Center for Disaster Management and Risk Reduction Technology

CEDIM Forensic Disaster Analysis Group (FDA)

Hurricane FLORENCE

Information as of 26 September 2018 – Short Report No. 1

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SUMMARY

Official Disaster Name	Date	Landfall UTC	Local	Duration
Hurricane 06L FLORENCE	**14-09**	**11:15 UTC**	**-4**	
Tropical Depression, Tropical Storm, Hurricane Cat 1 - Cat 4, Tropical Depression	**31-08 – 17-09**			**18 days**

Preferred Hazard Information:

Location	Movement	Definition (Saffir-Simpson Scale)	Min Sea Level Pressure	Wind Gusts	Time	Wind Sustained
220 km SSW of Dakar	**W**	**Tropical Low**	**1007 hPa**		**30-08 12 UTC**	**25 kt 46 kph**
100 km S of Praia Cape Verde	**W**	**Tropical Dperession**	**1004 hPa**	**40 kt**	**31-08 18 UTC**	**30 kt 56 kph**
300 km SSW of Sao Vicente / Cape Verde	**WNW**	**Tropical Storm**	**1003 hPa**		**01-09 06 UTC**	**35 kt 65 kph**
2700 km ESE of Bermuda	**WNW 10 kt**	**Category 1**	**990 hPa**	**80 kt**	**04-09 12 UTC**	**65 kt 120 kph**
2520 km ESE of Bermuda	**NW 10 kt**	**Category 2**	**976 hPa**	**105 kt**	**05-09 00 UTC**	**85 kt 157 kph**
2280 ESE of Bermuda	**WNW**	**Category 3**	**961 hPa**		**05-09 12 UTC**	**105 kt 194 kph**
2150 km ESE of Bermuda	**NW 11 kt**	**Category 4**	**953 hPa**	**140 kt**	**05-09 18 UTC**	**115 kt 213 kph**
1650 km ESE of Bermuda	**WNW 06 kt**	**Tropical Storm**	**993 hPa**	**75 kt**	**07-09 00 UTC**	**60 kt 111 kph**
870 km SSE of Bermuda	**WNW 11 kt**	**Category 4**	**942 hPa**	**145 kt**	**10-09 18 UTC**	**120 kt 222 kph**
30 km S of Columbia, SC	**N**	**Tropical Dperession**	**999 hPa**		**16-09 06 UTC**	**30 kt 56 kph**

Location Information:

Country	ISO	Provinces/Regions	Most Impact	Economic Exposure	HDI (2014)	Urbanity	Pop. affected
USA	**US**	**NC, SC, VA, Mid-Atlantic**	**North Carolina**				**1.5 Mio (Cat 1 or higher)**

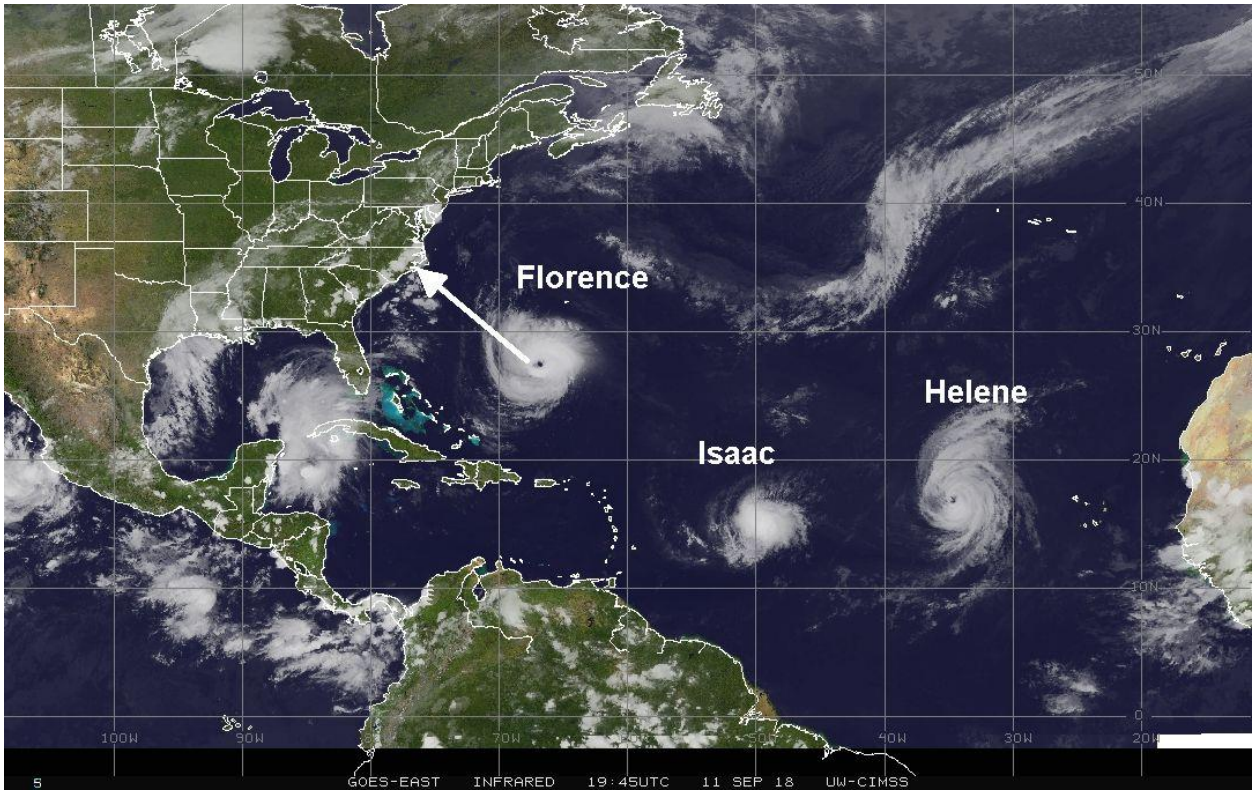

Figure 1: *Satellite image showing 3 tropical systems including CAT4-hurricane FLORENCE on 11 September 2018, 19:45 UTC (Image Credit: CIMSS).*

1 Overview

With FLORENCE, the sixth tropical system of the Atlantic hurricane season 2018 was named and became the third hurricane of the season and the first major hurricane of at least category 3 in 2018. FLORENCE was an unusually long-living storm and become a category 4 hurricane on 5 September 2018 and once again on 10 September 2018. Inbetween there was rapid weakening and re-intensification of the tropical system. The highest average wind speeds were 225 kph, gusts reached 269 kph, the lowest air pressure in the center was 939 hPa.

