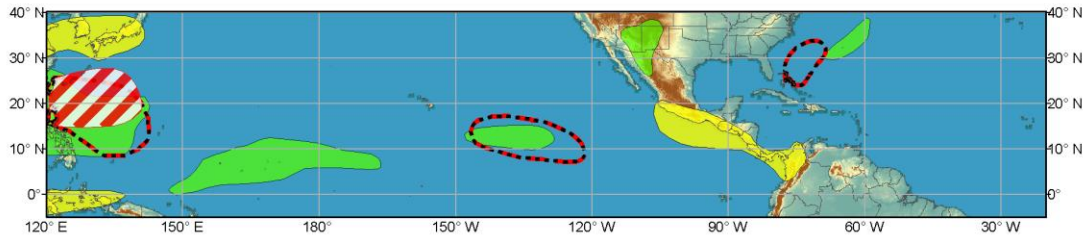




Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Jul 14 2018 - Jul 17 2018



Week 2 - Valid: Jul 18 2018 - Jul 24 2018



Confidence
High Moderate

Produced: 07/13/2018
Forecaster: D.Harnos

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Prior TC Formation Outlook** Tropical cyclone outlook from previous release.
- 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. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.



The RMM index continues to show the active Madden-Julian Oscillation (MJO) lingering over the eastern Maritime Continent, with minimal eastward progression observed in recent days. The MJO is currently dominated by the zonal winds, with both 850-hPa and 200-hPa contributions of around two standard deviations, despite outgoing longwave radiation exhibiting minimal amplitude. Model guidance remains consistent with predicting a more progressive signal beginning in the next few days with the remainder of Week-1 being in Phase 5, while Week-2 is a combination of Phases 5 and 6 as the signal enters the West Pacific. This uptick in phase speed of the intraseasonal envelope among model guidance appears tied to Kelvin wave activity, presently near 120E, overtaking the slower intraseasonal envelope which is currently closer to 150E. Model guidance continues to hint the MJO signal will continue to be circulation driven with limited convective coupling supported at this time, despite the increasing oceanic heat content available across the Pacific associated with the anticipated transition towards El Niño later this year.

The National Hurricane Center (NHC) continues to monitor the redevelopment of Hurricane Beryl in the Atlantic off of the Eastern Seaboard, but with only a 30% chance of redeveloping into a tropical cyclone (TC) over the next 5 days the system is dropped from the forecast map. Similarly in the Pacific, the

trough of low pressure currently near 12N/125W persists but is not overly organized and NHC supporting a 30% chance of TC formation that does not appear in the updated forecast here. In the West Pacific, moderate confidence continues for a pair of systems possibly developing east of Taiwan and the Philippines during the remainder of Week-1. A moderate confidence TC formation region was considered during Week-2 within the Mei-yu front in an area similar to Week-1, but the GEFS is the only forecast model bullish on this development while also having a noted false alarm bias for tropical cyclogenesis relative to other ensemble systems.

Above- and below-median precipitation areas during the remainder of Week-1 and Week-2 were updated in line with the latest CFS and ECMWF guidance. The most predominant changes are: the addition of a Kelvin wave-driven above-normal precipitation shape extending across the east Pacific during Week-2, a slightly more progressive Mei-Yu front in the West Pacific that impacts favored above-normal precipitation within the feature as well as below-normal precipitation to its south, and refinement of areas that may see above-normal precipitation with the North American Monsoon.

