

**COLORADO STATE UNIVERSITY FORECAST OF ATLANTIC HURRICANE
ACTIVITY FROM OCTOBER 12 – OCTOBER 25, 2011**

We expect that the next two weeks will be characterized by average amounts (70-130 percent) of hurricane activity relative to climatology. These new two-week forecasts have replaced the monthly forecasts that we have been issuing in recent years.

(as of 12 October 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 third year that we have issued shorter-term forecasts of tropical cyclone (TC) activity starting in early August. We have decided to discontinue our individual monthly forecasts. These two-week forecasts are based on a combination of observational and modeling tools. The primary tools that are used for this late-season forecast are as follows: 1) current storm activity, 2) National Hurricane Center Tropical Weather Outlooks, 3) forecast output from global models, 4) the current and projected state of the Madden-Julian Oscillation (MJO) and 5) the October-November Caribbean basin forecast.

The metric that we are trying to predict with these two-week forecasts is the Accumulated Cyclone Energy (ACE) index, which is defined to be all of the named storm's maximum wind speeds (in 10^4 knots²) for each 6-hour period of its existence over the two-week period. These forecasts are too short in length to show significant skill for individual event parameters such as named storms and hurricanes. We issue forecasts for ACE using three categories as defined in Table 1.

Table 1: ACE forecast definition.

Parameter	Definition
Above-Average	Greater than 130% of Average ACE
Average	70% - 130% of Average ACE
Below-Average	Less than 70% of Average ACE

2 Forecast

We believe that the next two weeks will be characterized by activity at average levels (70-130 percent of climatology). The average ACE accrued during the period from 1950-2010 from October 12 - October 25 was 7 units, and consequently, our forecast for the next two weeks is for 5-9 ACE units to be generated.

The average forecast for the next two weeks is due to two factors. The MJO is predicted to be in a TC-favorable phase by both the GFS and ECMWF model. Both models indicate that the MJO will propagate into Phase 1 around October 15 and remain in TC-favorable MJO Phases 1-2 for the remainder of the forecast period. Despite these favorable conditions, neither the GFS nor the ECMWF are enthusiastic about storm development over the next ten days.

Figure 1 displays the tracks that tropical cyclones have taken during the period from October 12 – October 25 for the years from 1950-2008. Figure 2 displays the October 12 – October 25 forecast period with respect to climatology. The October 12 – October 25 period typically has its most intense TC activity in the western Caribbean.

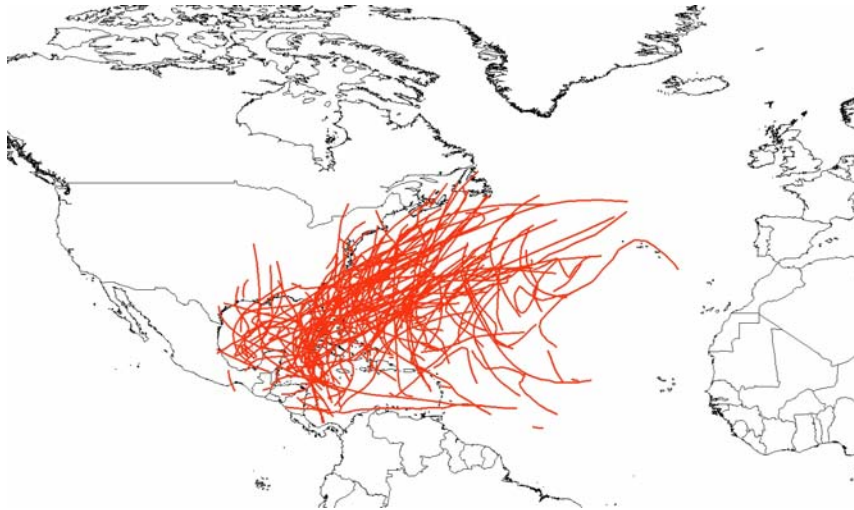


Figure 1: Tracks that named tropical cyclones have taken over the period from October 12 – October 25 for the years from 1950-2008.

