

Howden Re

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Below average.
Uncertainty persists.

2026 Atlantic hurricane pre-season outlook

2026 Hurricane forecast

13.4

Named storms

5.8

Hurricanes

2.3

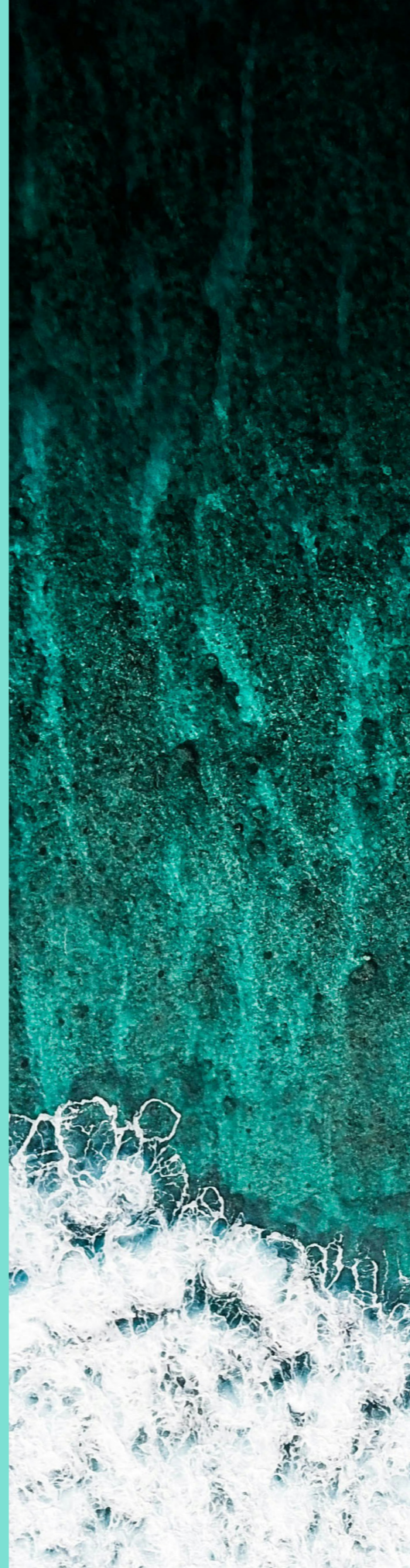
Major Hurricanes

Forecaster	Named storms	Hurricanes	Major Hurricanes	ACE
NOAA	8-14	3-6	1-3	—
Colorado State University	10-16	4-8	1-4	49-141
Tropical Storm Risk	12	5	1	66
Accuweather	11-16	4-7	2-4	—
Weatherbell	9-13	3-5	1-2	85-105
University of Arizona	17-23	7-11	3-5	114-196
ECMWF	11.4-15.1	4.5-6.7	—	85-121
Forecast average	13.4	5.8	2.3	92.8
1991-2020 NOAA average	14	7	3	122

General synopsis

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While the general outlook calls for below-average activity overall, storms tracking along the eastern seaboard may find conditions favourable for intensification.



The 2026 Atlantic hurricane season outlook calls for slightly below-average activity. Pre-season hurricane forecasts focus on activity-based metrics, like storm counts and accumulated cyclone energy (ACE). Two leading forecast organizations, Colorado State University and ECMWF, are forecasting most metrics to be 10-20% below average.

However, the below-average outlook is not unanimous. The University of Arizona’s AI-assisted forecasting methodology suggests an average to slightly above-average season. In addition, the forecast ranges released by most organizations span a range that includes near-normal activity. Despite this uncertainty, the consensus view across all forecasting groups is for a slightly below-average Atlantic hurricane season in 2026.

This represents the first below-average seasonal outlook in several years and is driven largely by forecasts of ENSO that predict a transition into an El Niño phase of ENSO by hurricane season. El Niño conditions typically increase wind shear over the Atlantic, reducing the ability for storms to form and strengthen.

