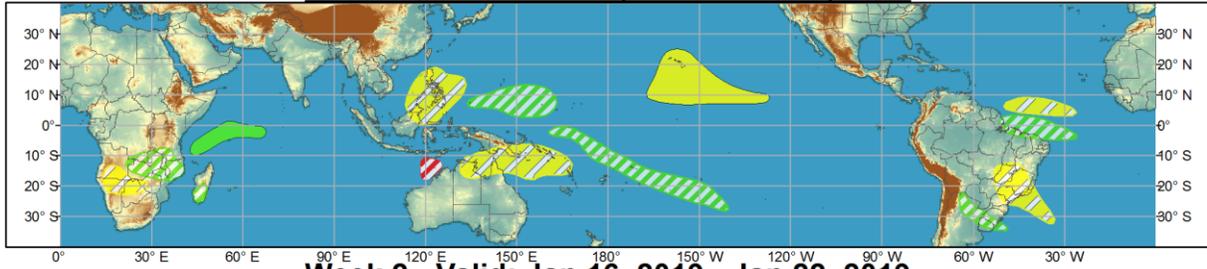




# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



**Week 1 - Valid: Jan 09, 2019 - Jan 15, 2019**



**Week 2 - Valid: Jan 16, 2019 - Jan 22, 2019**



**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.

**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: 01/08/2019

Forecaster: Artusa



Between Christmas and New Year's, an equatorial Rossby wave (ERW) interfered with the MJO signal over the Maritime Continent (RMM Phase 5), resulting in a reduction of its phase speed. During the first week of 2019, the MJO propagated rapidly eastward across the western Pacific (RMM Phases 6 and 7), with the most recent observation now in Phase 8 (primarily central and eastern Pacific). Convection has been relatively stationary near and just west of the Date Line for the past 1-2 weeks, and substantial uncertainty remains regarding the expected duration of the convection in that region. There are several other noteworthy features to highlight this week. The first is an active South Pacific Convergence Zone (SPCZ) that extends from near the northeastern coast of Australia southeast to about 40S/120W. Two concentrated areas of vorticity within this band developed into Tropical Cyclones (TC) Mona and Penny. The second noteworthy feature is currently near the Brazilian coast and appears to be an ERW with some indication of a nearby Kelvin wave (KW).

The dynamical model forecasts of the MJO index in RMM phase space depict limited eastward propagation of the intraseasonal signal across Phases 8 and 1 (Western Hemisphere and Africa) during Week-1. All agree on a rapid deamplification of the MJO signal to within the unit circle during this period. During Week-2, however, there is large uncertainty as to where another subseasonal signal may

emerge, with forecasts ranging from the Indian Ocean (ECMWF) to the western Pacific (GEFS). The Canadian model predicts possible re-emergence of a signal between Phases 4-6 (Maritime Continent and western Pacific). Due to the superior recent performance of the ECMWF model with this MJO event, the ECMWF solution is favored. However, the large model uncertainty in Week-2 makes it very difficult to confidently predict what, if any, impacts the MJO may have on the United States.

There were three TCs this week over the global tropics. TC Mona (which fizzled between Fiji and Tonga), TC Penny (which has rapidly succumbed to a high vertical shear environment) near the northeast coast of Australia, and Tropical Depression 01W (western North Pacific near 3.9N 171.8E according to the Joint Typhoon Warning Center, 6z, 8 Jan 2019). This last system may regenerate in the next few days. Elsewhere, the ECMWF model and Taiwan's Typhoon Tracker both depict TC development near the end of Week-1 off the Kimberley coast of Australia.

The Week-1 forecast is mostly based on the MJO being in Phase 8, the continuation of an active SPCZ, and on areas of agreement between CFS and ECMWF precipitation forecasts. Above average rainfall is favored over the tropical western North Pacific (MJO-related convection and possible regeneration of TC 01W), along the SPCZ, the western Indian Ocean, Uruguay and northern Argentina (related to baroclinic influences), and near the Brazilian coast (ERW/KW). Below average rainfall is favored over the general vicinity of the Philippines, Papua New Guinea and extreme northern Australia, the central North Pacific (related to the lower frequency background state), off the northeast coast of Brazil (ERW/KW), and southern Brazil (possible baroclinic influences).

The Week-2 forecast is quieter. Above average rainfall is expected over parts of the tropical North Indian Ocean (possible re-emergence of subseasonal signal), and the eastern North Pacific (ITCZ). Below average rainfall is forecast for the South Indian Ocean, the equatorial central Pacific (expected low-frequency footprint during January), and southern Brazil.

Forecasts over Africa and South America are made both in consultation with the CPC international desk and using dynamical model consensus, and therefore can represent local scale conditions in addition to global scale variability.