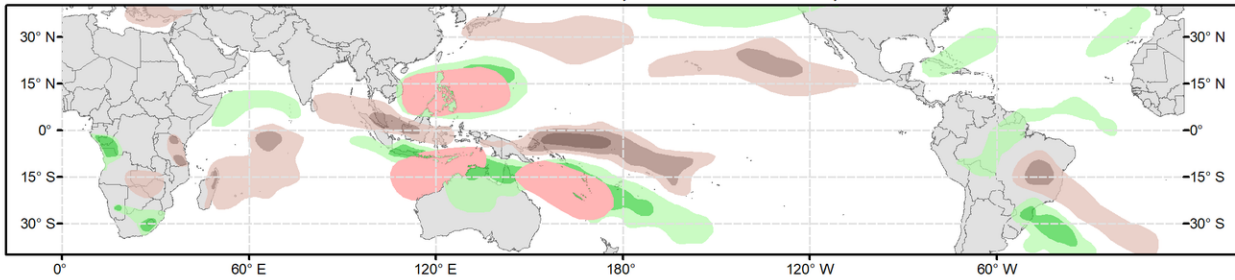


Global Tropics Hazards Outlook

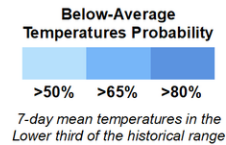
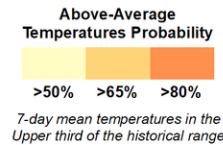
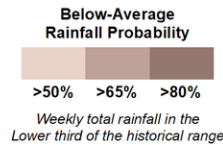
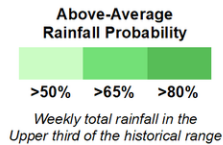
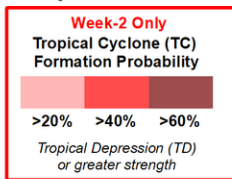
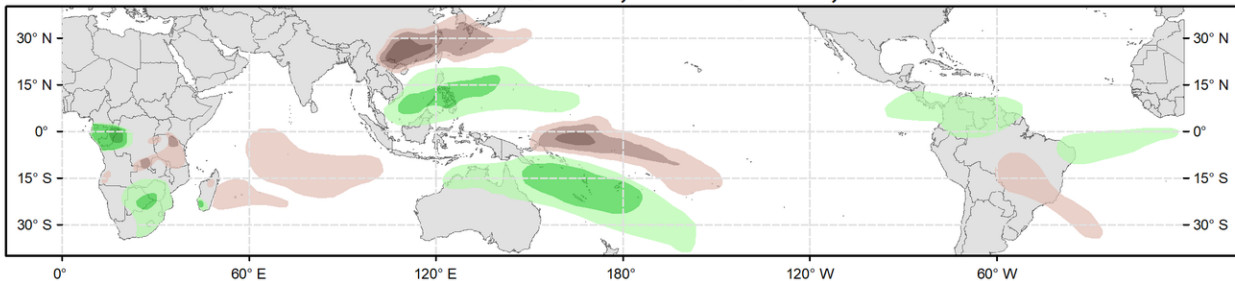
Climate Prediction Center



Week 2 - Valid: Dec 28, 2022 - Jan 03, 2023



Week 3 - Valid: Jan 04, 2023 - Jan 10, 2023



Issued: 12/20/2022
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.

During the month of December, the RMM index has continued to depict a weak, and poorly defined Madden-Julian Oscillation (MJO), though there has been a slight uptick in amplitude over the Indian Ocean during the past day or so. Upper-level velocity potential anomalies continue to reveal a more coherent representation of the MJO, with the center of the enhanced phase now located over the eastern Indian Ocean based on objective wavenumber-frequency filtering. Looking ahead, dynamical models generally favor a reemerging MJO in RMM space over the Maritime Continent during week-1, with continued eastward propagation into the western Pacific in week-2. By this time, the GEFS and CFS favor a weakened MJO as it enters the Pacific, which is likely tied to the destructive interference with the background La Nina base state. However, these models also show more of an enhancement of convection and anomalous lower-level westerlies reaching the Date Line south of the equator (5S-15S), suggestive of the MJO maintaining some semblance of an organized structure entering the New Year. Regardless of some of these uncertainties with the MJO, the large-scale environment is expected to remain favorable for tropical cyclone (TC) formation in the eastern Indian Ocean and Pacific during the outlook period, with decreasing chances for development over the western Indian Ocean later in the outlook period. With higher confidence for a reemerging MJO over the Maritime Continent next week, the extratropical response over North America historically favors the development of above-normal temperatures particularly for the central and eastern CONUS. This is consistent with ensemble mean 500-hPa height and temperatures guidance for week-2, where the predicted pattern change is anticipated to provide a welcome moderation of Arctic-like temperatures that are forecast for this part of the U.S. during week-1.

The enhanced phase of the MJO likely contributed to a pair of TCs forming over the Indian Ocean during the past week. TC Seven (ARB03) formed in the Arabian

Sea on 12/14 and appeared to be a regeneration of the remnants of TC Mandous that formed earlier in December over the Bay of Bengal. After reaching a peak intensity of 45kts while tracking westward, this system dissipated off the Horn of Africa this past weekend. South of the equator, TC Darian formed in the Indian Ocean on 12/18 near 12S/92E. Currently at category 3 strength, the Joint Typhoon Warning Center (JTWC) forecasts Darian to track westward along the 14th parallel and fluctuate in intensity under the influence of a variable sea surface temperature and moisture environment during the next 5 days. Beyond this time, deterministic GFS and ECMCF solutions show Darian accelerating and gaining latitude over open waters, eventually undergoing extratropical transition during the week-2 period.

For week-2, there is good agreement between the GEFS and ECMWF ensembles favoring an area of deepening low pressure over the South China and Philippine Seas. With the MJO favored to remerge over the Maritime Continent and propagate into the western Pacific, conditions would become more conducive for development, however this potential is countered by an increasingly inactive climatology for the basin in late December, prompting slight chances (20%) for genesis during the period. Over the southeastern Indian Ocean, dynamical models depict the development of anomalous lower-level westerlies to the north of Australia favorable for TC formation. This is reflected in the probabilistic TC genesis tools, however signals in the Timor Sea have lowered compared to previous runs, reducing forecast confidence and resulting in slight chances (20%) of TC development being issued. As the anomalous lower-level westerlies are forecast to expand eastward with time, an enhanced SPCZ and TC formation is increasingly favored late in week-2 for much of Melanesia and Polynesia and a broad slight chance area for TC development is posted.

The precipitation forecast for weeks 2 and 3 is based on a historical skill weighted blend of GEFS, ECMWF, CFS and Canadian ensemble forecasts, ongoing La Nina conditions, and MJO composites. For hazardous weather concerns in your area during the next two weeks, please refer to your local NWS office, the Medium Range Hazards Forecasts 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.