

2021 Atlantic Hurricane Season Outlooks

ACTIVE SEASON

compiled by CIMH
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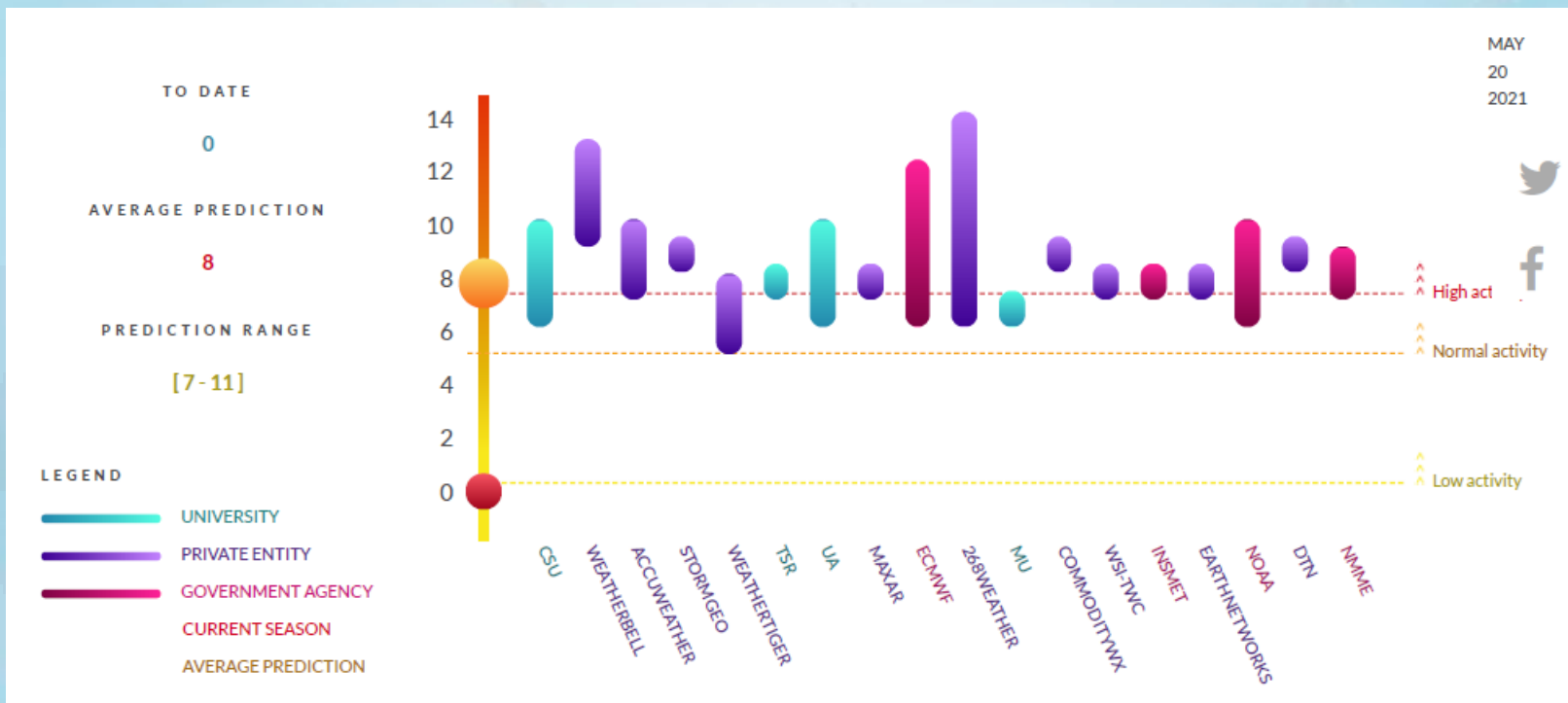
2021 Hurricane Season Forecasts

