

**COLORADO STATE UNIVERSITY FORECAST OF ATLANTIC HURRICANE
ACTIVITY FROM AUGUST 2 - 15, 2018**

We expect that the next two weeks will be characterized by below-normal amounts of hurricane activity.

(as of 2 August 2018)

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In Memory of William M. Gray³

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

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1 Introduction

This is the tenth 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.

Our forecast definition of above-normal, normal, and below-normal ACE periods has been changed to better fit, in our view, the observed historical distributions. Our ACE forecasts are now defined by ranking observed activity in the satellite era from 1966-2016 and defining above-normal, normal and below-normal two-week periods based on terciles. Since there are 51 years from 1966-2016, each tercile is composed of 17 years. The 17 years with the most active ACE periods from August 2 -15 are classified as the upper tercile, the 17 years with the least active ACE periods from August 2 – 15 are classified as the lower tercile, while the remaining 17 years are classified as the middle tercile.

Table 1: ACE forecast definition for TC activity for August 2 – 15, 2018

Parameter	Definition
Above-Normal	Upper Tercile (≥ 9 ACE)
Normal	Middle Tercile (2-8 ACE)
Below-Normal	Lower Tercile (0–1 ACE)

2 Forecast

We believe that the next two weeks will be characterized by activity at below-normal levels (0-1 ACE). The National Hurricane Center does not foresee any tropical cyclone development over the next five days. None of the global models indicate significant tropical cyclone development in the next week. Vertical wind shear is also predicted to be quite strong across the tropical Atlantic and Caribbean for the next two weeks.

The Madden-Julian Oscillation (MJO) is forecast to be relatively weak over the next two weeks. The MJO is likely to become slightly more favorable, relatively speaking, for Atlantic tropical cyclones in August than it was in July, but the large scale still looks quite harsh for Atlantic tropical cyclone formation over the next two weeks.

Figure 1 displays the formation locations of tropical cyclones from August 2–15 for the years from 1966-2017 (e.g., the satellite era), along with the maximum intensities that these storms reached. Figure 2 displays the August 2-15 forecast period with respect to climatology. This period typically marks the beginning of the ramp-up for Atlantic

tropical cyclone activity. The primary threat formation area for major hurricanes in early- to mid-August is in the tropical Atlantic east of the Lesser Antilles.

