



2023 Atlantic Hurricane Season Outlooks

NORMAL TO ABOVE-NORMAL ACTIVITY

compiled by CIMH
Dr. Cedric Van Meerbeeck, Climatologist
& Kathy-Ann Caesar, Chief Meteorologist



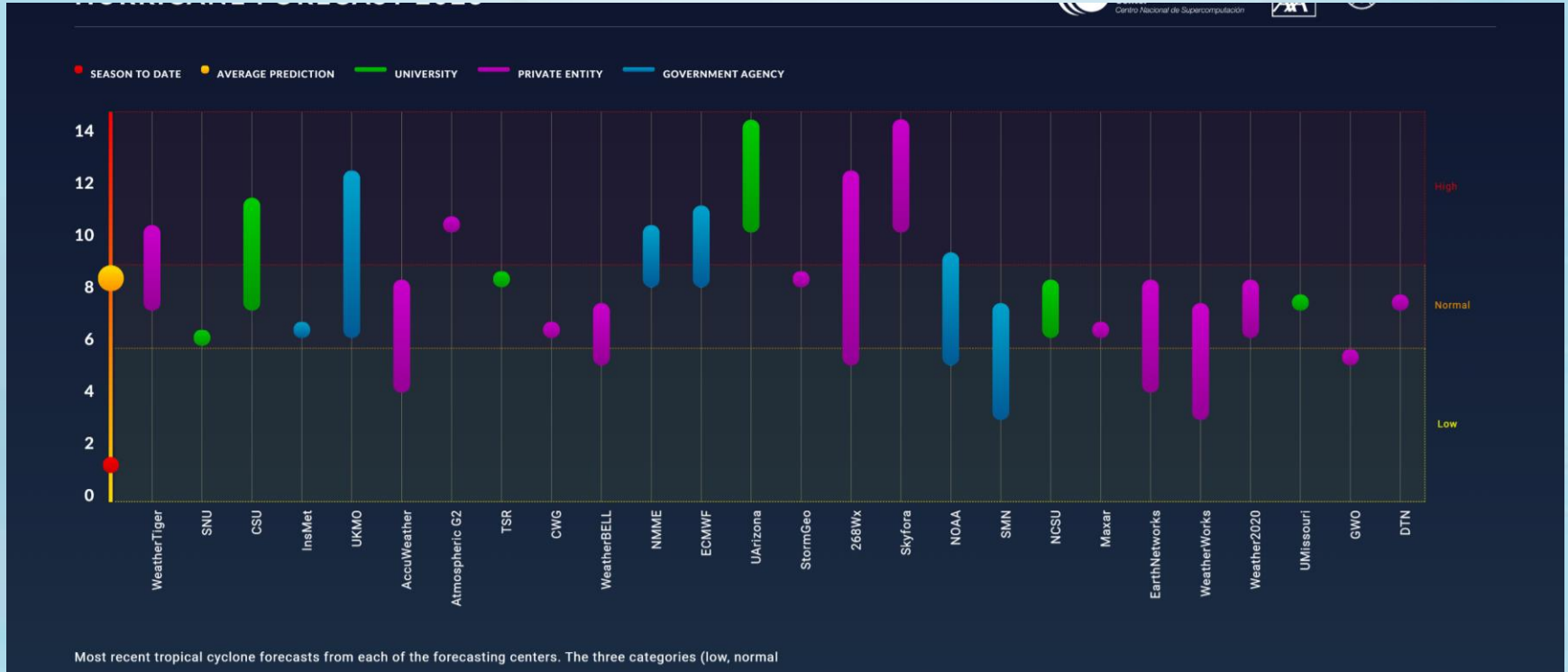
2023 Hurricane Season Forecasts – normal to above-normal activity

