

Twelve Capital Event Update

1 December 2021

Executive summary:

- With 21 named storms, 7 of which were hurricanes and 4 major hurricanes the 2021 Atlantic hurricane season was another above average season.
- Hurricane Ida was one of the strongest hurricanes that ever made landfall in the US.
- Insured losses for the 2021 hurricane season are currently standing at circa USD 29bn.
- Twelve Capital's hurricane forecast developed with its strategic partner reask in June 2021 has been very accurate.

Hurricane season retrospective

The official 2021 Atlantic hurricane season, which runs from June to the end of November, has recently ended.

The 2021 season was a record breaker in many aspects:

- Hurricane Ida became the fifth most expensive storm on record
- For the first time since 1977 a major hurricane did not form in the month of October
- The first storm of the season (Ana) formed on 22 May and made 2021 the seventh consecutive year to have a named storm form before the official start of the hurricane season (1 June). The NHC Tropical Weather Outlook started posting updates from the 15 May for the first time in 2021.
- This year, the National Oceanic and Atmospheric Administration (NOAA) updated their baseline view of a normal hurricane season, to reflect the higher levels of activity seen in recent years, by considering the period 1991-2020 compared to the previous baseline of 1981-2010

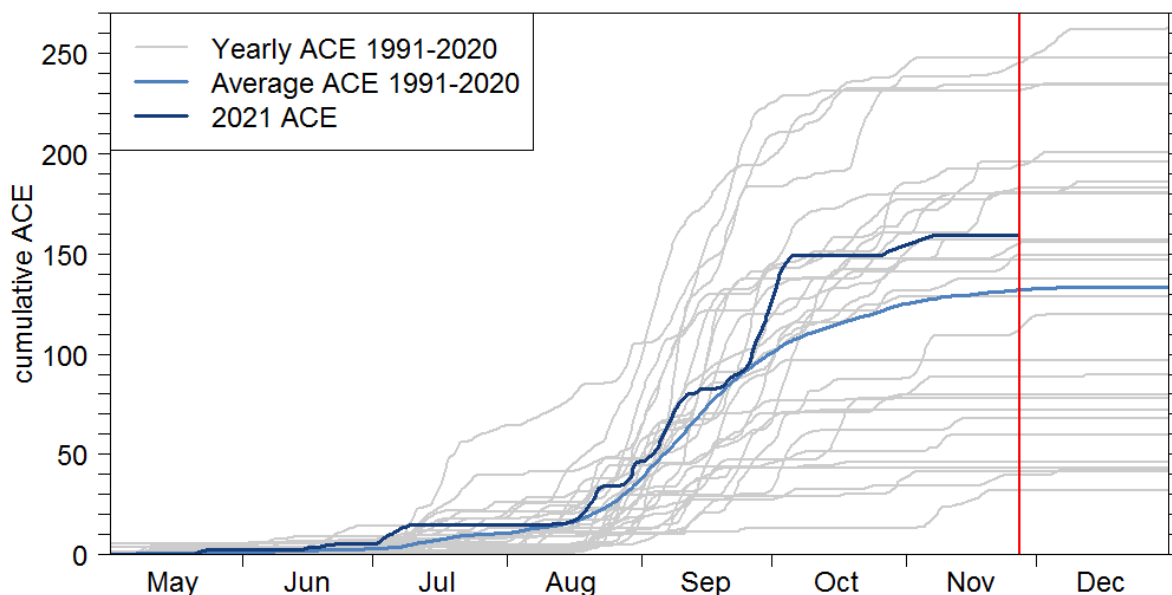


Figure 1: Hurricane Season 2021 ACE compared to the baseline average from 1991-2020.

The ACE (Accumulated Cyclone Energy) Index is a measure of total cumulative wind energy for basin and land-falling tropical cyclone activity. The 70-year period 1950-2019 had an average ACE of 104, with the recent previous 10 years having an average ACE of 122. This year saw an ACE in excess in excess of 140 and above the 1991-2020 baseline average (see Figure 1).

In total, the season brought 21 named storms, seven of which were hurricanes, and four major hurricanes (i.e. with a category of 3 or above).

The observed activity was above the baseline average of 14 storms and was correctly predicted by the Twelve Capital/reask 2021 season hurricane forecast. Key climatology signals observed throughout the season were identified in the pre-season analysis. This included a neutral-to-la-Niña phase of the El Niño Southern Oscillation¹ and an active West African monsoon². Landfalling trends were also correctly identified with a large portion of storms forming in the Atlantic basin recurving away from the mainland US with the Gulf being predicted as the most likely region for above average landfall activity. A comparison of the 2021 forecast relative to the observed numbers is shown in Figure 2.

	Region	1991-2020 Baseline	Mean Forecast and High Confidence Interval	Observed 2021
Activity	Basin wide	14.5	17.9 [14-21]	21
	MDR / Cape Verde	5.8	7.3 [5-9]	9
	Gulf / West Caribbean	3.5	5.6 [4-7]	4
	East Coast	5.2	5.0 [4-8]	8
Landfalls	MDR / Cape Verde	1.2	1.2 [0-1]	2
	Gulf / West Caribbean	2	2.6 [1-3]	4
	East Coast	1.1	1.1 (-) [0-1]	2

Figure 2: Source: Twelve Capital, reask. Comparison of the 2021 Twelve/reask hurricane season forecast and current observed activity and landfalls.

Insured losses for the 2021 season are currently standing at circa USD 29bn (source: PCS), with the majority of loss coming from Hurricane Ida.

Hurricane Ida was an exceptional hurricane in many ways, making landfall in Louisiana at the end of August as a category 4 storm, it is second only to Katrina in strength of storm to hit the Louisiana coast. After causing widespread damage in Louisiana and Mississippi, it then travelled towards the north east causing widespread flooding and tornados adding to the already catastrophic loss. There are some estimates that the total economic damage caused is in the range of USD 60bn as a hurricane, then a further USD 40bn in northeast flooding. The insured loss from PCS is ca. USD 24bn, making it one of the most damaging storms to hit the US.

Following the end of the hurricane season, Twelve Capital will conclude its regular event updates and switch to providing ad-hoc updates in respect of major developments. Regular event updates will resume with the start of the 2022 hurricane season in early June next year.

Please contact us with any questions.

With compliments,

Twelve Capital Team

¹ The El Niño Southern Oscillation pattern is a variation in atmospheric and seas surface conditions over the tropical eastern Pacific Ocean that impacts the climate of much of the tropics and subtropics, including hurricane formation in the Atlantic basin. A strong El Niño signal is associated with less Atlantic hurricanes, whereas an opposing La Niña pattern is associated with favourable conditions for Atlantic hurricane activity.

² A strong West African Monsoon is associated with convection patterns that are favourable for hurricane development off the west coast of Africa.

Twelve Capital AGDufourstrasse 101
8008 Zurich, Switzerland**Twelve Capital (UK) Ltd**Moss House, 15-16 Brook's Mews
London W1K 4DS, United Kingdom**Twelve Capital (DE) GmbH**Theatinerstraße 11
80333 Munich, Germany

info@twelvecapital.com

www.twelvecapital.com

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