FLORENCE crossed the entire North Atlantic between 30 August 2018 and its landfall on 14 September 2018, covering a distance of more than 6,500 kilometers during those 16 days. The hurricane made landfall as a hurricane of the category 1 on 14 September 2018, 11:15 UTC, near Wrightsville Beach in North Carolina. While approaching and crossing the coastline FLORENCE became almost stationary. There was a rainfall of historic proportions across the Carolinas and FLORENCE produced widespread rain amounts, which led to catastrophic flooding. Both North and South Carolina registered a new record rainfall caused by a hurricane or tropical storm. A previously locally record-breaking wet summer with already saturated soils aggravated the flood situation. Several communities, including the city of Wilmington, were temporarily cut off. Storm surge, long-lasting river floods and other storm-related effects and consequences claimed more than 40 casualties.

2 Meteorological Information

2.1 Evolution of Hurricane FLORENCE

The beginnings of FLORENCE can traced back until 28 August 2018, when there was a large storm cluster over the west of Mali (Figure 2). With this cluster, a tropical wave shifted westward over the Senegal towards the Atlantic. Favorable environmental conditions such as sufficient moisture supply and low vertical wind shear led to a more organized and extensive area with thunderstorms which was eventually called Tropical Depression Six on the 31st by the National Hurricane Center.

In a distance of just 100 kilometers to the southern Cape Verde Islands, the depression continued to move into a west- northwesterly direction. Under constant reinforcement and with the formation of a circulation with ligamentous structures, the depression was upgraded to a tropical storm on 1 September 2018, 06 UTC, and was named FLORENCE.

On September 4, 2018, the formation of an mid-level eye feature and severe thunderstorms surrounding the circulation center indicated a hurricane of category 1. At that time, FLORENCE was located about 2000 kilometers west-northwest of the Cape Verde Islands. Contrary to the model predictions, FLORENCE developed rapidly and was awarded the status of a major hurricane (at least category 3) the day after. On 5 September 2018, 12 UTC, average wind speeds were given 194 kph, the surface pressure was 961 hPa. Only a few hours later, FLORENCE reached the second highest hurricane category 4 at 18 UTC with average wind speeds of 213 kph and a surface pressure of 953 hPa. The hurricane was in the midst of the Atlantic, and soon after at a location of 22.7N 46.6W FLORENCE became the northermost category 4 hurricane east of 50W ever.

As quickly as FLORENCE had evolved into a category 4 hurricane within a few hours, it quickly weakened during the course of 6 September 2018 and was classified as a tropical storm only at 7:00 UTC. Comparatively large vertical wind shear effectively disrupted the circulation of the cyclone, its symmetry, its well defined eye and the circulation's vertical orientation was lost.

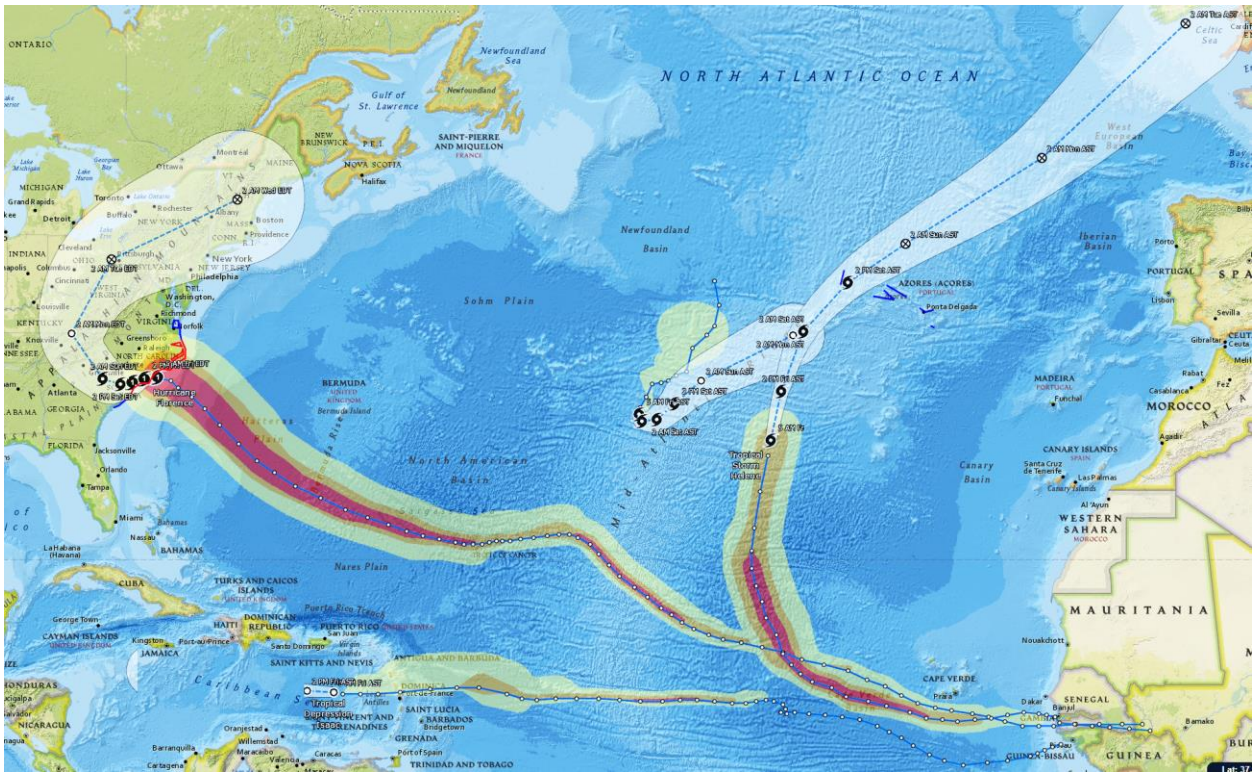

***Figure 2**: Tracks and track forecasts of tropical systems, 13 September 2018. The track of FLORENCE crosses the entire Atlsntic Ocean. Red: Observed Surface Wind Swath >64 kt (CAT1), Orange: >50 kt, Yellow: > 34 kt (TS; Data source: NWS, https://preview.weather.gov/edd).*

