

**COLORADO STATE UNIVERSITY FORECAST OF ATLANTIC HURRICANE
ACTIVITY FROM AUGUST 14 – AUGUST 27, 2014**

We expect that the next two weeks will be characterized by below-average amounts (less than 70 percent) of activity relative to climatology.

(as of 14 August 2014)

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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 sixth 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). The average ACE accrued during the period from 1981-2010 for August 14-August 27 was 12 units, and consequently, our forecast for the next two weeks is for less than 9 ACE units to be generated.

The below-average forecast is due to several factors. No tropical cyclones are present in the Atlantic basin, and the National Hurricane Center does not foresee TC development over the next five days. Most global models are pessimistic about additional TC development in the Atlantic basin by the early part of next week, although the Global Forecast System (GFS) model indicates a chance for development of an easterly wave exiting the coast of Africa.

The Madden-Julian Oscillation (MJO) is forecast to be relatively weak during the two-week period, although any MJO signal is likely to be favorable for Atlantic TC formation.

Figure 1 displays the tracks that tropical cyclones have taken during the period from August 14 - August 27 for the years from 1950-2008. Figure 2 displays the August 14 - August 27 forecast period with respect to climatology. The August 14 - August 27 period is just prior to the most active portion of the climatological hurricane season.

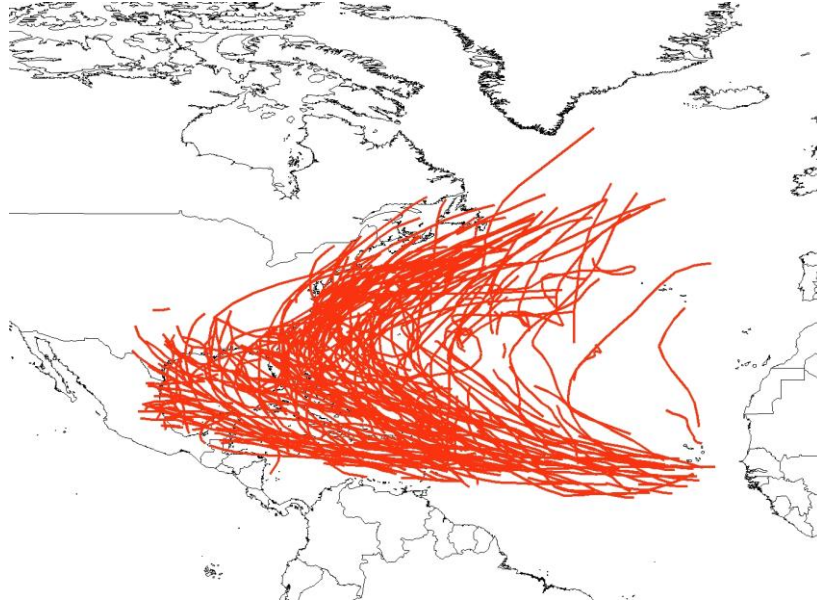


Figure 1: Tracks that named tropical cyclones have taken over the period from August 14 – August 27 for the years from 1950-2008.