Atlantic Ocean temperatures have also moderated following the extreme warmth of 2023 and 2024. One notable exception to this is the western Atlantic and waters off the US east coast, where temperatures are forecast to remain above average. This region is also typically less affected by El Niño-related wind shear. As a result, while the general outlook

calls for below-average activity overall, storms tracking along the eastern seaboard may find conditions favourable for intensification.

One common method of predicting hurricane season activity is the use of analogue seasons, historical years with similar atmospheric and oceanic conditions. Forecast teams like Colorado State University compare both current pre-season conditions and expected peak-season patterns against historical observations to identify comparable years.

For this season, CSU chose four analogue seasons characterised by moderate-to-strong El Niño conditions as well as relatively warm conditions in the Atlantic MDR. This year’s analog seasons are 2006, 2009, 2015, and 2023, which saw a combined total of six US landfalls – two hurricanes and four tropical storms - with no event generating more than \$2B in industry losses.



ENSO & RONI

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RONI may help better explain overall seasonal activity, it does not determine whether any individual hurricane becomes destructive.

One of the major influences on Atlantic hurricane activity is the El Niño-Southern Oscillation (ENSO), often known by its positive and negative phases: El Niño and La Niña. While no metric can perfectly predict seasonal hurricane activity, ENSO remains one of the most reliable indicators. Historically, El Niño conditions generally bring less hurricane activity, and La Niña bring additional activity.

Traditionally, ENSO has been measured using the Oceanic Niño Index (ONI), which measures how warm or cool an area of the Pacific Ocean is versus its historical average. The temperature thresholds that define ENSO phases are relatively narrow: El Niño or La Niña conditions begin at only 0.5°C above or below normal, making small changes important.

The ONI framework works well under stable baseline conditions, but it is not effective at isolating the ENSO signal in our current warming climate where ocean temperatures are rising more broadly. To mitigate this problem, researchers at NOAA and leading universities have created a new Relative Oceanic Niño Index (RONI).

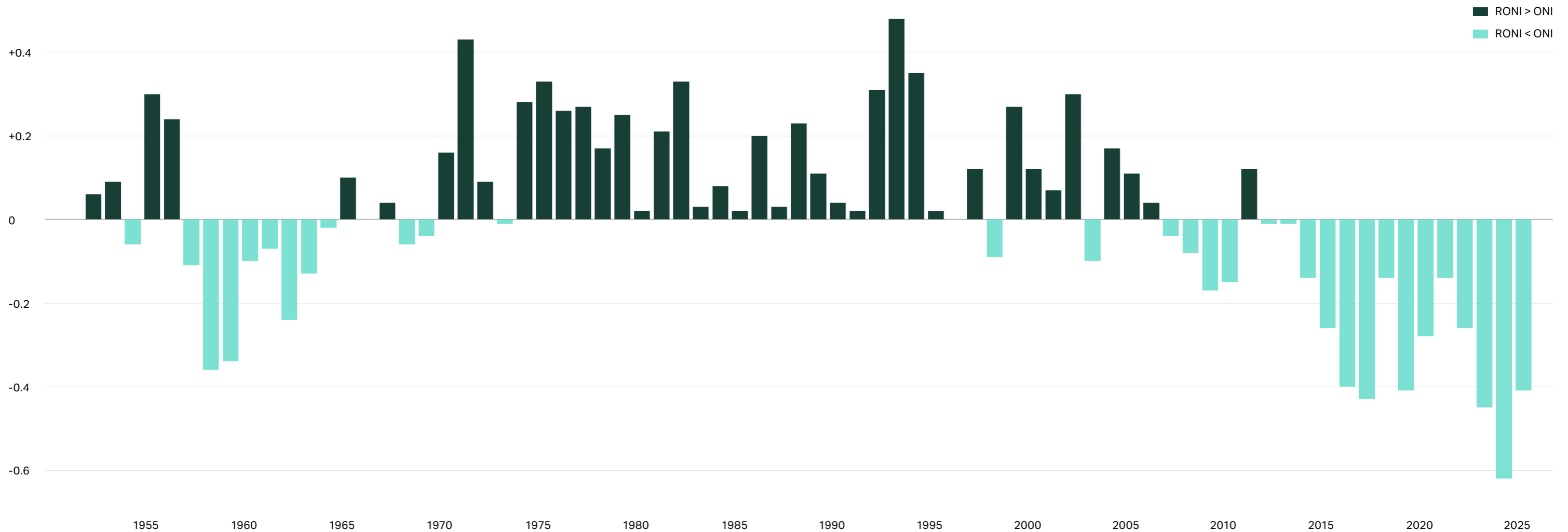
RONI is conceptually similar to ONI, but it adjusts for overall tropical ocean temperatures, allowing it to better isolate the role of ENSO conditions in the context of long-term ocean warming. Reflecting these advantages, NOAA has formally adopted RONI as its preferred ENSO metric, and it will be featured in the new Verisk Hurricane model to be released this summer.

