

= 1821 Norfolk and Long Island hurricane =

The 1821 Norfolk and Long Island Hurricane was one of four known tropical cyclones that have made landfall in New York City . Another , even more intense hurricane in pre @-@ Columbian times (sometime between 1278 and 1438) left evidence that was detected in southern New Jersey by paleotempestological research . The third was the 1893 New York hurricane , and the fourth was Hurricane Irene in 2011 .

The first of three recorded tropical cyclones recorded in the 1821 Atlantic hurricane season , the storm that would eventually strike New York was first observed off the southeast United States coast on September 1 , with winds estimated in excess of 135 mph (215 km / h) . It moved ashore near Wilmington , North Carolina , and passed near Norfolk , Virginia before moving through the Delmarva Peninsula and New Jersey just inland . On September 3 , the hurricane struck approximately near Jamaica Bay , which later became part of New York City , and on September 4 it was observed over New England . This was just 6 years after the destructive Great September Gale of 1815 .

= = Meteorological history = =

A tropical cyclone was first observed on September 1 off the southeast coast of the United States . Initially , it was believed to be the same storm that struck Guadeloupe on the same day , though subsequent research indicated there were two separate storms . The hurricane tracked by the Bahamas while tracking generally northward , and it attained major hurricane status over the western Atlantic Ocean . As it approached the United States coastline , the hurricane was very intense , with winds estimated at over 135 mph (215 km / h) and potentially as strong as 160 mph (260 km / h) , or a Category 5 hurricane on the Saffir ? Simpson Hurricane Scale . Late on September 2 , the hurricane made landfall near Wilmington , North Carolina and later turned to the northeast to cross the Pamlico Sound .

The hurricane accelerated northeastward , and passed over the Hampton Roads area early on September 3 . After crossing the Chesapeake Bay , the cyclone traversed the Delmarva Peninsula near the Atlantic coastline , and at around 1500 UTC the eye passed directly over Cape Henlopen , Delaware ; a thirty @-@ minute period of calm was reported . It continued across the Delaware Bay and later passed over Cape May , New Jersey , where a fifteen @-@ minute calm was reported . Modern researchers estimate it was a Category 3 or Category 4 hurricane upon striking New Jersey , one of the few hurricanes to hit the state . Moving ashore at very low tide , it paralleled the state 's coastline just inland , and after exiting into Lower New York Bay the hurricane made landfall on New York City at around 1930 UTC on September 3 ; this makes it the only major hurricane to directly hit the city . A minimal hurricane in 1893 also made landfall on what later became part of New York City . One modern researcher estimates the hurricane was moving at a forward speed of 35 mph (55 km / h) , and upon moving ashore had a pressure of 965 mbar . The hurricane continued northeastward through New England , and after entering Massachusetts on September 4 its exact path was unknown ; one researcher estimated the cyclone tracked northeastward until losing its identity over southeastern Maine , while another assessed the storm as passing far to the west of Maine .

Based on the arrangement of effects in New England , meteorologist William C. Redfield deduced that the wind field and center of tropical cyclones are circular ; previously the winds were believed to be in a straight line .

= = Impact = =

In North Carolina , a powerful storm surge flooded large portions of Portsmouth Island ; residents estimated the island would have been completely under water had the worst of the storm lasted for two more hours . Strong winds occurred across eastern North Carolina , resulting in at least 76 destroyed houses . Numerous people were killed in Currituck .

The strongest winds of the hurricane lasted for about an hour in southeastern Virginia , after which

the storm rapidly abated . Several houses were completely destroyed , with many others receiving moderate to severe damage . The winds destroyed most of the roof of the courthouse , and uprooted trees across the region ; fallen tree limbs damaged a stone bridge in Norfolk . The hurricane produced a strong storm surge along the Virginia coastline , which reached 10 feet (3 m) at Pungoteague on the Delmarva Peninsula . The storm surge , which reached several hundred yards inland , destroyed two bridges and flooded many warehouses along the Elizabeth River . Rough waves grounded the USS Guerriere and the USS Congress , and also destroyed several schooners and brigs . Along the eastern shore , the storm surge flooded barrier islands along the Atlantic coastline , causing severe crop damage and downing many trees . Several houses were destroyed , and at Pungoteague the impact of the hurricane was described as " unexampled destruction " ; five people drowned in Chincoteague . Considered one of the most violent hurricanes on record in the Mid @-@ Atlantic , the hurricane caused \$ 200 @,@ 000 in damage in Virginia (1821 USD , \$ 3 @.@ 1 million 2007 USD) .

Gale force winds affected the Delmarva Peninsula ; on Poplar Island in Talbot County , Maryland , winds peaked at 1600 UTC on September 3 . The strongest winds were confined to the Atlantic coastline , with outer rainbands producing heavy rainfall in Washington , D.C. and Baltimore , Maryland . Fierce winds were observed in Cape Henlopen , Delaware , with the strongest gales occurring after the eye passed over the area .

Upon making landfall on Cape May , New Jersey , the cyclone produced a 5 foot (1 @.@ 5 m) storm surge on the Delaware Bay side of the city . Lasting for several hours , the hurricane force winds were described as " [blowing] with great violence " , causing widespread devastation across the region . In Little Egg Harbor , its passage caused damage to the port . Strong winds reached as far inland as Philadelphia , Pennsylvania , where winds of over 40 mph (60 km / h) downed trees and chimneys ; in the city , precipitation accrued to 3 @.@ 92 inches (99 @.@ 6 mm) . Further to the north , the hurricane destroyed a windmill at Bergen Point , New Jersey . Though the hurricane struck at low tide , it produced a storm surge of over 29 feet (9 m) along several portions of the New Jersey coastline , causing significant overwash .

The hurricane produced a storm surge of 13 feet (4 m) in only one hour at Battery Park , a record only broken 191 years later by Hurricane Sandy . Manhattan Island was completely flooded to Canal Street ; one hurricane researcher remarked that the storm surge flooding would have been much worse , had the hurricane not struck at low tide . However , few deaths were reported in the city , since the flooding affected neighborhoods much less populated than today . The hurricane brought light rainfall as it passed New York City , though strong winds left severe damage across the city . High tides occurred along the Hudson River . Strong waves and winds blew many ships ashore along Long Island . One ship sank , killing 17 people . Along Long Island , the winds destroyed several buildings and left crops destroyed .

In New England , the hurricane produced widespread gale force winds , with damage greatest in Connecticut . The Black Rock Harbor Light in Black Rock , Connecticut , was destroyed on September 21 . Elsewhere in the state , the winds damaged or destroyed churches , houses and small buildings . Moderate crop damage to fruit was reported as well . Strong winds extended into eastern Massachusetts , though little damage was reported in the Boston area .