Forecast Parameter (1991-2020 average in parentheses)	CSU 3 August 2023	Tropical Storm Risk 8 August 2023	UK Met Office (70% confidence range) 1 August 2023	NOAA CPC (70% confidence range) 10 August 2023	CIMH (70% confidence range) 10 August 2023 ** 15 May 2023
Named Storms (NS) (14)	18	18	14 – 24	14 – 21	21 (17-24)**
Hurricanes (H) (7)	9	8	6 – 12	6 – 11	7 (3-10)**
Major Hurricanes (MH) (3)	4	3	3 – 9	2 – 5	4 (1-6)**
Accumulated Cyclone Energy (ACE) (123)	160	140	120 – 310	105 – 200	120 (41-179)**

Comparing 2023 CSU Atlantic Hurricane Season outlook to the hyperactive 2020 and 2017 seasons

Forecast Parameter and 1991–2020 Average (in parentheses)	Issue Date 3 August 2023	2020 Obs.	2017 Obs.
Named Storms (NS) (14.4)	18*	30	17
Named Storm Days (NSD) (69.4)	90	118	91.25
Hurricanes (H) (7.2)	9	13	10
Hurricane Days (HD) (27.0)	35	34.75	51.25
Major Hurricanes (MH) (3.2)	4	6	6
Major Hurricane Days (MHD) (7.4)	9	8.75	19.25
Accumulated Cyclone Energy (ACE) (123)	160	180	226

Overview of forecasted number of Atlantic Hurricanes in 2023 (as of 10 August 2023)



Caribbean Landfall probabilities

▶ CSU:

- ▶ **53% probability for at least one major hurricane** (Cat 3, 4 or 5), tracking into the Caribbean (10-20°N, 60-88°W).
1880-2000 average probability for major hurricanes is 47%.
- ▶ 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 13 named storms, 6 hurricanes and **3 major hurricanes** tracking through the Tropical North Atlantic, Caribbean Sea and the Gulf of Mexico.

Drivers of hurricane season activity in 2023

(Near-)record warm sea surface temperatures in the North Atlantic Ocean & the Caribbean expected through early 2024.

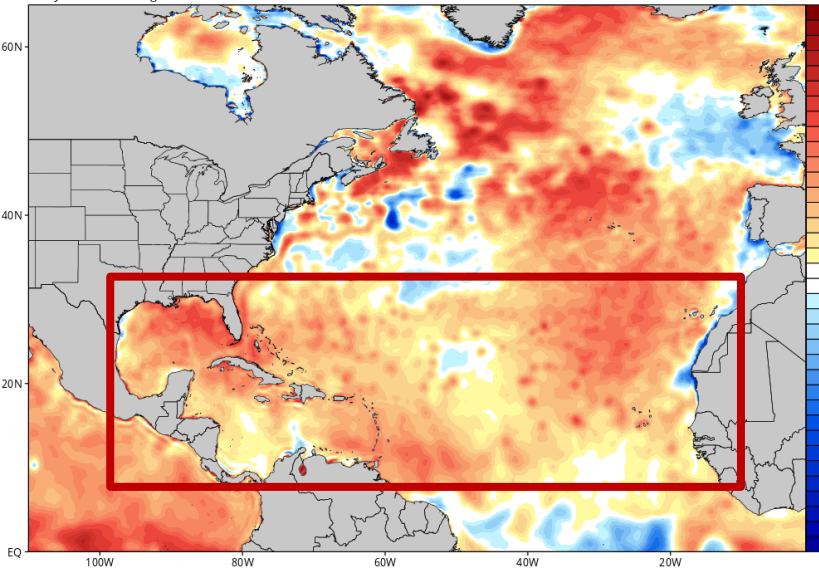
➔ **boosts hurricane season activity, and appears to be the dominant driver in 2023**

In the Pacific, **El Niño** will very likely last through early 2024.

