

THE CAT RESOURCE CENTER

Hurricane Milton Report #2 October 16, 2024

With the first Hurricane Milton Post Event Report detailing the storm’s superlatives, impacts and performance relative to forecasts, this second Post Event Report will delve into current loss estimates and the avoidance of a worst-case scenario. In addition, this discussion will analyze Hurricane Milton through the lens of climate change and compare the back-to-back impacts of Hurricanes Milton and Helene to historical years with consecutive major hurricane landfalls in Florida, such as 2004.

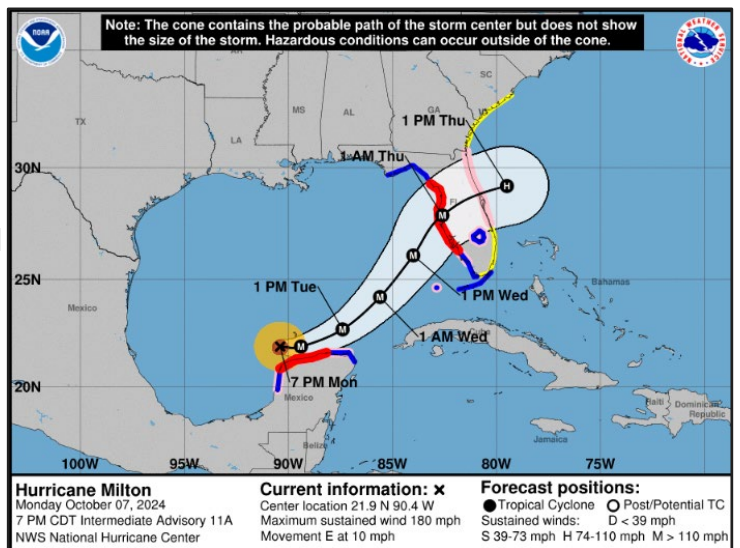
Insured Loss Estimates

		Entity Issuing Loss Estimate	Loss Range	Commentary
Insured Losses		KBW	\$30B to \$40B	Lower than earlier expectations
		Neuberger Berman	\$40B to \$50B	Increased potential for claims litigation, otherwise \$25B to \$30B
		Icosa Investments	\$20B to \$70B	Cat bond market impact of 0% to 6%
		Fitch	\$30B to \$50B	Assumes Ian was a \$60B loss
		Morningstar	\$30B to \$60B	Avoided \$100B+ scenario missing Tampa
		Fitch	\$30B to \$50B	Assumes Ian was a \$60B loss
		Moody's Analytics*	\$27B to \$41B	Assuming \$8B to \$14B for Hurricane Helene
		KCC	\$36B	Inclusive of auto and business interruption
		Verisk	\$30B to \$50B	Vast majority of losses attributable to wind

Public insured loss estimates as of October 16, 2024. Source: Financial Times, AM Best, Bloomberg, Reuters, Fortune.

Worst Surge Scenario Averted

Ultimately, the impacts of Milton in the Tampa Bay and Sarasota metropolitan areas were damaging, but larger loss scenarios were avoided. In the days leading up to landfall, several deterministic hurricane models depicted Milton making landfall to the north of the mouth of Tampa Bay. Even 36 hours before Milton’s landfall, the National Hurricane Center’s forecast cone for Milton depicted a landfall in Pinellas County because many regional dynamical models indicated a potential landfall further north than what ultimately transpired. Milton’s



Monday, October 7, 2024, Hurricane Milton Forecast. Source: NHC.

counterclockwise winds swirling around its center of circulation coupled with its northeastward motion resulted in the maximum storm surge to the southeast of the storm’s landfall point. The landfall forecasts just north of Tampa Bay would have likely caused 10-15 feet of destructive storm surge into major city centers such as St. Petersburg and Tampa. Such a scenario would have inundated large portions of the urban area and caused catastrophic flooding, well in excess of the record high levels seen in Helene the week before. Fortunately for the industry, an extreme disaster scenario was averted as Milton’s landfall in Sarasota County to the south mitigated storm surge in Tampa Bay. As seen in Ian and Irma, northeasterly winds in the storm’s northern eyewall pushed water out of the Bay in a “reverse surge.” Destructive storm surge did materialize south of Milton’s eye, though peak impacts were centered on smaller communities in Sarasota and Charlotte County. Milton was still a significant water event across Tampa Bay, as record-setting rainfall transpired in Pinellas and Hillsborough County.