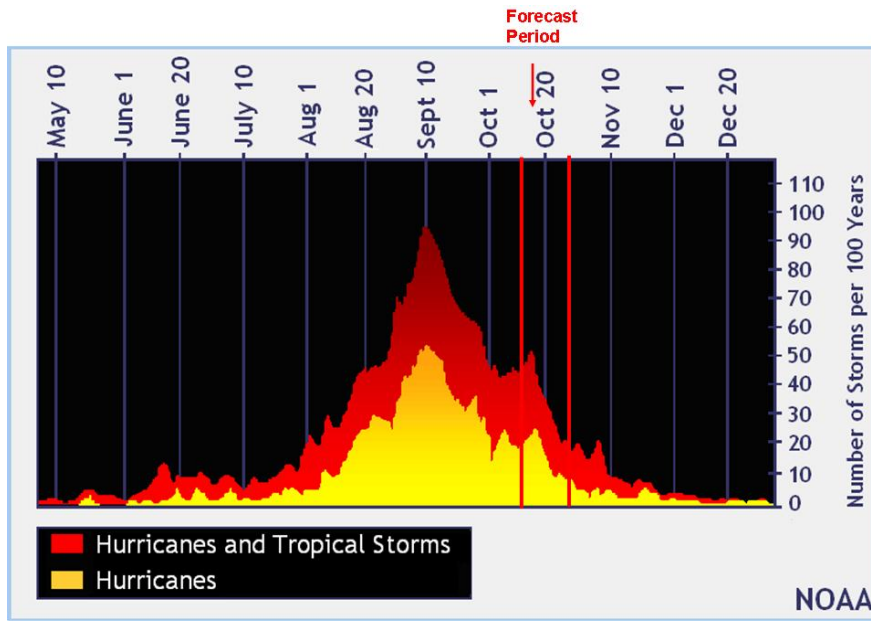


Figure 2: The current forecast period (October 12 – October 25) with respect to climatology. Figure courtesy of NOAA.

We now examine how we believe each of the five factors discussed in the introduction will impact Atlantic TC activity for the period from October 12 – October 25.

1) Current Storm Activity

There are no active systems in the Atlantic.

2) National Hurricane Center Tropical Weather Outlook

The National Hurricane Center is not monitoring any areas for TC development in the next 48 hours.

3) Global Model Analysis

Neither the GFS nor the ECMWF is indicating significant development over the next seven days, while there are hints of a potential storm in the western Caribbean during the week two timeframe. However, neither model is consistently developing a system in the western Caribbean, and consequently, our confidence in a strong system in the western Caribbean is relatively low.

4) Madden-Julian Oscillation

The Madden-Julian Oscillation has been fairly strong over the past two weeks (Figure 3). The Climate Prediction Center's outlook for the next two weeks is that the MJO will likely continue to remain strong and propagate eastward. The ensemble Global Forecast System (GFS) (Figure 4) and European Centre for Medium-Range Weather Forecasts (ECMWF) (Figure 5) both predict eastward propagation of the MJO. The MJO will likely be in Phases 8-2 for the next two weeks. Phases 1-2 are typically associated with enhanced activity in the Atlantic. Table 2 displays the levels of TC activity observed over the Atlantic basin given various MJO phases over the period from 1974-2007.

