

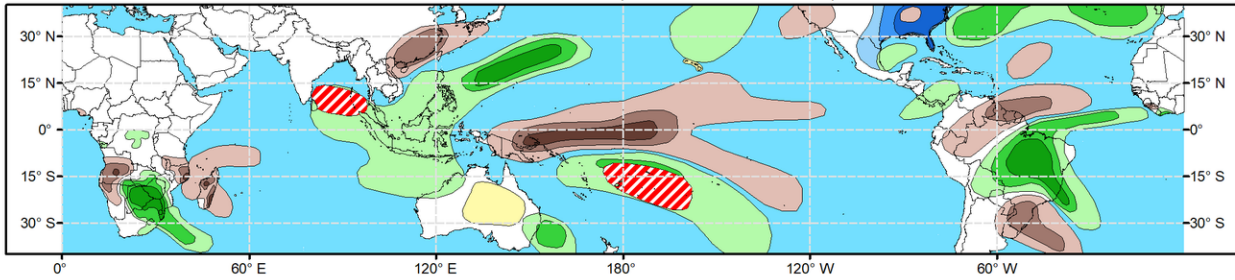


Global Tropics Hazards Outlook

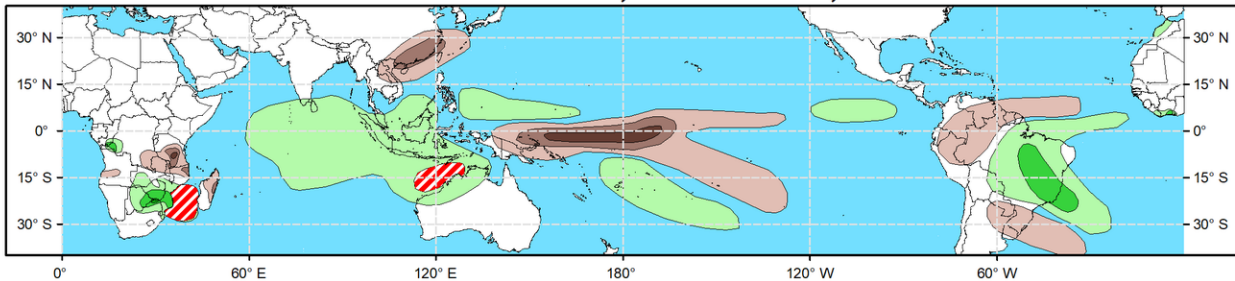
Climate Prediction Center



Week 2 - Valid: Jan 08, 2025 - Jan 14, 2025



Week 3 - Valid: Jan 15, 2025 - Jan 21, 2025



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: 12/31/2024
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.

The Madden Julian Oscillation (MJO) remains active where the enhanced convection phase has slowly propagated from the Maritime Continent into the Western Pacific during the past month. RMM index values currently place the MJO signal in phase 7, and the latest 200-hPa velocity potential anomalies show the center of the subseasonally varying enhanced convective envelope shifting over the eastern Pacific and tropical Americas. Tied to the developing La Nina conditions over the equatorial Pacific, as well as a negative Indian Ocean Dipole (-IOD) response to the east, stationary signals are becoming more evident in these fields, which likely explains the slower evolution of the subseasonal activity since early December and appear to be playing a stronger role in driving tropical convection in recent weeks.

Even in the face of increasing low-frequency variability, RMM forecasts remain consistent in favoring continued subseasonal activity heading into 2025, with the enhanced MJO envelope crossing the Western Hemisphere and reaching the Indian Ocean towards the middle of January. The favored evolution of the subseasonal signal is likely to lead to continued destructive interference with the emerging base state, mainly by means of interrupting the enhanced trade wind regime over the equatorial Pacific, as well as weakening the robust lower-level westerlies over the equatorial Indian Ocean. As a result, there is added uncertainty in the outlook due to the competing convective and circulation anomalies associated with these tropical modes, however there still remains some support for tropical cyclogenesis in the Indian Ocean and the South Pacific in the coming weeks. Additionally, there is also good support in the extratropical response over North America with the active MJO, as dynamical models are in good agreement favoring increased mid-level troughing and Arctic air advecting into the central and eastern CONUS, consistent with a negative Arctic Oscillation and North Atlantic Oscillation (-AO/-NAO) pattern unfolding

during week-2. While there is higher uncertainty beyond this lead, it is worth noting that should the MJO maintain its coherence as it returns to the Indian Ocean, it is likely to begin constructively interfering with the ongoing low frequency variability, and may result in stronger La Nina conditions later this winter.

Two short-lived Tropical Cyclones (TCs) formed in the southern Hemisphere during the past week. After forming in the southern Indian Ocean on 12/27 near 95E / 12S, TC Five peaked at 35 kts but soon dissipated a few days later near 97E / 15S. TC Six formed on 12/29 in the South Pacific just to the west of Fiji. Being remarkably small in size and lacking any deep convection, this system quickly dissipated on 12/30 within a strong shear and dry air environment. During week-1, low frequency westerlies are favored to persist along the equatorial Indian Ocean, conducive for one or more tropical lows forming south of the equator. With the easterly phase of the MJO favored to encroach the basin, these westerlies are expected to relax heading into week-2, however there is some support in the guidance for TC development in the Bay of Bengal where 20% chances are issued. In the South Pacific, there has been good continuity in the probabilistic TC genesis tools depicting increased chances for development from approximately 170E to 160W. Despite vertical wind shear being an inhibiting favor over this part of the basin during week-2, 20% chances are posted given support in composites indicating chances elevated above climatology associated with Western Hemisphere MJO events during Dec-Feb. By the middle of January and afterwards, an active MJO returning to the Indian Ocean is expected to bring a renewed TC genesis potential in the southern Indian Ocean, with decreasing chances for development over the South Pacific. Based on MJO composites and extended range probabilistic guidance, 20% chances are issued in the southwestern Indian Ocean near Madagascar as well as over the Timor Sea to the north of Australia for week-3.

Above and below normal precipitation forecasts for weeks 2 and 3 are based on the anticipated continuation of low frequency variability (La Nina, -IOD), Western Hemisphere and Indian Ocean MJO composites, anticipated TC tracks, and a skill weighted historical blend of CFSv2, GEFS, ECMWF ensemble forecast systems. In addition to the below-normal temperatures heavily favored for the eastern half of the CONUS, above-normal temperatures are forecast for much of the West Coast and parts of the Interior western U.S. Above-normal temperatures and excessive heat are possible for many parts of interior Australia with daytime temperatures possibly exceeding 105 degrees F during 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 produced by the Weather Prediction Center, and the CPC Week-2 Hazards Outlook. Forecasts issued over Africa are made in coordination with the International Desk at CPC.