

= 1928 Okeechobee hurricane =

The Okeechobee hurricane , also known as San Felipe Segundo hurricane , was one of the deadliest tropical cyclones in the history of Puerto Rico . The fourth tropical cyclone , third hurricane , and only major hurricane of the 1928 season , this system developed just offshore the west coast of Africa on September 6 . Initially a tropical depression , it strengthened into a tropical storm later that day , shortly before passing south of the Cape Verde Islands . Further intensification was slow and halted by late on September 7 . About 48 hours later , the storm resumed strengthening and became a Category 1 hurricane on the modern Saffir - Simpson hurricane wind scale . Still moving westward , the system reached Category 4 intensity before striking Guadeloupe on September 12 . There , the storm brought " great destruction " and 1 @, @ 200 deaths . The islands of Martinique , Montserrat , and Nevis also reported damage and fatalities , but not nearly as severe as in Guadeloupe .

Around midday on September 13 , the storm strengthened into a Category 5 hurricane and peaked with sustained winds of 160 mph ( 260 km / h ) . About six hours later , the system made landfall in Puerto Rico ; it was the only recorded tropical cyclone to strike the island at Category 5 intensity . Very strong winds resulted in severe damage in Puerto Rico . Throughout the island , an estimated 24 @, @ 728 homes were destroyed and 192 @, @ 444 were damaged , leaving over 500 @, @ 000 people homeless . Heavy rainfall also led to extreme damage to vegetation and agriculture . On Puerto Rico alone , there were 312 deaths and about \$ 50 million ( 1928 USD ) in damage . While crossing the island and emerging into the Atlantic , the storm weakened slightly , falling to Category 4 intensity . The storm began crossing through the Bahamas on September 16 . Due to preparations , minimal damage or loss of life occurred , with 18 fatalities reported .

Early on September 17 , the storm made landfall near West Palm Beach , Florida with winds of 145 mph ( 233 km / h ) . In the city , more than 1 @, @ 711 homes were destroyed . Elsewhere in the county , impact was severest around Lake Okeechobee . The storm surge caused water to pour out of the southern edge of the lake , flooding hundreds of square miles as high as 20 feet ( 6 @. @ 1 m ) above ground . Numerous houses and buildings were swept away in the cities of Belle Glade , Canal Point , Chosen , Pahokee , and South Bay . At least 2 @, @ 500 people drowned , while damage was estimated at \$ 25 million . While crossing Florida , the system weakened significantly , falling to Category 1 intensity late on September 17 . It curved north @-@ northeastward and briefly re @-@ emerged into the Atlantic on September 18 , but soon made another landfall near Edisto Island , South Carolina with winds of 85 mph ( 140 km / h ) . Early on the following day , the system weakened to a tropical storm and became extratropical over North Carolina hours later . Overall , the system caused \$ 100 million in damage and at least 4 @, @ 079 deaths .

= = Meteorological history = =

On September 6 , ships reported a tropical depression developing just off the west coast of Africa near Dakar , Senegal . The next day , a ship reported winds of 60 mph ( 95 km / h ) , or tropical storm status ; on this basis , the Atlantic hurricane reanalysis project estimated that the system attained tropical storm status late on September 6 . However , lack of observations for several days prevented the system from being classified in real time as it moved generally westward across the Atlantic Ocean . On September 10 , the S.S. Commack first observed the storm about 900 miles ( 1450 km ) to the east of Guadeloupe , which at the time was the most easterly report of a tropical cyclone ever received through ship 's radio . Later that day , two other ships confirmed the intensity of the storm , and the Hurricane Research Division estimated it strengthened into a hurricane at 18 : 00 UTC on September 10 .