Forecast Parameter (1991-2020 Climatology in parentheses)	CSU 08 th April 2021	Tropical Storm Risk 13 th April 2021	The Weather Company 16 th April 2020	NOAA Climate Prediction Center 70% confidence range 20 th May 2021	CIMH (70% confidence range) 20 th May 2021
Named Storms (NS) (14)	17	17	19	13-20	18 (14-22)
Hurricanes (H) (7)	8	8	8	6-10	-
Major Hurricanes (MH) (3)	4	3	4	3-5	-
Accumulated Cyclone Energy (ACE) (122)	150	134	-	110-190	155 (100-215)

Comparing 2021 CSU Atlantic Hurricane Season outlook to the hyperactive 2020 and 2017 seasons

Forecast Parameter and 1981–2010 Average* (in parentheses)	Issue Date 8 April 2021	2020 Obs.	2017 Obs.
Named Storms (NS) (12.1)	17	30	17
Named Storm Days (NSD) (59.4)	80	118	91.25
Hurricanes (H) (6.4)	8	13	10
Hurricane Days (HD) (24.2)	35	34.75	51.25
Major Hurricanes (MH) (2.7)	4	6	6
Major Hurricane Days (MHD) (6.2)	9	8.75	19.25
Accumulated Cyclone Energy (ACE) (106)	150	180	226
Net Tropical Cyclone Activity (NTC) (116%)	160	225	231

Overview of forecasted number of Atlantic Hurricanes in 2021 (as of 20 May 2021)



Caribbean Landfall probabilities

▶ CSU:

- ▶ **58% probability for at least one major hurricane** (Cat 3, 4 or 5), tracking into the Caribbean (10-20°N, 60-88°W).
1901-2000 average probability for major hurricanes is 42%.
- ▶ For **country-by-country forecasted probabilities** of named storms and hurricanes passing within 50 miles of the location, see <https://tropical.colostate.edu/resources.html> .

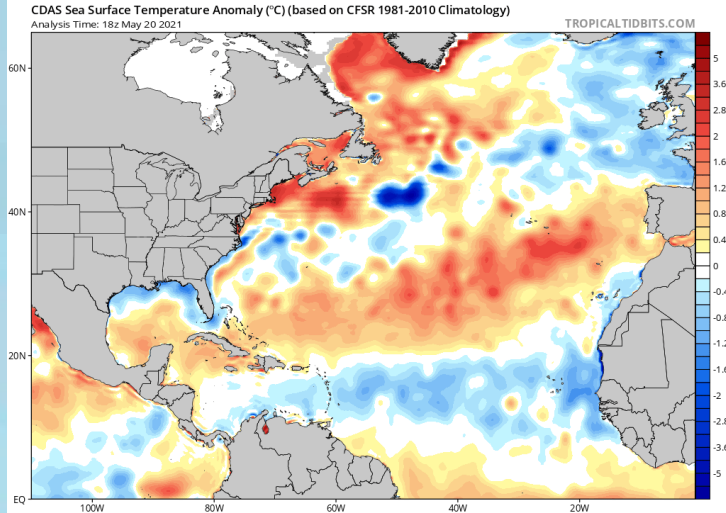
▶ TSR:

- ▶ Possibly 12 named storms, 6 hurricanes and **3 major hurricanes** tracking through the Tropical North Atlantic, Caribbean Sea and the Gulf of Mexico.

