



HURRICANE FLORENCE

Hurricane Florence “At-A-Glance”

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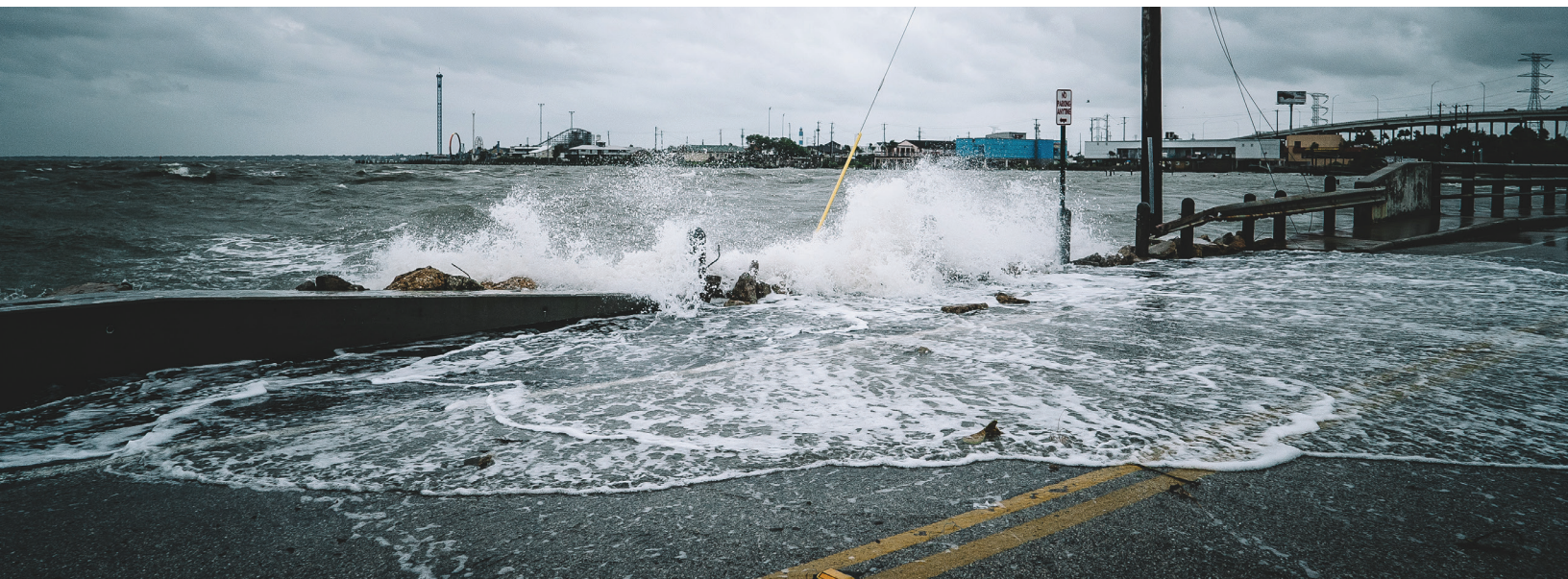
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Hurricane Florence made landfall as a Category 1 storm on Friday, September 14, 2018, at 7:15 am near Wrightsville Beach, North Carolina. At landfall, maximum sustained winds were recorded at 90 mph with wind gusts of over 100 mph reported in several locations in eastern North Carolina. Wilmington International Airport, for example, reported a wind gust of 105 mph – the strongest wind gust that the city had experienced since Hurricane Donna in 1960.

Florence traversed the entire North Atlantic Ocean. It was named by the National Hurricane Center off of the west coast of Africa and spent almost two weeks traversing the Atlantic before making landfall in North Carolina. Florence underwent large changes in intensity throughout its lifetime. It reached Category 4 intensity in the eastern Atlantic, weakened to a tropical storm, re-intensified to a Category 4 hurricane and then weakened to a Category 1 hurricane as it approached the Carolina coast.

Florence took an unusual track across the Atlantic basin, as it tracked westward after having previously tracked northwestward into the subtropical eastern Atlantic. Typically, storms gaining that much latitude in the eastern Atlantic recurve out to sea; however, a strong high pressure area developed to the north of Florence that steered the storm westward for several days. As is typical for hurricanes, due to internal structure changes such as eyewall replacement cycles, Florence grew in size and was a large storm when it made landfall.

As Florence approached the coastline, the high pressure to the north of Florence weakened causing the storm to slow as it approached the coast. Once Florence reached land, it slowed even more, tracking at less than 5 mph for a couple of days. Consequently, the storm inundated both North and South Carolina with heavy rain. Rainfall totals of over 30 inches were experienced in North Carolina, while totals exceeded 18 inches in South Carolina. Florence set records for rainfall produced from a tropical cyclone in both North Carolina and South Carolina, breaking the old records set by Floyd (1999) and Jerry (1995), respectively.





Economic and insured losses will not be known for some time given Hurricane Florence's lingering impacts over the region. The uncertainty of the unfolding scenario poses an impending threat to the structural stability of levees and risk of breaches from vulnerable dams along the many rivers and streams threading throughout the region.

AIR Worldwide, one of the leading catastrophic risk modeling firms, has released preliminary estimates of insured losses. AIR has projected anticipated insured losses of up to \$4.6 billion, resulting from Florence's winds and storm surge, with a likely range of \$1.7 billion to \$4.6 billion. These estimates do not account for ongoing inland flooding triggered by unprecedented rainfall.

Insured losses will most likely not mirror the extensive damage costs associated with other recent devastating storms. Florence did not impact a large metropolitan area like Harvey. The two urban areas that experienced the most significant flooding from Florence were Wilmington and Fayetteville. Several days after landfall, waters along the Cape Fear River were continuing to rise, causing continued damage in eastern North Carolina. Since many of the homes that were impacted by Florence were outside of the 100-year flood zone, these houses would not have been required to have flood insurance and consequently may not have been insured for flood damage. Commercial insurance policies, however, may not have flood exclusions so insurance coverage could respond in the event of a loss, according to policy language.

Economic losses will be calculated once the full extent of the damage and costs of recovery to households, farms and businesses are assessed. As Hurricane Florence approached the eastern coast, at risk values in North Carolina, South Carolina and Virginia were estimated at reconstruction costs to be approximately \$170 billion. However, the final economic damage from the storm will be much less than this total, since most structures deemed at risk were not significantly impacted by the storm.

In the coming days and weeks, various hurricane specialists, catastrophe modeling firms and other industry professionals will weigh in on the extent and magnitude of overall economic losses. A week after landfall, economic exposure to contaminated drinking water has raised new issues of concern. The environmental dangers of manure lagoons in North Carolina, as one example, has underscored heightened exposure causing potentially a lasting risk based on how water methodically travels. Meteorologists like to emphasize that no two storms are the same. Hurricane Florence has now exited the United States, but other exposures to risk may emerge in its aftermath driving potentially greater financial losses.

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