As the storm neared the Lesser Antilles , it continued to intensify . Between 17 : 30 and 18 : 30 UTC on September 12 , the hurricane 's eye moved over Guadeloupe with a barometric pressure of 940 millibars ( 28 inHg ) , suggesting maximum sustained winds of 240 km / h ( 140 mph ) , or the equivalent of a Category 4 on the Saffir - Simpson scale . Continuing to the west @-@ northwest , the hurricane passed about 10 mi ( 16 km ) south of Saint Croix before approaching Puerto Rico .

On September 13 , the 15 mi ( 25 km ) eye crossed Puerto Rico in eight hours from the southeast to the northwest , moving ashore near Guayama and exiting between Aguadilla and Isabela . A ship near the southern coast reported a pressure of 931 mbar ( 27 @. @ 5 inHg ) , and the cup anemometer at San Juan reported sustained winds of 160 mph ( 268 km / h ) before failing . As the wind station was 30 miles ( 50 km ) north of the storm 's center , winds near the landfall point were unofficially estimated as high as 200 mph ( 320 km / h ) . On this basis , the hurricane made landfall in Puerto Rico as a Category 5 hurricane on the Saffir @-@ Simpson scale , although there was uncertainty in the peak intensity , due to the large size and slow movement .

After emerging from Puerto Rico , the hurricane had weakened to winds of about 140 mph ( 240 km / h ) , based on a pressure reading of 941 mbar ( 27 @. @ 8 inHg ) at Isabela . The storm brushed the northern coast of Hispaniola while moving west @-@ northwestward , gradually restrengthening . On September 15 , it passed within 35 mi ( 55 km ) of Grand Turk , by which time the winds increased to 155 mph ( 250 km / h ) . The storm continued through the Bahamas as a strong Category 4 hurricane , passing near Nassau at 10 : 00 UTC on September 16 . Initially , Richard Gray of the U.S. Weather Bureau was optimistic that the storm would spare the south Florida region . However , at 00 : 00 UTC on September 17 the large hurricane made landfall in southeastern Florida near West Palm Beach with estimated winds of 145 mph ( 230 km / h ) . This was based on a pressure reading of 929 mbar ( 27 @. @ 4 inHg ) in the city , which at the time was the lowest pressure reading in the United States ; this broke the previous record of 935 mbar ( 27 @. @ 6 inHg ) set during the 1926 Miami hurricane . Peak gusts were estimated near 160 mph ( 260 km / h ) at Canal Point .

The hurricane quickly weakened as it progressed inland and moved over Lake Okeechobee , although the large size allowed it to maintain hurricane status for several more days . Late on September 17 , the hurricane recurved to the northeast and passed near Jacksonville early the next day with winds of 75 mph ( 120 km / h ) . At 08 : 00 UTC on September 18 , the storm once again reached open waters . Later that day , the hurricane restrengthened slightly over open waters , making a second United States landfall near Edisto Island , South Carolina at 19 : 00 UTC with winds of 85 mph ( 140 km / h ) . Accelerating northeastward , the system quickly weakened into a tropical storm over North Carolina . On September 19 , the storm evolved into an extratropical cyclone , although it restrengthened slightly to hurricane status . The cyclone turned to the north @-@ northwest , moving quickly through the eastern United States . On September 21 , the former hurricane dissipated over Ontario , having merged with another disturbance .

= = Impact = =

= = = Leeward Islands = = =

The hurricane moved directly over the Leeward Islands in the Caribbean Sea , strengthening as it did so . On the island of Dominica winds were clocked at 24 mph ( 39 km / h ) ; there were no reports of damage . In Martinique , even further south of the storm 's path , there were three fatalities . Guadeloupe received a direct hit from the storm , apparently with little warning ; the death toll there was 1 @, @ 200 , and damage reports relayed through Paris indicated " great destruction " on the island . Approximately 85 % ? 95 % of banana crops were destroyed , 70 % ? 80 % of tree crops suffered severe damage , and 40 % of the sugar cane crop was ruined .

