

OCTOBER-NOVEMBER FORECAST FOR CARIBBEAN BASIN HURRICANE ACTIVITY

We expect that October-November will have well above-average (over 200% of normal) hurricane activity in the Caribbean basin, due to a combination of La Niña conditions and anomalously warm Caribbean basin sea surface temperatures.

(as of 30 September 2011)

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This forecast as well as past forecasts and verifications are available online at
<http://hurricane.atmos.colostate.edu/Forecasts>

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1 Introduction

This is the first year that we have issued a forecast for October-November Caribbean basin (10-20°N, 88-60°W) tropical cyclone (TC) activity. We have decided to issue this forecast, because Klotzbach (2011) has demonstrated that skill can be achieved in predicting late-season Caribbean basin activity using a simple two-predictor model. This particular forecast does not predict specific storm formation metrics such as named storms and hurricanes, but instead predicts both hurricane days and Accumulated Cyclone Energy (ACE). Typically, while activity in the Main Development Region (MDR) ends by early October, activity in the Caribbean can remain quite active into November. One of the predictors is closely related to ENSO, while the other predictor is closely related to the size of the Atlantic Warm Pool (AWP), which is defined to be the area of SST warmer than 28.5°C in the tropical Atlantic and Caribbean.

2 Forecast

This late-season Caribbean basin forecast model was developed over the period from 1982-2010 and then tested on independent data from 1900-1981 to entail that the predictors remained skillful on earlier-period data. Figure 1 displays the predictors selected for the forecast. More Caribbean activity typically occurs when predictor 1 is colder than normal, and predictor 2 is warmer than normal.

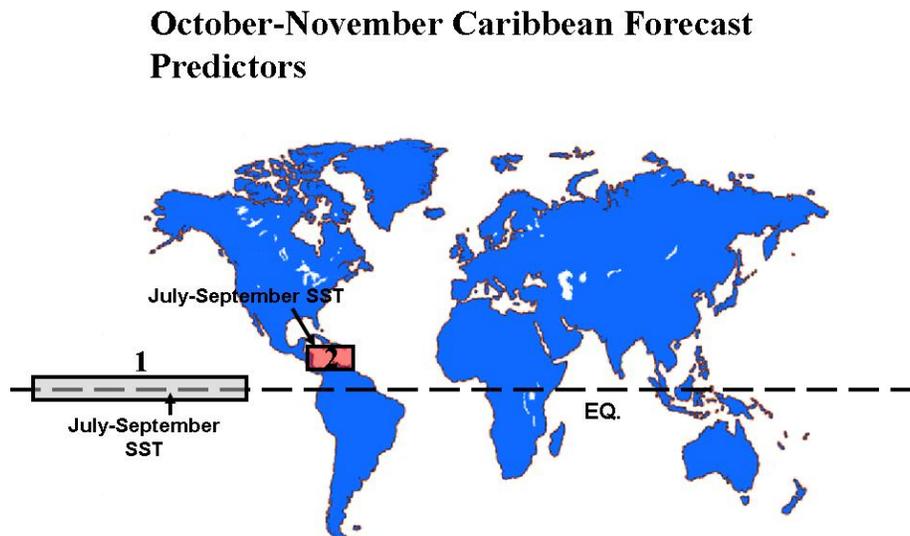


Figure 1: Predictors selected for forecasting October-November Caribbean basin hurricane activity.

Both of these predictors call for enhanced levels of TC activity during October-November. Table 1 displays the locations of the two predictors along with their standardized values for the 2011 forecast. Figure 2 displays the hindcast skill of the forecast model over the period from 1982-2010.

Table 1: Listing of predictors for the October-November Caribbean basin hurricane forecast.

Predictor	2011 Forecast Value	Expected Impact on TC Activity
1) July-September SST (5°S-5°N, 170-120°W)	-0.7 SD	Enhance
2) July-September SST (10-20°N, 85-50°W)	+1.5 SD	Enhance

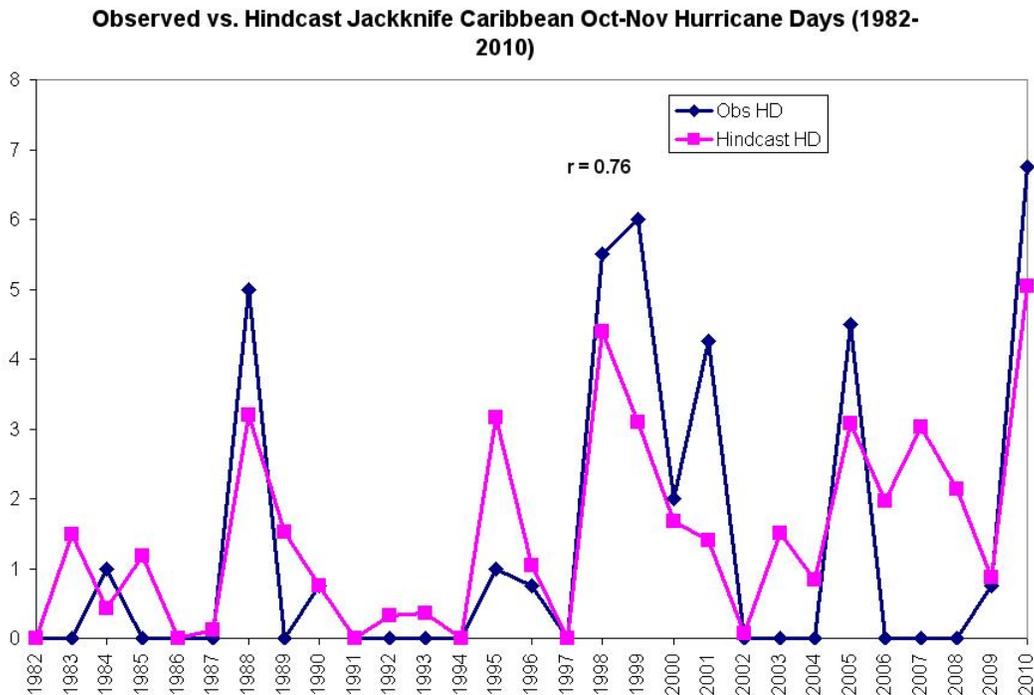


Figure 2: Observed versus October-November jackknifed hindcast values of hurricane days for 1982-2010. The hindcast model explains 58% of the variance from climatology.

Full details of the forecast development and model are available in Klotzbach (2011). In general, La Niña conditions are associated with reduced vertical wind shear across the Caribbean (more favorable dynamic conditions), while a warmer Caribbean is associated with a larger AWP (more favorable thermodynamic conditions). Consequently, since both parameters are in a hurricane-favorable mode this year, we expect an active late season in the Caribbean. Table 2 displays the forecast for hurricane days and ACE.

Table 2: October-November forecast for Caribbean Basin tropical cyclone activity

Forecast Parameter and 1981-2010 Climatology (in parentheses)	Forecast Issued on October 1
Hurricane Days (1.25)	3.5
Accumulated Cyclone Energy Index (6.3)	16

Reference

Klotzbach, P. J., 2011: Forecasting October-November Caribbean hurricane days. In press, *J. Geophys. Res.*, doi:10.1029/2011JD016146.