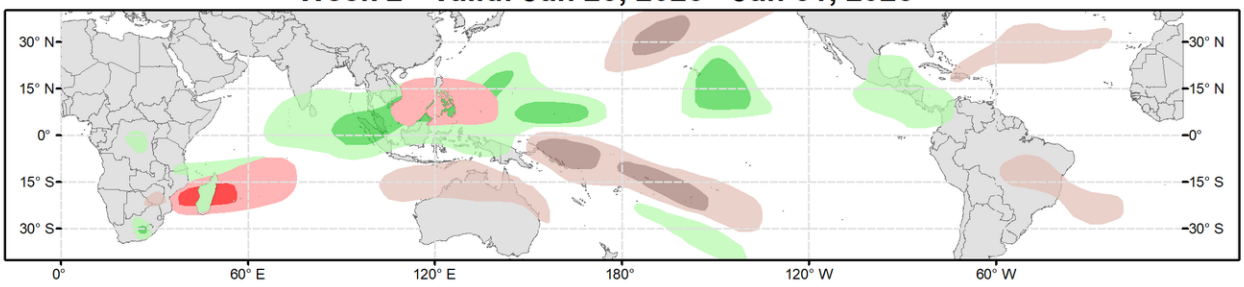
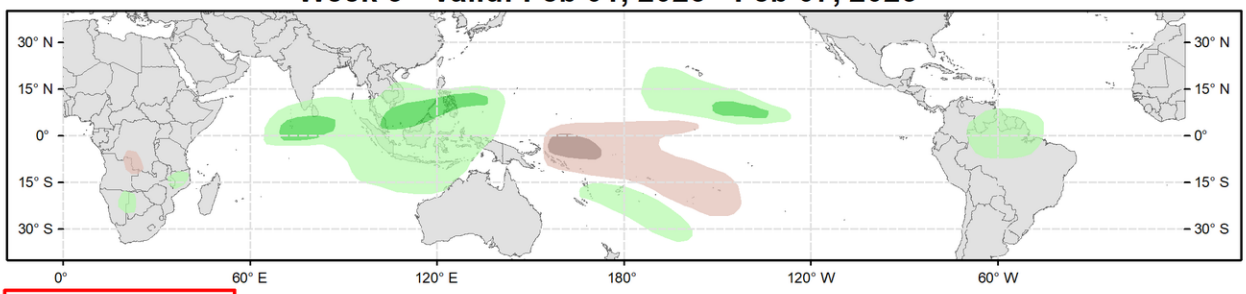
Global Tropics Hazards Outlook

Climate Prediction Center

Week 2 - Valid: Jan 25, 2023 - Jan 31, 2023



Week 3 - Valid: Feb 01, 2023 - Feb 07, 2023



Week-2 Only
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 mean temperatures in the Upper third of the historical range

Below-Average Temperatures Probability
>50% >65% >80%
7-day mean temperatures in the Lower third of the historical range

Issued: 01/17/2023
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) RMM index indicates a slowed and weakened MJO signal over the western Hemisphere, which appears to be tied to destructively interfering Rossby wave activity over the Americas during the last week. This is also reflected in CPCs velocity potential MJO index revealing a less organized wave-1 pattern throughout the global tropics. Despite this weakening, the leading edge of the enhanced MJO phase has continued to shift eastward, having crossed the Prime Meridian during the past week. Looking ahead, there is increased forecast confidence for a more coherent and potentially robust MJO emerging over the Indian Ocean, which continues to be predicted by several dynamical models during the next two weeks. Beyond this time, several RMM solutions point to a sharp decrease of the intraseasonal signal while continuing to propagate the active phase of the MJO into the Maritime Continent during early February. However, the impact of the removal of the interannual signal (120-day mean) in the RMM computation adds uncertainty. This procedure may be dampening the true MJO signal where its associated convective and circulation pattern becomes more in-phase with La Nina by this time. This potential underestimation of the MJO in RMM space is evidenced by extended range velocity potential forecasts from the GEFS and ECMWF, which show a more coherent wave-1 pattern, with the enhanced envelope maintaining some structure as it shifts eastward across the Maritime Continent and western Pacific later in February. Nonetheless, a potentially robust Indian Ocean MJO event favors increased chances for tropical cyclone (TC) formation in the southwestern portion of the basin, with decreasing chances over the South Pacific later in January. Outside of the tropics, a constructively interfering MJO may reinforce the low frequency La Nina base state and its typical extratropical response over North America, where models are beginning to favor more of a negative Pacific-North America (PNA) pattern taking shape by the end of January and early February.

No tropical cyclones formed during the past week, though the Joint Typhoon Warning Center has issued TC formation alerts on a disturbance located in the southern Indian Ocean (96S) and another in South Pacific (91P) with high chances of development in the near-term. For week-2, historical TC genesis composites during Jan-Mar Indian Ocean MJO events (phases 2 and 3) show elevated chances for development over the southwestern portion of the basin, with decreased chances over the waters north of Australia and into the South Pacific. This pattern is consistent with the probabilistic TC guidance during week-2, however there is uncertainty as to how much of these signals are tied to antecedent TC activity during week-1. Regardless, large scale conditions are likely to remain favorable for additional TC formation in this part of the Indian Ocean, which is supported in the latest ensemble and deterministic model guidance. Therefore, moderate chances (40%) for TC development are posted from the Mozambique Channel to the Reunion, with a broad coverage of slight chances (20%) issued extending eastward to approximately 75E. North of the equator, there has been good run-to-run continuity in the GEFS and ECMWF ensembles favoring a broad area of deepening low pressure over the South China and Philippine Seas early in week-2. Although climatology is not particularly favorable for genesis in the northwestern Pacific, there is additional support from probabilistic tools with ensembles favoring stronger anomalous lower-level westerlies to warrant slight chances (20%) being issued in the region.

The precipitation outlook for weeks 2 and 3 is based on a historical skill weighted blend of GEFS, CFS, ECMWF, and Canadian ensemble guidance, MJO composites, ongoing La Nina conditions, and potential TC tracks. For hazardous weather concerns in your area during the next two weeks, please refer to your local NWS office, the Medium Range Hazards Forecast for the Weather Prediction Center (WPC), and CPC Week-2 Hazards Outlook. Forecasts over Africa are made in coordination with the International Desk at CPC.