Montserrat , just north of the storm 's center , was warned in advance of the storm but still suffered £ 150 @, @ 000 ( 1928 UKP ) in damages and 42 deaths ; Plymouth and Salem were devastated and crop losses caused near @-@ starvation conditions before relief could arrive . The storm passed to the south of the islands of St. Kitts and St. Croix , which suffered heavy damage to property and crops but no reported fatalities . Nevis also reported three deaths due to the storm .

= = = Puerto Rico = = =

While the storm was passing near Dominica , the San Juan , Puerto Rico Weather Bureau warned about the threat of the hurricane which would strike the island within a day or two . The advisory was sent via telegraph to 75 police districts and was broadcast from the naval radio station every two hours ; this was the first hurricane warning broadcast by radio . Warnings were also posted for 12 ports along the southern coast , causing ships to avoid the island or remain at port . Effective preparation is credited for the relatively low death toll of 312 , and not a single ship was lost at sea in the vicinity of Puerto Rico . By comparison , the weaker 1899 San Ciriaco hurricane killed approximately 3 @, @ 000 people .

According to the San Juan National Weather Service office , the storm was " up to this time the greatest and more [ sic ] intense and destructive hurricane of record in Puerto Rico . " Along the storm path , the eye passed over Guayama , Cayey , and Aibonito , resulting in a period of calm lasting 20 minutes . The island of Puerto Rico received the worst of the storm 's winds when the hurricane moved directly across the island at Category 5 strength . The hurricane was extremely large as it crossed Puerto Rico . Hurricane @-@ force winds were measured in Guayama for 18 hours ; since the storm is estimated to have been moving at 13 mph ( 21 km / h ) , the diameter of the storm 's hurricane winds was estimated very roughly to be 234 miles ( 376 km ) .

The storm was named the San Felipe II Hurricane because the eye of the cyclone made landfall on the Christian feast day of Saint Philip . It was named " Segundo " , Spanish for " the Second " , because of another destructive " San Felipe hurricane " which struck Puerto Rico on that same day in 1876 . Since European arrival in the Americas in 1492 all storms and hurricanes were named after the name of the saint of the day the storm hit Puerto Rico . In 1953 the United States started naming hurricanes by female names until 1978 when both gender names began to be used . Yet it was only in 1960 that hurricanes stopped being officially named after saints .

The rainfall recorded on September 13 ? 14 , 1928 , remains the record for the maximum rainfall associated with a hurricane in Puerto Rico within a period of forty @-@ eight hours . In those regions where precipitation is more common place , as in Adjuntas in the Cordillera Central and in the Sierra de Luquillo , the rain was over 25 inches ( 640 mm ) , with 29 @.@ 60 inches ( 752 mm ) recorded in Adjuntas . The anemometer located in Puerta de Tierra lost one of its cups at 11 : 44 am on September 13 , just when it had registered a maximum speed of 150 miles ( 240 km ) per hour ? a speed that was sustained for five consecutive minutes . Previously the same instrument had measured 160 miles ( 260 km ) per hour for one minute . Because these measurements were taken 30 miles ( 48 km ) from San Felipe 's eye , at the time , it seemed possible that some estimates of 200 miles ( 320 km ) per hour near the center of the storm were not overdrawn .

There was general destruction through the island , with the towns where the eye passed being swept away . Property damage on the island from winds and rain was catastrophic . The northeast portion of the island received winds in excess of Category 3 strength , with hurricane @-@ force winds lasting as long as 18 hours . Official reports stated " several hundred thousand " people were left homeless , and property damages were estimated at \$ 50 million .

On the island there was no building that was not affected . Some sugar mills ( " Centrales " ) that had cost millions of dollars to build were reduced to rubble . Reports say that 24 @, @ 728 homes were destroyed and 192 @, @ 444 were partially destroyed . Most of the sugarcane fields were flooded , ruining the year 's crops . Half of the coffee plants and half of the shade trees that covered these were destroyed ; almost all of the coffee harvest was lost . The coffee industry would take years to recover since coffee needs shade trees to grow . The tobacco farms also had great losses . After this hurricane , Puerto Rico never regained its position as a major coffee exporter .