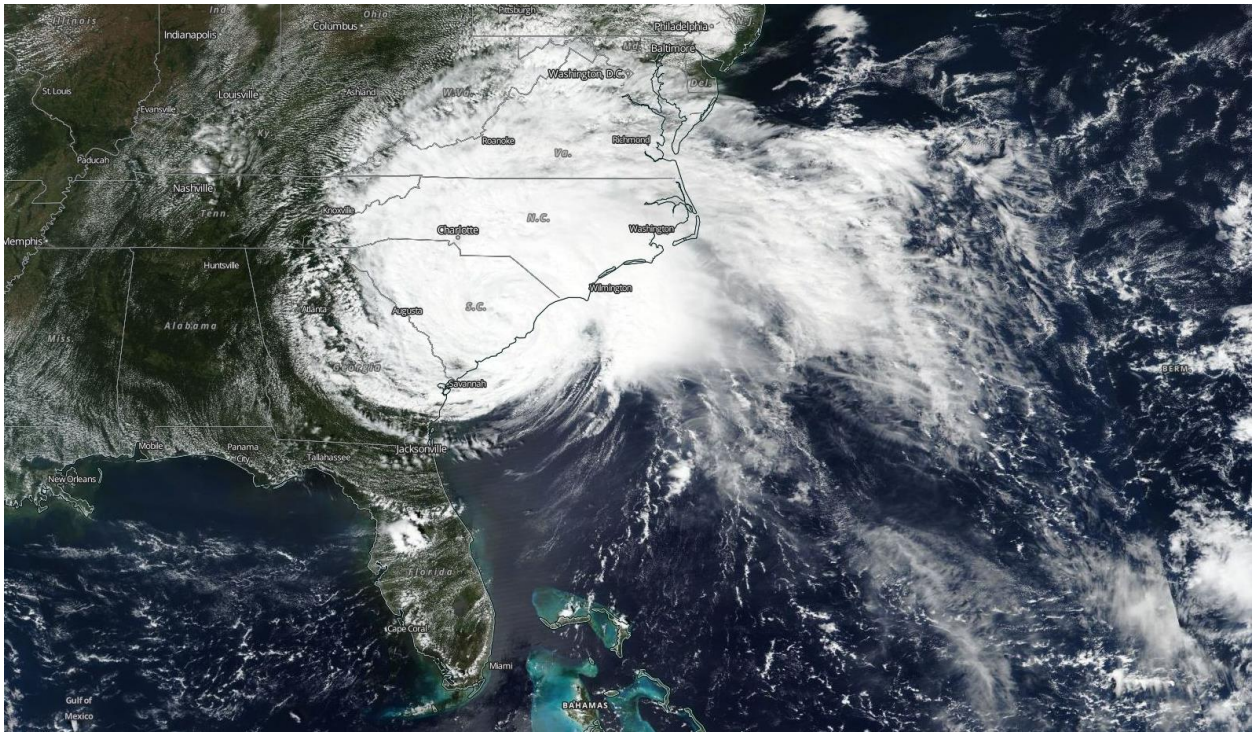

Figure 3: *Satellite image showing FLORENCE on 15 September 2018, one day after making ladfall (Image Credit: NASA Worldview. https://worldview.earthdata.nasa.gov).*

In response to favorable environmental conditions again, FLORENCE was given a boost in development on the 8th and FLORENCE reattained hurricane status on 9 September 2018, 15 UTC. Moving into a westerly direction, the deepening of the hurricane continued over waters with temperatures of 29-29.5C. An eye appeared again which was surrounded by heavy thunderstorms and intense lightning activity. On 10 September 2018, 16 UTC, FLORENCE was in hurricane category 4 again. A few hours later FLORENCE achieved peak intensity with average wind speeds of 222 kph and a surface pressure in the center of 939 hPa. The extent of the entire cyclone complex increased significantly, the wind field with speeds in hurricane strength (120 kph) doubled its area.

High pressure, ridging over the northeast of the American continent, forced FLORENCE on a west-northwest course towards the North Carolina coast. Increasing wind shear resulted in a gradual weakening of the hurricane, which was downgraded to category 3 on 12 September 2018, 18 UTC, and soon after to category 2. On its way to the mainland, FLORENCE lost more and more intensity, and at the same time, the propagation speed decreased siginificantly. FLORENCE finally made ladfall as a category 1 hurricane on 14 September 2018, 11:15 UTC, just south of Wrightsville Beach in North Carolina, average winds were around 150 kph and a surface pressure was 958 hPa. With landfall the hurricane became quasi stationary over North Carolina and near the border to South Carolina. As significant parts of the hurricane were still over sea, enormous amounts of energy were released by moist and warm airmasses that came directly from the Atlantic Ocean resulting in enormous rainfall amounts.

With heavy rainfall in its wake, FLORENCE slowly moved south, weakening and losing hurricane status on the evening of the 14th. On 16 September 2018, 09 UTC, FLORENCE only had the status of a tropical storm over South Carolina and slowly increased its propagation speed. Travelling westward at first, the remnants of FLORENCE made a right turn and followed a north easterly track on 17 September across the mid-Atlantic States. FLORENCE finally disappeared into the North Atlantic Ocean.

FLORENCE was a named storm for 15 days. Since the beginning of the satellite era in 1966, there were only ten more such tropical storms or hurricanes.

