

= Tropical Storm Helene (2000) =

Tropical Storm Helene was a long @-@ lived tropical cyclone that oscillated for ten days between a tropical wave and a 70 mph (110 km / h) tropical storm . It was the twelfth tropical cyclone and eighth tropical storm of the 2000 Atlantic hurricane season , forming on September 15 east of the Windward Islands . After degenerating into a tropical wave , the system produced flooding and mudslides in Puerto Rico . It reformed into a tropical depression on September 19 south of Cuba , and crossed the western portion of the island the next day while on the verge of dissipation . However , it intensified into a tropical storm in the Gulf of Mexico , reaching its peak intensity while approaching the northern Gulf Coast .

The storm rapidly weakened before moving ashore near Fort Walton Beach , Florida on September 22 . It produced heavy rainfall along the Florida Panhandle that reached 9 @. @ 56 in (243 mm) . The rains flooded hundreds of houses and caused the Sopchoppy River to reach a record crest . Gusty winds left about 5 @, @ 000 people without power , though the rains alleviated drought conditions . In South Carolina , Helene spawned a tornado that killed one person and injured six others ; heavy rainfall in the state also led to a death when a driver hydroplaned into a tree . The rainfall extended northeastward into Delaware . Overall damage in the United States was estimated at \$ 16 million . Helene emerged from North Carolina as a tropical storm , and re @-@ intensified to near @-@ hurricane strength before being absorbed by a cold front on September 25 .

= = Meteorological history = =

A tropical wave moved off the African coast on September 10 . Shortly thereafter , it lost most of its atmospheric convection and initially showed few signs of development as it moved westward . On September 14 , convection reformed near the center of the system . It continued to organize , and the next day the National Hurricane Center (NHC) classified it as Tropical Depression Twelve . At this point , it was located 470 mi (765 km) east of the Leeward Islands . At this point , the depression had a weak circulation and ragged convection . An anticyclone to its north caused the depression to move generally to the west , and upper @-@ level conditions were forecast to be favorable for intensification . However , the circulation moved away from the main area of convection before a Hurricane Hunters flight indicated that the depression degenerated into a tropical wave on September 16 . Although there was not a closed circulation , the flight observed flight @-@ level winds of 65 mph (105 km / h) to the north and east of the system .

The remnants of the depression continued westward , moving through the Lesser Antilles on September 17 . Despite favorable conditions for redevelopment including low wind shear and warm ocean temperatures , the system remained a tropical wave as it moved across the Caribbean Sea . Late on September 19 , another reconnaissance plane discovered a closed circulation to the northwest of Grand Cayman . Although there was minimal convection near the center , it organized enough to be re @-@ classified as a tropical depression . Upon redeveloping , the depression was moved west @-@ northwestward around a large anticyclone to the east of Florida . Its circulation was broad , though the NHC anticipated further strengthening . Conditions remained favorable for intensification , but instead the depression weakened as it approached Cuba . Around 1200 UTC on September 20 , it moved across the western tip of Cuba into the Gulf of Mexico with minimal thunderstorms near the center . A few hours later , the NHC noted that " the cyclone [was] on the verge of breaking open into an east @-@ west oriented trough " . The agency did not discontinue advisories due to an increase in convection near the center , although no intensification was expected . However , the system 's circulation and convection became better organized , and early on September 21 the NHC upgraded the depression to Tropical Storm Helene .

Upon becoming a tropical storm , Helene gradually turned to the north while rounding an anticyclone to its east . It rapidly intensified after its upgrade , and reached its peak intensity of 70 mph (110 km / h) late on September 21 . The storm was small with an asymmetric wind field , and wind shear displaced the circulation from the deep convection . Increasing wind shear prevented Helene from attaining hurricane status , and the storm began weakening on September 22 as it

approached the northern Gulf Coast . By 0900 UTC that day , strong wind shear moved the convection away from the center and toward the north and northeast . This prompted NHC forecaster Lixion Avila to remark , " If I did not have a reconnaissance plane in the area , I would not know there was a tropical cyclone by just observing IR satellite imagery . " The storm made landfall near Fort Walton Beach , Florida at 1200 UTC on September 22 after weakening from its peak intensity to winds of 40 mph (64 km / h) .

