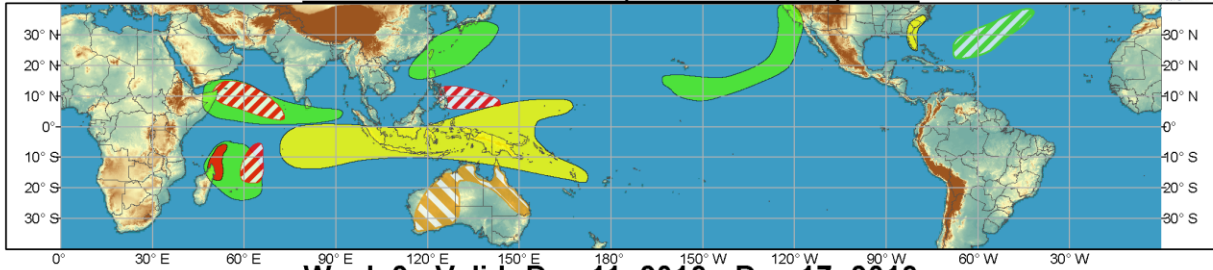




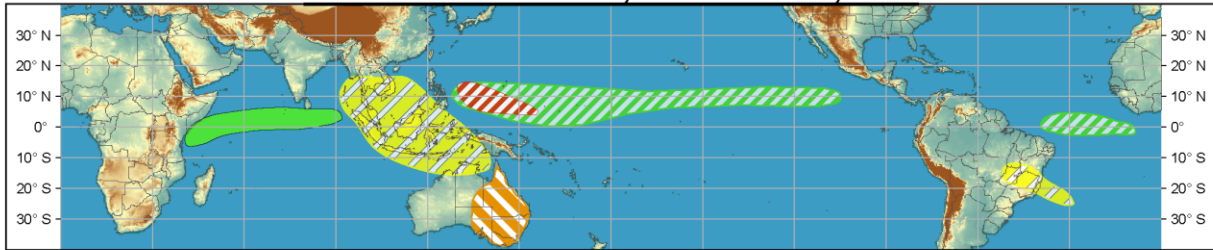
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Dec 04, 2019 - Dec 10, 2019



## Week 2 - Valid: Dec 11, 2019 - Dec 17, 2019



**Confidence**  
High Moderate

<b>Tropical Cyclone Formation</b>		Development of a tropical cyclone (tropical depression - TD, or greater strength).
<b>Above-average rainfall</b>		Weekly total rainfall in the upper third of the historical range.
<b>Below-average rainfall</b>		Weekly total rainfall in the lower third of the historical range.
<b>Above-normal temperatures</b>		7-day mean temperatures in the upper third of the historical range.
<b>Below-normal temperatures</b>		7-day mean temperatures in the lower third of the historical range.

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.

Produced: 12/03/2019

Forecaster: Harnos



Numerous modes of tropical variability were at play across the Indian Ocean during the past week, resulting in a complicated perspective. First, the ongoing Indian Ocean Dipole event remained anchored across the basin, although sea surface temperature observations show a continued weakening from its record weekly values. Constructive interference occurred with the IOD-driven enhanced convection across the western Indian Ocean, a pair of equatorial Rossby waves in both hemispheres, and the enhanced phase of the Madden-Julian Oscillation (MJO). On top of this, a Kelvin wave passed through the region in late November, further encouraging anomalous convection over the Arabian Sea and southwestern Indian Ocean. The net result was a strong east-west dipole of enhanced (suppressed) convection over the western Indian Ocean (Maritime Continent), with some displacement of the suppressed convection into the Southern Hemisphere that may have been tied to cross-equatorial outflow from Typhoon Kammuri in the West Pacific. The RMM index perspective of these interactions was a counterclockwise loop in Phase 2 at an amplitude near 1, with some signs of renewed eastward propagation of the intraseasonal envelope. Model guidance continues this eastward propagation for the next two weeks toward the Maritime Continent, but is divided over how quickly this occurs and how robust the amplitude of the event would be. The forecast here generally favors MJO Phase-2 during Week-1 and Phase 3-4 during Week-2, with the caveat that Week-2 would see destructive interference with IOD that reduces confidence some at that forecast lead.

Tropical Storm Six was one of two tropical cyclones (TCs) to develop over the past week. This system formed east of the Horn of Africa on the 3rd and is forecast to remain at tropical storm intensity and track westward into Somalia by late in the first week of December. Later on the 3rd, Tropical Storm Seven developed in the Arabian Sea with the latest JTWC forecast having the system maintain marginal tropical storm strength while tracking west-northwestward over the next several days. While not forming last week, Typhoon Kammuri made landfall in the Philippines on the 2nd of December as a Category 3 storm while dropping 150-250 mm of rainfall and causing at least four fatalities.

The Joint Typhoon Warning Center (JTWC) is presently monitoring two disturbances for TC formation potential. The first of these is located north-northeast of Madagascar, with JTWC giving the system a medium chance of becoming a TC in the next 24 hours. Model guidance consistently strengthens the system to below 980-hPa over the next several days, resulting in high confidence of its formation during Week-1 in this outlook. Elsewhere, a circulation south of the Marianas is given a low chance of becoming a TC in the next 24 hours by JTWC. Model guidance brings this system east of the Philippines over the course of the next week with some modest intensification, resulting in moderate confidence for a TC developing over the next week. Beyond those two systems, model guidance develops a circulation west of the Maldives by Friday and forecasts gradual intensification of the low as it tracks toward the Gulf of Aden which results in moderate confidence of tropical cyclogenesis during Week-1. A second TC may also develop during Week-1 east of the system in the southwestern Indian Ocean, resulting in another moderate confidence of TC formation region. Lastly, Rossby wave activity continues to be forecast east of the Philippines during Week-2, resulting in moderate confidence for tropical cyclogenesis across a slightly eastward shifted region relative to that of Week-1.

High confidence for above-normal precipitation exists during Week-1 in association with tracks from ongoing or anticipated TCs in the Indian Ocean and West Pacific, while frontal activity during Week-1 is anticipated to miss the Southeast U.S., yielding high confidence for below-normal precipitation. The anticipated eastward propagation of the MJO and continued Rossby wave activity result in a continuation of high confidence for above-normal rainfall over much of the Indian Ocean during Week-2. Moderate confidence for above-normal precipitation across much of the Pacific near 10N is tied to the low frequency state, forecast Rossby wave activity, and MJO composites for Phases 3 and 4. Remaining precipitation forecasts are tied to dynamical model consensus of the CFS, GFS, and ECMWF ensembles. Moderate confidence for above-normal temperatures across portions of Australia during the next two weeks is in line with the latest outlooks from the Australian Bureau of Meteorology and CPC's probabilistic extremes guidance from the GEFS and ECMWF.

Forecasts over Africa are made in consultation with the CPC International Desk, and can represent local-scale conditions in addition to global-scale variability.