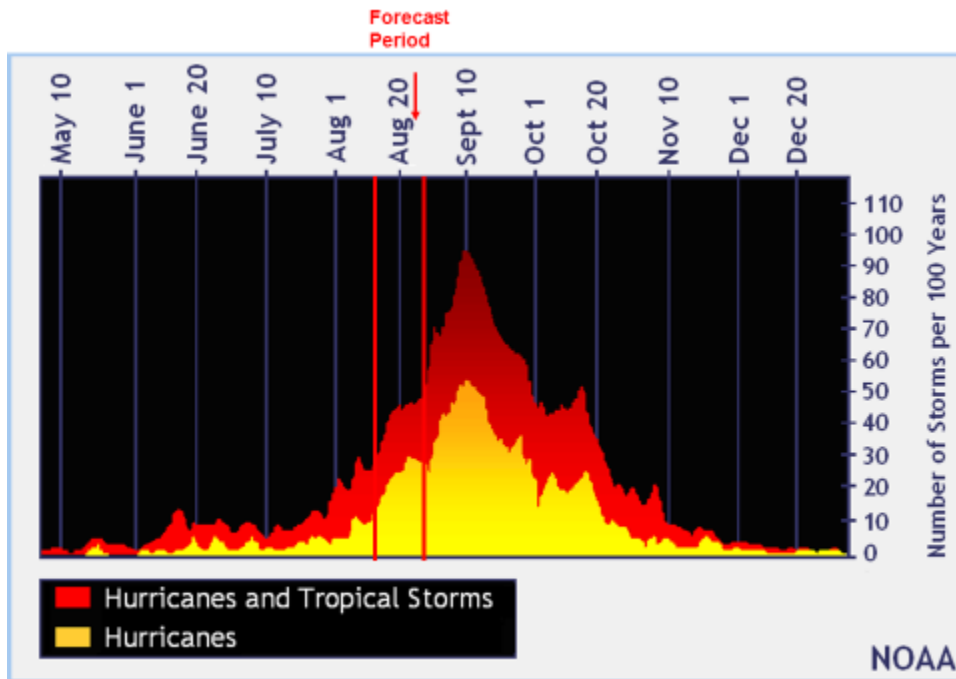


Figure 2: The current forecast period (August 14 – August 27) with respect to climatology. Figure courtesy of NOAA.

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 14 – August 27.

1) Current Storm Activity

No tropical cyclones are present in the Atlantic basin.

2) National Hurricane Center Tropical Weather Outlook

The latest NHC Tropical Weather Outlook does not foresee development in the next five days.

3) Global Model Analysis

Most global models do not forecast TC development in the next seven days, although the GFS is indicating the chance for a long-lived Cape Verde-type storm. The overall tropical Atlantic still does not look conducive for storm formation and intensification.

4) Madden-Julian Oscillation

The Madden-Julian Oscillation has been fairly incoherent in recent weeks, as evidenced by the lack of coherent eastward propagation in the diagram displayed in Figure 3.

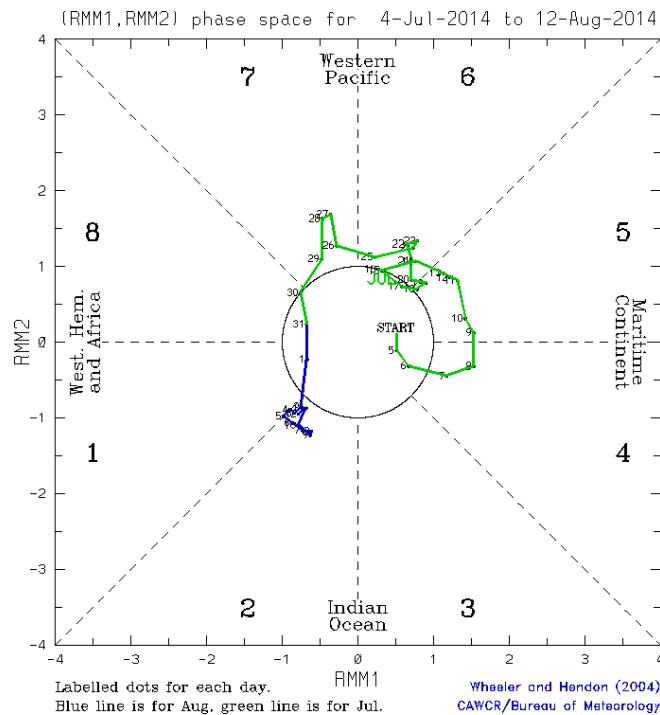


Figure 3: Estimated position of the MJO from July 4, 2014 through August 12, 2014.

While the MJO has generally been in a more conducive mode for TC development over the past few days, the overall background environment is still quite unfavorable, with dry air and stability being especially suppressive at the present time (Figure 4). The latest forecast from the European Center for Medium-Range Weather Forecasts (ECMWF) model indicates a weakening MJO signal during the next two weeks (Figure 5). Table 2 displays the normalized activity experienced in the Atlantic basin for each phase of the MJO.