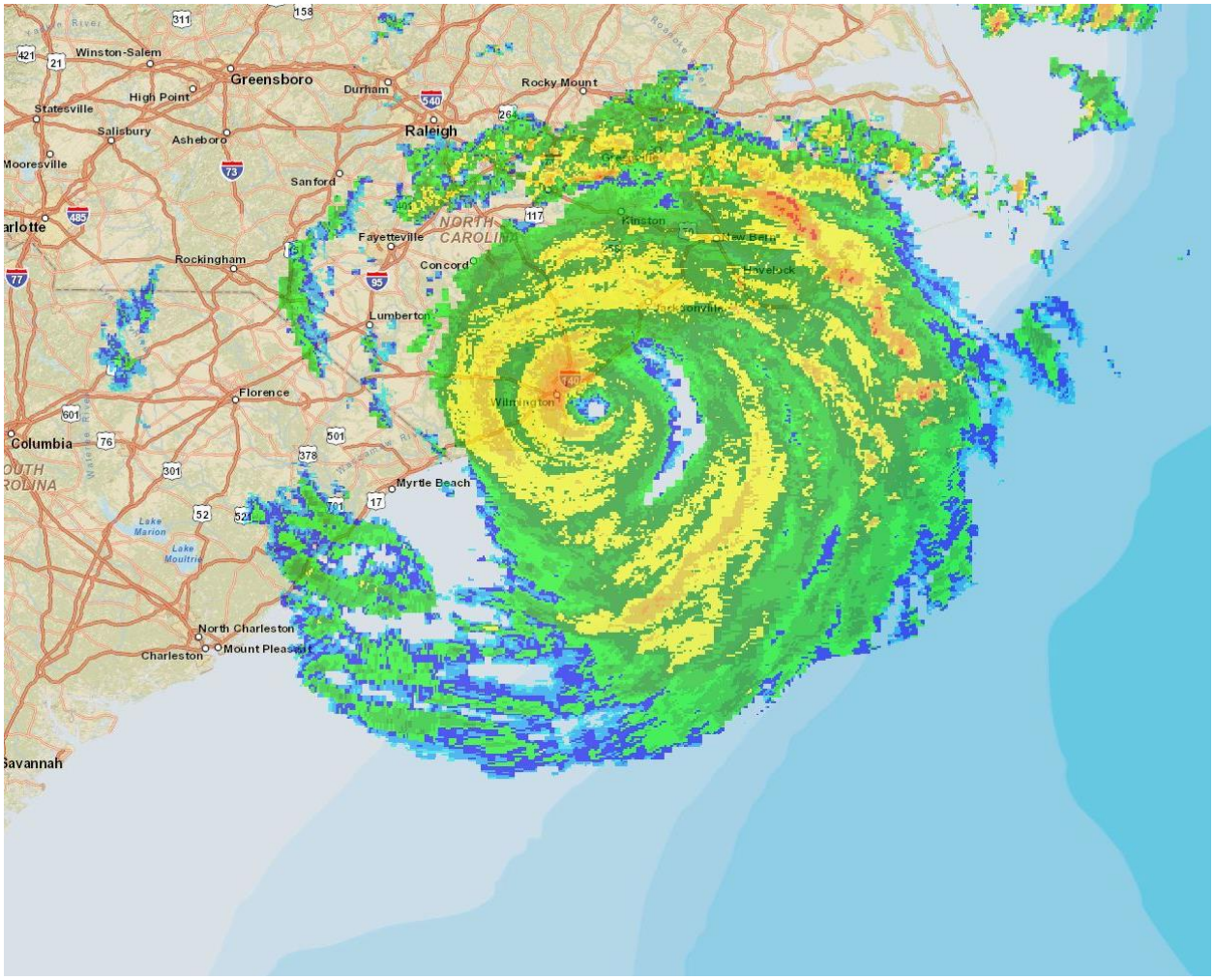

***Figure 4**: Radar image with FLORENCE making landfall on14 September 2018, 11:15 UTC. The diameter of the storm is roughly 500 km (Image source: NOAA, https://gis.ncdc.noaa.gov).*

2.2 Precipitation

FLORENCE's gradually decreasing propagation speed reminded hurricane Harvey, that last year spent vast amounts of rain on the Texan metropolis of Houston for days. A similar scenario was to be feared for South and North Carolina, but in the end the rainfall was much lower than with Harvey. Nevertheless, both states observed new rainfall records ever caused by Atlantic tropical cyclones or their remnants. Elizabethtown in North Carolina is the new record holder for the state with a rain amount of 912.6 mm, while in South Carolina the new record of 600.2 mm is in Loris (Figure 5 and Table 1).

Apart from the extreme northeast and the western tip, the rain amounts caused by FLORENCE were more than 50 mm throughout North Carolina. In the southeast of the state, the rainfall exceeded 500 mm over a large area. FLORENCE also loaded more than 50 mm of rain in the northeastern half of South Carolina, more than 150 mm in the northeastern third of the country, and amlounts close to 500 mm near the South Carolina border. Along its track the remnants of FLORENCE released rain amount between 25 and 75 mm in a vast area between Virginia and the southern parts of New Hampshire and Maine (Figure 6 and Table 2).

Radar-derived precipitation for North Carolina related to Hurricane FLORENCE is estimated to be 30.4 trillion liters for the period from 13 to 17 September 2018. Converted to the entire area of North Carolina with a territory of 139,390 km ² (about twice the area of Bavaria) rainfall was 218 mm (l/m²).

