

## **ABSTRACT**

### **Relationships between Jamaican September, October and November Rainfall and Hurricane Predicting Parameters**

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A detailed analysis was carried out using a variety of statistical analyses aimed at finding relationships between Jamaican September, October and November (SON) rainfall with several large-scale ocean-atmospheric variables for the period 1958 to 1997. These large-scale features were based on those used in the prediction of tropical Atlantic hurricanes and are found mainly in the tropical and subtropical Atlantic, tropical Pacific, Gulf of Mexico and the Caribbean Sea.

Areas of significant lagged and simultaneous correlations were found between SON rainfall and large-scale features such as sea surface temperature anomalies (SSTA), sea level pressure (SLP) and zonal winds in the Atlantic and Pacific Oceans, Gulf of Mexico and the Caribbean Sea. The spatial patterns of significant SSTA correlation with rainfall in the tropical Pacific suggest that warm (cold) can be associated with decreased (increased) rainfall in September and November. No significant spatial correlations were found between Pacific SSTA and October

rainfall. Correlation patterns of SSTA in the tropical Atlantic showed that warm (cold) SSTA were related with increased (decreased) SON rainfall. High (low) sea level pressure (SLP) in the tropical Atlantic, Caribbean Sea and the Gulf of Mexico was related with decreased (increased) SON rainfall. Zonal winds in the lower to upper troposphere over the equatorial Atlantic and the Caribbean Sea were also related with SON rainfall variability. A biennial mode of oscillation was also observed in the SON rainfall time series, however, the SON rainfall anomalies were not statistically related to either phase of the QBO.

**Keywords:** Trevor Courtney Hall, Sea Surface Temperature Anomalies (SSTA), Sea Level Pressure (SLP), El Niño Southern Oscillation (ENSO) and Quasi-Biennial Oscillation QBO.