

**COLORADO STATE UNIVERSITY FORECAST OF ATLANTIC HURRICANE
ACTIVITY FROM AUGUST 18 – AUGUST 31, 2016**

We expect that the next two weeks will be characterized by below-average amounts of activity (less than 70 percent of normal). Although Fiona will generate some ACE, it is not likely to be a large amount. Large-scale forcing should tend to suppress Atlantic TC development for the next two weeks.

(as of 18 August 2016)

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In Memory of William M. Gray²

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

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1 Introduction

This is the eighth year that we have issued shorter-term forecasts of tropical cyclone activity starting in early August. 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 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 below-average levels (less than 70 percent of climatology). While Fiona will generate some ACE, it is predicted to track through a fairly unfavorable environment and is not likely to generate large amounts of ACE. The average ACE accrued during the period from 1981-2010 for August 14-August 27 was 18 units, and consequently, our forecast for the next two weeks is for less than 13 ACE units to be generated.

The below-average forecast is due to several factors. Fiona is not likely to intensify beyond moderate tropical storm strength, inhibiting its ability to generate ACE. An additional tropical wave is forecast to move off of Africa in a couple of days, but the National Hurricane Center is only giving it a 10% chance of development in the next five days. Most models do not significantly develop this system. The sub-seasonal environment is still unfavorable for Atlantic TC development, as the MJO remains stagnant in Phase 6, which favors convection over the tropical Pacific and subsidence in the tropical Atlantic.

Figure 1 displays the tracks that tropical cyclones have taken during the period from August 18 - August 31 for the years from 1950-2008. Figure 2 displays the August 18 – August 31 forecast period with respect to climatology. The August 18 – August 31 period is just prior to the most active portion of the hurricane season climatologically.

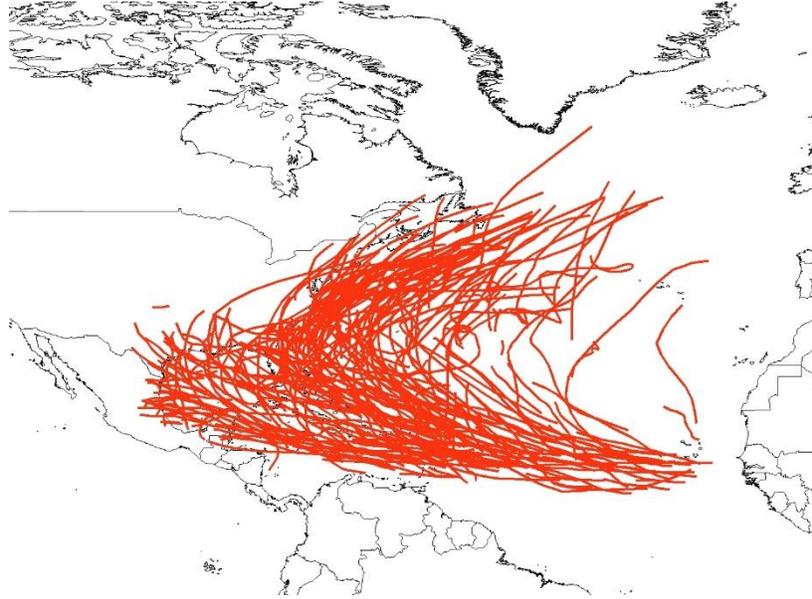


Figure 1: Tracks that named tropical cyclones have taken over the period from August 18 – August 31 for the years from 1950-2008.

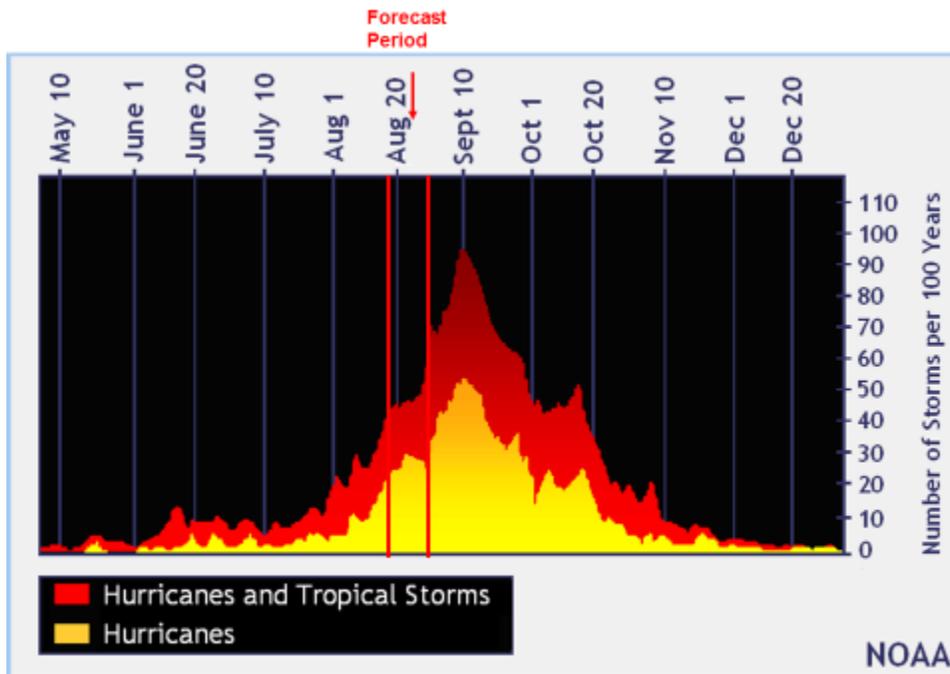


Figure 2: The current forecast period (August 18 – August 31) with respect to climatology. Figure courtesy of NOAA.