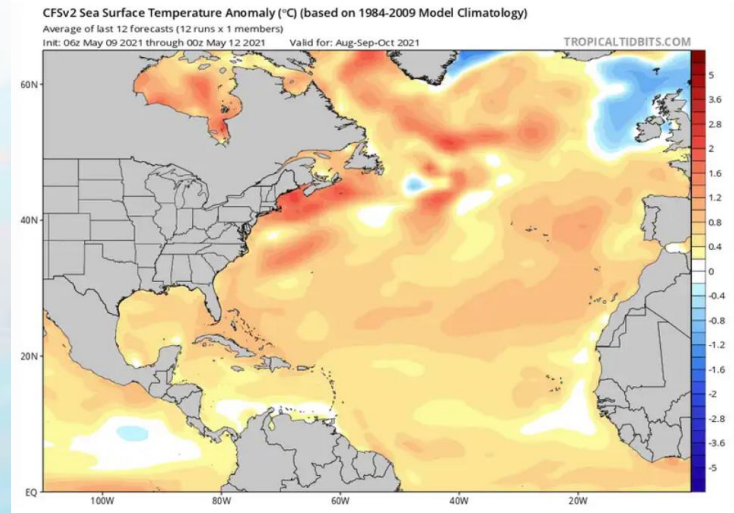
Slightly cool sea surface temperatures (SSTs) in the Main Development Region for hurricanes to **warm up**. Sub-tropics **very warm**.

→ *active season?*

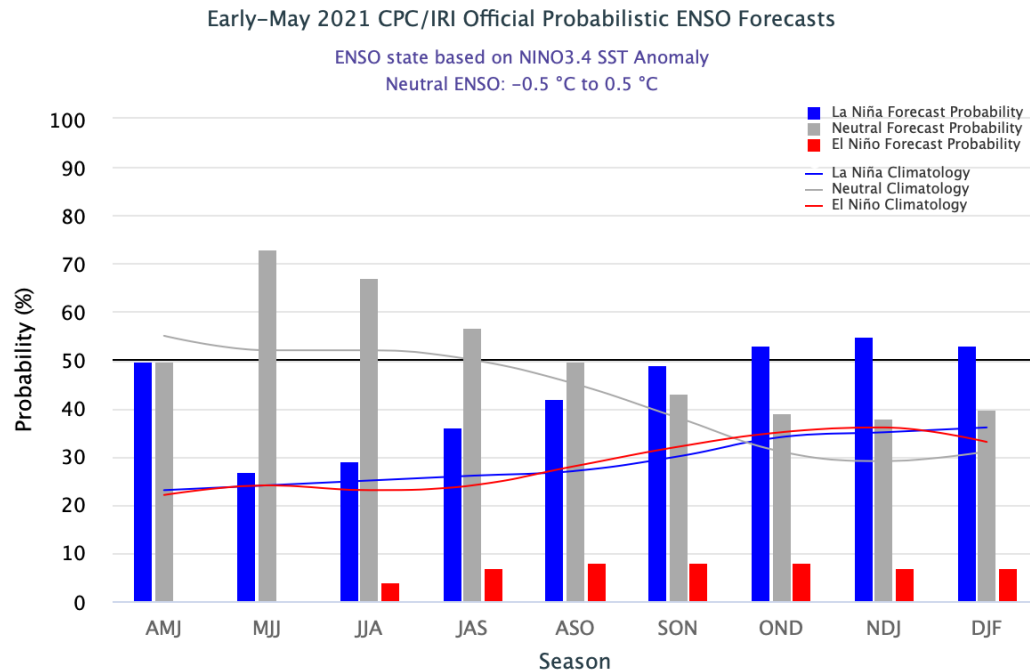
Observations of the latest SST anomalies (source: NOAA/NCEP)



Forecast SST Anomalies for August through October 2021 (source: NOAA/NCEP)