Communications were impacted by fallen trees , landslides , and damaged bridges . Of the school buildings 770 were destroyed or damaged . According to some estimates of the day , excluding personal losses , the damages reached \$ 85 @.@ 312 million and over 500 @, @ 000 people were left homeless . San Felipe II is officially classified as Puerto Rico 's biggest , worst , and most devastating hurricane to ever have impacted the island .

= = = Greater Antilles and Bahamas = = =

After affecting Puerto Rico , the hurricane passed just north of the Dominican Republic , producing very little damage . This was due to the small core and weaker winds to the south of the center . Advance warning reduced the number of ships traversing the region .

While the hurricane was passing nearby , Grand Turk reported winds of 120 mph ( 193 km / h ) . According to a ship report in the region , " The force of the wind ... could only be judged by the noise made by the storm , which reminded me of the New York subway going full speed passing switches . " Winds approached 120 mph ( 193 km / h ) at Nassau before the anemometer failed . In addition to the winds , the storm dropped heavy rainfall in the region , totaling 9 in ( 228 mm ) in Nassau . As in Puerto Rico , authorities in the Bahamas had ample warning of the hurricane 's approach , and preparations minimized the loss of life in the islands . Two boats were wrecked as they washed ashore in Grand Turk , although the crews were saved . A sloop traversing from Ambergris Caye to Grand Turk was lost , killing all 18 people on board . The storm caused heavy damage throughout the Bahamas , mostly to property and crops .

In Nassau , some buildings which were recently repaired after the 1926 Nassau hurricane were destroyed during this storm . A 10 @-@ year @-@ old girl drowned after falling into an open trench filled with water . At the Fort Montague Hotel , the windows , doors , and furniture were badly damaged . Similar impact was reported at the Royal Victoria Hotel , while the British Colonial Hotel was largely spared . However , the gardens of the three hotels were " damaged almost beyond recognition " .

On Bimini , sustained winds of 140 mph ( 230 km / h ) were observed , causing major damage to buildings . Ninety @-@ five houses and some other buildings , including a few churches and government buildings , were damaged or destroyed on Eleuthera . Minor damage was reported on Rum Cay . Most of the food crops were destroyed . On San Salvador Island , four buildings were demolished , including two churches , while several other structures suffered minor damage . Food crops were nearly wiped out .

= = = Florida = = =

While the hurricane was moving through the Bahamas , the Weather Bureau issued storm warnings from Miami to Titusville , later upgrading to a hurricane warning from Miami to Daytona Beach . The agency advised residents to take precautions for the hurricane , citing the potential for strong winds and waves . Hurricane warnings were also posted for the west coast from Punta Rassa to Apalachicola , and after the storm recurved , hurricane warnings were extended along the east coast to Jacksonville . Because of well @-@ issued hurricane warnings , residents were prepared for the storm , and the number of lives lost in the coastal Palm Beach area was only 26 .

Strong winds struck southern Florida as the hurricane moved ashore , with three unofficial reports of 100 mph ( 160 km / h ) . In Miami to the south of the center , winds reached 78 mph ( 126 km / h ) , and farther south , Key West reported winds of only 39 mph ( 63 km / h ) . The eye at landfall was 25 miles ( 40 km ) wide , and after moving inland crossed Lake Okeechobee , where a calm was reported for 30 minutes . Winds at Canal Point , adjacent to the lake , were estimated as high as 160 mph ( 255 km / h ) ; the anemometer blew away after reporting sustained winds of 75 mph ( 120 km / h ) . The pressure at Canal Point dropped to 942 mbar ( 27 @.@ 82 inHg ) . The lowest pressure north of Lake Okeechobee was 966 mbar ( 28 @.@ 54 inHg ) in Bartow , and along the west coast , winds reached 31 mph ( 50 km / h ) in Tampa .

