COLORADO STATE UNIVERSITY FORECAST OF ATLANTIC HURRICANE ACTIVITY FROM AUGUST 3 – AUGUST 16, 2011

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

(as of 3 August 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 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 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 current seasonal 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 knots^2) 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 near-average levels (70-130 percent of climatology). The average ACE accrued during the period from 1950-2010 from August 3-August 16 was 7 units, and consequently, our forecast for the next two weeks is for between 5 and 9 ACE units to be generated.

The average forecast is due to a combination of factors. Tropical Storm Emily is predicted by the National Hurricane Center (NHC) to generate several ACE units over the next few days. No other areas are currently being monitored by the NHC for development in the next 48 hours.

None of the global models are forecasting additional TC development in the next seven days. Both the GFS and ECMWF models are predicting that the below-average sea level pressure anomalies currently observed over the tropical Atlantic will likely begin to increase to slightly above-average levels over the next week

The MJO is currently weak, and it is expected to remain weak according to the latest discussion from the Climate Prediction Center.

Figure 1 displays the tracks that tropical cyclones have taken during the period from August 3 - August 16 for the years from 1950-2008. Figure 2 displays the August 3 – August 16 forecast period with respect to climatology. The August 3 – August 16 period is prior to the most active portion of the hurricane season.

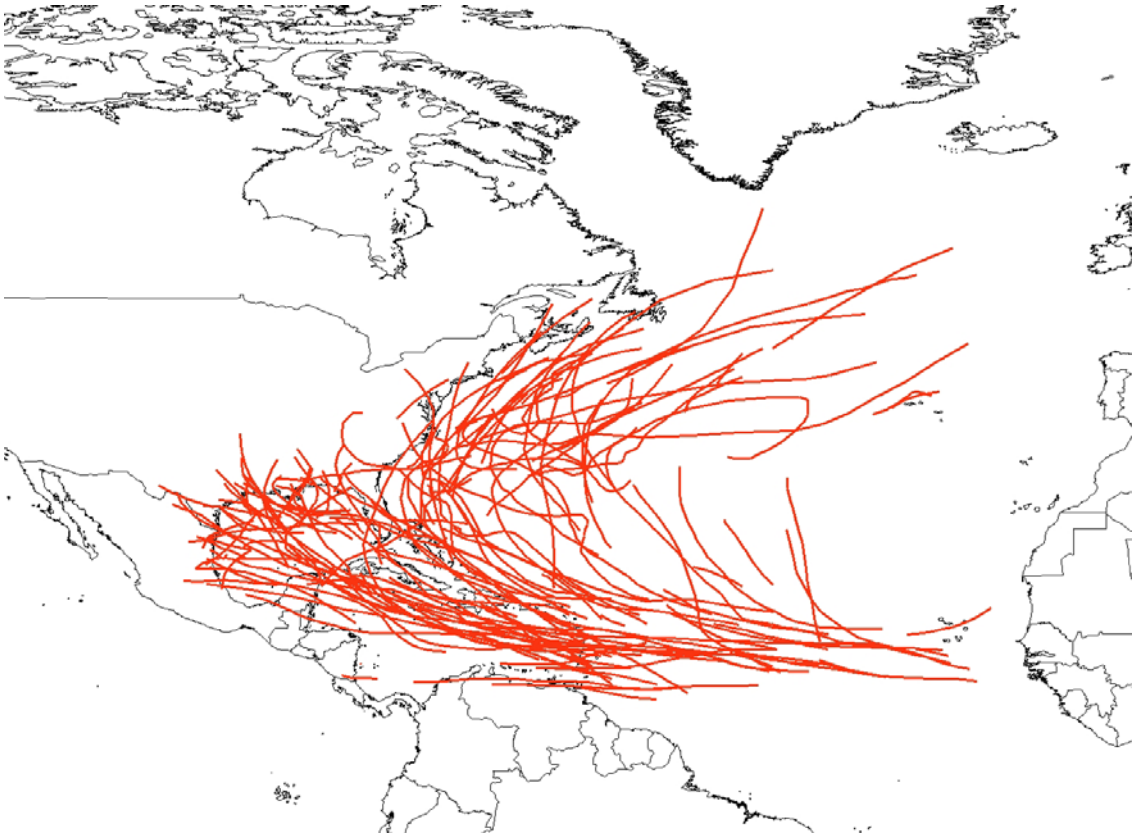

Figure 1: Tracks that named tropical cyclones have taken over the period from August 3 – August 16 for the years from 1950-2008.