Using RONI instead of ONI suggests that the past few hurricane seasons have been more La Niña-like (cooler) than the traditional ENSO metrics implied. This may have played a part in the active hurricane seasons of recent years.

While the differences between RONI and ONI may appear modest, they can still have meaningful implications. Historical observations suggest that a -0.5C reduction would mean an average increase of five hurricanes making landfall in the US per decade.

However, major hurricanes such as Andrew, Katrina, and Irma occurred across a broad range of RONI-ONI differences. This highlights an important limitation; while RONI may help better explain overall seasonal activity, it does not determine whether any individual hurricane becomes destructive.

Figure 2: Historical RONI minus ONI values during the peak of hurricane season (August, September, October) from ERSSTv5. Teal areas indicate years where the RONI suggests more La Niña-like conditions than ONI, while green areas indicate years where RONI suggests more El Niño-like conditions than ONI.



Super El Niño

Models are increasingly confident that El Niño conditions will emerge in the latter half of 2026, and human forecasters agree. Confidence in this transition is partly driven by a substantial build-up of subsurface warmth across the Pacific Ocean.

The key uncertainties in the ENSO forecast are timing and intensity. Historically, stronger El Niño events have had a greater suppressive effect on Atlantic hurricane activity, making both factors particularly important for the 2026 outlook.

While NOAA currently assigns a high probability that El Niño conditions will emerge by the peak of hurricane season (98% chance in ASO - August/September/October), there is considerable uncertainty about the strength of the El Niño.

A strong or very strong El Niño (RONI ≥ 1.5) would have the potential to limit hurricane development by supporting

significant wind shear in the Atlantic Ocean, disrupting the ability of a storm to organize. Events of this magnitude are relatively uncommon, having occurred during only six Atlantic hurricane seasons since 1950.