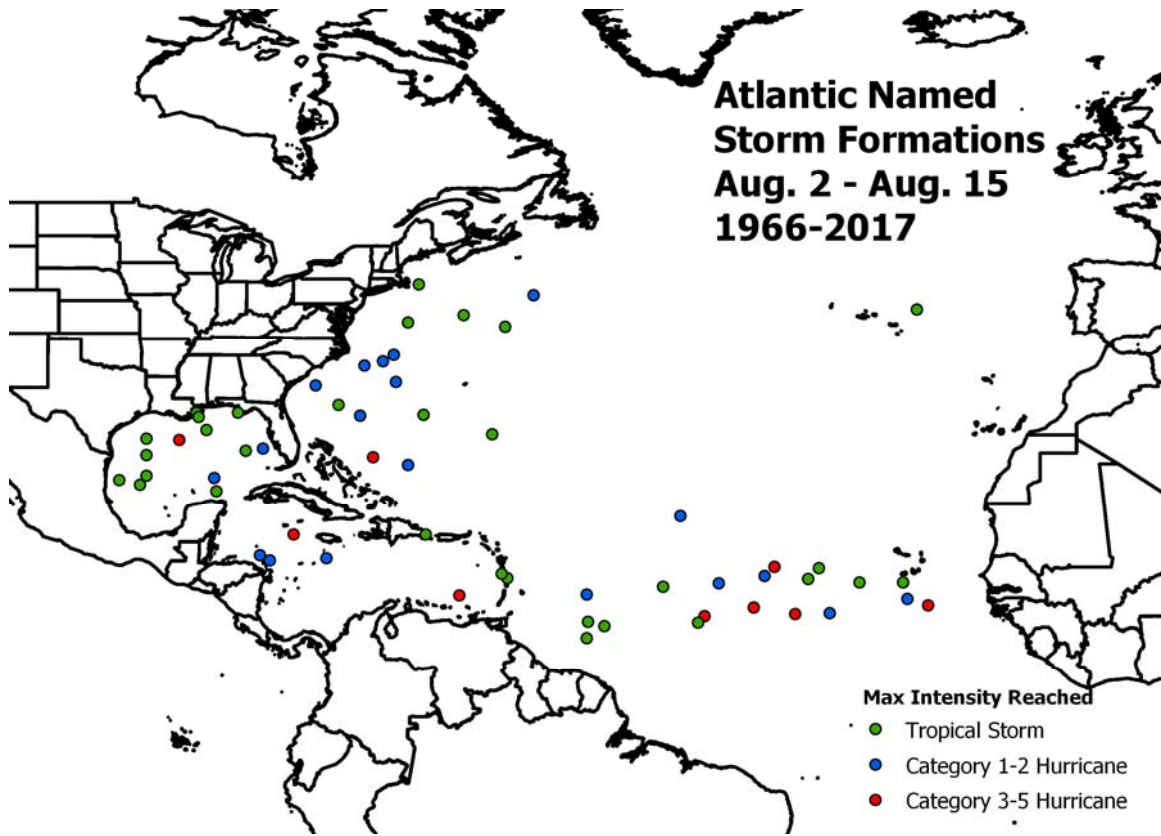


Figure 1: Atlantic named storm formations from August 2 – 15 during the years from 1966-2017 and the maximum intensity that these named storms reached.

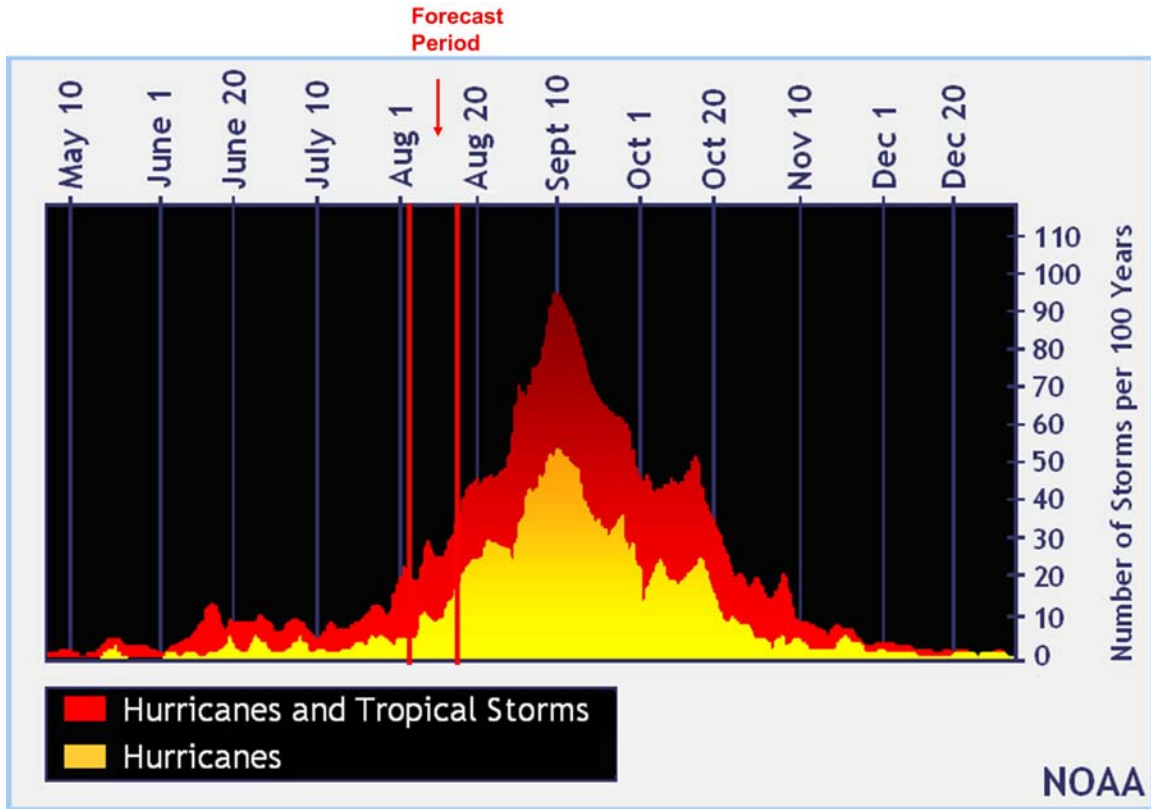


Figure 2: The current forecast period (August 2-15) with respect to climatology. Figure courtesy of NOAA.