The hurricane left thousands of people homeless in Florida ; property damage was estimated at \$ 25 million ( \$ 345 million ) . It is estimated if a similar storm were to strike as of the year 2003 , it would cause \$ 18 @.@ 7 billion in damages . The cyclone remains one of three Atlantic hurricanes to strike the southern mainland of Florida with a central pressure below 940 mbar ( 27 @.@ 76 inHg ) , the others being the 1926 Miami hurricane and Hurricane Andrew of 1992 .

In addition to the human fatalities , 1 @,@ 278 livestock and 47 @,@ 389 poultry were killed , respectively . Agriculture was impacted significantly , with the storm destroying what may have been the largest " citrus crop in the history of the industry " . Approximately 6 % of oranges and 18 % of grapefruit were ruined , respectively . Harvesting the remaining crops was delayed until mid @-@

October due to inundated groves . Communications also suffered severely . Throughout the state , 32 @, @ 000 households were left without telephone service and 400 poles were broken and about 2 @, @ 500 others leaning . Then @-@ Governor of Florida John W. Martin estimated that 35 @, @ 000 families were left homeless in Palm Beach County alone . Additionally , about 11 @, @ 500 families would need to be " re @-@ established " .

= = = = Coastal South Florida = = = =

In Miami , damage was minimal , limited to broken windows and awnings . In Hollywood and Fort Lauderdale , windows and roofs were damaged , although damage was still fairly minor . Numerous power lines and telephone wires were downed in the latter . Northward , from Pompano Beach to Jupiter , buildings suffered serious damage from the heavy winds and 10 ft ( 3 m ) storm surge . Nearly all small frame houses were destroyed in Deerfield Beach , while several citizens estimated that at least 50 % of homes were demolished . The town 's post office , depot , and an entire business block were also destroyed . An eight @-@ year @-@ old boy drowned in a ditch near where his family sought refuge . In Boca Raton , two garages and several houses were destroyed . At the Cloister Inn , windows were shattered and the roof was damaged ; across the street , 32 freight cars belonging to a train along the Florida East Coast Railway were tossed by the wind into a nearby ditch . A short distance to the north , a warehouse was flattened . A building occupied by a restaurant and a store was flattened . In Delray Beach , four churches suffered severe damage and the Alta Repp and Seacrest hotels both lost a portion of their roof . The police reported three deaths within the city . In Delray Beach and Lantana , all houses and the railroad station were badly damaged . In Boynton Beach , about 75 % of businesses suffered complete destruction . Fifteen people were injured by a roof collapse while taking refuge in the auditorium of a high school .

In Lake Worth , approximately 50 % of homes were damaged or destroyed , while 75 % of buildings in the business district suffered damage . Impact along the coast was most severe in Palm Beach . Total coastal damages were estimated as " several million " dollars . In West Palm Beach , the storm destroyed 1 @, @ 711 homes and damaged 6 @, @ 369 others , and demolished 268 businesses and impacted 490 other businesses ; the city suffered the worst damage , totaling just under \$ 13 @. @ 8 million . Likewise , there was also severe wind damage in Palm Beach . A few buildings constructed by Henry Flagler , such as The Breakers , the Royal Poinciana Hotel , and Whitehall , were damaged . Mar @-@ a @-@ Lago suffered little impact other than uprooted trees and the destruction of a large Roman @-@ style window , according to Marjorie Merriweather Post . Rodman Wanamaker 's house , known as " La Guerida " and later the " Winter White House " during the presidency of John F. Kennedy , suffered heavy damage during the storm . The Alba , Billows , New Palm Beach , and Royal Daneli hotels all suffered water damage , while the Alba Hotel was also deroofed . Nearby , the Rainbow Pier only received structural damage to its railings , though the pier office was blown away . Approximately 600 structures , including 10 hotels , were damaged in Palm Beach . Damage totaled over \$ 2 million .

