

= Tropical Storm Debby (1994) =

Tropical Storm Debby was a weak but costly tropical cyclone that affected the Lesser Antilles in September 1994 . It was the fourth named tropical storm of the 1994 Atlantic hurricane season ; it developed on September 9 east of Barbados . Debby made landfall on Saint Lucia early on September 10 , producing heavy rainfall and tropical storm @-@ force wind gusts . The rains caused flooding and landslides , damaging about half of the island 's banana plantations . Several villages were isolated after roads and bridges were damaged . Damage totaled about \$ 103 million (1994 USD) . On nearby Dominica , Debby damaged crops and fisheries .

While Debby was crossing Saint Lucia , its strongest thunderstorms were located north and east of the center due to wind shear . A station in Martinique reported hurricane @-@ force winds , and about 20 @, @ 000 people on the island lost power . After entering the eastern Caribbean Sea , Debby attained peak winds of 70 mph (110 km / h) , although continued wind shear caused the storm to dissipate on September 11 . In Puerto Rico , one person died due to high waves . The storm caused power outages and flooding in the Dominican Republic . Throughout its path , Debby killed nine people .

= = Meteorological history = =

The origins of Tropical Storm Debby were from a tropical wave that moved off the coast of Africa on September 4 . By September 6 , satellite images indicated a vigorous tropical wave with intense convection about midway between Africa and the Lesser Antilles . Encountering northwesterly vertical wind shear , convection markedly decreased and weakened on the following day , only to redevelop on September 8 after the shear dropped . Post @-@ analysis indicate that the sixth tropical depression of the season developed on September 9 at 1200 UTC , about 185 mi (300 km) east of Barbados ; however , it was not operationally classified as Tropical Depression Six until almost 24 hours later . Early on September 10 , satellite imagery indicated a surface circulation just north of Barbados , around which time the National Hurricane Center (NHC) initiated advisories .

The increasing organization of the tropical depression prompted a reconnaissance aircraft investigation , which reported flight @-@ level winds of around 70 mph (110 km / h) in an intense rainband northeast of the center . The same flight estimated surface winds of 58 mph (93 km / h) , which indicated that the depression intensified into Tropical Storm Debby . However , ongoing wind shear removed all thunderstorms from the circulation . At 0300 UTC on September 10 , the storm made landfall on Saint Lucia with winds of 65 mph (105 km / h) . Although Debby was not very well @-@ organized on satellite imagery , stations on Martinique and nearby ships reported that the storm intensified further in the eastern Caribbean Sea to a peak strength of 70 mph (110 km / h) at 0600 UTC . Such winds were not known while the storm was active , and around the time of Debby 's peak intensity , the NHC operationally estimated winds of only 40 mph (64 km / h) . The storm continued quickly to the west @-@ northwest , affected by strong wind shear while maintaining strong winds . A reconnaissance flight on September 12 did not observe a closed circulation ; as a result , it is estimated that Debby dissipated at around 0600 UTC that day to the south of Puerto Rico . The remnants of Debby continued to the west and diminished over Mexico on September 15 , although residual clouds spread into the Gulf of Mexico .

= = Preparations and impact = =

When the first advisory was issued for Debby , the governments of Barbados , Saint Lucia , Saint Vincent , and Dominica issued tropical storm warnings . In addition , the Saint Lucia Meteorological Service issued a flood warning before Debby developed . Although the NHC recommended a tropical storm warning to be issued in Martinique , government officials there issued a heavy rain warning instead . Debby first affected Barbados as it passed the island to the north , producing winds of 27 mph (43 km / h) . In Saint Vincent to the southwest of Barbados , there was minor roof damage . In Dominica to the north , the storm damaged roads and caused power outages . Across

Dominica , the combination of winds and heavy rains damaged 2 @, @ 800 acres of bananas , 143 acres of plantains , 355 acres of root crops , and 355 acres of tree crops . Damage to crops and fisheries were estimated at EC \$ 30 million (\$ 12 million 1994 USD) . After the storm , Windward Islands Crop Insurance (WINCROP) paid 2189 claims in the country , amounting to EC \$ 1 @. @ 6 million (\$ 660 @, @ 000 1994 USD) .

