

= Hurricane Gladys ( 1968 ) =

Hurricane Gladys was the first Atlantic hurricane to be observed each by the Hurricane Hunters , radar imagery , and photographs from space . The seventh named storm and fifth hurricane ( including one unnamed hurricane ) of the 1968 season , Gladys formed on October 13 in the western Caribbean from a broad disturbance related to a tropical wave . The storm moved north @-@ northwestward , becoming a hurricane before striking Cuba on October 16 . Gladys later reached peak winds of 85 mph ( 140 km / h ) just before making landfall near Homosassa on the western coast of Florida on October 19 . The hurricane crossed the state and continued northeastward , passing just east of Cape Hatteras on October 20 . The next day , Gladys became extratropical and was absorbed by a cold front over Nova Scotia .

In Cuba , the threat of the hurricane prompted widespread evacuations . Gladys caused flash flooding and heavily damaged the tobacco crop . Damage in the country was estimated at \$ 12 million ( 1968 USD ) , and there were six deaths . While passing west of the Florida Keys , the hurricane produced strong winds that briefly cut communications to the Dry Tortugas , but damage was minor . Near where Gladys made landfall , winds gusted to 100 mph ( 160 km / h ) and tides reached 6 @.@ 5 ft ( 2 @.@ 0 m ) above normal . There was heavy beach erosion and flooding along the coast , while the winds knocked down trees and caused power outages . Across the state , damage was estimated at \$ 6 @.@ 7 million ( 1968 USD ) , and three people were indirectly killed . Heavy rainfall in South Carolina caused minor river flooding . When paralleling just off the coast of North Carolina , Gladys was responsible for breaking the state 's worst drought since 1932 , and proved more beneficial than the minor storm damage there . Later , Gladys killed two people in Atlantic Canada and caused coastal damage in Prince Edward Island .

= = Meteorological history = =

The origins of Hurricane Gladys were from a tropical wave ? a trough embedded in the trade winds ? that moved across the Lesser Antilles on October 6 . For the next few days , the wave moved across the Caribbean Sea without any development . As the wave interacted with the intertropical convergence zone , a large area of convection persisted across the region , spawning a series of low pressure areas . One became a tropical depression near Swan Island offshore Honduras on October 11 , and two days later another tropical depression formed near San Andrés island in the extreme southwestern Caribbean . The latter system , which would eventually become Gladys , moved slowly north @-@ northwestward . An anticyclone in the region caused wind shear to decrease , allowing for gradual development . On October 15 , a Hurricane Hunters flight observed winds of 52 mph ( 84 km / h ) ; on that basis , the National Hurricane Center ( NHC ) upgraded the depression to Tropical Storm Gladys .

After becoming a tropical storm , Gladys intensified into a hurricane near the Isle of Youth on October 16 . Shortly thereafter it crossed the narrow but mountainous region of western Cuba . By the time the hurricane reached the southeastern Gulf of Mexico , a deep trough was moving eastward through the United States toward a weak anticyclone off the east coast . Gladys turned more to the north , passing just west of the Dry Tortugas , before resuming its north @-@ northwest trajectory , possibly due to a mid @-@ level low near Alabama . Around that time , the eye was reorganizing offshore southwestern Florida , and the hurricane failed to intensify significantly due to the eastern portion of the circulation being over the state . Early on October 19 , Gladys made landfall near Homosassa after turning to the northeast , with peak winds estimated at 85 mph ( 130 km / h ) . It accelerated across the state due to the approaching trough , emerging into the Atlantic near St. Augustine . Paralleling the southeastern coast of the United States , Gladys passed just east of Cape Hatteras on October 20 , although by that time the strongest winds remained along the eastern periphery . The approaching trough caused Gladys to gradually lose tropical characteristics , and on October 21 Gladys became extratropical just south of Nova Scotia . A few hours later , the former hurricane was absorbed by the cold front .

Hurricane Gladys was active during the Apollo 7 spaceflight mission , and astronauts aboard took

several pictures of the hurricane . Later , researchers were able to compare the photographs to airforce reconnaissance data , radar , and local weather networks , the first such hurricane to be observed with such varied data .

### = = Preparations = =

In advance of the storm , Cuban officials forced about 36 @, @ 000 residents to evacuate from low @-@ lying areas , along with 35 @, @ 000 livestock . All flights were canceled in and out of Havana during the storm 's passage . Many classes were canceled in the region , and workers took steps to minimize damage to the tobacco crop .

Shortly after Gladys became a tropical storm , the NHC issued gale warnings for the Florida Keys and later a hurricane watch for the southwest Florida coast from the Florida Keys to Clearwater . After Gladys entered the Gulf of Mexico , the NHC issued hurricane warnings for the Florida Keys to Cedar Key , with a watch to St. Marks . Later , hurricane warnings were issued from Charleston , South Carolina to Hatteras , North Carolina . Before Gladys made landfall in Florida , all schools in Pinellas County were closed , and officials evacuated 60 jet fighters from MacDill Air Force Base to Mississippi . The HMS Sirius , which was visiting St. Petersburg , rode out the storm in the open Gulf of Mexico . The American Red Cross opened shelters across western Florida for people to stay in during the storm , and about 40 @, @ 000 people evacuated their homes during the storm 's passage . Then @-@ governor Claude R. Kirk , Jr. ordered 100 Florida guardsmen to assist with storm work . Shelters were set up in North Carolina , although few people evacuated .