The strongest winds in the eyewall affected northern Palm Beach County , particularly the vicinity of Jupiter , as the eye made landfall farther south . At the Jupiter Inlet Lighthouse , the mortar was reportedly " squeezed ... like toothpaste " between the bricks during the storm , swaying the tower 17 in ( 430 mm ) off the base . The lighthouse keeper , Captain Seabrook , and his son , Franklin , worked to keep the light on during the storm after the electricity went out . After the generator failed to work , they hand @-@ cranked the light 's mantle . The building formerly used as a Weather Bureau Office was destroyed . Nearby , six people died after a house was demolished . Six other fatalities occurred west of Jupiter after a school where people sought shelter collapsed .

= = = = Lake Okeechobee and Everglades = = = =

Inland , the hurricane wreaked much more widespread destruction along the more heavily populated coast of Lake Okeechobee . Residents had been warned to evacuate the low ground earlier in the day , but after the hurricane did not arrive on schedule , many thought it had missed

and returned to their homes . In the weeks prior to storm , heavy rainfall caused the lake to rise 3 ft ( 0 @. @ 91 m ) between August 10 and September 10 and filled nearby canals and ditches . Precipitation from the hurricane itself caused Lake Okeechobee to rise further . When the worst of the storm crossed the lake , the south @-@ blowing wind caused a storm surge to overflow the small dike that had been built at the south end of the lake . The resulting flood covered an area of hundreds of square miles with water that in some places was over 20 ft ( 6 m ) deep . Houses were floated off of their foundations and dashed to pieces against any obstacle they encountered . Most survivors and bodies were washed out into the Everglades where many of the bodies were never found . Agricultural losses in the area surrounding Lake Okeechobee were also significant , with virtually all crops destroyed and over 150 tractors suffering damage .

As the rear eyewall passed over the area , the flood reversed itself , breaking the dikes along the northern coast of the lake and causing similar but smaller flooding . Route 98 , then known as Conner 's Highway , was closed until January , when the bridge across the Onosohatchee River at Taylor Creek was replaced after the original bridge was carried about 150 ft ( 46 m ) upstream during the storm . In Okeechobee County , homes along the lake were destroyed by the storm surge , while dwellings within the city of Okeechobee were severely impacted or demolished by winds of at least 90 mph ( 140 km / h ) . However , brick and concrete @-@ structured dwellings received little damage . A number of three @-@ story business buildings collapsed during the storm . Almost all roads were left impassable , while communications were nearly wiped out . Overall , 27 deaths occurred in Okeechobee County . Along the southwestern shore of Lake Okeechobee , the towns of Clewiston and Moore Haven were both flooded , but much of the damage to houses was due to strong winds .

On Kreamer Island , many residents received information about the storm when it was too late to evacuate . In some homes , 20 ? 30 people sought shelter inside and later stood on tables and chairs to remain above the water . Most of the homes were swept away into rows of pine trees and others more than half a mile ( 0 @. @ 8 km ) away . Despite this , only one person drowned on the island . Residents of Torry Island also did not have ample time to prepare for the storm . They attempted to evacuate , but the causeway was already inundated , forcing twenty @-@ three people to seek refuge in a packinghouse . Floodwaters entered the building , forcing the occupants into the rafters . However , the building was eventually pushed into a nearby canal . Ten people drowned , but thirteen others survived by clinging to a barge or tree tops , while one woman tied herself to a telegraph pole . Others that survived were swept far away from where the building once stood or the barge . A teenage boy was carried from the packinghouse to the Everglades Experiment Station in Belle Glade ? a distance of about 8 mi ( 13 km ) . On Ritta Island , a number who successfully climbed to the roof of their houses were struck by trees or received fatal bites from water moccasin .