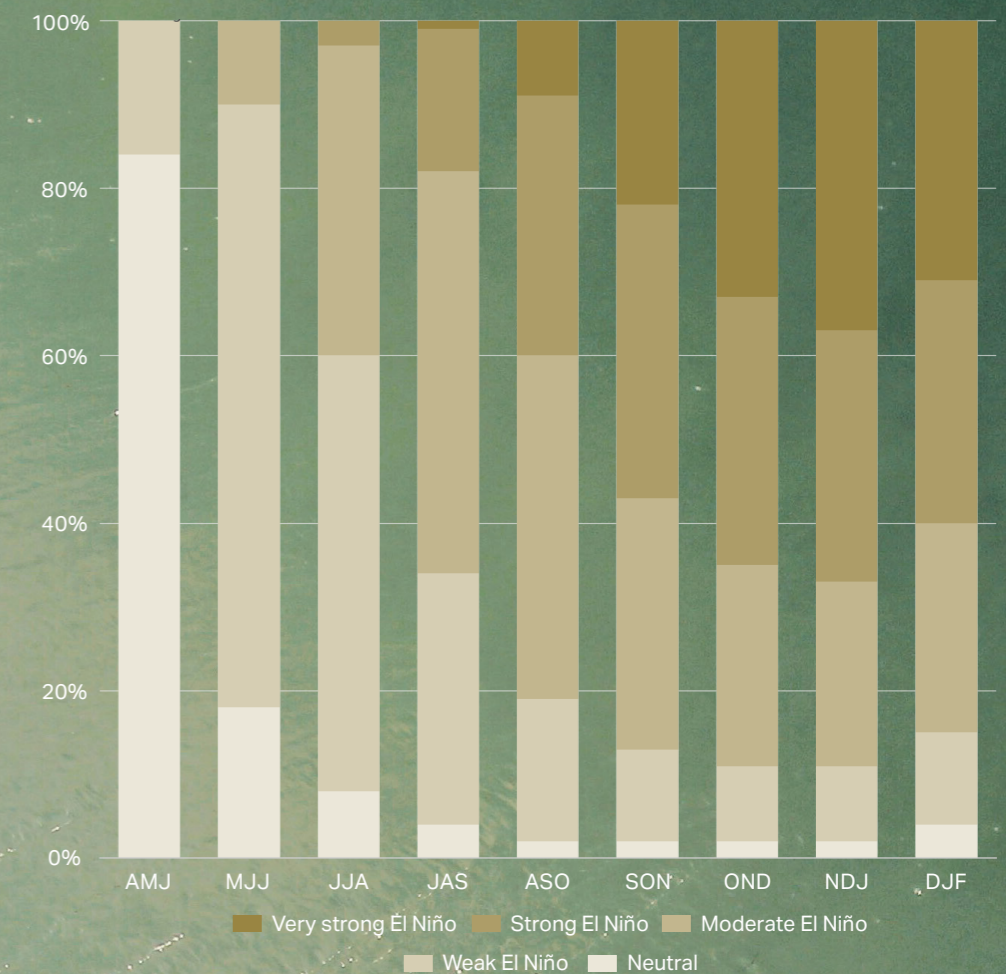
Probabilities for a strong or very strong El Niño have increased in recent weeks as the ENSO region of the Pacific Ocean has warmed quickly. However, the most likely scenario is a moderate El Niño, which could still limit hurricane activity, but in a less pronounced way.

There has been a recent surge in media attention about these ENSO forecasts, with some headlines calling for the strongest El Niño on record. However, if a very strong El Niño was to develop, the peak intensity will most likely occur this winter, after the Atlantic hurricane season has ended.

Differences between ENSO measurement methodologies remain important as forecasts based on RONI, the new NOAA-preferred metric, generally indicate a weaker El Niño than the ONI metric.

We won't gain certainty about the state of ENSO until very close to the peak of hurricane season. Additionally, the ultimate impacts from hurricane season will depend on atmospheric conditions beyond ENSO, many of which cannot be forecast reliably this far in advance.

Figure 3: Very Strong El Niño (RONI ≥ 2), Strong El Niño ($2 > \text{RONI} \geq 1.5$), Moderate El Niño ($1.5 > \text{RONI} \geq 1$), Weak El Niño ($1 > \text{RONI} \geq 0.5$), Neutral ($0.5 > \text{RONI} > -0.5$), Weak La Niña ($-0.5 \geq \text{RONI} > -1$), Moderate La Niña ($-1 > \text{RONI} \geq -1.5$), Strong La Niña ($-1.5 > \text{RONI} \geq -2$), Very Strong La Niña (RONI < -2). X-axis label refers to 3-month periods (MAM = March, April, May). Figure and data adapted from NOAA.



What metrics matter?

What are the hurricane prediction metrics that the (re) insurance industry should pay attention to?

Given the inherent uncertainty in seasonal hurricane forecasts, and the multitude of academic, government, and private entities releasing forecasts, it can be difficult to determine which signals matter most. Forecasts also vary considerably in the metrics they emphasise, ranging from storm counts and major hurricane frequency to continuous metrics like Accumulated Cyclone Energy (ACE).

Ideally society, and the (re) insurance sector, would know months in advance where hurricanes would make landfall. Unfortunately, that's well beyond current scientific capabilities. Instead, we must focus on indicators that strike a balance between predictability and utility.