➔ **reduces hurricane season activity, but unlikely to be the strongest driver in 2023**

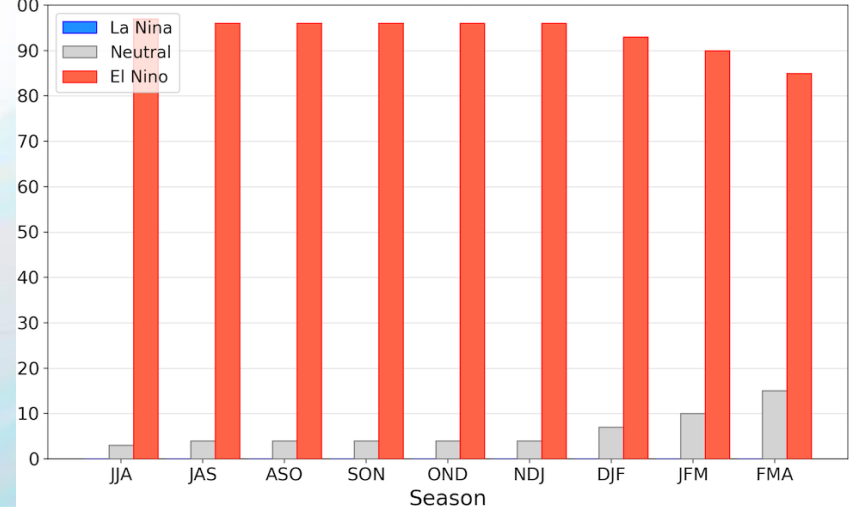
CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)
Analysis Time: 00z Aug 10 2023

TROPICALTIDBITS.COM



Official NOAA CPC ENSO Probabilities (issued July 2023)

based on $-0.5^{\circ}/+0.5^{\circ}\text{C}$ thresholds in ERSSTv5 Niño-3.4 index