In South Bay , nearly all houses were destroyed and several buildings were unroofed . At least 160 fatalities occurred in the city . Throughout the 1920s , Okeelanta suffered several floods and muck fires . Finally , the town was flooded severely during the storm and was subsequently abandoned . Bean City was also destroyed during the hurricane , but it was eventually rebuilt by Arthur Wells . Sebring Farms was reduced to piles of rubble , with only four tall royal palm trees left standing . Only the hotel at Miami Locks survived the storm . Ninety @-@ nine people died in that town . In Chosen , only two people managed to escape a house that sheltered nineteen people . Twenty other residents took refuge in a building which lost its roof during the storm , forcing the occupants to move into the restroom . A house that was full of people floated about half a mile ( 0 @. @ 8 km ) from its original location . The refugees were unaware that the house was moving until it collided with a railroad embankment .

Floodwaters persisted for several weeks , greatly impeding attempts to clean up the devastation . Burial services were quickly overwhelmed , and many of the bodies were placed into mass graves . Around 75 % of the fatalities were migrant farm workers , making identification of both dead and missing bodies very difficult ; as a result of this , the count of the dead is not very accurate . The Red Cross estimated the number of fatalities as 1 @, @ 836 , which was taken as the official count by the National Weather Service for many years ( and exactly equal to the official count for Hurricane Katrina ) . Older sources usually list 3 @, @ 411 as the hurricane 's total count of fatalities

, including the Caribbean . However , in 2003 the U.S. death count was revised to " at least " 2 @,@ 500 , making the Okeechobee hurricane the second @-@ deadliest natural disaster in United States history behind the 1900 Galveston hurricane . A mass grave at the Port Mayaca Cemetery east of Port Mayaca contains the bodies of 1 @,@ 600 victims of the hurricane .

= = = Central and North Florida = = =

In Fort Myers , property damage was slight , limited mostly to scores of small boats and fishing shacks along the waterfront . Nearly all cigar factories in Tampa were closed after wind and rain drove too much moisture into the buildings . Offshore , the fishing smack Wallace A. McDonnell was beached near Piney Point , though all of the crew survived . Additionally , the Cuban schooner Isabel Alvado sank offshore Boca Grande . The crew , who were immigrants , were rescued by the Coast Guard and later deported . In Martin County , a bridge connecting Stuart and Palm City was severely damaged and closed to traffic as a result . A temporary ferry service across the St. Lucie River was established and operated until repairs to the bridge were complete in the summer of 1929 . In Fort Pierce , most of the impact was confined to the waterfront areas . A warehouse , fish houses , docks , and a bridge across the Indian River were destroyed , while several other buildings were unroofed . Damage in the city totaled about \$ 150 @,@ 000 .

In the interior areas of Central and North Florida , impact was mainly confined to agricultural losses , particularly citrus , though wind damage occurred to structures . Between Sebring and Lake Wales , 200 telephone poles were toppled . In Bartow , business building windows were shattered and signs were knocked down , while several roofs and chimneys also suffered damage . Winds gusting up to 70 mph ( 110 km / h ) lashed Lakeland . Many trees were uprooted and several buildings were impacted , including the hospital and a number of businesses . At Florida Southern College ( FSC ) , the north side of the gymnasium collapsed while other buildings on campus were damaged to a less degree . The trees in the citrus grove surrounding FSC lost much of their fruit . Overall , Lakeland suffered about \$ 50 @,@ 000 in damage . In Orlando , impact to properties was described as slight . Winds up to 50 mph ( 80 km / h ) impacted the Jacksonville area , resulting in minor damage at Jacksonville Beach .

= = = Elsewhere = = =

Outside of Florida , damage in the United States was minor from the hurricane . In Georgia , low @-@ lying streets were flooded or washed out in the Savannah area . Additionally , winds downed trees and power lines . Heavy rainfall occurred from eastern Florida through coastal Georgia , the Carolinas , and southeast Virginia . The highest rainfall total was 12 @.@ 53 inches ( 318 mm ) at Darlington , South Carolina . The storm caused flooding in North Carolina and brought near @-@ hurricane @-@ force winds and a 7 foot ( 2 @.@ 1 m ) storm surge to the Norfolk area . After the hurricane became extratropical , its wind field became very large . Atlantic City , New Jersey recorded winds of 76 mph ( 122 km / h ) despite being far from the center .