Possible **La Niña** conditions by October might boost Hurricane Season activity



Source: NOAA CPC / IRI – ENSO: Recent Evolution, Current Status and Predictions

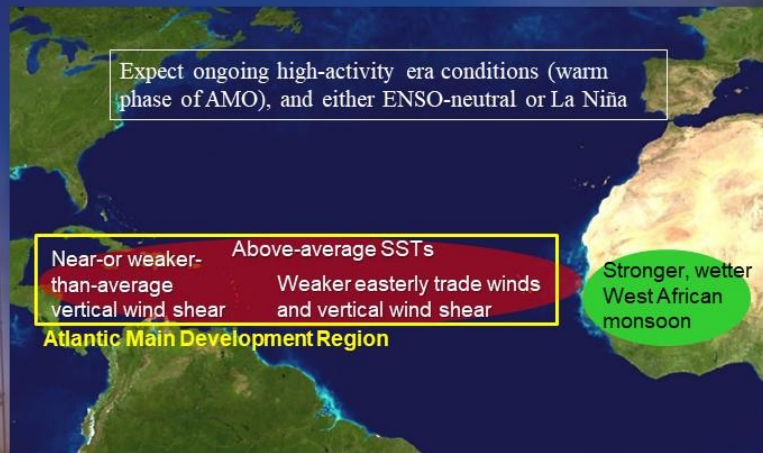
NOAA/CPC Outlook – drivers of hurricane season activity in 2020 (simplified)



Expected Atlantic Conditions

The 2021 Atlantic outlook reflects either non-competing or reinforcing factors:

1. High-activity era conditions favor more hurricane activity, and include above-average sea surface temperatures in the Main Development Region, along with
2. Weaker trade winds, weaker vertical wind shear, and a stronger, wetter west African monsoon.
3. ENSO-neutral favors near-average vertical wind shear over the Caribbean Sea, while La Niña favors weaker shear in that region. The combination of La Niña and high-activity era-conditions increases the likelihood of activity being near the upper ends of the predicted ranges.





2021 Atlantic Tropical Cyclone Names

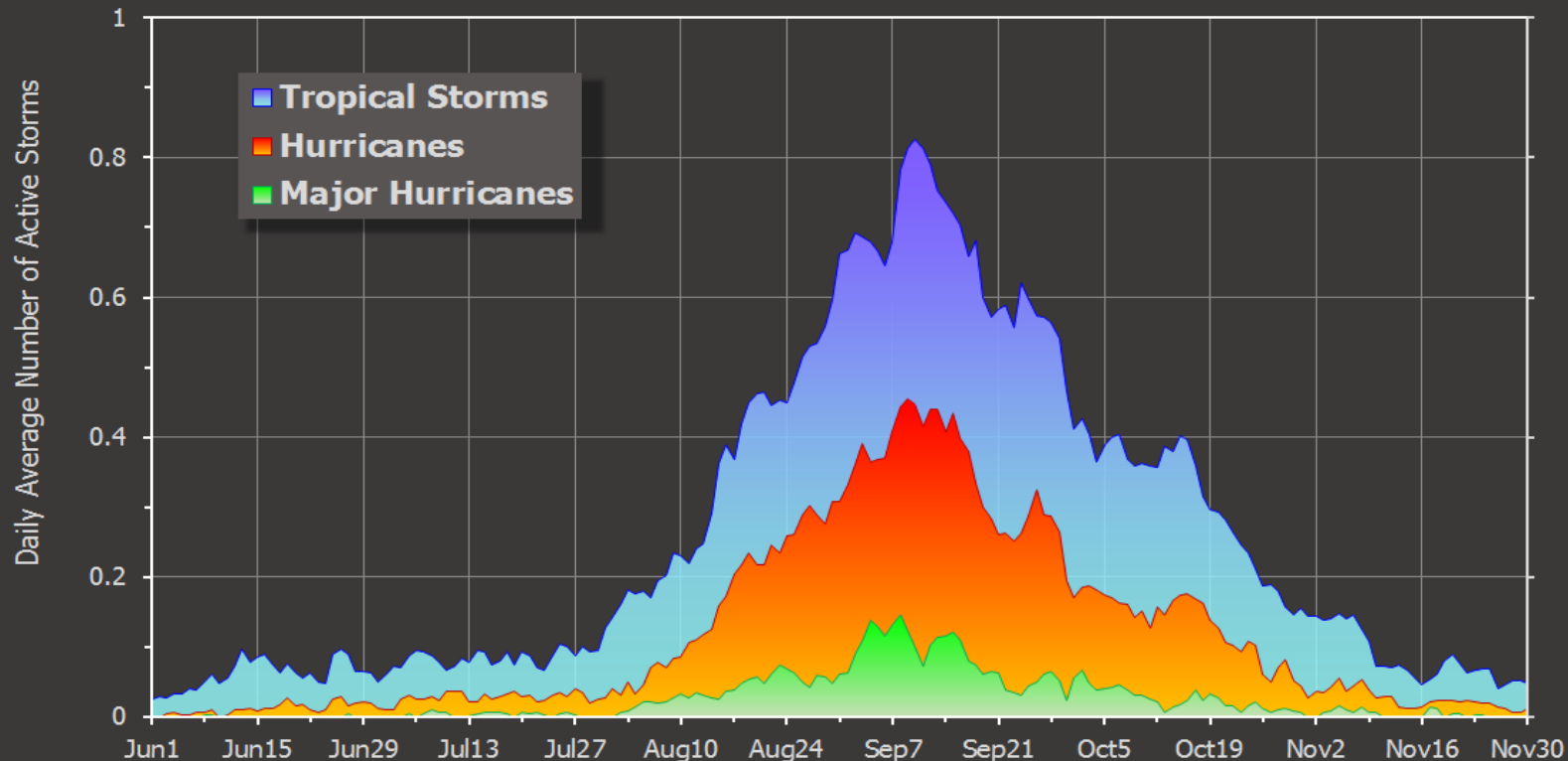
Ana
Bill
Claudette
Danny
Elsa
Fred
Grace