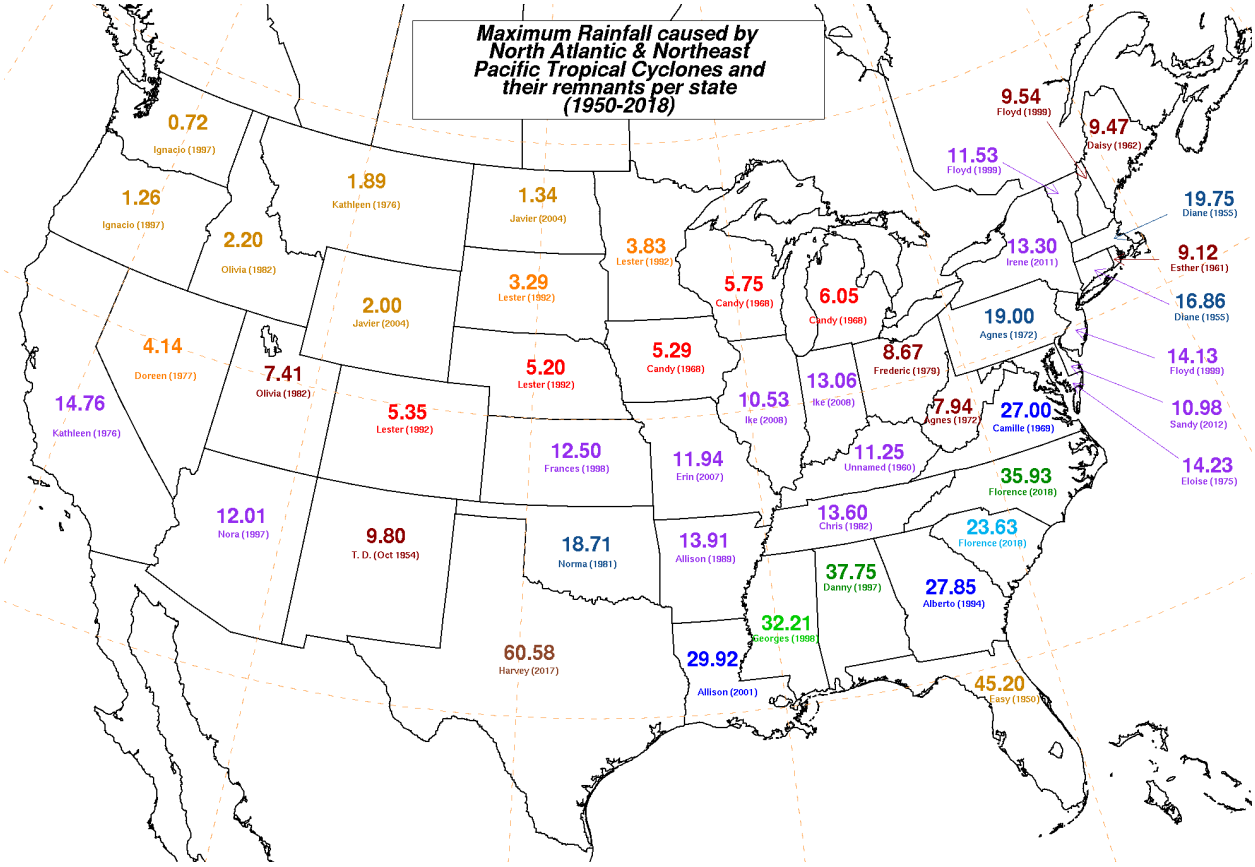

***Figure 5**: Maximum Rainfall caused by North Atlantic and Northeast Pacific Tropical Cyclones and their remnants per US-state since 1950. FLORENCE is included already (Image credit: WPC, https://www.wpc.ncep.noaa.gov).*

Table 1: Record rainfall caused by tropical systems in 3 US states (Data Source: WPC, https://www.wpc.ncep.noaa.gov).

North Carolina	Alt: 611.1 mm (Floyd, 1999)	**Neu: 912.6 mm (FLORENCE)**
South Carolina	Alt: 470.1 mm (Jerry, 1995)	**Neu: 600.2 mm (FLORENCE)**
Virginia	Alt: 685.8 mm (Camille, 1969)	**Neu: 268.2 mm (FLORENCE)**

***Table 2:** Selection of storm total rain amounts associated with Hurricane FLORENCE until 19 September 2018, 09 UTC (Data source: NWS Weather Prediction Center).*

Elizabethtown	North Carolina	**912.6 mm**
Swansboro	North Carolina	**863.6 mm**
Gurganus	North Carolina	**771.7 mm**
Hofmann Forest	North Carolina	**752.3 mm**
Hampstead	North Carolina	**749.8 mm**
Sunny Point	North Carolina	**697.0 mm**
Nature Conservancy	North Carolina	**696.0 mm**
Smith Creek	North Carolina	**696.0 mm**
Oak Island	North Carolina	**685.3 mm**
Loris	South Carolina	**600.2 mm**
Cheraw Water Plant	South Carolina	**573.5 mm**
Meadows of Dan	Virginia	**268.2 mm**