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 2–15.

1) Current Storm Activity

There are currently no active TCs in the Atlantic.

2) National Hurricane Center Tropical Weather Outlook

The latest NHC Tropical Weather Outlook does not indicate any areas of TC formation in the next five days.

3) Global Model Analysis

None of the reliable global models indicate any significant TC development in the next week.

4) Madden-Julian Oscillation

The Madden-Julian Oscillation (MJO), as measured by the Wheeler-Hendon index, is currently of relatively weak magnitude. The MJO is forecast to remain weak over the next two weeks (Figure 3). The sub-seasonal signal should be slightly more conducive for Atlantic TC activity than it has been over the past few weeks, when the subseasonal signal was concentrated in phases 5-6, which are typically not conducive for Atlantic hurricane activity (Table 2).

Despite the slightly more favorable sub-seasonal signal, the Climate Forecast System (CFS) model predicts above-normal vertical wind shear across both the Caribbean and the tropical Atlantic over the next two weeks (Figure 4). We believe that this will significantly suppress TC activity over the next two weeks.

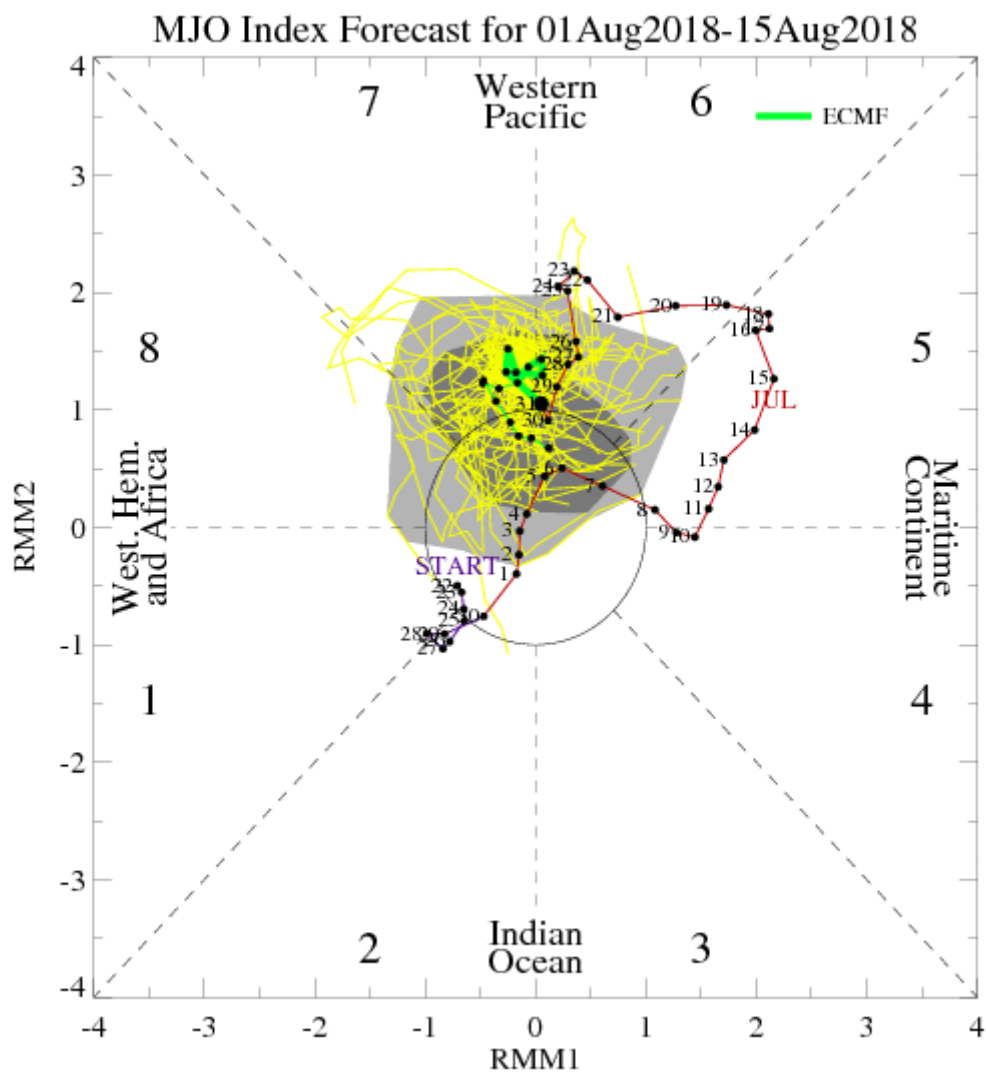


Figure 3: Predicted propagation of the MJO by the ECMWF model.