Henri
Ida
Julian
Kate
Larry
Mindy
Nicholas

Odette
Peter
Rose
Sam
Teresa
Victor
Wanda

Names provided by the World Meteorological Organization

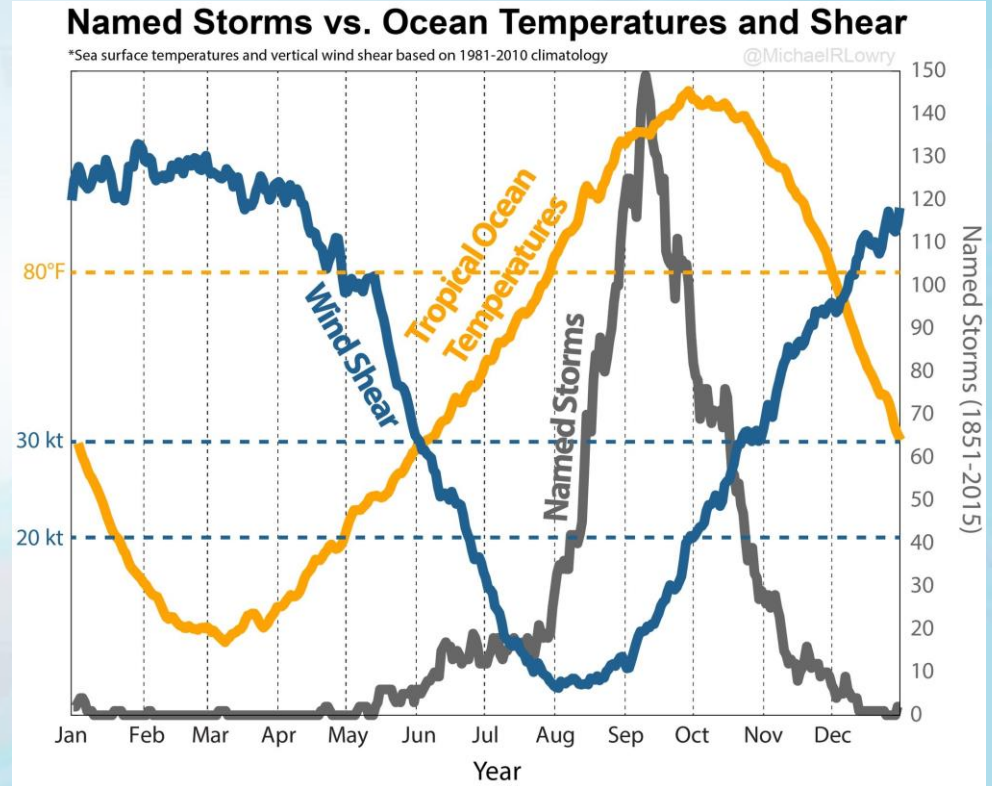
Atlantic Tropical Cyclone Climatology (1851-2013)



Basin-wide TC activity historically **peaks on 10 September**

Could we make useful predictions of parts of the season?

