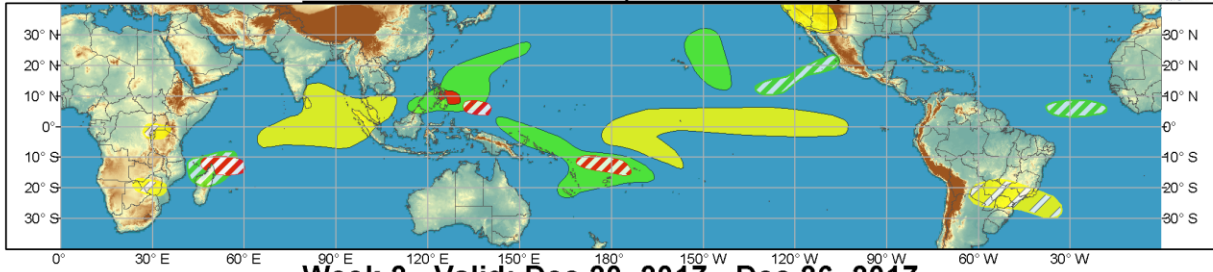




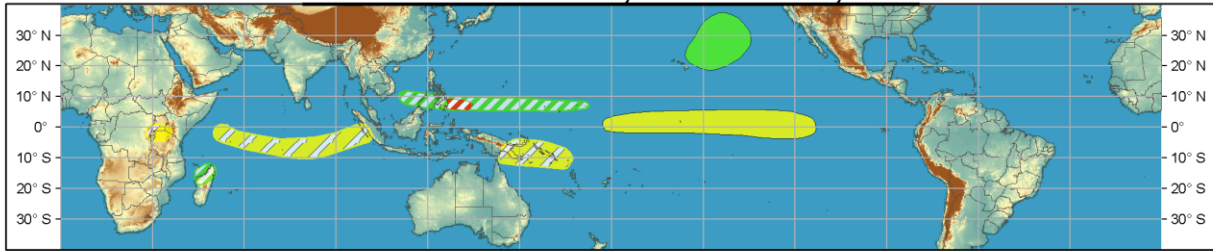
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Dec 13, 2017 - Dec 19, 2017



## Week 2 - Valid: Dec 20, 2017 - Dec 26, 2017



**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: 12/12/2017

Forecaster: D.Harnos

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.



The Madden-Julian Oscillation (MJO) presence is mixed depending on whether you evaluate the CPC velocity potential index, which is supportive of an active MJO approaching the Western Hemisphere, or RMM index, which has recently shifted inside the unit circle from Phase 7. Closer inspection of fields that go into the RMM index reveals that the MJO remains present over the Western Pacific, with a particularly robust signal in 850-hPa zonal winds, although the RMM index appears to be having difficulty in isolating the MJO envelope from competing signals of a Kelvin wave moving across Africa and the active phase of an Equatorial Rossby wave in the vicinity of the active MJO envelope. The GEFS appears to overdo the Rossby wave activity in its forecast over the next two weeks, with its RMM index forecasts looping back towards Phase 6 and then shifting back into Phase 7. The ECMWF model appears to be doing a better job of isolating the eastward propagating MJO envelope, increasing the amplitude in Phase 7 during Week-1 and reaching Phase 8 during Week-2. The ECMWF perspective of the MJO is a driving factor in the present outlook, in conjunction with the ongoing La Nina event in the Pacific. Destructive interference between the colocated La Nina event and active MJO envelope reduce confidence in the forecast as the forecast lead time increases.

Over the past week Tropical Storm Four formed in the Bay of Bengal on the 8th of December. This short-lived system drifted northward and brought heavy rain to parts of eastern India and Bangladesh. Prior to developing into a tropical cyclone (TC), this system brought widespread flooding and landslides to Indonesia and Thailand, killing at least 20 people.

Multiple areas exist for possible TC formation during Week-1. The first is in association with a circulation near 9N/132E as of 6 UTC on 12 December, that is forecast to intensify and cross the Phillipines and enter the South China Sea over the next several days. The Joint Typhoon Warning Center gives this system a medium chance of development prior to the forecast period, but confidence is high in the system forming overall. Another system may form between 131-141E and 4-9N late in Week-1, or between this area and the southern Phillipines early in Week-2, with moderate confidence for development. The track of this system is forecast to be similar to the preceding TC, although likely slightly to its south. Elsewhere during Week-1, TC development is possible over the South Pacific between Vanuatu and Samoa. This disturbance is forecast to track eastward and potentially skirt southern portions of Samoa and American Samoa. All of the aforementioned TC development areas are broadly consistent with the MJO tracking from Phase 7 into Phase 8. Lastly, TC formation is possible near northern Madagascar between 45-60E and 10-15S during Week-1. This system is forecast to drift west-southwest before turning southward over the Mozambique Channel. This system is the only one of the aforementioned potential TCs that would not be implicitly linked to enhanced development probabilities from the active MJO traversing the West Pacific.

Multiple areas of anomalous precipitation can be forecast with high confidence during Week-1 due to the active MJO event coupled with the ongoing La Nina. First, the region of anomalously cool sea surface temperatures in the Central Pacific is highlighted for high confidence of suppressed rainfall during both Week-1 and Week-2, generally where anomalies of -1 degree Celsius or greater have been observed. This Week-2 anomalously dry region is reduced spatially relative to Week-1, due in part to increasing potential for destructive interference from the MJO envelope as it potentially enters Phase 8 in Week-2. With expectations for the MJO in Phase 7 during Week-1, this gives high confidence for above-average rainfall from east of New Guinea through the South Pacific and also from the South China Sea into the West Pacific. The suppressed phase of the MJO is favored to be across the eastern Indian Ocean during Week-1, resulting in high confidence for below-average rainfall in this region. Lastly, lagged composites of the MJO in Phase 7 support anomalous dryness for the southwestern U.S. during Week-1, which is also supported by dynamical model guidance that forecasts no widespread precipitation here throughout the next 7 days. High confidence also exists for above-average rains near Hawaii during both weeks due to anomalous troughing from the mid-latitudes in the vicinity of the islands. Remaining areas of anomalous precipitation in Week-1 are due to the anticipated TC developing near Madagascar and otherwise due to agreement among dynamical model guidance.

In Week-2, moderate confidence for above-average rains is possible in a meridionally narrow strip near 10N from the South China Sea through the West Pacific where model guidance suggests a Kelvin wave will pass. This area could be further impacted by the TC formation near the Philippines late in Week-1 or early in Week-2. Elsewhere, moderate confidence for anomalous dryness exists in the Indian Ocean and east of New Guinea as indicated by dynamical model guidance. Lagged mid-latitude impacts for North America tend to be more muted with the MJO over the Western Hemisphere, but could re-emerge beyond Week-2 if the MJO were to make it through the Western Hemisphere and approach the Indian Ocean.

Forecasts over Africa are made in consultation with CPCs international desk, and can represent local-scale conditions in addition to global-scale variability.