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Hurricane Milton Timeline

Milton Forms

10/05

Broad area of low pressure shows escalating threat for hurricane impacts
NHC First Advisory 11AM for TD9
First TS watches issued for Yucatan 11PM

Rapid Intensification

10/06-10/07

Hurricane status 2PM 10/06
First US watches issued for Florida 5AM 10/07 - upgraded to warnings 5PM 10/07
CAT3 Status 7AM 10/07
CAT5 Status 11:55PM 10/07

Peak Intensity

10/07

5PM Storm lifetime peak winds of 180 mph (strong CAT5) after 95 mph gain in 24 hours
Lifetime min pressure 897 mb (5th lowest in Atlantic Basin)
Close approach to Yucatan Peninsula after 11PM

Final Approach

10/09

Heavy rain over FL Peninsula 5AM
Drops to CAT4 8AM
Structure begins to degrade
TS conditions ashore after 1PM
Historic tornado outbreak
Drops to CAT3 4PM

Landfall

10/09 8:30PM

Milton landfall near Siesta Key, FL (Sarasota Co.) per the NHC
Maximum sustained winds 120 mph as a CAT3
Min central pressure 954 mb

Overnight Threats

10/09-10/10

Excessive rainfall 5+ inches in one hour reported and flash flood emergencies Tampa area
Severe storm surge including Sarasota to Port Charlotte
Drops to CAT2 10PM

Moving Offshore

10/10

Drops to CAT1 1AM
Nears Cape Canaveral before moving offshore 4AM
Post-tropical with equivalent hurricane conditions 2PM
Residual hazards remain

Final Advisory

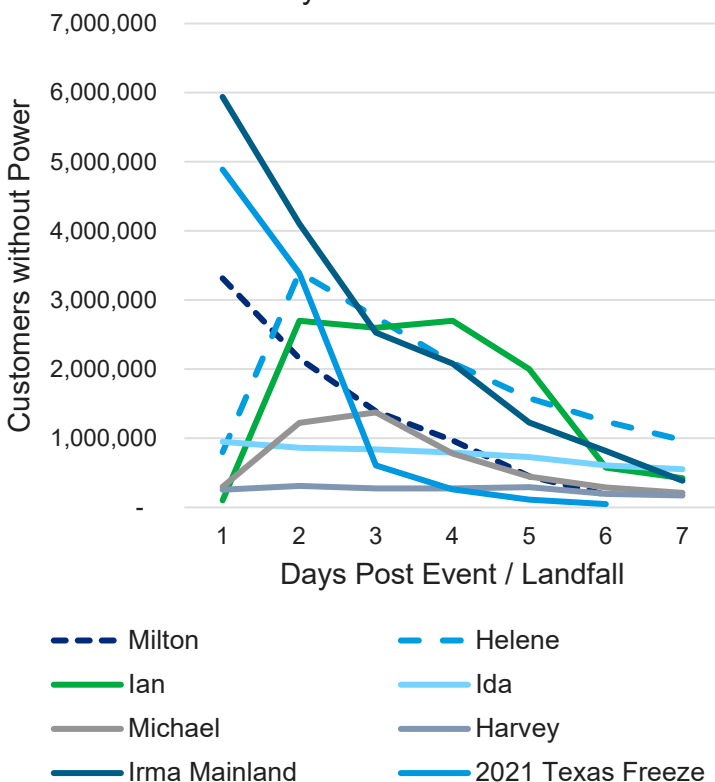
10/10 5PM

Final NHC advisory
All remaining NHC tropical storm warnings discontinued
Downgraded to tropical storm status as storm moves east
Flood threat continues

Following advisories of the National Hurricane Center (NHC), all times EDT.

Hurricane Milton Timeline. Source: NOAA/ NHC/ WPC.

Customer Power Outages 7 Days Post Event



Peak Power Outage and Restoration Progress. Source: DOE / Guy Carpenter.