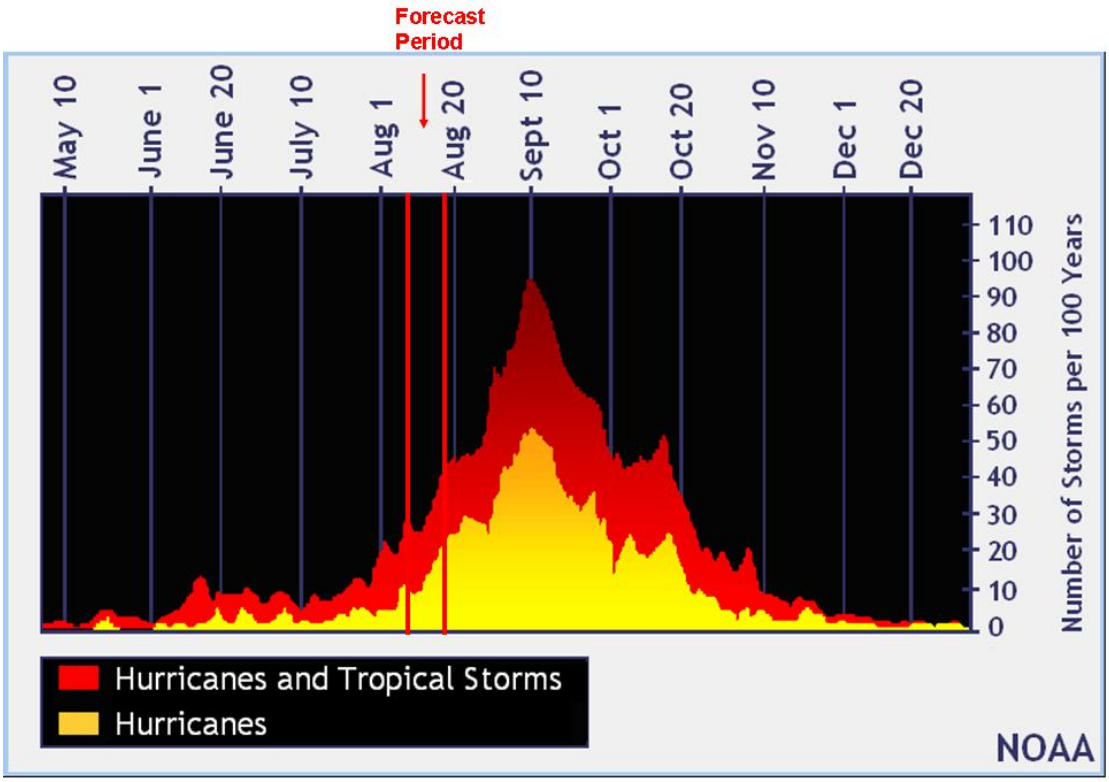

Figure 2: The current forecast period (August 3 – August 16) with respect to climatology. Figure courtesy of NOAA.

We now examine how we believe each of the five factors discussed in the introduction will impact Atlantic TC activity for the period from August 3 – August 16.

1) Current Storm Activity

Tropical Storm Emily is currently located south of Hispaniola and is predicted to generate several ACE units over the next few days.

2) National Hurricane Center Tropical Weather Outlook

The latest NHC Tropical Weather Outlook does not foresee any areas of potential development in the next 48 hours.

3) Global Model Analysis

None of the global models are forecasting additional TC development over the next 7 days, while both the GFS and ECMWF indicate that currently-observed below-average sea level pressures in the tropical Atlantic will likely increase and be at slightly above-average levels for the next week.

4) Madden-Julian Oscillation

The Madden-Julian Oscillation is currently weak (Figure 3). Both the statistical models as well as the dynamical models indicate that the MJO should remain weak for the next several days. The ensemble Global Forecast System (GFS) is predicting the MJO to remain weak for the next two weeks (Figure 4). Typically, when the MJO is in Phases 1 and 2, Atlantic activity is enhanced, while it is suppressed when the MJO is in Phases 6 and 7 (Table 2).