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 18 – August 31.

1) Current Storm Activity

Tropical Storm Fiona has just formed in the tropical Atlantic. Fiona is predicted to remain a tropical cyclone for the next five days; however, its peak intensity is forecast to only reach moderate tropical storm strength, which would significantly limit its ability to generate large amounts of ACE.

2) National Hurricane Center Tropical Weather Outlook

The latest NHC Tropical Weather Outlook gives a 10% chance of TC development for a wave that will move off of Africa in a couple of days. This system is not significantly developed by most global model guidance, with the exception of the ECMWF.

3) Global Model Analysis

No other areas are significantly developed by any of the reliable global models in the next week.

4) Madden-Julian Oscillation

The Madden-Julian Oscillation is predicted to remain relatively stagnant in Phase 6 for the next two weeks (Figure 3). This phase is typically unfavorable for tropical cyclone formation in the Atlantic, as it tends to force subsidence and increased shear in the tropical Atlantic (Table 2).

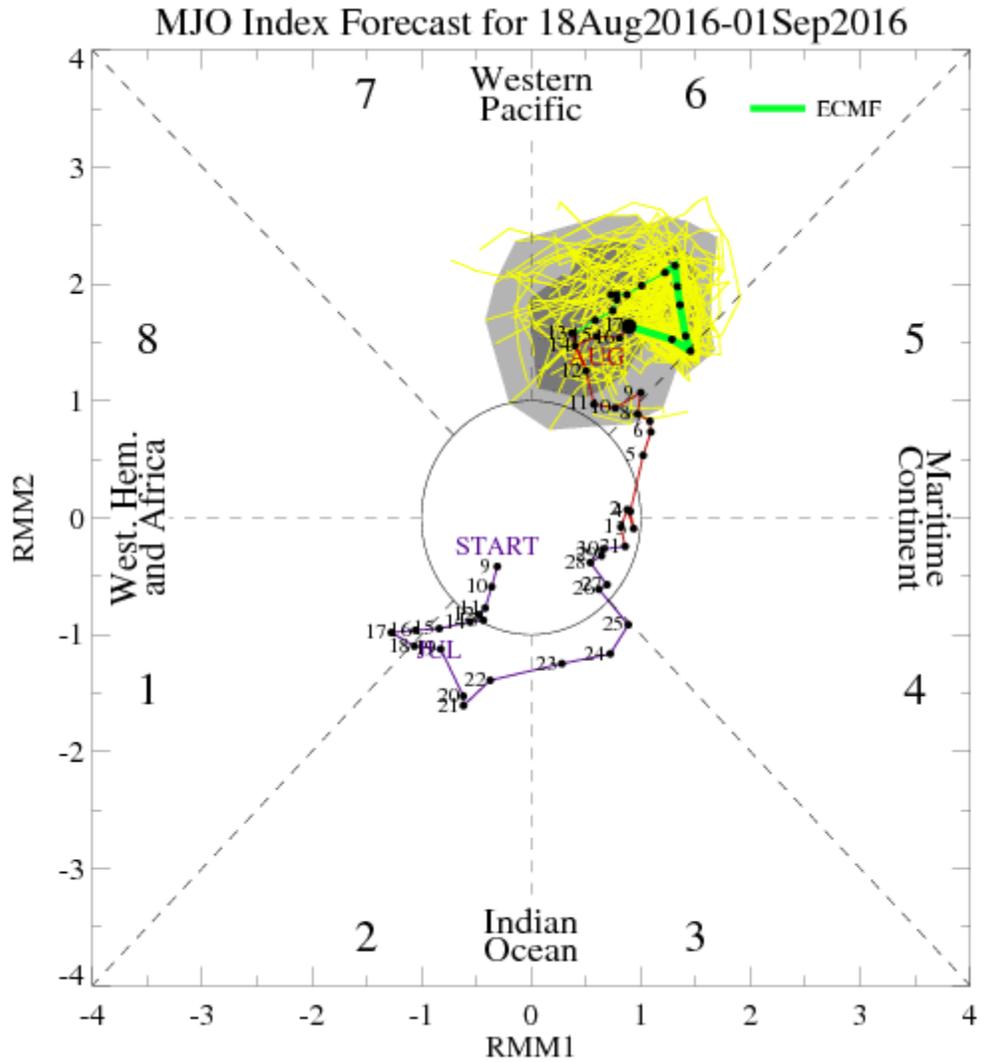


Figure 3: ECMWF forecast for the MJO from August 18, 2016 through September 1, 2016. The ensemble mean (highlighted by the green line) calls for the MJO to remain stagnant in Phase 6.

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 near-average season. We utilize the seasonal forecast as a baseline for our two-week forecasts. If the convectively active phase of the MJO moves out of the western Pacific and begins to enhance convection over the Western Hemisphere and Africa, we would expect to see an increase in Atlantic basin TC activity.

3 Upcoming Forecasts

The next two-week forecast will be issued on September 1 for the September 1 – September 14 period. Additional two-week forecasts will be issued on September 15, September 29 and October 13.

VERIFICATION OF AUGUST 4 – AUGUST 17, 2016 FORECAST

The two-week forecast of tropical cyclone activity from August 4 – August 17 verified well. Below-average ACE was predicted (≤ 4 ACE units). 2.7 ACE units were generated. Most of this ACE was produced by Earl, while the remainder was generated by Fiona.