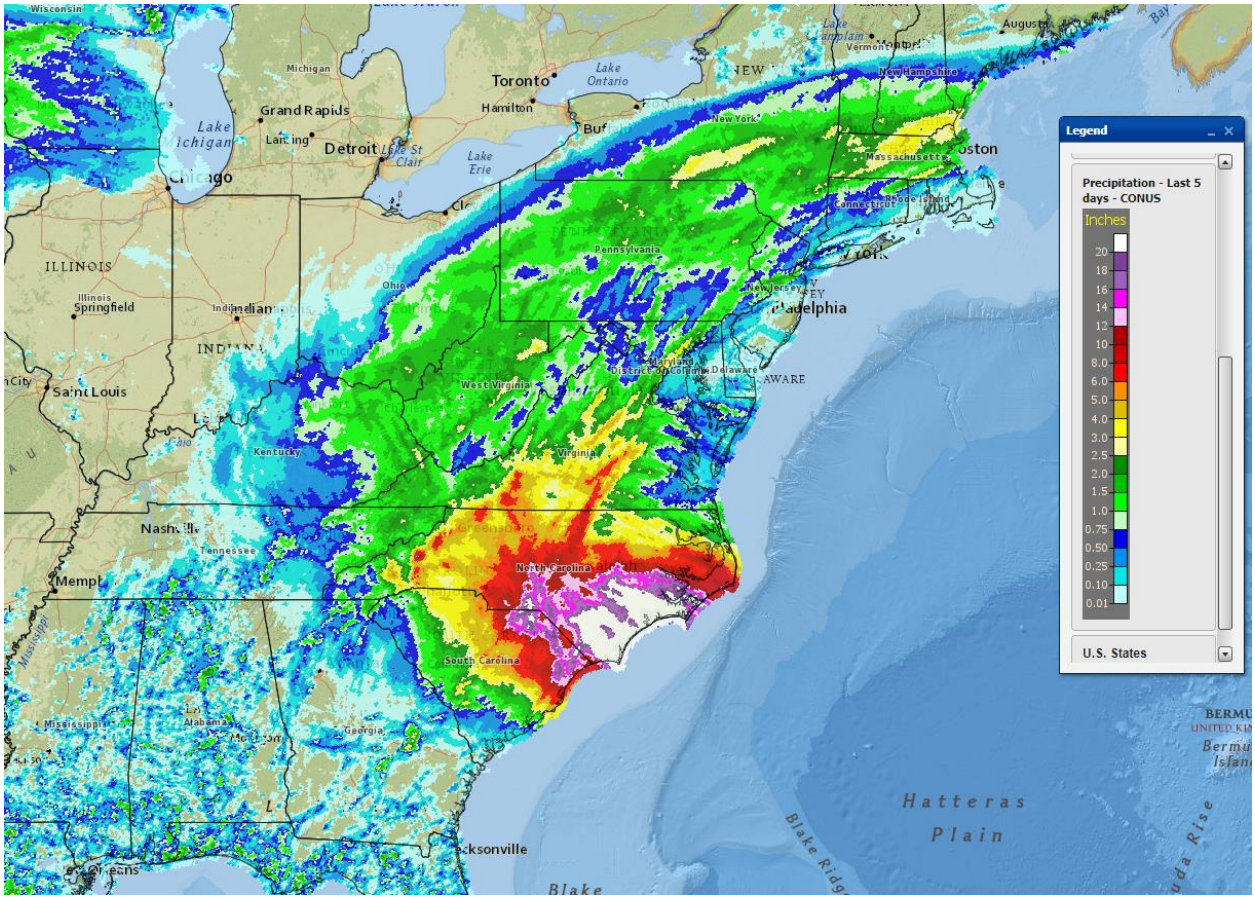

***Figure 6**: 5-Day Observed Precipitation prior to 18 September 2018, 12 UTC (Image credit: NWS, https://preview.weather.gov/edd).*

2.3 Wind

The highest gust wind speeds occurred with FLORENCE making landfall in North Carolina. In the immediate vicinity of the hurricane center wind gusts between 160 and 180 kph were recorded near the coast. At some distance from the center of the hurricane, wind speeds were already below 100 kph, as in South Carolina (Table 3).

***Table 3:** Selection of mamimum wind gusts associated with Hurricane FLORENCE until 19 September 2018, 09 UTC (Data source: NWS Weather Prediction Center).*

Buoy 30 SE New River Inlet	North Carolina	**180.2 km/h**
Fort Macon	North Carolina	**168.9 km/h**
Wilmington Int'l Airport	North Carolina	**168.9 km/h**
Cape Lookout	North Carolina	**156.1 km/h**
Cedar Island	North Carolina	**143.2 km/h**
Cherry Point	North Carolina	**140.0 km/h**
Jacksonville	North Carolina	**138.4 km/h**
Frisco Woods	North Carolina	**128.7 km/h**
Ocracoke	North Carolina	**128.7 km/h**
Myrtle Beach IntL Airport	South Carolina	**98.1 km/h**
FLORENCE Reg Airport	South Carolina	**96.5 km/h**
Mountain Lake	Virginia	**77.2 km/h**

3 Impacts

Hurricanes can cause serious damage in many ways:

1.) The effect of persistent high average wind speeds and gusts on buildings and other facilities (such as trees, electricity pylons, agricultural crops, etc.), especially on islands and along coastal shores.
2.) By the storm surge, generated by a hurricane already before its arrival in coastal areas, bays and larger estuaries and deltas. In particularly shallow coastal areas can be submerged.
3.) Intense rainfall that causes flooding of rivers and their floodplains. In mountainous terrain, landslides often occur.

Although the intensity of hurricanes is based almost entirely on wind speeds, even tropical storms or weaker hurricanes of category 1 or 2 can sometimes cause more damage than the worst hurricanes. The destructive wind speeds usually only occur in relatively narrow areas around the center of the cyclone and also decrease rapidly inland. The flooding caused by storm surges and large-scale heavy rainfall has a much greater potential for damage.

The silmultaneous occurrence of a storm surge and a spring tide can particularly damage coastal areas. The weather conditions during the weeks before landfall, especially the previous rainfall and soil moisture conditions, also play a role as well as the terrain configuration. The coastal shape and estuaries can further increase a rising storm surge. On mountain slopes, landslides can occur.

And last but not least, the propagation speed of the tropical systems is of crucial importance if quasi-stationarity causes enormous rainfall for days.

3.1 Impacts of Hurricane FLORENCE

At the beginning of its existence already FLORENCE caused seom landslides and floodings on the Cape Verde Islands, but no severe damage did occur.

As it became apparent that FLORENCE could become a significant threat to some states on the US East Coast, North and South Carolina, Georgia, Virginia, Maryland and the mayor of Washington D.C. claimed the state of emergency, and on the 10th and 11th in the Carolinas and Virginia large evacuations were mandatory. In South Carolina, mandatory evacuations affected the entire coastal area and about one million people; in North Carolina, the orders were for some low-lying areas near the coast. In addition, there were evacuation recommendations for more areas. The evacuation measures have been accompanied by using all lanes of an Interstate in only one direction to accelerate traffic flow. Many emergency shelters have been set up. In North and South Carolina, numerous schools and other public administrative offices remained closed.

3.2 Storm surge

Although FLORENCE only hit land as a category 1 hurricane and with average wind speeds of 145 kph, a number of trees were uprooted and widespread power outages occurred in the Carolinas. The storm surge associated with FLORENCE flooded a long stretch of coast in North Carolina from New Bern to Wilmington. Even before FLORENCE came ashore, New Bern, NC, was under water on 13 September due to a storm surge of 1.8 m above sea level. Several hundred people had to be rescued from the floods also on the next day.

3.3 Large-scale flooding due to heavy rain

The storm surge, followed by long-lasting and heavy rains, led to catastrophic and large-scale floods, particularly in North Carolina, with numerous river levels rising above their flood stages. Some rivers were breaking all time records. The level of the Trent River reached a new record high of almost nine meters, more than double the normal flood stage. In total, 16 rivers in North Carolina reached and exceeded their flood level 4 on 18 September 2018, which is *major flood stage* (Table 4).

