

Tropical Storm Risk (TSR)

Atlantic Hurricane Season Forecast

Tropical Storm Risk (TSR) has issued its April forecast for the 2021 Atlantic Hurricane Season. The agency is forecasting **17 named storms, 8 hurricanes, and 3 major hurricanes (Category 3+)** between the months of June and November. This is a slightly increase from TSR's initial projection of tropical activity released in December 2020. The projected activity is expected to be roughly 25 to 30 percent above the long-range norm since 1950, and slightly above the recent 2011-2020 (10-year) norm.

The agency, which originates from University College London (UCL), cites that the main predictor for this forecast is the projected warmer than normal sea surface temperatures in the tropical North Atlantic Ocean and an expectation of weak or lingering La Niña ENSO conditions by the peak hurricane season months of August and September. These expected conditions have resulted in an anticipated persistent lessening of trade winds throughout the Atlantic's Main Development Region (MDR) – including the Caribbean Sea and tropical North Atlantic – that typically leads to more cyclonic vorticity (spin) and decreased vertical wind shear. Each of these parameters should allow for more favorable atmospheric and oceanic conditions that lead to above-average cyclogenesis.

The group stresses that the precision of hurricane season outlooks in April is often low and forecast uncertainties are amplified due to the unknown status of ENSO and atmospheric/oceanic conditions in the Atlantic in a few months' time. Forecast skill increases as the start of the season approaches.

TSR currently projects that there is a 53 percent probability that the 2021 Atlantic Hurricane Season ACE Index will be above-average, a 29 percent likelihood it will be near-normal, and an 18 percent chance it will be below-normal.

The Accumulated Cyclone Energy Index is equal to the sum of the squares of 6-hourly maximum sustained wind speeds (in knots) for all systems while they are at least tropical storm strength. The ACE Landfall Index is the sum of the squares of hourly maximum sustained wind speeds (in knots) for all systems while they are at least tropical storm strength and over the United States mainland (reduced by a factor of 6).

The tables on the next page show the TSR forecast and the range of uncertainty that surrounds the forecast. Visit the Appendix below to view historical seasonal forecast performance versus the actual observed Atlantic activity. The full report is available at TSR's webpage (<http://tropicalstormrisk.com/>). The next forecast update is expected in late May 2021.

TSR Atlantic Basin Hurricane Season Forecast (June 1 – November 30)

Forecast Parameter	Average Year (1950-2020)	2021 (December 2020)	2021 (April 2021)
Named Storms	12	16	17
Hurricanes	6	7	8
Major Hurricanes	3	3	3
ACE Index (1950-2020)	105	127	134

Source: Tropical Storm Risk

TSR U.S. Landfalling Atlantic Hurricane Season Forecast (June 1 – November 30)

Forecast Parameter	Average Year (1950-2020)	2021 (April 2021)
Named Storms	3	4
Hurricanes	1	2
ACE U.S. Landfall Index (1950-2020)	2.4	2.5

Source: Tropical Storm Risk

*There is a 52 percent chance that the U.S. landfalling ACE index will be above average, a 32 percent chance it will be near-normal, and an 16 percent chance that it will be below normal.

Appendix

Historical Tropical Storm Risk Forecast Validation Since 2000

Season	April NS	June NS	August NS	Actual NS	April HU	June HU	August HU	Actual HU	April MHU	June MHU	August MHU	Actual MHU
2000		9	10	15		5	6	8		2	3	3
2001		11	12	15		6	7	9		2	3	4
2002	11	8	8	12	6	4	4	4	2	1	1	2
2003	11	12	12	16	6	7	7	7	2	3	2	3
2004	13	12	14	15	7	6	8	9	3	2	3	6
2005	14	14	22	28	8	8	11	15	4	4	7	7
2006	15	14	16	10	8	8	8	5	4	3	4	2
2007	17	16	15	15	9	9	8	6	4	4	4	2
2008	15	14	18	16	8	8	10	8	4	3	5	5
2009	15	11	13	9	8	5	7	3	4	2	3	2
2010	16	18	18	19	9	10	10	12	4	4	5	5
2011	14	14	16	19	8	8	9	7	4	4	4	4
2012	13	14	14	19	6	6	6	10	3	3	3	2
2013	15	16	15	14	8	8	7	2	3	4	3	0
2014	12	12	12	8	5	5	6	6	2	2	2	2
2015	11	10	11	11	5	4	4	4	2	1	1	2
2016	12	17	15	15	6	9	7	7	2	4	3	4
2017	11	14	17	17	4	6	7	10	2	3	3	6
2018	12	9	11	15	6	4	5	8	2	1	1	2
2019	12	12	13	18	5	6	6	6	2	2	2	3
2020	16	17	24	30	8	8	10	13	3	3	4	6
2021	17				8				3			

NS: Named Storms

HU: Hurricanes (Category 1+)

MHU: Major Hurricanes (Category 3+)

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