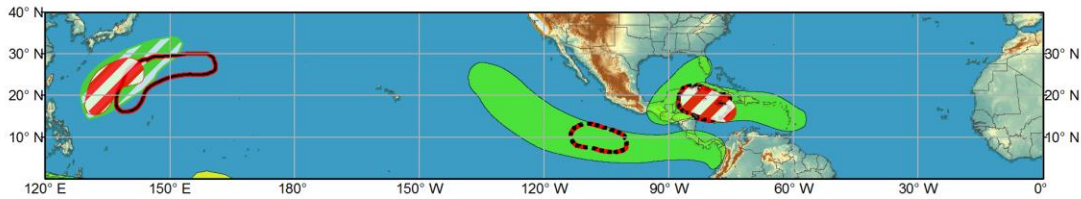




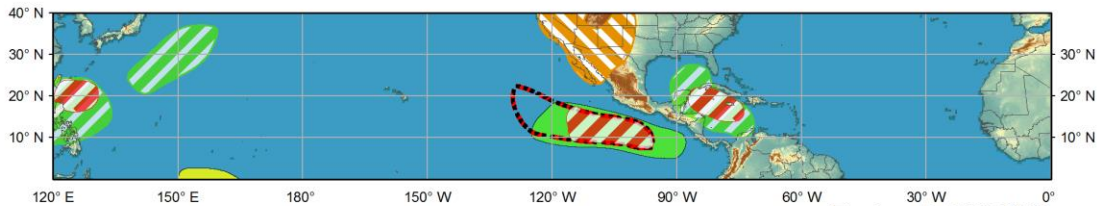
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Oct 03 2020 - Oct 06 2020



## Week 2 - Valid: Oct 07 2020 - Oct 13 2020



Confidence  
High Moderate

Produced: 10/02/2020  
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.



The MJO remains weak. The latest CFS guidance has changed from forecasting weak eastward propagation on Tuesday to nearly stationary conditions in today's run. Those stationary conditions are forecast to continue through the end of October and reinforce the notion that tropical variability will likely be driven by higher frequency waves (e.g. Kelvin and Rossby waves) throughout the GTH forecast period.

Tropical Depression 18 in the East Pacific, referenced in Tuesday's discussion, is now Hurricane Marie. As of 8 AM PDT on Oct 2, Marie has sustained winds of 130 mph and is forecast to move northwest. The NHC forecasts Marie to weaken into a tropical storm by early Monday. The NHC is monitoring another area in the East Pacific for development during the next 5 days. As of 2 pm EDT on Friday, this secondary area has a 20% chance of TC formation, which is 20% below our criteria for a moderate risk and is therefore not included in the forecast map during Week-1.

Tropical Depression 25 formed this morning over the Northwest Caribbean, so the corresponding moderate risk shape has been removed from the map. There is a moderate risk of another storm

forming in a similar area right around the Week-1/Week-2 transition, which is October 6-7. A corresponding hazard has been posted for both weeks.

Other potential tropical cyclone areas, in the West and East Pacific, have been modified slightly to fit the latest model guidance. There is still a moderate risk of another TC forming in the West Pacific, although the indicated area is shifted west compared to Tuesday's forecast. During Week-2, the area of potential TC formation in the East Pacific has shrunk compared to Tuesday's forecast.

----- Original Discussion from Tuesday, September 29 follows: -----

The Madden-Julian Oscillation (MJO) remains weak and its future is uncertain. The strongest MJO projection is onto the 200-hPa velocity potential field, which features a moderate amplitude Wave-1 pattern suggesting the active MJO is located over the Maritime Continent, in RMM Phase 5. However, the MJO's wind and OLR projections are weaker, which results in a weak RMM projection. Furthermore, the suppressed phase of an atmospheric Kelvin wave is projected to move through the Pacific and Atlantic during the next week, which will probably act to further suppress the MJO signal and confuse the model guidance. None of our dynamical models forecasts a strong MJO during Weeks 1 and 2, but the interaction between this weak subseasonal variability and the interannual variability found in the Indian Ocean and Pacific forms the basis for many of the areas of forecast rainfall in today's forecast.

Even a weak MJO can affect global weather. A clearly defined Rossby wavetrain extends from the area of active MJO convection in the eastern Indian Ocean (IO) along a great circle path to North America. This pattern is consistent with climatological MJO events. Anomalously warm temperatures throughout much of the western CONUS are forecast during Week-1 and Week-2 as a result of this pattern. Please consult CPC's U.S. Hazards product for more information on anomalous heat risks in the West.

The East Pacific is beginning to take on La Nina characteristics. During La Nina, the descending branch of the Walker Circulation typically shifts east along the Equator, aligning with the suppressed anomalous convection forced by negative sea surface temperature (SST) anomalies. This often results in anomalous easterlies in the upper troposphere and anomalous westerlies in the lower troposphere over the Central and Eastern equatorial Pacific. The latest observations from that region show that this pattern has developed since mid-September. It will be interesting to observe how this process unfolds over the next several weeks, but it's possible that this shift in the Walker Circulation will help a teleconnection to form between East Pacific and North America.

There are indications from several dynamical models, including the GEFS and ECMWF, that a tropical cyclone will form in the northwest Caribbean during Week-1. We have posted a moderate risk of formation to this effect, which aligns closely with the National Hurricane Center's (NHC) latest five-day forecast. We have also posted a high risk of above median precipitation that overlaps with this potential TC area and also includes southern Mexico and northern Guatemala, where northwesterly low-level winds are likely to result in significant rainfall through at least Thursday of this week. Significant rainfall is also expected to reach southern Florida during Week-1 and perhaps during early Week-2. Please consult the WPC's and CPC's U.S. Hazards products for more information on this threat.

Tropical depression 18 (TD18) formed on September 29 in the East Pacific. The NHC forecasts this storm to reach hurricane status and track northwestward over the next five days. Several models, including the GEFS and ECMWF, forecast another tropical cyclone to form in the wake of TD18 during Week-1, so we have posted a moderate risk to reflect this possibility. This threat continues into Week-2 as a Kelvin wave moves through and models suggest a larger area of TC formation than Week-1.

SST anomalies in the IO exhibit a zonal gradient that is reminiscent of a negative Indian Ocean Dipole (IOD) event. Negative SST anomalies are constrained to the far western IO and positive SST anomalies are found throughout much of the central and eastern IO. The anomalously warm SSTs typically result in anomalous convection, which then drives a miniature version of the Walker Circulation. Indeed, observed velocity potential anomalies from the past few days suggest that this circulation is in the process of forming. The CFS forecasts it to continue forming through October.

An equatorial Rossby (ER) wave is forecast to move through the southern Indian Ocean during Week-1 and early Week-2, which, combined with the aforementioned warm SSTs, could lead to tropical cyclone formation. Development appears most likely during October 6-8, which encompasses both Week-1 and Week-2, so a moderate risk hazard is posted for both weeks. The CFS and GEFS suggest that if this TC does form, it will track westward.

The Joint Typhoon Warning Center (JTWC) is monitoring Tropical Storm Kujira in the West Pacific and a region just south of Kujira, which could develop into a tropical cyclone during the next few days. The GFS forecasts both of these low pressure systems to eventually recurve over the North Pacific and reinforce the amplified pattern over North America during Week-1. Our calibrated model blend suggests a 40% chance of tropical storm formation in the South China sea during Week-2, so a moderate risk has been posted.

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