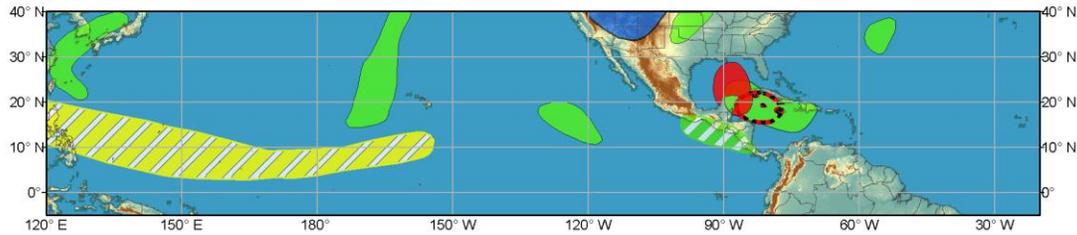




Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Oct 06 2018 - Oct 09 2018



Week 2 - Valid: Oct 10 2018 - Oct 16 2018



Confidence
High Moderate

Produced: 10/05/2018
Forecaster: MacRitchie

- 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.



Today's update makes few changes to Tuesday's GTH forecast. The forecast high risk area of tropical cyclone formation in the Gulf of Mexico has been shifted north to match up with the latest model guidance and NHC forecast. The experimental GFS FV3 is the most optimistic about TC development in this region around Sunday/Monday of next week. Several ensemble members from the operational GFS and ECMWF models also support this, although their deterministic counterparts do not. Observationally, development seems likely since wind shear is low and SSTs are warm enough to support a TC formation. Regardless of whether this system develops, low pressure in that region is forecast to move north and bring heavy rain to the Southeast CONUS during the first few days of Week-2.

The other important change is the forecast area of precipitation in the east Pacific during Week-2. The NHC and model forecasts for Hurricane Sergio expect the storm to curve back towards land during the middle of next week. If Sergio moves inland it could bring significant moisture to the Southwest during Week-2.

*** Original Discussion (10/2/2018) Below: ***

The Madden-Julian Oscillation remained across the Western Hemisphere the past week, as indicated by the RMM and velocity potential-based indices. Some doubt exists as to whether the present event is actually driven by the tropics, as it aligns well with the response to an extratropical wave train extending across the Pacific and North America. Substantial convergence from both hemispheres is apparent in the far East Pacific, helping result in robust westerly anomalies at 200-hPa. Further, typical extratropical circulation responses to the MJO in Phase 8 do not appear to be present, giving further support to the extratropics driving the tropics in the present scenario. Nevertheless, model guidance propagates the intraseasonal signal eastward during the next two weeks with Phase 1 conditions anticipated during Week-1, and a mix of Phase 1 and Phase 2 during Week-2. Model guidance does show some signs of crashing the intraseasonal signal back into the unit circle late in Week-2. However, some caution should be exercised with this solution given the developing El Nino conditions in the Central Pacific that can manifest in a shift in the mean RMM space towards the top left quadrant (Phase 7 and 8). Also of note this week, is the continuation of the westerly wind burst event near 160E and corresponding oceanic Kelvin wave likely acting to help reinforce the transition towards El Nino during boreal winter. Much attention will be paid to how this event alters the tropical Pacific state in building up the warm water reservoir, given anomalous westerlies on the order of 10 m/s being forecast to potentially make it as far east as 120W in the coming days.

Three tropical cyclones (TCs) developed the past week, including two Category 5 systems. The first system was Super Typhoon Kong-Rey that formed near 7N/151E on the 28th of September. Kong-Rey underwent a prolonged period of rapid intensification from the 30th through 2nd, where it strengthened from 60 to 140 knots as it tracked to the west-northwest. Current forecasts take Kong-Rey through the East China Sea and towards Jeju Island while maintaining typhoon intensity. Hurricane Walaka formed south of Hawaii on the 29th of September, and intensified to a 140 kt Category 5 system by the 1st of October. Walaka is forecast to pass west of Hawaii, with minimal impacts to the islands. Lastly, Hurricane Sergio formed off the southern coast of Mexico on the 29th, with a more modest peak intensity of 85 knots thus far. Sergio is forecast to continue intensifying while tracking west-northwestward into Pacific, but shows signs of possibly recurving and approaching the northern Baja Peninsula during the second half of Week-2. This system could bring another shot of heavy rainfall into the Southwest.

Multiple areas are being monitored for TC formation potential during the next two weeks. The National Hurricane Center (NHC) is monitoring a broad area of low pressure in the southwestern Caribbean that may become increasingly organized while tracking northward in the coming days with forecasts showing weakening of ongoing westerly wind shear. NHC gives this region a 20% chance of forming in the next 5 days, but given that this outlook extends another 2 days beyond NHC's period, moderate confidence of development is forecast here. This system could bring heavy rains to the southeastern U.S. regardless of

whether it develops into a TC. In the East Pacific during Week-2, moderate confidence of a TC developing exists between roughly 90-110W and 10-15N due to persistent conditions favorable for TC formation and easterly shear forecast over the region. Lastly, twin TCs may form in the Indian Ocean during Week-1 in response to an atmospheric Kelvin wave. High confidence exists for the northern hemisphere system to develop off the southwestern coast of India, with a track towards Oman. Moderate confidence exists for the southern hemisphere system, presently near 5S/76E, to develop as it drifts to the west-southwest in the coming days.

Precipitation forecasts during the next two weeks are closely tied to the ongoing and forecast TC activity. As the MJO pushes towards the Indian Ocean, conditions in that basin are anticipated to shift towards favoring above-normal precipitation, with increased suppression of convection across the West and Central Pacific as the suppressed phase of the MJO transitions towards that region. During Week-2, the low frequency state and suppressed phase of an equatorial Rossby wave are anticipated to destructively interfere with the MJO-favored enhanced convection across the Indian Ocean, leading to reduced forecast confidence across the region. High confidence also exists for below-normal temperatures across much of the western U.S. in response to an amplified trough in the forecast, although this pattern appears to be extratropically forced as noted earlier. Despite this, the MJO in Phase 1 is typically associated with deepening trough over the West, but the upstream circulation pattern from empirical guidance during Phase 1 looks nothing like the observed circulation.

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