

= Hurricane Jose ( 1999 ) =

Hurricane Jose caused moderate damage in the Lesser Antilles in October 1999 . The fourteenth tropical cyclone , tenth named storm , and eighth hurricane of the annual season , Jose developed from a tropical wave several hundred miles east of the Windward Islands on October 17 . The depression intensified and was subsequently upgraded to Tropical Storm Jose on October 18 . The storm tracked northwestward and was upgraded to a hurricane the following day as it approached the northern Leeward Islands . Jose briefly peaked as a Category 2 hurricane with winds of 100 mph ( 160 km / h ) on October 20 . However , wind shear weakened the storm back to a Category 1 hurricane before it struck Antigua . Further deterioration occurred and Jose weakened to a tropical storm before landfall in Tortola on October 21 . While located north of Puerto Rico on October 22 , the storm turned northward , shortly before curving north @-@ northeastward . Wind shear decreased , allowing Jose to re @-@ intensify into a hurricane while passing east of Bermuda on October 24 . However , on the following day , wind shear increased again , while sea surface temperatures decreased , causing Jose to weaken and quickly transition into an extratropical cyclone .

The storm brought heavy rainfall to the Lesser Antilles , with some areas experiencing more than 18 inches ( 460 mm ) of precipitation . Despite 15 inches ( 380 mm ) of rain in Anguilla , minimal flooding occurred . However , wind gusts up to 100 mph ( 160 km / h ) uprooted trees , making some roads impassable and damaging houses , crops , and shipping facilities . A combination of hurricane @-@ force winds and flooding in Antigua and Barbuda destroyed at least 500 homes and left 90 % of homes without electricity and another 50 % experienced disrupted telephone service . Jose also caused 12 injuries and one fatality . Tropical storm force winds in eastern Puerto Rico toppled power lines , trees , and streets signs . Overflow along portions of the Blanco River and landslides caused minor damage . In Saint Kitts and Nevis , mudslides and flooding from the storm caused 1 fatality and impacted several homes and buildings . Flooding and mudslides in Sint Maarten damaged houses and roads , especially in low @-@ lying areas . One death was reported in Sint Maarten . Overall , Jose caused 3 fatalities and damage amounted to near \$ 5 million ( 1999 USD ) .

= = Meteorological history = =

A tropical wave emerged into the Atlantic Ocean from the west coast of Africa on October 8 . The system tracked westward and did not develop further until it was midway between Africa and the Lesser Antilles on October 15 . Dvorak satellite classifications began at 1200 UTC on October 17 , and six hours later , the system developed into Tropical Depression Fourteen while located about 700 miles ( 1 @, @ 100 km ) east of the Windward Islands . Initially , the depression had well @-@ defined upper @-@ level outflow , though the low @-@ level circulation was poorly defined . The depression continued to organize , with satellite imagery indicating banding features becoming more well @-@ defined , as a result of an upper @-@ level anticyclone and a westerly jet . It is estimated that the depression strengthened into Tropical Storm Jose at 0600 UTC on October 18 .

Due to no " immediately identifiable hindrances to further strengthening " , intensity forecasts indicated Jose reaching hurricane status by late on October 19 . Later that day , three computer models predicted that the anticyclone over Jose would move west @-@ northwestward , causing the storm to potentially strengthen to a major hurricane . However , the National Hurricane Center questioned these forecasts , as the same computer models predicted a similar scenario for Tropical Depression Twelve earlier that month . After t @-@ numbers on the Dvorak scale reached 4 @. @ 0 and a reconnaissance aircraft flight reported winds of 84 mph ( 135 km / h ) , it was estimated that Jose became a hurricane at 1800 UTC on October 19 . Early on the following day , cloud tops reached temperatures as low as ? 121 ° F ( ? 85 ° C ) and the hurricane also developed an eye with a radius of about 34 miles ( 55 km ) .

At 0600 UTC on October 20 , Jose attained its minimum barometric pressure of 979 mbar ( 28 @. @ 9 inHg ) . Six hours later , the storm strengthened into a Category 2 hurricane and reached its maximum sustained winds of 100 mph ( 160 km / h ) . Although atmospheric conditions previously

seemed favorable for further significant strengthening , water vapor imagery indicated that an upper @-@ trough was extending from the western Caribbean Sea to the eastern Bahamas ; this in turn induced wind shear on Jose . Jose weakened immediately after becoming a Category 2 hurricane and winds were 90 mph ( 150 km / h ) when the storm made landfall in Antigua at 1600 UTC on October 21 . The National Hurricane Center noted that weakening " may be temporary " and also predicted slow re @-@ intensification . However , Jose instead continued to weaken and was only a tropical storm when it made landfall in Tortola at 1105 UTC on October 21 . Under the influence of a large mid- to upper @-@ tropospheric trough , Jose curved northward early on October 22 , while located north of Puerto Rico . Later on October 22 , the storm began re @-@ developing deep convection , though it still maintained a sheared system appearance .