***Table 4**: Selection of new record water levels on some rivers due to Hurricane FLORENCE, September 2018, and the previous record levels (Source: NWS, https://water.weather.gov/ahps).*

Northeast Cape Fear River near Chinquapin, NC	**24.21 ft**	Old: 23.51 ft, Floyd
Northeast Cape Fear River at Burgaw, NC	**23.19 ft**	Old: 22.48 ft, Floyd
Trent River at Trenton, NC	**29.28 ft**	Old: 28.42 ft, Floyd
Little River at Manchester, NC	**34.30 ft**	Old: 32.19 ft, Matthew
Black River near Tomahawk, NC	**28.71 ft**	Old: 27.92 ft, Matthew

The pre-conditions for an extreme flood situation was already created during the previous summer, which had been unusually wet since mid-July in parts of the mid-Atlantic. In some places stations observed the wettest summer since recordings began, e.g. Hatteras, NC, Washington D.C. or Wilkes-Barre and Williamsport, PA. The saturated soils greatly aggravated the risk of a major flood.

The rivers in flood stage also transported enormous amounts of organic matter and other components into the sea. The coloured LANDSAT satellite image of 19 September 2018 (Figure 7) shows how the White Oak River, the New River, and Adams Creek Earth carry sediment, leaves, debris and pollutants from agricultural and industrial operations over more han 100 kilometers into the Atlantic Ocean.

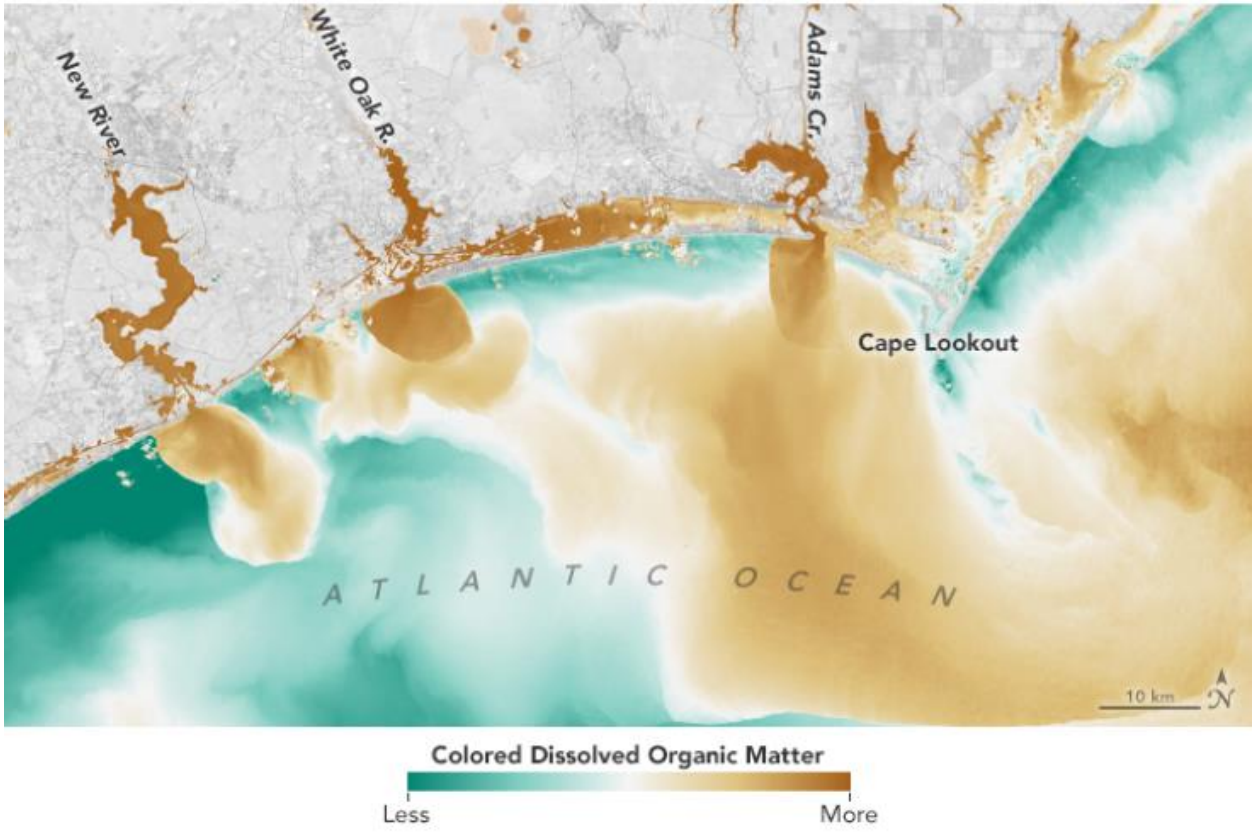

***Figure 7**: LANDSAT-Satellite image showing the massive transport of sediments, soils, pollutions by some rivers into the North Atlantic Ocean (Image credit: NASA Earth Observatory).*

3.4 Fatalities and damages

According to various media reports, the number of fatalities associated with Hurricane FLORENCE is more than 40 with 36 alone in North Carolina [1,2]. Even in Florida, which was not directly affected by the hurricane, 2 people drowned in the strong swell or surf. One person died in Virginia after an apparent tornado [3].

In North Carolina, the flooding forced the closure of some 2,200 primary and secondary roads, including large sections of Interstates 40 and 95. Wilmington, with around 100,000 inhabitants, was temporarily cut off, with the airport and port closed. In addition, there was no power supply.

Great damage also occurred on farms that were either directly flooded or not accessible any more. Millions of chickens and turkeys and thousands of hogs became victims of the flood or had to be left unattended.