### = = Impact = =

Before its first landfall in Cuba , Gladys produced wind gusts of 80 mph ( 130 km / h ) at Nueva Gerona on the Isle of Youth . Rainfall on the island was estimated at 8 @. @ 49 in ( 216 mm ) . On the Cuban mainland , a station in Havana reported gale force winds for several hours . The hurricane dropped heavy rainfall , causing flash flooding that damaged factories and crops ; the tobacco crop sustained heavy losses to the extent that the Monthly Weather Review described it as " virtually wiped out " . In Havana , floodwaters from the storm wrecked houses and other buildings , while in San Antonio de los Baños , residents required rescue from their flooded houses . After the storm , Cuban officials advised residents in Havana to boil their water to prevent the spread of disease , after water lines were damaged . At least 36 @, @ 000 people were left homeless as a result of the storm . Throughout Cuba , Gladys caused \$ 12 million in damage and six deaths .

While Gladys was still moving northward offshore Florida , it produced winds of 64 mph ( 103 km / h ) on the Dry Tortugas , with gusts to 86 mph ( 138 km / h ) . Rainfall on the Dry Tortugas reached over 4 in ( 100 mm ) . Communications were briefly cut to the island during the storm . Along the Florida Keys , the only other report of a hurricane force wind gust was 87 mph ( 140 km / h ) on Plantation Key . Tides in the Florida Keys were about 0 @. @ 6 ft ( 0 @. @ 18 m ) above normal , and damage was minor in the region .

Farther north in Florida , hurricane @-@ force winds were limited to a small area from Clearwater to Bayport , with peak gusts of 100 mph ( 160 km / h ) . Winds in eastern Florida were not as strong . Gladys produced moderate rainfall across the state , peaking at 12 @. @ 46 in ( 316 mm ) at Cape Canaveral . Rainfall was generally less than 6 in ( 150 mm ) , which limited flooding . The hurricane produced high tides near where it made landfall , reaching 6 @. @ 5 ft ( 2 @. @ 0 m ) above normal ; this caused heavy beach erosion and coastal flooding . The town of Sunset Beach was almost entirely under water during the high storm tides . Elsewhere , the high waves wrecked boat houses , and portions of the seawall were washed out in Tierra Verde . Gladys also spawned two tornadoes in the state , one each in Boca Raton and Palatka . The one in Boca Raton damaged a warehouse , while a waterspout in Whitfield Estates damaged three homes . According to locals , several other tornadoes touched down in Volusia and Putnam counties , based on the falling of trees and visible twisting trail of damage Across Florida , Gladys downed many trees and power lines , and the NHC office briefly lost power for two hours . Gladys affected about 85 % of the citrus crop to some degree

, although crop damage was fairly minimal , with about 10 % lost in Pinellas and west Pasco counties . There was widespread property damage due to the strong winds , particularly to mobile homes . Strong winds in Pinellas County knocked over trailers and damaged billboards . In Ocala , most roads were blocked by fallen trees and power lines . Wind damage was minor in northeastern Florida , despite a wind gust of 74 mph ( 119 km / h ) in Jacksonville . Two people died in the state due to storm @-@ induced heart attacks , and another person died after driving into a flooded ditch . Damage in the state totaled \$ 6 @. @ 7 million , mostly to private property , and due to the damage , portions of the state were later declared a federal disaster area . The Small Business Administration authorized low @-@ interest loans to homes and businesses damaged during the storm .

Outside of Florida , Gladys produced rainfall through Delaware , with a maximum of 13 @. @ 80 in ( 351 mm ) in Marion , South Carolina . In the state , the rains caused minor river flooding and left minor damage to the cotton crop , while high tides eroded beaches . In North Carolina , wind gusts peaked at 90 mph ( 140 km / h ) at Cape Lookout , while sustained winds reached 63 mph ( 101 km / h ) at Nags Head before the anemometer blew away . The strongest winds were only along the immediate coastline due to the hurricane passing offshore . Gladys produced above @-@ normal tides of 2 to 4 ft ( 0 @. @ 61 to 1 @. @ 22 m ) . The storm knocked two houses off their foundations and severely damaged a business and a mobile home . Rainfall in the state helped end break the worst drought since 1932 , and the minimal storm damage was offset by the beneficial precipitation . In southeastern Virginia , the fringes of the storm produced wind gusts of 46 mph ( 74 km / h ) and light rainfall in Norfolk . Farther inland , rains from Gladys caused the Roanoke River to rise 9 ft ( 2 @. @ 7 m ) near Roanoke , just below flood stage . Tides were about 2 ft ( 0 @. @ 61 m ) above normal in the state , low enough to prevent major coastal flooding .

Later , the extratropical remnants of Gladys produced beneficial rainfall of 2 to 4 in ( 51 to 102 mm ) over Atlantic Canada , peaking at 5 @. @ 03 in ( 128 mm ) in New Brunswick . In the province , the former hurricane also produced 1 @. @ 38 in ( 35 mm ) of snow in Upsalquitch . Precipitation from the storm spread as far west as Quebec and as far northeast as Newfoundland , causing flooding in New Brunswick and Nova Scotia . Wind gusts in the latter province peaked at 65 mph ( 105 km / h ) in Sydney . Along Cape Breton Island , the remnants of Gladys killed one person and injured four . In Prince Edward Island , wind gusts reached 85 mph ( 137 km / h ) in Charlottetown , strong enough to knock over a tree and kill a man driving in Alberton . The storm washed out a portion of a bridge near Alberton and part of a wharf in Miminegash , and damaged 35 boats . Ferry service was disrupted between the Canadian Maritime provinces .