The storm fully recurved to the northeast on October 22 , while initially no significant change in intensity occurred . On the following day , the storm began to slowly restrengthen , although wind shear had further exposed the center . As a result , the National Hurricane Center no longer noted the possibility of Jose to re @-@ intensify into a hurricane . Jose began to significantly re @-@ organize on October 24 , with deep convection rapidly re @-@ developing around the low @-@ level circulation . Despite this , the National Hurricane Center noted that , " the deep convection is poorly organized enough that strengthening is unlikely before extratropical transition in 36 hours . " By 1200 UTC on October 24 , the storm once again attained hurricane intensity as it passed about 300 miles ( 480 km ) east of Bermuda . After becoming a hurricane , no further intensification was predicted , as sea surface temperatures would soon decrease . Jose rapidly accelerated and quickly weakened back to a tropical storm by early on October 25 . At 1200 UTC on that day , the storm transitioned into an extratropical cyclone while located south of Atlantic Canada . Six hours later , the extratropical remnants of Jose merged with a large mid @-@ latitude low .

= = Preparations = =

The National Hurricane Center began posting tropical cyclone watches and warnings starting at 0900 UTC on October 18 , with a hurricane watch for Barbados . Three hours later , a tropical storm watch was put into effect in Trinidad and Tobago . Late on October 18 , a hurricane watch was also issued for Saint Vincent and the Grenadines , St. Lucia , and Dominica , while a tropical storm watch and a warning was extended to include Barbados and Grenada , respectively . At 2100 UTC on October 18 , the tropical storm watch that was issued for Trinidad and Tobago was discontinued . Early on October 19 , the hurricane watch was extended to include Martinique , Guadeloupe , Antigua , Barbuda , Montserrat , St. Kitts , Nevis , and Anguilla , as well as St. Eustatius , Saba , St. Maarten , St. Martin , and St. Barthelemy shortly thereafter . A hurricane watch in effect for St. Vincent and the Grenadines was soon downgraded to a tropical storm watch ; simultaneously , the hurricane watch that was issued for Barbados was canceled . By 0900 UTC on October 19 , the hurricane watches in effect for Dominica , Martinique , and Guadeloupe were all upgraded to a hurricane warning . Additionally , the tropical storm watch in Grenada was discontinued .

At 1500 UTC on October 19 , the hurricane watch in Dominica , Montserrat , Antigua , Barbuda , Nevis , Saint Kitts , St. Eustatius , Saba , St. Maarten , and Anguilla , was upgraded to a hurricane warning . Simultaneously , a hurricane watch went into effect for the Virgin Islands and Puerto Rico , while a tropical storm warning was issued for St. Lucia . It was then that the tropical storm watch in St. Vincent and the Grenadines was discontinued . Later on October 19 , the hurricane watch previously issued for the Virgin Island and Puerto Rico was upgraded to a hurricane warning . In St. Lucia , the hurricane watch was canceled . At 1200 UTC on October 20 , a hurricane warning was put into effect for Desirade , St. Martin , and St. Barthelemy . Throughout the day , the hurricane warnings in Guadeloupe , Dominica , Antigua , and Desirade were discontinued . By 2100 UTC on October 21 , all watches and warnings in effect were discontinued .

Twenty @-@ four shelters were set up in Antigua and Barbuda , but only 516 people used the shelters . In Saint Kitts , many tourists were forced to ride out the storm after airports began canceling flights on October 19 and shutting down completely on October 20 . Deputy Prime Minister of Saint Kitts and Nevis Sam Condor warned residents to " prepare for the worst " . The

Governor of the United States Virgin Islands , Charles Wesley Turnbull , issued a curfew effective at 6 p.m. AST on October 20 . It was reported on October 20 that 343 shelters would be opened in Puerto Rico , which were stocked with thousands of cots and sleeping bags . Additionally , the police department activated all 18 @, @ 000 of its officers . The Federal Emergency Management Agency assembled a seven @-@ member Mobilization Center Management Team , with ice and water being pre @-@ staged at Roosevelt Roads Naval Station .

= = Impact = =

= = = Anguilla = = =

In Anguilla , tropical storm force winds and rainfall up to 6 inches ( 150 mm ) fell at the Agricultural Department in The Valley . At another location , wind gusts reached 100 mph ( 160 km / h ) and precipitation amounts up to 15 inches ( 380 mm ) . As a result , Jose was the wettest tropical cyclone on record in Anguilla , only to be surpassed by Hurricane Lenny about a month later . It also contributed to the rainiest October in Anguilla on record . Winds on the island downed power and telephone lines , however , the electricity had been shut off as the storm was approaching . Additionally , trees uprooted by the winds caused roads to become impassable . Houses , crops , and shipping facilities were also damaged . Rough seas caused significant erosion at many of the famed beaches on the island .

= = = Antigua and Barbuda = = =

In Antigua and Barbuda , there was considerable flooding of major roads and 2 @, @ 000 people were severely affected and were evacuated . About 516 of the people were housed in emergency shelters . Across the island , the storm killed one person , injured 12 , left an elderly blind man missing , and destroyed 500 houses and a newly built church . In the village of Crab ´ s Hill , 64 of the 81 houses were either seriously damaged or destroyed . The hurricane also disrupted 50 % of telephone service and 90 % of the homes were left without electricity . A wind gust of 102 mph ( 164 km / h ) was reported by the Antigua and Barbuda Meteorological Service on October 20 .

