

NOAA's Climate Prediction Center (CPC) utilizes an MJO index (VPI) based on a ten phase categorization of 200-hPa velocity potential anomalies. The VPI may have an advantage over the Real-time Multivariate MJO index (RMM) when analyzing tropical cyclone formation, especially during the boreal summertime, due to the VPI's emphasis solely on the upper-level divergent circulation. The focus of this study was two-fold. Primarily, this study was to determine if the VPI could be shown to modulate the climatological tropical cyclone genesis probabilities in four tropical basins (Atlantic, Eastern Pacific, Western Pacific, and Northern Indian Ocean). This study was furthered by comparing the VPI with the more commonly used RMM to see which model had a higher correlation to tropical cyclone formation. The datasets used for analysis were best track data from the Joint Typhoon Warning Center (JTWC) and National Hurricane Center (NHC) HURDAT2. Using wind and pressure data from the Climate Forecast System Reanalysis (CFSR), correlation maps were created of wind shear and sea-level pressure to tropical cyclogenesis. Analysis of the probability of tropical cyclone formation relative to the seasonal climatology yields a useful tool for sub-seasonal forecasts of tropical cyclogenesis. Our primary findings show that the MJO, as captured even by a simple velocity potential index, significantly modulates tropical cyclogenesis in all of the basins except the Western Pacific, where other variability impacting the Southeast Asian monsoon may be more important.