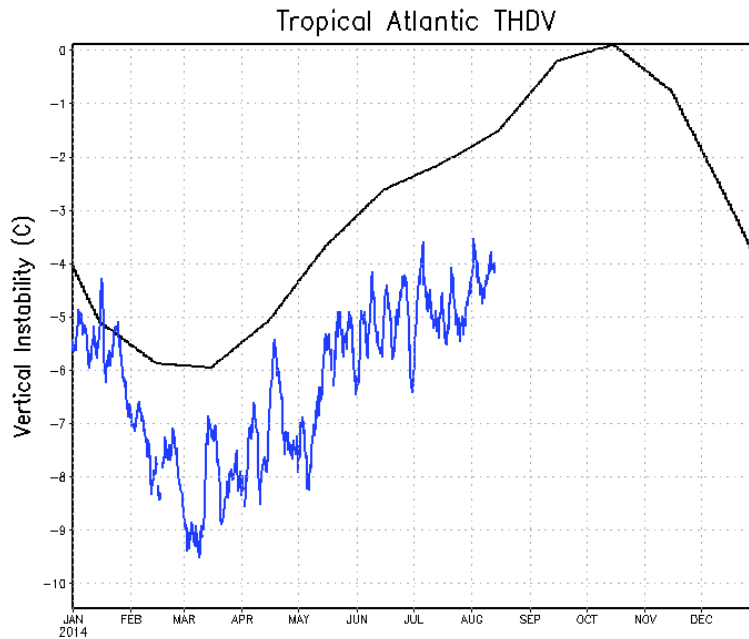


Figure 4: Vertical instability parameter across the tropical Atlantic since January 2014. Vertical instability has been well below-average since the start of the hurricane season. This indicates that the atmosphere has been much more stable than normal, which is detrimental for storm formation.

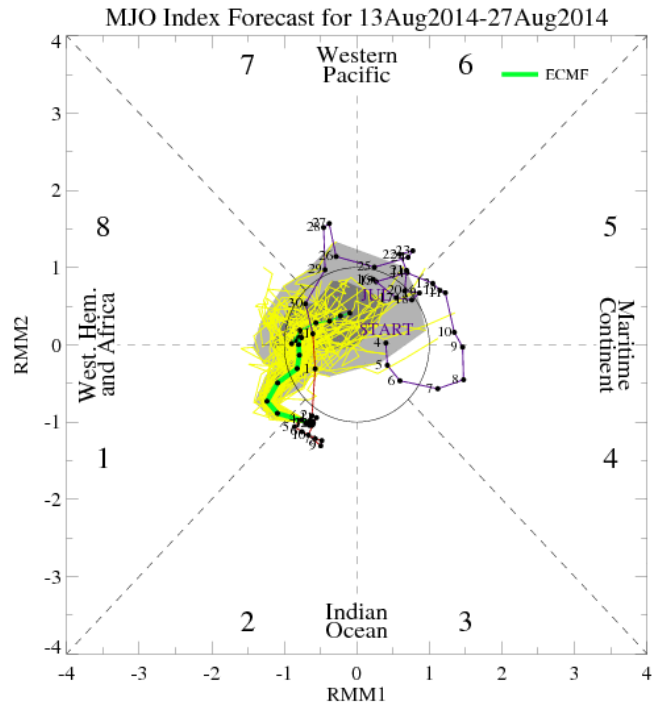


Figure 5: ECMWF forecast for the MJO from August 13, 2014 through August 27, 2014. The ensemble mean (highlighted by the green line) calls for a weakening signal, as evidenced by the movement of the line towards the center of the circle.

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 utilize the seasonal forecast as a baseline for our two-week forecasts. Given the seasonal forecast as well as model output and the predicted phase of the MJO, we believe that the most likely scenario is for below-average TC activity for the next two weeks.

3 Upcoming Forecasts

The next two-week forecast will be issued on August 28 for the August 28 – September 10 period. Additional two-week forecasts will be issued on September 11, September 25 and October 19.

VERIFICATION OF JULY 31 – AUGUST 13, 2014 FORECAST

The two-week forecast of tropical cyclone activity from July 31 – August 13 verified well. Activity at average levels was predicted (3-5 ACE units). Bertha generated 5 ACE units during the two-week period.