- ▶ The peak of the season is from August to October
➔ what will this period bring?
- ▶ CariCOF predicts 2 three-month periods each month
➔ What could June to August and September to November look like?



How good were the CIMH 2020 experimental forecasts?

Period	Observed	Late May 2020		Early August 2020	
		Forecast	Range*	Forecast	Range*
Number of Named Storms					
2020 (entire season)	30	18	14-22	24	17-26
Jun.-Aug. (1 st half)	10	7	2-10		
Aug.-Oct. (peak)	18	13	6-15		
Sep.-Nov. (2 nd half)	17	10	5-12		
Aug.-Dec.	21			15	8-17
Accumulated Cyclone Energy (ACE)					
2020 (entire season)	122	156	97-217		
Jun.-Aug. (1 st half)	36.7	37	9-65		
Aug.-Oct. (peak)	120.2	135	81-189		
Sep.-Nov. (2 nd half)	137.9	117	72-163		



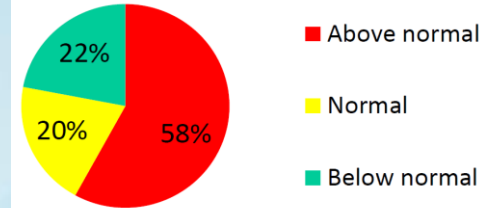
2021 Atlantic Hurricane Season Activity

CIMH forecasts

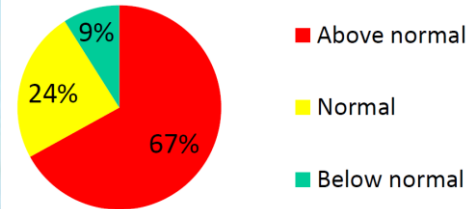
Period	1991-2020	Forecast	Range*	Confidence level
Number of Named Storms				
Entire season	14	18	14-22	High
First half (JJA)	5	7	4-10	Medium
Peak season (ASO)	11	13	10-17	High
Second half (SON)	7.8	10	7-13	Medium
Accumulated Cyclone Energy (ACE)				
Entire season	122	156	97-217	Medium
JJA 2020	29	37	9-65	Low
ASO 2020	114	135	81-189	Low to medium
SON 2020	87	117	72-163	Medium

*70% confidence range, i.e. the observed number has a 70% chance of falling in this range

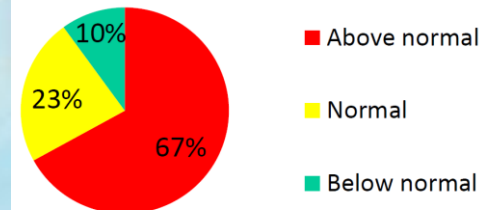
First half (June to August)



Peak (August to October)



Second half (September to October)



NOTE

- ▶ Authorities and interests are advised to constantly monitor weather advisories issued by the National Meteorological Services.
- ▶ They should also constantly monitor other information provided by the Caribbean Disaster Emergency Management Agency (<http://cdema.org/>) and the US National Hurricane Center (<https://www.nhc.noaa.gov/>).
- ▶ All persons and entities should abide by any official advisories issued by the National Meteorological Service in their country.

DISCLAIMER

- ▶ CIMH is providing special weather interpretation of the current and forecasted tropical weather affecting the Caribbean region.
- ▶ CIMH is not an official forecasting authority.