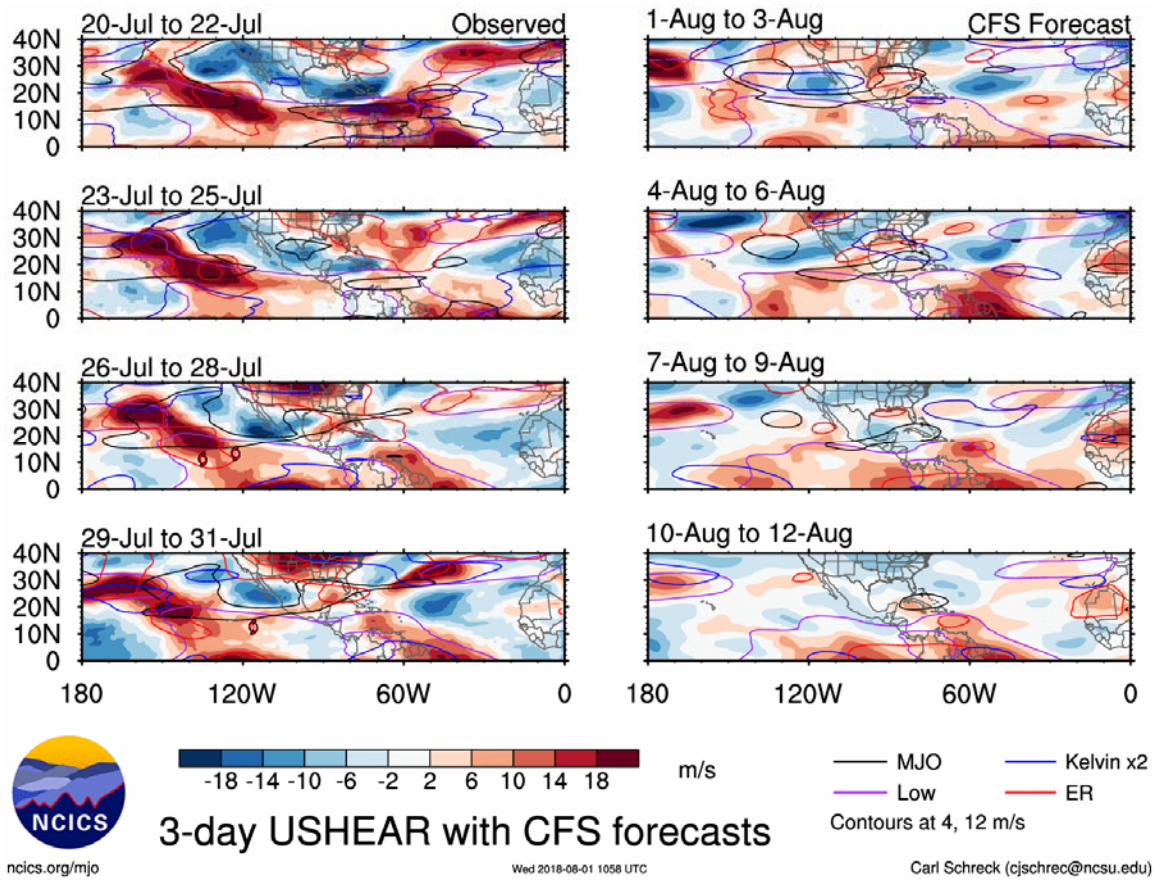


Figure 4: Observed and predicted anomalous 200 minus 850 hPa vertical wind shear from the Climate Forecast System through August 12. Figure courtesy of Carl Schreck.

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 below-average season. We believe that the next two weeks will be in keeping with this seasonal forecast.

3 Upcoming Forecasts

The next two-week forecast will be issued on August 16 for the August 16 – August 29 period. Additional two-week forecasts will be issued on August 30, September 13, September 27, and October 11.