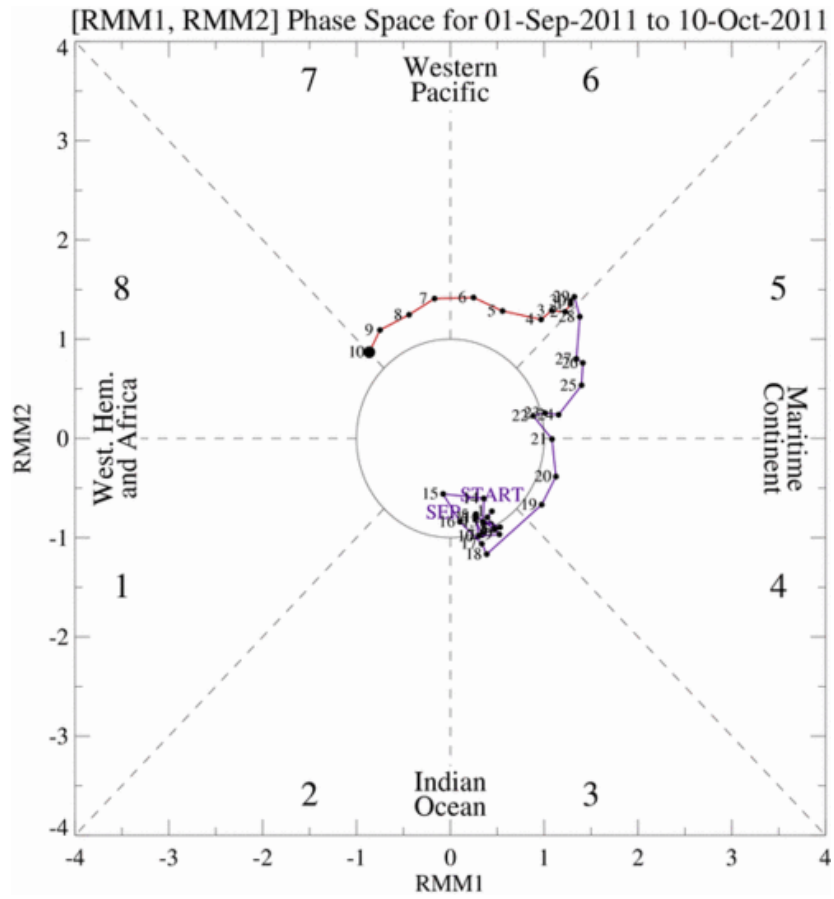


Figure 3: Estimated position of the MJO from September 1, 2011 through October 10, 2011.