The Case of Two Power Outages

The chart to the left highlights a selection of impactful landfalling hurricane power outages since 2017, along with the Texas freeze from 2021. Helene and Milton peaked at nearly the same number of customer outages at 3.3 to 3.4 million. Thereafter, restoration in Milton was the most rapid in the hurricanes analyzed and second most rapid restoration behind the Texas Freeze. Power grid resiliency through installation of underground lines in critical infrastructure areas, hardening coastal community assets, proactive tree trimming, and pre-positioning recovery assets helped rapid restoration in Milton. For Helene, destroyed infrastructure and lack of ingress/egress resulted in Helene having the highest number of outages after seven days of any event surveyed.

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Climate Change and Hurricane Milton

Increasing Frequency of Major Hurricanes

On the evening of October 8, Hurricane Milton became the second Category 5 hurricane of 2024 and 23rd in the North Atlantic between 1980-2024. In the first 23 years of this 45-year period, there were only 5 Category 5 hurricanes recorded; in the second 22 years, there were 18. Based on pressure (897 mb), Milton was the fifth-most-intense hurricane in the Atlantic basin on record. Milton represents yet another example of the growing climate signal that once a tropical cyclone forms, it has a higher probability of becoming stronger (discussed in a [2024 Guy Carpenter white paper](#)).

Milton Statistics and Potential Climate Influence

Sub Peril

Milton's Peak

Climate Influence



Wind

180 mph; completing a historic intensification of 120 mph in 36 hours

Storms achieving Milton's peak wind speed are on average 11 mph higher due to warmer sea surface temperatures



Rainfall

18.31 inches in St. Petersburg in 24 hours; over 8,000 square kilometers > 10 inches

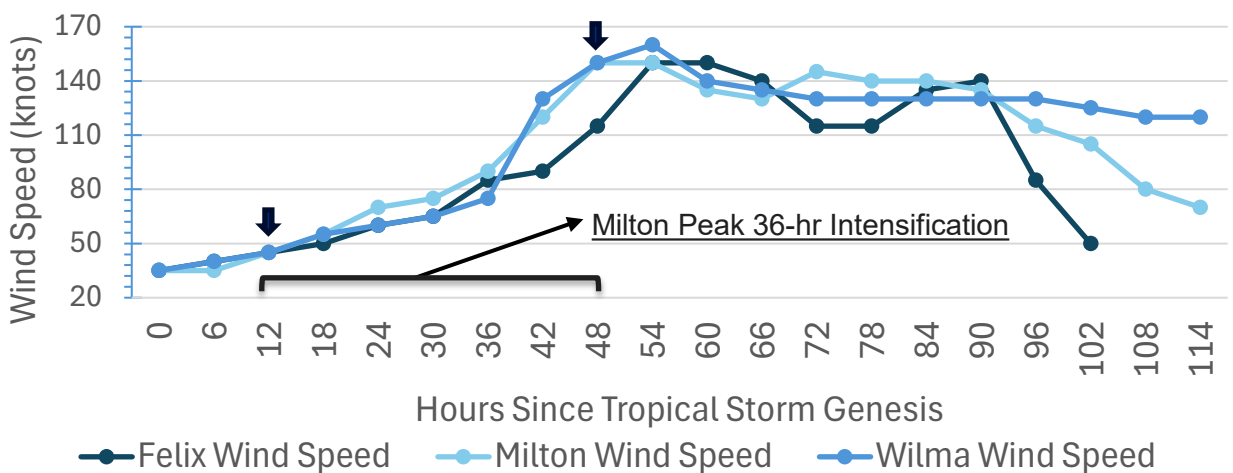
Equivalent of 1-in-1,000-year peak rainfall event; each degree Fahrenheit warming equals 3-4% more water vapor in the atmosphere



Storm Surge

5 to 10 feet above ground level in Siesta Key, Ft. Myers Beach and Charlotte Harbor

Sea levels have increased by 10 or more inches in the last 75 years for a majority of the west coast of Florida, making storm surge impacts more likely



Ocean temperatures were consistently more than 1°C warmer than average along Milton's track. As a result, Milton jumped from a Category 1 to a Category 5 hurricane in 18 hours and tied Hurricane Wilma for the fastest 36-hour intensification period in the North Atlantic historical record, intensifying by 120 mph in 36 hours. *Source: IBTrACS, Guy Carpenter.*

Climate change is increasing the odds of wetter (from storm surge and rainfall) and stronger hurricanes which raises the potential for higher financial losses for the insurance industry.

