

= Tropical Storm Josephine (1996) =

Tropical Storm Josephine was an unusual Atlantic tropical storm that moved from west to east across the Gulf of Mexico in October 1996 . It formed on October 4 as a tropical depression from the remnants of a cold front . Early in its duration , the system interacted with a ridge over the central United States , which produced strong winds and high tides along the Texas coast . The outer rainbands caused flooding rainfall in southern Texas , and in Louisiana , high tides flooded roads and stranded residents on Grand Isle . Moving generally to the east due to a trough , the depression intensified into a tropical storm on October 6 , and the next day reached peak winds of 70 mph (110 km / h) while approaching the west coast of Florida . Josephine made landfall in Taylor County near peak intensity early on October 8 , and soon after became extratropical . While moving ashore , the storm produced a high storm surge reaching 9 @. @ 3 ft (2 @. @ 8 m) in Suwannee . High tides flooded about 3 @, @ 600 houses along the west coast . Josephine also produced heavy rainfall , which flooded hundreds of winds , and high winds , which left 400 @, @ 000 people without power . The storm also spawned at least 16 tornadoes , one of which damaged 130 homes .

The extratropical remnants of Josephine moved along the eastern coast of the United States , producing wind gusts as strong as 77 mph (124 km / h) in St. Mary 's County and in Ocean City , Maryland . The winds caused widespread power outages , including 26 @, @ 000 in Virginia and 31 @, @ 000 in New Jersey . Heavy rainfall flooded low @-@ lying areas and rivers along the storm 's path , including in North Carolina which had previously been affected by hurricanes Bertha and Fran earlier in the year . In the southeastern United States , the storm contributed to dozens of traffic accidents , which killed a person each in Georgia , North Carolina , and Virginia . Damage throughout the United States totaled about \$ 130 million (1996 USD) . Josephine later moved offshore , and after passing southeast of Cape Cod , moved through Atlantic Canada with moderate rainfall and gusty winds . The storm later restrengthened in the northern Atlantic Ocean before merging with another extratropical storm near Iceland on October 16 .

= = Meteorological history = =

In late September 1996 , a cold front stalled over the southwestern Gulf of Mexico , producing an area of convection . The thunderstorms were possibly related to the same tropical wave that spawned Hurricane Hernan in the eastern Pacific Ocean . A low pressure area formed in the Bay of Campeche by October 2 , although initially upper @-@ level conditions did not favor tropical cyclogenesis . The convection became more persistent on October 3 and gradually became better organized . On October 4 , classifications based on the Dvorak technique began , and later that day the Hurricane Hunters flew into the system . Based on the data from the flight , it is estimated that Tropical Depression Ten formed at 1800 UTC that day off the northeast coast of Mexico . During its formative stages , the depression interacted with a ridge near the Great Lakes to produce strong winds across the Gulf Coast of the United States . With weak steering currents , the depression moved slowly to the northeast , and initially , wind shear prevented further organization . On October 6 , a strong trough caused the system to accelerate to the east @-@ northeast . The storm 's west to east motion across the Gulf of Mexico was unusual although not unprecedented .

On October 6 , the banding features became better defined , and the depression intensified into Tropical Storm Josephine . Further intensification followed , and Josephine attained peak winds of about 70 mph (110 km / h) on October 7 . This was based on flight @-@ level winds of 85 mph (137 km / h) , and while near peak intensity , the storm developed a partial eyewall . Josephine accelerated to the northeast while maintaining peak winds , and it made landfall in Taylor County , Florida at 0330 UTC on October 8 . By that time , Josephine was losing tropical characteristics , and shortly thereafter the storm transitioned into an extratropical cyclone as it moved over Georgia . The remnants continued to accelerate to the northeast , having weakened quickly to winds of 50 mph (85 km / h) . It moved along the East Coast of the United States , emerging from North Carolina into the western Atlantic , and later crossed Atlantic Canada . On October 12 , the remnants of Josephine turned to the north and later to the northwest within the general flow of the north Atlantic

Ocean . The next day , the storm strengthened to again reach its peak winds of 70 mph (110 km / h) . On October 16 , the storm merged with another extratropical storm near Iceland .

= = Preparations and impact = =

About 19 hours before landfall , the National Hurricane Center (NHC) issued a tropical storm warning from Apalachicola to Venice , Florida , which was preceded by a tropical storm watch six hours prior . As the storm intensified further , the NHC issued a hurricane warning from Apalachicola to Anclote Key , and extended the tropical storm warning westward to Fort Walton Beach . The agency later issued a tropical storm warning for the Atlantic coast from Cape Canaveral to Little River Inlet in South Carolina . Officials ordered evacuations for barrier islands in nine Florida counties along the gulf coast , and about 3 @, @ 000 people stayed in shelters . Government offices closed along the storm 's projected path in the state . Later , the storm forced the cancellation of part of Bob Dole 's bus tour through New York , and postponed a search for the wreck of TWA Flight 800 . Game one of the 1996 World Series was postponed by one day due to the storm .

While Josephine was forming , it produced high tides of 3 to 4 ft (0 @. @ 91 to 1 @. @ 22 m) above normal that flooded coastal regions and eroded beaches along the Texas coast . Coastal flooding covered portions of Texas State Highway 316 and John F. Kennedy Memorial Causeway . The storm 's outer periphery dropped locally heavy rainfall that reached 10 @. @ 81 in (275 mm) at Brownsville International Airport , which flooded homes in Brownsville and streets near San Benito . Light rainfall also occurred elsewhere along the gulf coast . In Louisiana , tides were 4 ft (1 @. @ 2 m) above normal , which flooded portions of Louisiana Highway 1 and several houses . The floods damaged two houses in Mandeville , and damage statewide was estimated at \$ 5 @. @ 5 million . After residents refused to evacuate Grand Isle , over 200 people were stranded when floodwaters rose .

