



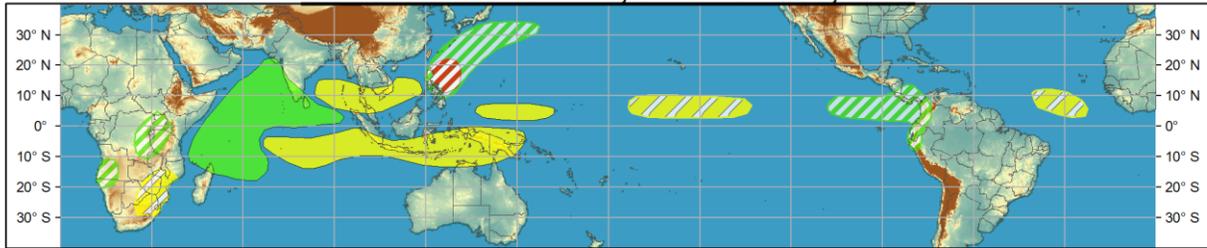
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Nov 27, 2019 - Dec 03, 2019



Week 2 - Valid: Dec 04, 2019 - Dec 10, 2019



	Confidence		Produced: 11/26/2019
	High Moderate		Forecaster: Novella
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.



As forecast by the models last week, the MJO has continued to slowdown and weaken in amplitude during the last seven days. Currently, the RMM index shows a low amplitude MJO within the unit circle situated over the Indian Ocean in Phase-3. The recent evolution of the MJO remains likely due to constructive interference between the MJO and the strong positive phase of the Indian Ocean Dipole (IOD) which is helping to anchor enhanced convection over Africa and the western Indian Ocean. Dynamical model forecasts of the RMM index are in fair agreement with the reemergence of the MJO and an eastward propagating signal, however differences remain as to when this may occur. The CFS model maintains a faster solution, depicting a strengthening MJO signal as early as Week-1 over Africa, whereas the ECMWF shows the MJO re-emerging over the Indian Ocean later during Week-2. Regardless, the IOD is likely to be the main player for tropical variability over the Indian Ocean and Maritime Continent, with Rossby Wave activity enhancing convection and the potential for cyclogenesis in the tropical Pacific through the end of November and into early December.

Three tropical cyclones have developed during the past week. Tropical Cyclone Fung-Wong (Sarah) formed over the Western Pacific on 11/20, and peaked with sustained winds of 60mph to the east of Taiwan. Tropical Cyclone Rita formed as the first cyclone of the South Pacific season on 11/24 and is

currently located approximately 200miles northeast of Vanuatu. Latest forecast guidance suggests a gradual weakening of the low, as it is expected to turn southwestward while encountering high vertical wind shear over the next few days. Within the last 24 hours, Tropical Cyclone Kammuri formed approximately 200miles southeast of Guam. Model guidance and reports from Joint Typhoon Warning Center (JTWC) indicate that Kammuri is expected to remain in a favorable environment for intensification as it is forecast to track to the northwest into the Philippine Sea into the Week-1 period. Additionally, latest deterministic GFS and ECMWF solutions suggest the potential for Kammuri to strengthen into a major cyclone with minimum surface pressure reaching as low as 940mb as it nears Luzon, Philippines by this weekend.

For the Week-1 and Week-2 periods, the highest chances for tropical cyclogenesis are expected over western Pacific and the western Indian Ocean basins. There is good model agreement with a fairly broad region of enhanced convection extending from Micronesia to the southwest of Guam, where observed warm sea surface temperatures (>29 degrees C) and forecast periods of reduced wind shear may provide another source for tropical cyclone development in the wake of Tropical Cyclone Kammuri later in Week-1. For Week-2, CFS and ECMWF cyclogenesis tools depict increased chances for additional formation in a region to the east of the Philippines. Both of these forecast regions in the West Pacific are posted with moderate confidence. Further east in the central and eastern Pacific regions, model solutions depict the formation of a closed low associated with an inverted trough to the west of Hawaii, and another closed low to the southwest of Baja California during Week-1. Although enhanced rainfall is forecast over these Pacific regions, both of these cyclonic features have not shown signs of deepening and are omitted from this outlook.

In association with the enhanced phase of MJO and the IOD, tropical cyclogenesis is favored during Week-1 over the southwestern Indian Ocean which is nearly on par with the climatological normal onset of South Indian cyclone season in mid to late November. There has been good run to run consistency between GFS and GEFS guidance with the development of a closed low north of Madagascar that gradually strengthens and tracks southward toward Madagascar during the later portion of Week-1. With the latest ECMWF guidance supporting this scenario, there is high confidence for cyclone development for the region.

Forecasts for suppressed and enhanced rainfall are reflective of the atmospheric response to the positive phase of the IOD, an active Pacific basin associated with Rossby wave activity and above-normal SSTs, and a consensus of dynamical model forecast guidance with the anticipated Tropical Cyclone tracks. Forecasts over Africa are made in consultation with CPCs international desk, and can represent local-scale conditions in addition to global-scale variability.