Our analysis found that ACE 60W, a regional subset of ACE measuring storm activity west of 60W longitude, has historically shown the strongest relationship with insured losses. While ACE 60W is not a perfect solution for seasonal hurricane forecasting, it compares favorably with other metrics, such as the number of landfalling storms.

Figure 4: Hurricane metrics and insured losses (in 2026 dollars) since 1998. Hurricane metrics calculated are from HURDAT2 and insured losses are from PCS adjusted for exposure growth and inflation.



AI in forecasting

While machine learning has been utilized in hurricane forecasting for decades, significant improvements in AI models over the last year have led to increased use in short and medium range forecasts.

During the 2025 season, the National Hurricane Center (NHC) partnered with Google DeepMind to evaluate an AI forecast model (GDML) which performed quite well during the 2025 hurricane season. NHC's official forecast tracks outperformed almost all models in 2025. However, GDML marginally outperformed official short-range forecasts in the 12-72 hour window. The GDML model also performed well in forecasting storm intensity, with error rates comparable to official forecasts, particularly in the 24h to 96h range.

The National Weather Service (NWS) has recently released a suite of operational AI-driven models for use during the 2026 season, including AIGFS, AIGEFS, and

a Hybrid-GEFS model combining the traditional GEFS ensemble with the new AI ensemble framework.

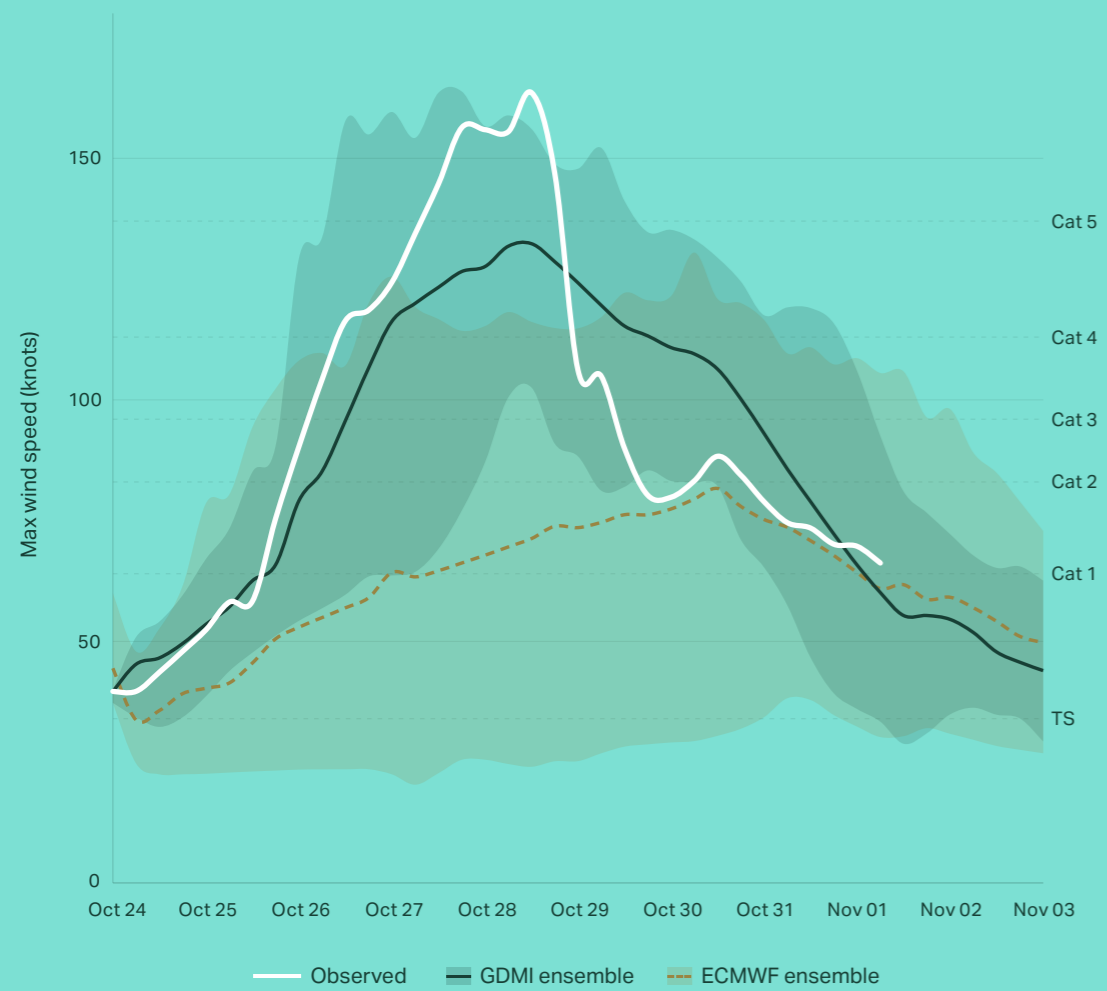
Early evaluations suggest the new ensemble models improve forecast track accuracy but are less accurate in intensity forecast performance relative to some traditional approaches.