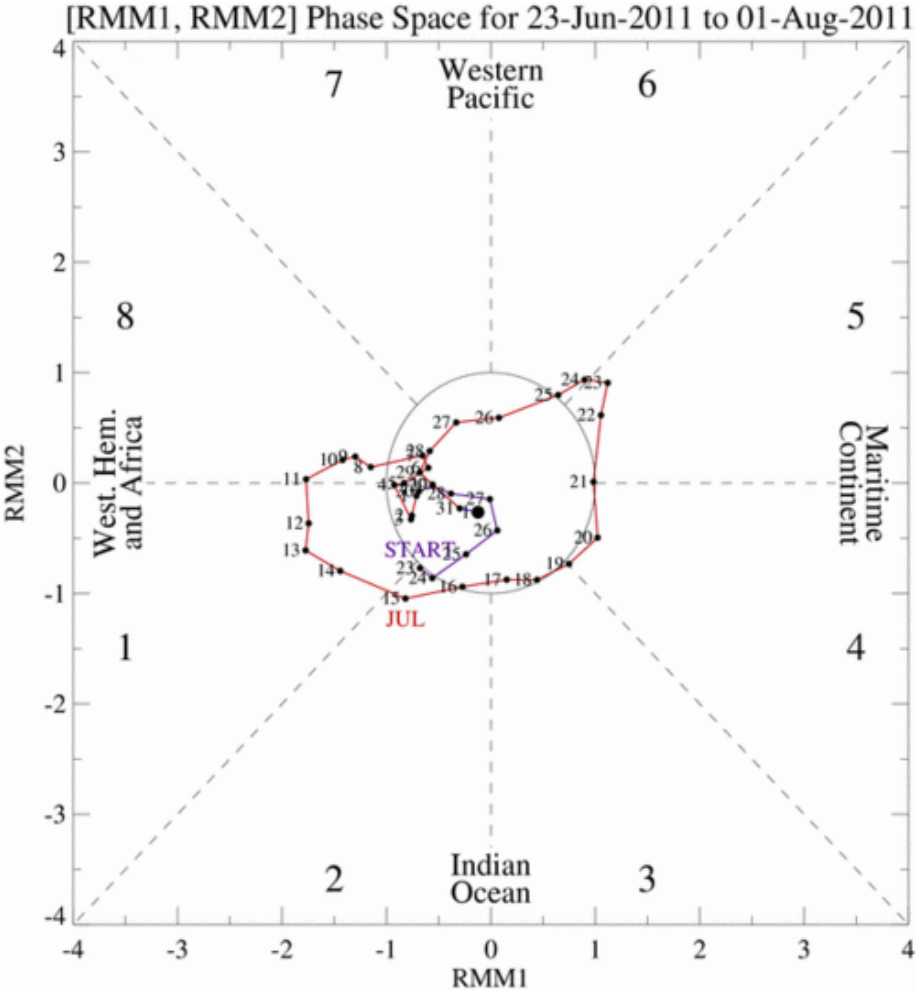

Figure 3: Estimated position of the MJO from June 23, 2011 through August 1, 2011.

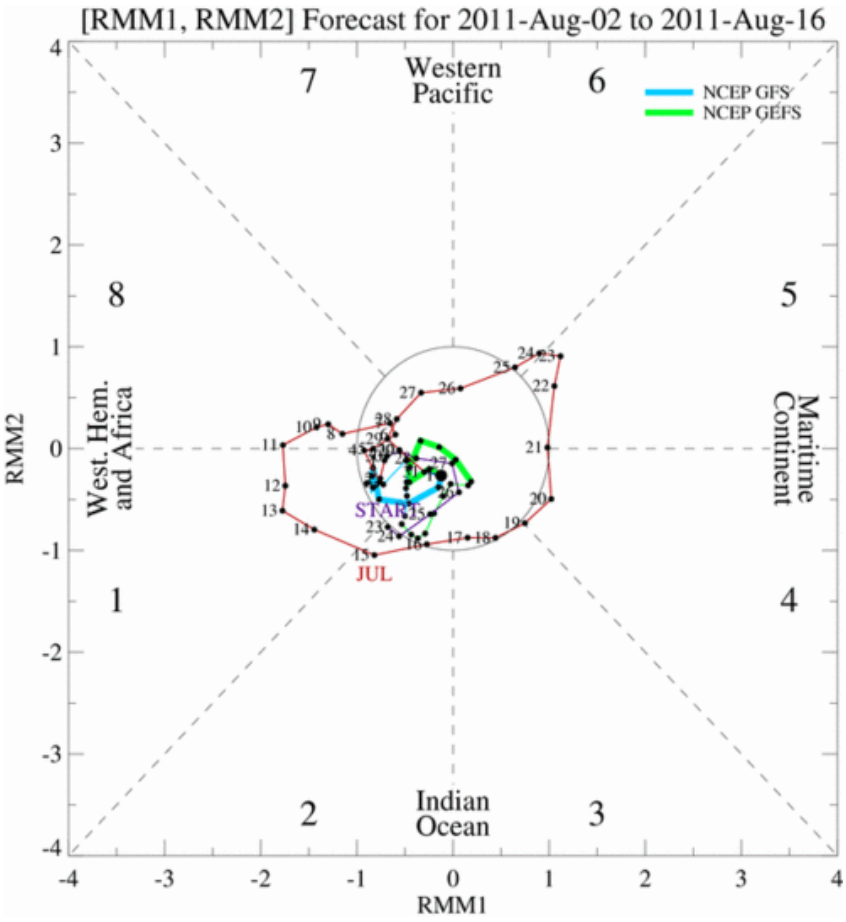

Figure 4: GFS model forecasts for the MJO from August 2 through August 16.

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) Seasonal Forecast

The most recent seasonal forecast calls for a well above-average season. We utilize the seasonal forecast as a baseline for our two-week forecasts. Since the global models are pessimistic on storm formation and are calling for above-average pressures across the tropics for the next week, we believe that a near-average two-week period for ACE generation is the most likely scenario.

3 Upcoming Forecasts

The next two-week forecast will be issued on August 17 for the August 17 – August 30 period. Additional two-week forecasts will be issued on September 1, September 14, September 28 and October 12.