After moving ashore , an area of convection redeveloped over Helene 's center and the circulation became well @-@ defined on radar imagery . The storm accelerated to the northeast into the Westerlies , and about six hours following its landfall , Helene weakened to tropical depression status after crossing into southeastern Alabama . A few hours later , the NHC issued the last advisory on the system and transferred warnings to the Hydrometeorological Prediction Center . Hurricane forecast models anticipated restrengthening , and due to the forecast track north of the Gulf Stream , the NHC predicted intensification as an extratropical cyclone . The agency noted that Tropical Storm Danny re @-@ intensified in the same region as a tropical cyclone . Despite strong wind shear , convection increased over Helene 's center as the storm moved through North Carolina . Stations along the Outer Banks reported sustained winds up to 59 mph (95 km / h) . Satellite imagery and buoy data indicated that Helene re @-@ intensified into a tropical storm inland over North Carolina . The storm emerged from the Virginia coast into an area of less wind shear , where conditions were thus more favorable for strengthening . The storm became compact over the northern Atlantic Ocean , with a diameter of 140 mi (230 km) . Strong convection developed over the center on September 24 , and the following day Helene re @-@ attained its peak intensity of 70 mph (110 km / h) while southeast of Nova Scotia . The wind estimate was based on observations from the Neptune Olivine , a nearby ship that recorded 64 mph (103 km / h) winds and a barometric pressure of 988 mbar (29 @.@ 2 inHg) ; because the ship was located to the south of the center , the storm 's minimum pressure was estimated at 986 mbar (29 @.@ 1 inHg) . Helene continued moving rapidly to the east @-@ northeast , and late on September 25 dissipated as it was absorbed by a cold front .

= = Preparations and impact = =

= = = Caribbean = = =

When Tropical Depression Twelve first formed , several governments across the Lesser Antilles issued a tropical storm watch , including the SSS islands , Antigua and Barbuda , Anguilla , Montserrat , and Saint Kitts and Nevis . The watch was discontinued after the depression degenerated into a tropical wave . As a tropical wave , Helene moved through the Lesser Antilles with strong winds ; gusts on Guadeloupe reached 55 mph (89 km / h) . The system also produced heavy rainfall , reaching 3 @.@ 14 in (80 mm) on Antigua . The wave passed to the south of Puerto Rico on September 17 and 18 . Across the southern and eastern portion of the island , the system produced 6 to 12 in (150 to 300 mm) of rainfall , which resulted in flash flooding and mudslides . One house was destroyed and more than 100 houses were affected in Ponce , forcing several families to evacuate . The flooding also destroyed a bridge in Guayama and made many roads impassable . Damage on the island was estimated at \$ 100 @,@ 000 (2000 USD) . After the system redeveloped into a tropical depression , the government of Cuba issued a tropical storm warning for the provinces of Isla de la Juventud , Havana , and Pinar del Río , as well as for the city of Havana .

= = = United States = = =

About 21 hours before Helene made landfall , the NHC issued a tropical storm warning from the border of Louisiana and Mississippi to the mouth of the Aucilla River along the Florida Panhandle . Six hours later , the agency also issued a hurricane watch from the border of Florida and Alabama to

the mouth of the Aucilla River . The day before the storm moved ashore , local American Red Cross chapters had 18 emergency shelters on standby to house storm evacuees . One shelter opened in Tallahassee and one in Apalachicola . About 130 people evacuated to shelters in the western portion of the Florida panhandle and planes evacuated military bases in the region . Government buildings were closed in Okaloosa , and schools were closed in Okaloosa , Walton , and Santa Rosa counties .