----- The previous discussion from July 10th follows below. -----

The RMM-based MJO index has shown an amplifying enhanced convective signal centered over the Maritime Continent during the past few days, albeit with little to no eastward propagation. The CPC upper-level velocity potential based MJO index is consistent, depicting a weak signal that has yet to propagate. The emergence of this signal is potentially tied to extratropical forcing from a Southern Hemisphere wave train that is apparent in the 200-hPa zonal wind anomaly field, with enhanced ridging centered just east of Australia and a downstream trough breaking onto the Equator near and west of the Date Line, injecting westerly anomalies aloft. The big question is whether this emerging tropical signal couples convectively and begins propagating eastward. Both the CFS and ECMWF do depict some eastward propagation of the RMM signal, with the phase speed on the slow end of canonical MJO events. Statistical tools are broadly consistent with the dynamical model MJO forecasts. Other modes of variability, including potential tropical cyclones and additional midlatitude influences, are likely to continue influencing the overall pattern. A potential MJO event emerging over the West Pacific may also play a role in the evolution of the base state towards El Nino conditions via further disruption of the Pacific trade winds. Some of the bias-corrected ECMWF RMM-index forecast ensemble members depict a high amplitude (3 standard deviations) West Pacific event, which would be consistent with a base state transitioning towards a warm ENSO event.

Two tropical cyclones formed over the Atlantic basin during the past week. Hurricane Beryl developed on July 5 as a very small circulation embedded in a broader region of disturbed weather. Due in part to its small circulation, both the intensification to hurricane status over the central Atlantic and subsequent dissipation east of the Lesser Antilles were rather abrupt. Tropical Storm Chris developed off the coast of the Carolinas near 75W, and has moved little over the past several days. A strengthening to hurricane intensity is favored by the NHC, with the storm rapidly recurving to the northeast over the next 72 hours. Little impact to land other than increased ocean swells is expected. Over the West Pacific, Typhoon Maria strengthened to Category-3 intensity on the Saffir-Simpson scale, and is forecast to pass just north of Taiwan before making landfall over eastern mainland China early in the period. Additional tropical cyclogenesis is favored over the West Pacific basin during Week-1, with a disturbance near Guam (Invest 92W) favored to develop over the next few days east of the Philippines. A second system may form over the northern South China Sea later in the Week-1 period. Further east, there is a low to moderate potential for tropical cyclone formation over the east-central Pacific well west of 120W, and southeast of Hawaii in the vicinity of enhanced ITCZ activity. Additionally, the remnants of Hurricane Beryl, or the broader disturbance in which it was embedded, have a moderate potential for redevelopment during Week-1 just east of the Bahamas. Most GFS ensemble members keep this system east of the mainland U.S., although the potential for impacts along the coast cannot be completely ruled out. During Week-2, additional tropical cyclogenesis is possible over the Northwest Pacific near or west of Guam, while the Western Hemisphere basins appear to quiet down.

Forecasts for above- and below-normal precipitation were made utilizing MJO composites for canonical Maritime Continent and West Pacific events, and a consensus of CFS and ECMWF dynamical model guidance. During Week-1, enhanced monsoon activity is anticipated across central India and Southeast Asia, with the monsoon trough extending well over the northwestern Pacific. Suppressed convection is favored to the south and north of this region across the equatorial Indian Ocean and western Maritime Continent, as well as northeastern China, the Korean Peninsula, and southern Japan. Enhanced convection is favored to extend across much of the Pacific north of the equator, although suppressed convection is favored along Mexico's southern coast, western Central America, and the adjacent waters of the far East Pacific. Enhanced monsoon activity is anticipated across the Southwest U.S., with the heaviest precipitation favored along the Arizona and New Mexico border. Additionally, a cold air outbreak may bring a period of near to below freezing temperatures to southern Brazil as far north as Parana.

The Week-2 forecast is broadly similar to the Week-1 pattern, which is consistent with a slowly evolving MJO signal. Enhanced convection is favored to extend across Southeast Asia, the South China Sea, and across much of the tropical North Pacific, which is consistent both with the intraseasonal signal and the slowly evolving base state. Suppressed convection is anticipated to continue to the south of this region, across the equatorial Maritime Continent. Suppressed convection is also favored to persist over the East

Pacific, southern Mexico, and Central America, although an MJO event emerging over the West Pacific may induce Kelvin wave activity late in the Week-2 or Week-3/4 periods.

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