

October 11, 2024

Event Report: Hurricane Milton

In the evening hours of October 9, Hurricane Milton made landfall on the eastern side of Florida, south of Tampa Bay, as a Category 3 storm. Milton reached the coast near Siesta Key, Sarasota with a central pressure of 954 mbar.

Based on current information, Hurricane Milton is not expected to cause important permanent capital losses to catastrophe bonds or private contracts in the portfolios of the Solidum Funds. A drag on the excellent performance of the Funds in 2024 so far cannot be ruled out, but the storm should remain an 'earnings event', if at all.

Based on the experience of similar events in recent years, it is expected that price indications of brokers will show wide bid-ask spreads and a significantly increased volatility during the next weeks. This will cause mark-to-market devaluations in the upcoming mid-month and end-of month valuations of the funds, which, however, should be limited in time and be quickly recovered.

Labels such as "the storm of the century" that were used by the media during the reporting on this event seemed exaggerated all along. While being a remarkable hurricane in many aspects and certainly posing a threat to life and property in Florida that required severe warnings and evacuation orders while still several days away from landfall, it was equally clear very early on that Milton will not be a Category 5 hit on Florida's East Coast. Hurricane Ian from 2022 with insured market loss of about \$50 Bn., significant secondary market and associated fund-valuation volatility, but ultimately capital losses to the different Solidum portfolios of between 0% to below 0.5% appeared very early to be a much better analogue for this storm.

Meteorological Development

Milton formed from an extensive region of atmospheric instability with shower and thunderstorm activity centered in the western Caribbean Sea since late September. This broad area of low pressure consolidated in the western Bay of Campeche on October 4 and was designated Invest 92L. On October 5, the National Hurricane Center (NHC) upgraded it to a tropical depression and three hours later to a tropical storm. Due to highly favorable environmental conditions – very warm sea surface temperatures, high mid-level relative humidity and low wind shear – the system underwent a rapid intensification and became



Hurricane Milton's track - triangles: tropical depression; circles: tropical storm (light blue) to hurricane category 5 (purple) (Wikipedia)

a Category 5 hurricane on October 7. The rapid intensification was possible because the hurricane's pinhole eye was very small with only 7 km in diameter, a feature that is common to fast developing storms. Milton reached its peak intensity on October 8 with maximum sustained winds of 285 km/h and a minimum central pressure of 897 mbar. While these parameters are certainly very impressive,

there have been several storms during Solidum's now 20 years of managing ILS assets that had similar or higher windspeeds, and lower central pressure, during their track in the Caribbean or the Gulf of Mexico before later making landfall in the US or in Mexico.

Milton took a rather unusual track. A mid-level trough over the United States steered Milton first south-eastwards towards the Yucatan peninsula and later eastwards across the Gulf of Mexico. After a first eyewall replacement cycle and an associated reduction in intensity, Milton was able to regain Cat 5 status, but increasing wind shear and a dryer atmospheric environment weakened the storm considerably before approaching the Florida peninsula. This development did not come as a surprise, but was predicted by most forecast models already several days before the storm approached the Florida coastline. At landfall, the eye was cloud-filled and ragged and the hurricane had lost a lot of its windspeed due to the strong shear and dry air flowing into its core. Sustained wind and peak gust readings in Sarasota, Venice, Tampa and St Petersburg were substantially lower than values usually associated with a major hurricane (Cat 3+). Due to its high forward speed, the storm maintained its hurricane status while travelling across the peninsula.

Estimation of Impact

Several specific features of hurricane Milton make it complex to estimate the damage caused by the storm. An exact quantification will be further complicated by the fact that two hurricanes (Helene and Milton) affected in part similar stretches of the coastline in short succession.

Milton was a complex and large storm. Due to the interaction with the aforementioned mid-level trough over the southern US, the storm's vortex was sheared and tilted, which led to markedly lower windspeed on its right side of travel, where the intensity is typically higher. On its left side, however, the hurricane's own windfield mixed with the directional winds of the trough, which led to stronger and gustier winds which affected the greater Tampa region. As mentioned above, reports of measured windspeeds appear low for a category 3 hurricane, but this can be due to an observation bias with those stations that experienced higher gusts being destroyed.

South of the landfall area, the storm surge was large but remained below the marks of Hurricane Ian in cities such as Fort Meyers and Naples. As expected with a track to the city's south, Tampa was spared from a storm surge scenario; rather than water being funneled into the bay, Milton actually drained the bay for a while with its off-shore rotating winds. Some data from the immediate vicinity of the landfall is missing and therefore the full picture is far from being clear, but a first assessment by the Management Team estimates the total storm surge damage likely to be somewhat lower than after Hurricane Ian in 2022. The National Flood Insurance Program's (NFIP) reinsurance program with the ILS market starts with losses reaching approximately \$6.5 billion, which appears a low-possibility scenario based on current information.

Due to the torrential rains that came down over Florida, Milton caused substantial fresh water flooding in the inland as well, especially on the northern side of its track in cities such as in St. Petersburg and Tampa.

Milton's high forward speed led to both positive and negative consequences. On the positive side, the amount of time that structures were exposed to the strongest winds was quite short. This reduces the likelihood of more severe damage. On the other hand, the storm traveled across the peninsula

while maintaining hurricane-force winds, which increased the overall area from which wind damage can be expected.

Due to these complexities, modeling firms have not come out with industry loss estimates at the time of writing. On the basis of the above considerations, the Solidum Management Team expects the most likely outcome to sum up to an insured loss in the range of USD 35 to 45 billion. Flood related losses borne by the government's flood insurance program NFIP are in addition to that figure and will likely be in the low to mid single-digit billion range.

For the ILS and cat bond markets, this means that some capital losses on Florida centric positions are likely. As always with events of some magnitude, Milton will have an impact on the retention of aggregating structures, which leads to mark-to-market variability of the price indications for some securities, some of which have been affected by Hurricane Helene last month already.

The Management Team remains at your disposal for further discussions.

With kind regards

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