Despite being a weak tropical cyclone at landfall , Tropical Storm Helene caused \$ 16 million in damage (2000 USD) . In Alabama , wind gusts reached 36 mph (58 km / h) at Brookley Air Force Base in Mobile ; the same station recorded the highest rainfall in the state , with a total of 1 @. @ 08 in (27 mm) . The storm also caused minor beach erosion and coastal damage along Dauphin Island .

In neighboring Florida , the storm dropped heavy rainfall along the panhandle , peaking at 9 @. @ 56 in (243 mm) in Apalachicola . The rains caused flooding , notably in Franklin , Wakulla , and Leon counties , all of which closed schools and public buildings . Flood warnings were issued for areas affected by Tropical Storm Gordon five days prior . High rainfall caused the Sopchoppy River to exceed its banks and reach a record crest of 34 @. @ 9 ft (10 @. @ 6 m) , breaking the previous record set in 1970 . Several homes and nearby roads were flooded near the river . About 100 homes were flooded in Leon County , and 70 streets were flooded in Tallahassee . Portions of U.S. Highway 98 were flooded in Port St. Joe and near Carrabelle . About 70 people had to evacuate their homes due to the flooding . Flooding was minimal in the western Florida panhandle due to drought conditions the previous summer . Sustained winds across the state peaked at 30 mph (48 km / h) , though gusts reached 45 mph (72 km / h) at Cape San Blas . At that location , there was over \$ 100 @, @ 000 in road damage and beach loss . The winds combined with the heavy rainfall caused trees to fall onto power lines , leaving about 5 @, @ 000 people without electricity . The storm spawned 6 tornadoes along the panhandle , one of which destroyed several mobile homes in Wakulla . As the storm moved ashore , tides were less than 2 ft (0 @. @ 61 m) above normal , but were high enough to cause minor beach erosion . In Leon County , the storm destroyed two homes and six mobile homes , and damaged more than 120 homes in Wakulla County .

When Helene moved through Georgia , it had sustained winds of around 30 mph (48 km / h) , with higher gusts . It dropped heavy rainfall along its path , with a statewide peak of 5 @. @ 13 in (130 mm) in Dunwoody . The rainfall alleviated persistent drought conditions across the state . However , the combination of winds and rainfall downed trees and power lines ; one falling tree damaged a car in Sandersville . To the northwest of Georgia , rainfall spread into Tennessee , reaching 3 @. @ 12 in (79 mm) in Copperhill . As Helene moved through South Carolina , it spawned an F2 tornado in Martin that killed one person , injured six , and damaged 12 houses . The highest rainfall in the United States associated with Helene was a total of 9 @. @ 60 in (244 mm) in Bamberg , though weather radar images estimated totals of up to 14 in (360 mm) . The rains caused flooding along Highway 47 near Elgin . In Berkeley County , a woman died after hydroplaning and driving her car into a tree .

Rainfall in North Carolina peaked at 8 @. @ 31 in (211 mm) in Longwood ; in Jacksonville , the precipitation caused street flooding . Off the shore of North Carolina , a station at Diamond Shoal Light reported wind gusts of 70 mph (110 km / h) while Helene was re @- @ intensifying into a tropical storm . Along the coast , the highest gusts were 52 mph (84 km / h) , reported at both Cape Lookout and Duck . Rainfall from the storm extended through Virginia and into Delaware .

= = = Canada = = =

After re @- @ intensifying into a tropical storm for a second time , Helene passed to the southeast of Atlantic Canada . Although its strongest winds remained offshore , the outer rainbands dropped light precipitation , peaking at 0 @. @ 89 in (22 @. @ 5 mm) in eastern Nova Scotia , and 1 @. @ 18 in (30 mm) in southeastern Newfoundland .

= = Aftermath = =

On October 3 , United States President Bill Clinton declared nine Florida counties as disaster areas , which allocated federal funding for debris removal , emergency services , and restoration of damaged public facilities . In Franklin County , many residents had to boil water before consumption due to contaminated water wells . As a result , the local Red Cross chapter provided water bottles to the affected residents . The Red Cross also deployed two Mobile Feeding Vehicles to Wakulla County , and a total of 700 meals were ultimately distributed .