The ECMWF has also developed its own AI forecast model (EC-AIFS) with the single run model released in February 2025, and the ensemble version made available in July. According to ECMWF, the AIFS model outperforms their physics-based models by up to 20% across certain forecast variables.

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AI forecasting models are unlikely to replace physics-based models or human forecasters entirely. Instead, they are expected to complement existing approaches.”

The Google DeepMind Ensemble

The Google DeepMind Ensemble performed particularly well in forecasting the rapid intensification of Hurricane Melissa compared to physics-based models. (Data from Google Weather Lab)



AI in Seasonal Forecasts

AI adoption within seasonal hurricane forecasting remains at an earlier stage but is expanding rapidly.

The University of Arizona's forecast leverages an AI model based on seasonal forecast data from the ECMWF, and Colorado State University has incorporated an AI based climate model (Ai2 Climate Emulator) in their outlooks for the first time this year. Scientists at NOAA's Geophysical Fluid Dynamics Lab are also testing a model combining AI tools with existing seasonal to multi-decadal ocean condition forecasts, and early results are showing improvements in seasonal hurricane activity forecasts.

As AI forecasting capabilities continue to evolve, their role within both operational weather forecasting and longer-range seasonal outlooks is likely to increase.

Will AI replace traditional forecast models and human forecasting?

In the near term, AI forecasting models are unlikely to replace physics-based models or human forecasters entirely. Instead, they are expected to complement existing approaches. Using both methods in conjunction will enhance forecasting by drawing on the benefits of each, leading to more efficient forecasts and decreasing error.

How do AI models differ from traditional forecast models?

Traditionally, numerical weather prediction (NWP) models simulate atmospheric behaviour by solving complex equations based on current atmospheric conditions (initial conditions) and are thus extremely computationally heavy.

AI forecasting models take a different approach. Rather than explicitly solving physical equations, they are trained on large volumes of historical atmospheric and weather data to identify patterns and relationships between variables over time.

While AI models have demonstrated impressive forecasting skill in some areas, they do not fully replicate the physical modelling framework used by traditional NWP systems. As a result, each approach has distinct strengths and limitations.

Storm names for 2026

The World Meteorological Organization develops a rotating list of storm names that are assigned once a tropical cyclone reaches tropical storm intensity, defined as sustained winds of at least 39 MPH.

The naming list repeats every six years unless a storm name is retired following a particularly severe or costly event. This year's list features the same names as 2020 except 'Laura' has been retired and replaced with 'Leah'.