= = Aftermath = =

In the immediate aftermath of the storm , relief arrived from nearby areas such as Miami . Early on September 18 , a train leaving Miami carried 20 doctors and 20 nurses to West Palm Beach . The Miami Red Cross Citizens Relief Committee , which was established to provide aid for victims of the storm , transported " hundreds of loaves of bread , gallons of milk , pounds of coffee and sugar , blankets , cots , and medical supplies . " The first relief train was ridden by U.S. Senator Joseph T. Robinson , the Democratic vice presidential nominee during the election that year . At least 100 people were brought to Miami for medical treatment . In Lake Worth , 25 people were treated for various injuries at the Gulf Stream Hotel and the local fire station . Dr. W. A. Claxton , chief of the Miami Department of Public Welfare , requested antitoxin , typhoid serum , and at least 200 tetanus serums . There was also a request for 1 @,@ 000 more cots in West Palm Beach and Kelsey City .

= = = Racial issues = = =

In Florida , although the hurricane destroyed everything in its path with impartiality , the death toll was by far highest in the economically poor areas in the low @-@ lying ground right around Lake Okeechobee , such as Belle Glade , Chosen , Pahokee , South Bay , and Bean City . Around 75 % of the fatalities were among migrant farm workers , most of whom were black . The black workers did most of the cleanup work , and the few caskets available for burials were mostly used for the bodies of whites . Additionally , the white victims received a proper burial at Woodlawn Cemetery in downtown West Palm Beach , which was the only mass gravesite to receive a memorial .

In contrast , the bodies of black victims were burned in funeral pyres or thrown into mass burial sites such as the ones in West Palm Beach and Port Mayaca . Robert Hazard , a resident of West Palm Beach , established the Storm of ' 28 Memorial Park Coalition Inc. to fight for recognition of the black victims of the storm . In 2000 , the West Palm Beach burial site was reacquired by the city of West Palm Beach and plans for construction of a memorial began . The site was listed on the U.S. National Register of Historic Places in 2002 and a state historical marker was added in 2003 during the 75th anniversary of the hurricane . The inequity has caused ongoing racial friction . The effects of the hurricane on black migrant workers was dramatized in Zora Neale Hurston 's novel *Their Eyes Were Watching God* .

= = = Improved building codes = = =

In the aftermath of the hurricane in coastal Florida , it became apparent that well @-@ constructed buildings with shutters had suffered practically no damage from winds that caused serious structural problems to lesser buildings . Buildings with well @-@ constructed frames , and those made of steel , concrete , brick , or stone were largely immune to winds , and the use of shutters prevented damage to windows and the interior of the buildings . Coming on the heels of the 1926 Miami hurricane where a similar pattern had been noticed , one lasting result of the 1928 storm was improved building codes .

= = = Flood control = = =

To prevent a recurrence of disasters like this one and the Great Miami Hurricane of 1926 , the Florida State Legislature created the Okeechobee Flood Control District , which was authorized to cooperate with the U.S. Army Corps of Engineers in flood control undertakings . After a personal inspection of the area by President Herbert Hoover , the Corps drafted a new plan which provided for the construction of floodway channels , control gates , and major levees along Lake Okeechobee 's shores . A long term system was designed for the purpose of flood control , water conservation , prevention of saltwater intrusion , and preservation of fish and wildlife populations . One of the solutions was the construction of the Herbert Hoover Dike . Today , concerns related to the dike 's stability have grown in response to studies indicating long term problems with " piping " and erosion . Leaks have been reported after several heavy rain events . Proposed solutions to the dike 's problems have included the construction of a seepage berm on the landward side of the dike , with the first stage costing approximately \$ 67 million ( US \$ ) .