= = = Puerto Rico and United States Virgin Islands = = =

Some areas of Puerto Rico experienced tropical storm force winds , especially the eastern side of the island . The Emergency Management Agency in Luquillo reported sustained winds of 40 to 45 mph ( 64 to 72 km / h ) and gusts up to 55 mph ( 89 km / h ) . In San Juan , a sustained winds speed of 23 mph ( 37 km / h ) and a gust of 30 mph ( 48 km / h ) was recorded . A sustained wind speed of 28 mph ( 45 km / h ) and gust up to 37 mph ( 60 km / h ) was measured in Ceiba . Strong winds knocked down power lines , trees , and street signs in Culebra and Fajardo . Rainfall was between 3 and 4 inches ( 76 and 102 mm ) in eastern Puerto Rico , with a peak amount of 6 @. @ 54 inches ( 166 mm ) in Rio Blanco Lower . The Blanco River overflowed in Naguabo , while landslides were reported in Utuado , Carolina , and Villalba . Damage in Puerto Rico totaled to about \$ 20 @, @ 000 .

In the United States Virgin Islands , tropical storm force winds were measured on at least three islands . On Saint John , a sustained winds speed of 60 mph ( 97 km / h ) and a gust as high as 68 mph ( 109 km / h ) was reported . Sustained winds of 44 mph ( 71 km / h ) and a gust up to 52 mph ( 84 km / h ) was recorded on Saint Thomas . Strong winds caused extensive power outages in Saint Croix , while trees and power lines were felled in Saint Thomas and Saint John . Overall , losses in the United States Virgin Islands reached \$ 20 @, @ 000 .

= = = Saint Martin = = =

On the French side of the island , Saint Martin , torrential rainfall was recorded . In Marigot , precipitation reached 19 @. @ 6 inches ( 500 mm ) in 48 hours between late on October 20 and October 22 . Sustained winds of the island were slightly less than 62 mph ( 100 km / h ) and gusts were under 93 mph ( 150 km / h ) . Storm surges in coastal areas was mostly between 2 @. @ 9 and 3 @. @ 6 feet ( 0 @. @ 88 and 1 @. @ 10 m ) above normal . In Sint Maarten , which is the Dutch portion of the island , sustained winds of 75 mph ( 121 km / h ) and a gust to 100 mph ( 160 km / h ) were reported at the Princess Juliana International Airport , while a rainfall total of 13 @. @ 75 inches ( 349 mm ) was observed in Pointe Blanche . Flooding and mudslides caused by the heavy precipitation damaged roads and homes , especially in low @-@ lying areas . In addition to the flood damage , one fatality was reported in Sint Maarten .

= = = Rest of Caribbean = = =

In St. Kitts and Nevis , rainfall caused flooding , which washed out several main roads and resulted in landslides were reported . Several buildings and roads suffered damage and one person was reported have perished due to the storm 's ferocity . Dominica received no more than a little rain , only being persistent for one morning . On Saint Barthélemy , rainfall exceeded 15 inches ( 380 mm ) in a 48 ? hour period . During the overall 60 ? hour period , precipitation amounts reached 16 @. @ 5 inches ( 420 mm ) . At another location , Flamands , rainfall reached 17 @. @ 6 inches ( 450 mm ) in only 48 hours . In the capital city of Gustavia , a sustained winds speed of 62 mph ( 100 km / h ) and a gust up to 74 mph ( 119 km / h ) . Later , another wind gust of 93 mph ( 150 km / h ) was recorded before the anemometer failed . Along the shore , tides reached 3 @. @ 3 feet ( 1 @. @ 0 m ) above normal . In Montserrat , the storm brought winds up to 45 mph ( 72 km / h ) . A small number of down trees caused power outages in one area , though it electricity was restored within an hour . Only a few landslides occurred , while volcanic mudflow poured down Soufrière Hills , but no damage occurred .

= = Aftermath = =

Immediately following the storm , an Emergency Operation Centre was established in St. John 's by the Antigua & Barbuda Red Cross Society in St. John 's . In the first week after the storm , 35 Red Cross volunteers distributed 1 @, @ 500 tarpaulins , 210 blankets , 300 food parcels , and 30 hurricane lamps to residents in the effected communities of York 's , Villa , Greens Bay , Perry Bay , Piggotts , Bendals Bolans , Crab 's Hill , Urlings , St. John 's , and Jennings. a Red Cross office in St. Vincent de Paul also distributed rice and beans to 2 @, @ 000 people , while the National office of Disaster Services provided plastic sheeting and water bottles . The Government of Antigua and Barbuda dispatched teams to re @-@ open roads , clean up debris , and restore utilities . However , after Hurricane Lenny struck the Lesser Antilles about a month later , relief efforts slowed , as many more people were significantly affected , causing recovery to be costlier .