Tropical Storm Debby struck Saint Lucia , and wind gusts on the island reached 46 mph (74 km / h) in Vigie . Damage throughout Debby 's path was heaviest on this island , and the storm affected most of Saint Lucia . Debby produced heavy rainfall and thunderstorms over a six @- @ hour period , which caused flooding along rivers and in low @- @ lying areas . High rainfall totals wrecked houses on hillsides , forcing about 150 people to evacuate to shelters . Roadways were washed out or covered by landslides , and 10 bridges were destroyed or severely damaged . This limited access to villages across the island . Landslides also affected the town of Pont Saint @- @ Jacques . Heavy rains covered Hewanorra International Airport with 2 in (51 mm) of silt , and in Anse La Raye , floods reached waist @- @ deep levels . In that town , residents had to be rescued by boat . The storm damaged about half of the banana plantations on the island . Several towns lost access to their water supplies , which prompted the governments of Martinique and Saint Vincent to provide fresh water to the country . Overall , there were 24 injuries and 4 deaths across Saint Lucia ; all of the deaths were from two landslides . During the storm , nine prisoners escaped the jail in Castries , and there were also reports of looting . In the capital city of Castries , the storm damaged a ward of an evacuated hospital ; it had been scheduled for reconstruction , and the effects from Debby provided a new assessment for the rebuilding . Damage on Saint Lucia was estimated at EC \$ 250 million (\$ 103 million 1994 USD) . After the storm , WINCROP paid 5 @, @ 802 claims for insured crop damage in the country , totaling EC \$ 7 @. @ 8 million (\$ 3 @. @ 2 million 1994 USD) . As of 2008 , Debby was the largest event in WINCROP 's 20 year history of insurance claims for disasters . The Saint Lucia government responded to the damage from Debby by repairing damaged buildings and bridges , diversifying crops , and removing silt from major rivers .

While Debby was moving across Saint Lucia , a station in Le Vauclin in southeastern Martinique reported 10 minute sustained winds of 64 mph (103 km / h) , with a gust to 97 mph (156 km / h) ; the observation provided the basis for Debby 's peak intensity . When the storm was active , however , the strongest winds known at the time were a 10 minute wind of 35 mph (56 km / h) , and a gust of 58 mph (93 km / h) at Martinique Aimé Césaire International Airport . About half of the island experienced 4 in (100 mm) of precipitation , and the highest rainfall total on the island was 7 @. @ 24 in (184 mm) in Saint @- @ Joseph . High rains caused flooding across the island , and one woman drowned when a flooded river washed away her car . High winds downed trees and covered some roads , and there was damage to the banana crop . About 20 @, @ 000 people lost power during the storm .

When Debby was still active , a NASA satellite fired lasers at the storm to measure cloud heights , the first such experiment . As Debby moved into the Caribbean Sea , a tropical storm warning was issued for Puerto Rico and the United States Virgin Islands . High winds spread across Puerto Rico ; Luis Muñoz Marín International Airport reported a peak wind gust of 44 mph (71 km / h) . The winds downed trees and power lines across the island and caused isolated roof and house damage . High seas entered several coastal homes and prevented ferry passage from Culebra . In Cabo Rojo , Puerto Rico , high waves swept away two men fishing from the coast ; one was injured and the other was killed . Later , a tropical storm warning was issued for the southern coasts of the Dominican Republic and Haiti . After Debby dissipated , its remnants maintained strong winds , and a station in the Dominican Republic reported a gust of 62 mph (100 km / h) on September 11 . The storm downed power lines , leaving hundreds of homes without electricity and contributing to three deaths . An expressway and some rivers also flooded in the country .