On the 11 September – even before landfall, the catastrophe modeler Risk Management Solutions (*RMS*) estimated the insured losses between $15bn and $20bn [4]. However, this was before it was clear that the storm would weaken. The same applied to the provider *CoreLogic*, which initially published estimates of $170bn property damage on the 12 September [5]; however, the company corrected the figures to $3bn to $5bn on 14 September after the landfall of storm FLORENCE [6]. However, it should be noted that these estimates only include wind and surge loss and it does not include any estimate of the ongoing flooding event caused by precipitation from the storm. Loss estimates from *Moody's Analytics* on 17 September calculated the damage of Hurricane FLORENCE between $17bn to $22bn (including flooding) – and depending on further flooding it could go higher [7]. Additional, *Moody's* said FLORENCE is among the 10 costliest hurricanes. With the ongoing flood event, *Moody's* published an update on Friday (21.9.) with an economic cost of FLORENCE between $ 38bn and $ 50bn including damage to property, vehicle losses, and lost output [8].With the latter number, Hurricane FLORENCE would rank 8th in the list of the most expensive hurricanes. In contrast, new estimation from *RMS* including wind, storm surge and inland flood on 24 September range only between $ 2.8bn and $ 5.0bn [9]. The last new update (25 September) is from *CoreLogic* with an damage estimate (including North and South Carolina, Virginia) between $ 19.0bn to $ 28.5bn in storm surge and inland flooding [10].

The high differences between the various results are caused by different loss models that include different causes (e.g., flooding yes or not) or different components of considered losses. In addition, the uncertainties associated with the unpredictability of dam fractures and potential landslides are still high.

[1] https://www.cbsnews.com/news/hurricane-florence-flooding-north-south-carolina-virginia-death-toll-today-2018-09-20

[2] https://abc7chicago.com/weather/hurricane-florence-death-toll-at-36-in-north-carolina/4244283/

[3] https://www.bbc.com/news/world-us-canada-45544424

[4] https://www.reinsurancene.ws/hurricane-florence-could-cause-insured-losses-of-20bn-says-rms/

[5] https://www.marketwatch.com/story/florence-could-mean-170-billion-of-property-damage-corelogic-says-2018-09-11

[6] https://www.reinsurancene.ws/corelogic-puts-hurricane-florence-insured-loss-estimates-at-3-5bn/

[7] https://www.cnbc.com/2018/09/17/moodys-hurricane-florence-damage-estimated-at-17-to-22-billion.html

[8] https://www.wsj.com/articles/moodys-pegs-florences-economic-cost-at-38-billion-to-50-billion-1537572161

[9] http://www.rms.com/newsroom/press-releases/press-detail/2018-09-24/rms-estimates-insured-losses-from-hurricane-florence-will-be-between-usd-28-billion-and-usd-50-billion

[10] https://247wallst.com/economy/2018/09/25/losses-from-florence-could-reach-30-billion

3.5 Hurricane Climatology

From late August to mid-September 2018, the tropical oceans were exceptionally active, with several tropical storms and hurricanes simultaneously being present on the Pacific and Atlantic Oceans. On the 12 September 2018, for the first time since 2008, 4 tropical systems could be analyzed at the same time over the Atlantic basin (FLORENCE, Helene, Isaac and Joyce).

Table 5: *Major Hurricanes in North and South Carolina since 1879 (Data Source: https://edition.cnn.com).*

Year	Name	Category	Date	Landfall	Fatalities
1996	Hurricane Fran	Cat 3	05. Sep	Near Cape Fear, NC	26
1989	Hurricane Hugo	Cat 4	22. Sep	North of Charleston, SC	50
1959	Hurricane Gracie	Cat 4	29. Sep	Near Beaufort, SC	at least 22
1954	Hurricane Hazel	Cat 4	15. Oct	Border NC/SC	195 (US, CAN), 400-1000 (Haiti)
1899	unnamed	Cat 3		Outer Banks, NC	~3000 (mostly Puerto Rico)
1893	unnamed	Cat 3		North of Charleston, SC	1000-2000
1879	unnamed	Cat 3		Near Morehead, NC	46

On average (1981 – 2010) 12.1 tropical systems are given a name in a Atlantic Ocean hurricane season, 6.4 of which develop into a category 1 hurricane, and an average of 2.7 reaches category 3 or above (major hurricane). Throughout the season, a hurricane is raging 24.1 days somewhere on the Atlantic, with a major hurricane on 6.2 days.

On average, 1 or 2 hurricanes make landfall in the United States every year. The state with the highest frequency of tropical cyclones is Florida. Since 1851 there were 229 tropical storms or hurricanes with their center crossing the coastline. On the second place is – albeit by far – North Carolina, where since 1851 118 tropical storms and hurricanes came ashore.

In North and South Carolina, there have been 3 category 4 hurricanes so far. Two of them (Hugo 1989 and Hazel 1954) caused a storm surge of 5 to 6 meters in height. The third (Gracie 1959) landed at low tide (see Table 5) .

3.6 Some additional facts about North Carolina

- From 1960 to 2010, the number of inhabitants in the coastal area of North Carolina increased by 508,000 people, or 114 %, to over one million according to the US Census Bureau
- There are 9.7 million pigs in North Carolina, producing about 40 billion liters of manure each year. The slurry is mostly stored in open lagoons.
- 5 of the 10 most expensive hurricanes in US history have also caused damage in North Carolina: Hurricane Hugo (1989), Hurricanes Charley, Ivan and Frances (all 2004) and Hurricane Sandy (2012). Hurricanes Harvey and Irma (both 2017) also left their mark on North Carolina as did Hurricane Matthew in the fall of 2016.
- In 1999, Hurricane Floyd, which was also responsible for previous precipitation records, caused insured losses of $ 2.1bn(adjusted to 2018), but without flood damage which is covered by the National Flood Insurance Program.
- The insured value of properties in coastal areas of North Carolina totaled $ 178bn in 2015, accounting for 8 percent of the state's total insured property exposure, according to an analysis by *AIR Worldwide*.
- According to *CoreLogic*, between 32,000 and 260,000 single-family homes are threatened by a storm surge in the coastal area of North Carolina. Reconstruction costs would be between $ 7 and $ 54bn, depending on the intensity of the hurricane and its corresponding storm surge.

Sources:

weather.unisys.com
NRL Tropical Cyclone Page
National Hurricane Center
tropicalatlantic.com
NWS, Weather Prediction Center
wunderground.com
water.weather.gov
CIMSS Tropical Cyclone Group
NASA Earth Observatory
https://www.texmesonet.org
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https://www.iii.org/article/fact-file-north-carolina-hurricane-insurance
https://www.wsj.com/articles/moodys-pegs- FLORENCEs-economic-cost-at-38-billion-to-50-billion-1537572161
https://edition.cnn.com

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