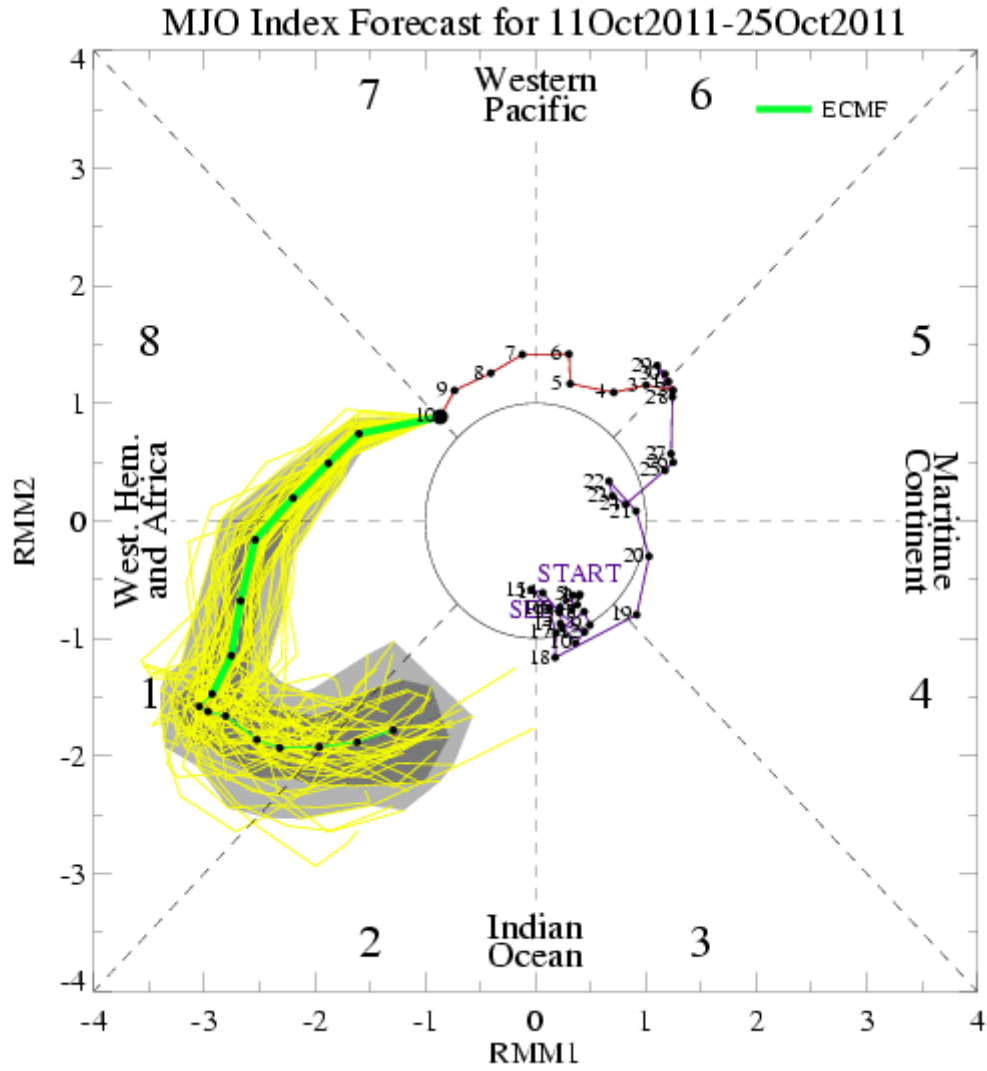


Figure 5: ECMWF model forecast for the MJO from October 11 - October 25.

Table 2: Normalized values of named storms (NS), named storm days (NSD), hurricanes (H), hurricane days (HD), major hurricanes (MH), major hurricane days (MHD) and Accumulated Cyclone Energy (ACE) generated by all tropical cyclones forming in each phase of the MJO over the period from 1974-2007. Normalized values are calculated by dividing storm activity by the number of days spent in each phase and then multiplying by 100. This basically provides the level of TC activity that would be expected for 100 days given a particular MJO phase.

MJO Phase	NS	NSD	H	HD	MH	MHD	ACE
Phase 1	6.4	35.9	3.7	17.9	1.8	5.3	76.2
Phase 2	7.5	43.0	5.0	18.4	2.1	4.6	76.7
Phase 3	6.3	30.8	3.0	14.7	1.4	2.8	56.0
Phase 4	5.1	25.5	3.5	12.3	1.0	2.8	49.4
Phase 5	5.1	22.6	2.9	9.5	1.2	2.1	40.0
Phase 6	5.3	24.4	3.2	7.8	0.8	1.1	35.7
Phase 7	3.6	18.1	1.8	7.2	1.1	2.0	33.2
Phase 8	6.2	27.0	3.3	10.4	0.9	2.6	46.8
Phase 1-2	7.0	39.4	4.3	18.1	1.9	4.9	76.5
Phase 6-7	4.5	21.5	2.5	7.5	1.0	1.5	34.6
Phase 1-2/ Phase 6-7	1.6	1.8	1.7	2.4	2.0	3.2	2.2

5) October-November Caribbean Forecast

At this point in the season, we are relying more on our October-November Caribbean forecast as a longer-term guideline rather than our seasonal forecast, since this is where most intense TC activity occurs during this point of the hurricane season. This forecast called for an active end of the season in the Caribbean.

VERIFICATION OF SEPTEMBER 28, 2011 – OCTOBER 11, 2011 FORECAST

The two-week forecast of tropical cyclone activity from September 28 – October 11 did not verify well. Activity at below-average levels (<70% of normal) was predicted (≤ 8 ACE units), and observed activity was at well above-average levels (28 ACE units). While no new systems formed during the two-week period, both Ophelia and Philippe lasted longer and became more intense than was predicted by either the statistical or dynamical guidance available at the time of our last forecast.