2023 Atlantic Tropical Cyclone Names

~~Arlene~~

~~Bret~~

~~Cindy~~

~~Don~~

Emily

Franklin

Gert

Harold

Idalia

Jose

Katia

Lee

Margot

Nigel

Ophelia

Philippe

Rina

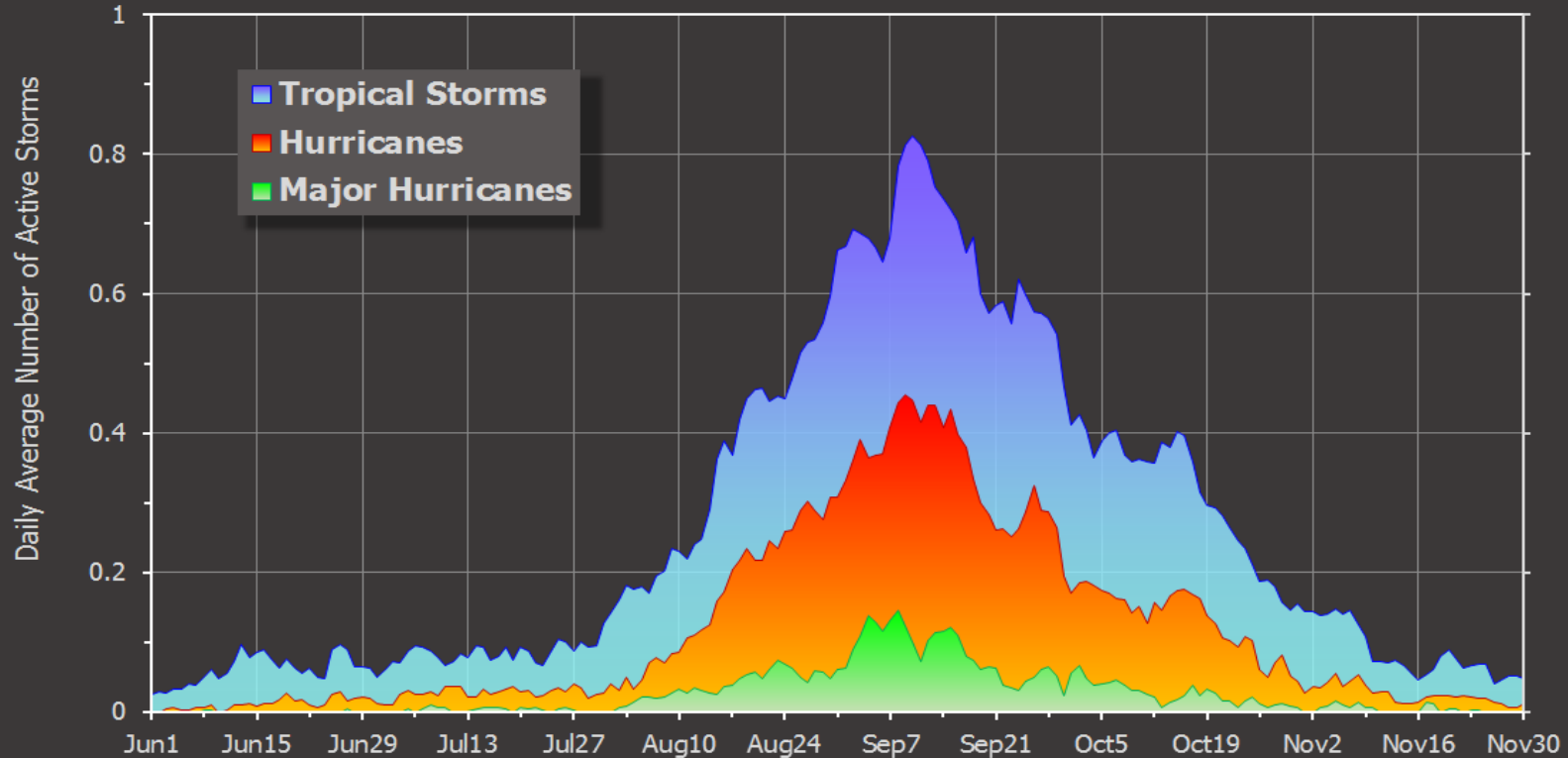
Sean

Tammy

Vince

Whitney

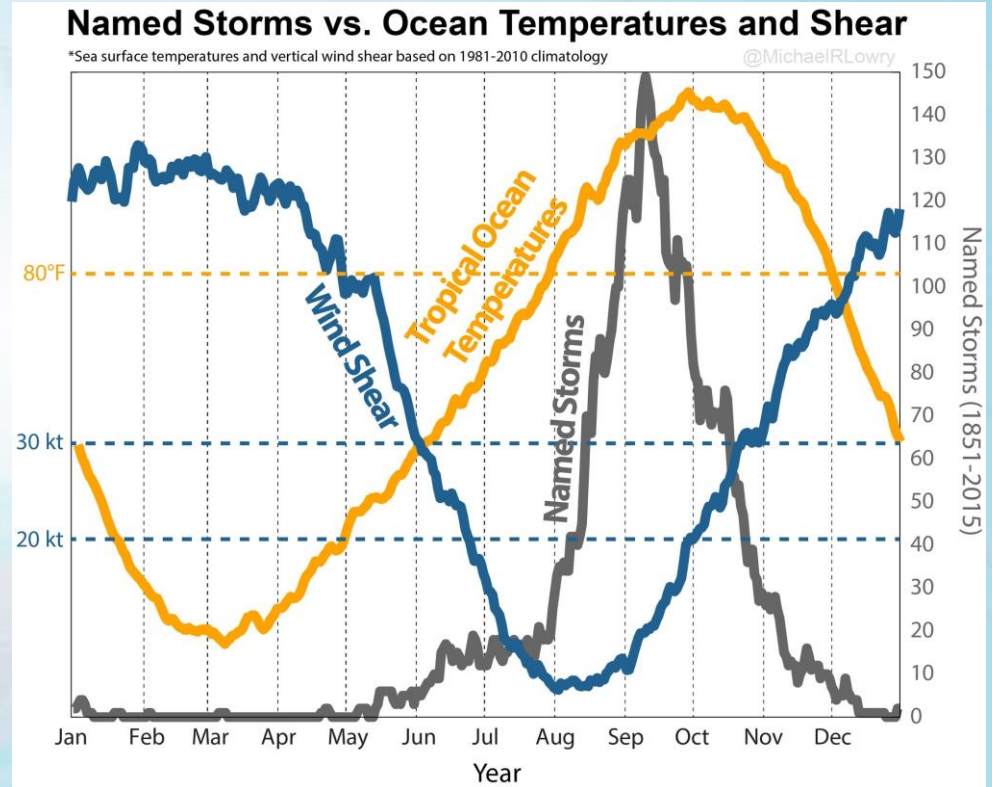
Atlantic Tropical Cyclone Climatology (1851-2013)