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Back-to-Back Landfalls

Milton and Helene

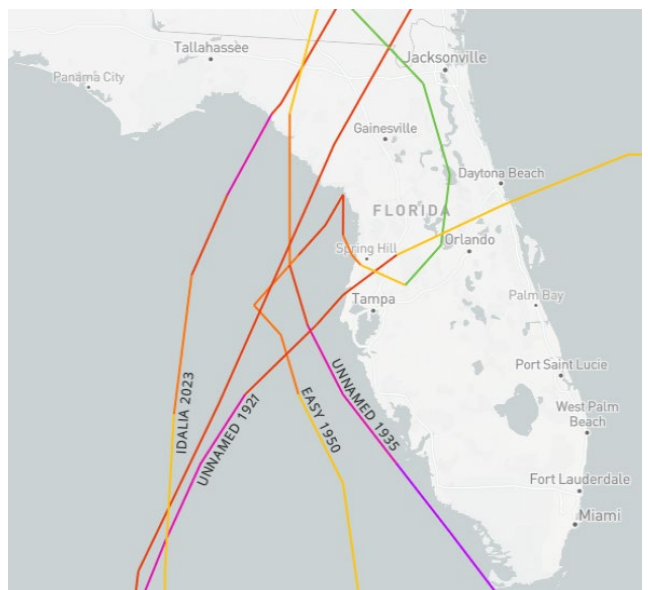
Hurricane Milton’s landfall near Siesta Key, Florida, came just 13 calendar days after Hurricane Helene’s landfall along the Big Bend region in Florida. While the direct landfall locations were roughly 200 miles apart, a large swath of Florida from Tampa to Jacksonville, extending across the state, experienced wind impacts from both storms. In both events, heavy rainfall events in the days before landfall enabled strong tropical storm force winds to blow over trees and powerlines, which increased property damage. Along the west coast of Florida, an estimated 50% of remnant debris from storm surge and flood impacts from Helene were cleaned up prior to landfall, likely a source of additional loss in Milton.

Event Clustering

There are only few examples during the satellite era where Florida experienced multiple major hurricanes making landfall in the same season. In 2004, Hurricanes Charley and Jeanne made landfall on opposite sides of the Florida peninsula, and another major hurricane, Ivan, made landfall just to the west, near Gulf Shores, Alabama. In the record-breaking 2005 hurricane season, Florida again saw two major hurricane landfalls with Dennis and Wilma. Back-to-back events are a challenge to properly ascribe loss to each storm. Also, attributing losses to wind or water as the cause of loss will be more complex than normal.

A Place in History

Historically, only 5 other major hurricanes on record have made landfall in the region between Milton and Helene’s landfalls: Idalia (2023), Easy (1950), and 3 unnamed storms in 1935, 1921, and 1896. Notably, Charley (2004) and Ian (2022) made landfall less than 80 miles south of where Milton’s eye came ashore, and Irma (2017) roughly 120 miles south. One benefit of storms in recent years making landfall near Helene and Milton is better roof performance. Early signs assessing damage from Milton show that roofs replaced following hurricanes occurring within the last 10 years performed better than older construction, while older storms such as Charley and the resulting more stringent building codes continue to be a major source of loss reduction.



Five major hurricanes making landfall between Helene and Milton since 1850. Source: NOAA.

About Guy Carpenter

Guy Carpenter, a business of Marsh McLennan (NYSE: MMC), is a leading global risk advisory and reinsurance specialist and broker. Marsh McLennan is a global leader in risk, strategy and people, advising clients in 130 countries across four businesses: Marsh, Guy Carpenter, Mercer and Oliver Wyman. With annual revenue of \$23 billion and more than 85,000 colleagues, Marsh McLennan helps build the confidence to thrive through the power of perspective. For more information, visit guycarp.com, or follow on LinkedIn and X.

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