Josephine made landfall in northwestern Florida along Apalachee Bay and produced a high storm surge of around 9 @. @ 3 ft (2 @. @ 8 m) in Suwannee , causing minor to moderate beach erosion . The storm produced widespread tropical storm force wind gusts in the state , and the highest sustained winds were 45 mph (72 km / h) along the Sunshine Skyway Bridge ; the same location reported a peak gust of 72 mph (115 km / h) . Josephine dropped heavy rainfall in the state , peaking at 11 @. @ 39 in (289 mm) in Fernandina Beach . The storm also spawned at least 16 tornadoes in northern Florida , most of which caused minor tree damage . One 400 yd (370 m) wide tornado , rated an F2 , remained on the ground for 7 mi (11 km) in Edgewater , which damaged 130 houses , 30 of them severely . The tornado caused a woman to have a heart attack in Edgewater , and its damage was estimated at \$ 2 @. @ 4 million . In western Florida , the high tides flooded roads and buildings along the coast . Between Levy to Lee county along the gulf coast , Josephine flooded about 3 @, @ 600 homes , mostly west of U.S. Route 19 . The heaviest storm surge damage was in Pinellas County , where about 1 @, @ 400 homes were affected , causing \$ 25 million in damage . One person was injured in the county when a man was surfing in rough seas . The high tides damaged three fishing piers along the west coast . In Clay County , flooding rains forced about a dozen families to seek shelter elsewhere , and a few roads were washed out . In Jacksonville , high rains flooded hundreds of roads and caused schools countywide to close . Street flooding occurred as far south as the Florida Keys . High winds caused sporadic wind damage across northern Florida , and about 400 @, @ 000 people lost power statewide . Following the storm , President Bill Clinton declared 16 counties as disaster areas , which made them eligible for federal assistance in reconstructing .

When the remnants of Josephine moved into Georgia , rainfall of over 7 in (180 mm) flooded portions of Georgia State Route 40 and destroyed six houses along the St. Marys River . A woman died after driving into a downed tree in the state . In South Carolina , the storm caused flash flooding that covered roads and cars , after 6 in (150 mm) of precipitation fell . Wind gusts in the state reached 60 mph (97 km / h) along the coast , while high tides caused minor beach erosion . The remnants of Josephine spawned a weak tornado in Horry County that downed trees and power lines . Heavy rainfall , including reports of 4 in (100 mm) in three and a half hours , also affected North

Carolina , which flooded low @-@ lying areas , rivers , and portions of several roads including U.S. Route 70 . A woman and her child required rescue from a flooded road in Chadbourne . In some areas of eastern North Carolina , the storm raised river levels only weeks after they receded following Hurricane Fran . High winds of up to 70 mph (110 km / h) downed trees and power lines , causing power outages and dozens of traffic accidents ; one man died while driving amid heavy rainfall . High tides flooded barrier islands and caused erosion in beaches , previously affected by hurricanes Bertha and Fran earlier in the year . In conjunction with a cold front , Josephine spawned three tornadoes in the state along the state 's central coastline . The tornadoes destroyed several mobile homes , uprooted trees , and brought down power lines .

After having tracked across the southeastern United States , Josephine emerged into the western Atlantic Ocean as a strong extratropical cyclone and remained near the coast . It continued to bring strong winds and heavy rainfall . In southeastern Virginia , where wind gusts reached 63 mph (101 km / h) at the Chesapeake Bay Bridge ? Tunnel , the storm left about 26 @, @ 000 people without power , while flooding contributed to over 70 traffic accidents . A three car accident killed a man in the state . In neighboring Maryland , the storm produced a peak wind gust of 77 mph (124 km / h) in St. Mary 's County and in Ocean City , which knocked down trees onto houses and left about 7 @, @ 000 people without power . In the Chesapeake Bay , waves of 6 ft (1 @. @ 8 m) in height caused minor coastal damage and flooded portions of the coastline , including along Maryland Route 238 . In Ocean City , a 160 ft (49 m) barge broke from its moorings during the storm , which later washed ashore . About 4 @, @ 000 people lost power in Delaware , where winds reached 58 mph (93 km / h) and high tides , peaking at 7 @. @ 6 ft (2 @. @ 3 m) at Lewes , flooded oceanfront homes and portion of Delaware Route 1 . High rainfall caused the Christina River to crest at 10 @. @ 6 ft (3 @. @ 2 m) , causing some people to require rescue from their cars . About 1 @, @ 500 people lost power in southeastern Pennsylvania , when high winds knocked down some tree limbs onto power lines . In neighboring New Jersey , high winds of around 70 mph (110 km / h) left about 31 @, @ 000 homes without power , and 12 houses lost their roofs during the storm . In both New Jersey and New York , rainfall was around 1 to 3 in (25 to 76 mm) , causing minor street flooding . While passing offshore New England , the remnants of Josephine produced gusts as high as 68 mph (109 km / h) at Blue Hill Meteorological Observatory in Massachusetts . Minor street flooding occurred in the state after the storm dropped up to 4 @. @ 50 in (114 mm) of rainfall on Cape Cod . Throughout New England , the high winds downed trees and branches , causing scattered power outages in Rhode Island , Massachusetts , New Hampshire , and Maine . Nationwide , damage was estimated at \$ 130 million (1996 USD) .

Later , the remnants of Josephine moved across Atlantic Canada , where rainfall peaked at 2 @. @ 76 in (70 mm) in northern Newfoundland . The strongest winds in the region were 52 mph (83 km / h) , strong enough to cause ferry service to be canceled or delayed . In Amherst and Fort Lawrence , the storm caused power outages and school closings .