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?
- ➔ What could the **first half** (June to August) and **second half** (September to November) of the season look like?



Source: Michael Lowry/FEMA

How good were the CIMH 2022 forecasts?

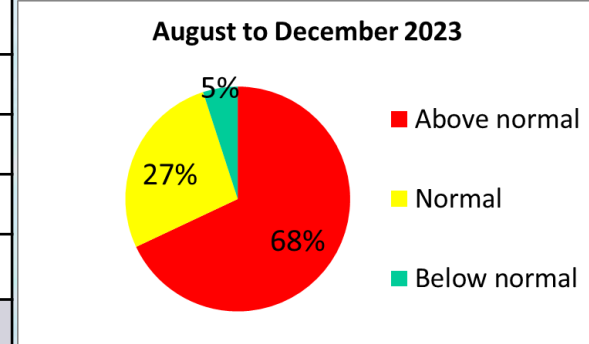
Period	Observed	Late May 2022		Early August 2021	
		Forecast	Range*	Forecast	Range*
Number of Named Storms					
2022 (entire season)	14	18	10-21	20	16-23
Jun.-Aug. (1 st half)	3	7	3-10		
Aug.-Oct. (peak)	11	13	8-16		
Sep.-Nov. (2 nd half)	11	10	6-12		
Aug.-Dec.	11			17	13-20
Accumulated Cyclone Energy (ACE)					
2022 (entire season)	95.1	155	75-216		



2023 Atlantic Hurricane Season Activity

CIMH forecasts

Period	1991-2020	Forecast	Range*	Confidence level
Entire season				
Named storms	14	17	12-22	High
Hurricanes	7	7	3-10	Medium
Major Hurricanes	3.2	4	1-6	Medium
ACE	123	120	41-179	High
August 2023 forecasts for the Number of Named Storms				
Entire season	14	21	17-24	High
Aug. to Dec. 2022	12	16	12-20	High



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

The new norm

'Average' Atlantic Hurricane Season

* Effective 2021

1981-2010

12 Named Storms
6 Hurricanes
3 Major Hurricanes



1991-2020

14 Named Storms
7 Hurricanes
3 Major Hurricanes

* Numbers for an average season reflect the climate record for tropical storms and hurricanes and use the most recent 3 decades as the period of reference. More at: <http://bit.ly/NOAAHurricaneSeasonAverages>



Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.

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IMPORTANT:

Number of major hurricanes up 14% from 2.8 to 3.2 /year

(and up by 60% compared to 1961-1990)

What changes to bear in mind?

- The WMO **no longer uses the Greek alphabet** as additional list of named storms in the Atlantic basin to avoid a few communication problems (see e.g.
- Instead, from last year (2021) onwards, the WMO uses a [Supplemental list of tropical cyclone names in RA IV](#) once the regular list is exhausted.
- Keep in mind that what determines an **active season** may have changed by using the new norms.
- NHC daily Tropical Weather Outlooks now starting 15 May.

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.