21

Named storms

6

Rotation cycle

39

MPH threshold

01 Arthur

02 Bertha

03 Cristobal

04 Dolly

05 Edouard

06 Fay

07 Gonzalo

08 Hanna

09 Isaias

10 Josephine

11 Kyle

12 Leah

New

13 Marco

14 Nana

15 Omar

16 Paulette

17 Rene

18 Sally

19 Teddy

20 Vicky

21 Wilfred



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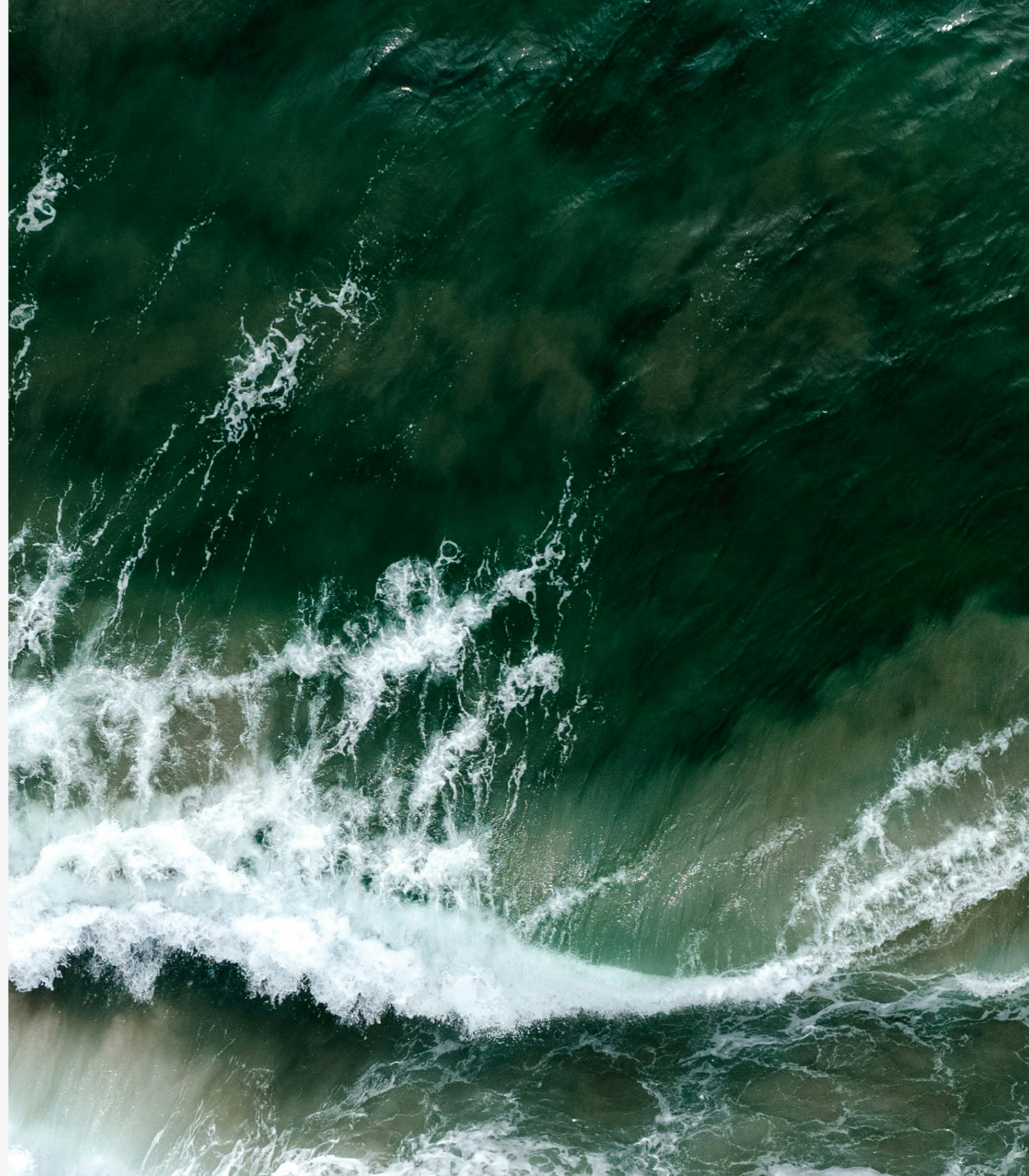
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