

= Hurricane Klaus =

Hurricane Klaus was a minimal Atlantic hurricane that dropped heavy rainfall across the Lesser Antilles in October 1990 . The eleventh tropical cyclone and sixth hurricane of the 1990 Atlantic hurricane season , Klaus developed from a tropical wave on October 3 a short distance east of Dominica . It drifted northwestward , and quickly intensified to attain hurricane status on October 5 . Though its closest approach to the Lesser Antilles was within 12 miles (19 km) , the strongest winds remained to its northeast due to strong wind shear , which caused Klaus to steadily weaken . After deteriorating into a tropical depression , Klaus briefly restrengthened over the Bahamas before dissipating on October 9 under the influence of developing tropical storm , Marco .

Heavy rainfall on Saint Lucia destroyed about 15 % of its yearly banana crop . Damage was heaviest on Martinique , where seven casualties occurred and 1 @, @ 500 people were left homeless as the heavy rainfall caused severe flooding on the island , resulting in some landslides . The remnant moisture of Klaus entered the southeastern United States , dropping heavy rainfall and causing four casualties ; the same area was affected with more precipitation a few days later by Tropical Storm Marco . Due to the damage caused by the storm , the name Klaus was retired from the list of tropical cyclone names .

= = Meteorological history = =

A tropical wave moved off the coast of Africa on September 27 . It tracked westward to the south of a subtropical ridge , becoming convectively active , and a low @-@ level circulation was observed as it passed south of the Cape Verde islands on September 28 . The organization of the convection oscillated over the subsequent days , and a few times the system showed signs of developing into a tropical depression . As it approached the Lesser Antilles it organized further , and despite unfavorable upper @-@ level wind shear the system developed into Tropical Depression Thirteen on October 3 while located about 115 miles (185 km / h) east of Dominica . Located in an area of weak steering currents , the depression drifted to the northwest , and about six hours after first developing the cyclone intensified into a tropical storm ; the National Hurricane Center designated it with the name Klaus .

Upon becoming a tropical storm , Klaus was located in an area of 29 mph (47 km / h) of wind shear , although concurrently it was located over warm water temperatures of 83 @. @ 1 ° F (28 @. @ 4 ° C) . Tracking through a highly baroclinic environment , the storm became better organized , and at 1200 UTC on October 5 Klaus attained hurricane status about 30 miles (50 km) east of Antigua ; shortly thereafter , it passed 12 miles (19 km) east of Barbuda , its closest point of approach to the Lesser Antilles . Klaus reached peak winds of 80 mph (130 km / h) and a minimum central pressure of 985 @. @ 0 mbar (29 @. @ 09 inHg) , though most of its deep convection and strong winds remained to its northeast due to wind shear . At the time the hurricane was forecast to continue tracking to the north @-@ northwest . However , after weakening to a tropical storm on October 6 , Klaus turned westward .

Klaus continued tracking just north of the Lesser Antilles , and after continuing to deteriorate from the wind shear , the cyclone weakened to a tropical depression on October 8 to the north of Puerto Rico . Later that day , convection redeveloped over the center , and Klaus re @-@ attained tropical storm status as it accelerated toward the northeast Bahamas ; it briefly reached winds of 50 mph (85 km / h) . A low pressure area to its west over Cuba had been steadily intensifying and building toward the surface , and on October 9 it developed into a tropical depression ; the cyclone became the dominant system , eventually becoming Marco , and Klaus dissipated under the influence of the system late on October 9 . The remnant moisture continued to the northwest , reaching the coast of South Carolina by October 11 .

= = Preparations = =

Shortly after Klaus attained tropical storm status early on October 4 , a tropical storm warning was

issued for the northern Leeward Islands from Saint Martin to Antigua , which was upgraded to a hurricane warning as its quick strengthening became apparent ; additionally , the government of France issued a tropical storm warning for Guadeloupe . A hurricane watch was issued for the Virgin Islands , though it was dropped as Klaus began to weaken . In Guadeloupe , officials advised citizens to transport livestock to safer areas , and also to avoid potentially flooded areas . Prior to its arrival , schools were closed in Martinique , Sint Maarten , and Antigua . The VC Bird International Airport was closed during the passage of the hurricane .

Later in its duration , the government of The Bahamas issued a tropical storm warning for the central and later northern Bahamas , though it was discontinued as the cyclone dissipated . Due to Hurricane Klaus , Space Shuttle Columbia 's launch was delayed .

= = Impact = =

Hurricane Klaus dropped moderate to heavy rainfall across the Lesser Antilles , potentially as high as 15 inches (380 mm) ; the hurricane affected many areas struck by Hurricane Hugo in the previous year . On Barbados , flooding from the rainfall blocked a few roads and forced a few families to move to safer areas ; lightning from the outskirts of the storm left a portion of the island without power . High winds and rainfall affected the island of Saint Lucia , which destroyed about 15 % of the nation 's banana crop for the year ; damage totaled about \$ 1 million (1990 USD) .

The rainfall resulted in severe flooding on Martinique , which accrued to almost 10 feet (3 m) in some locations ; two sisters drowned near Saint @-@ Joseph after a bridge was washed away . Several landslides were reported on the island . The passage of the cyclone left damaged power and telephone systems . 750 people evacuated their homes in Le Lamentin due to flooding , and a total of 1 @,@ 500 residents were left homeless on the island . Offshore , rough conditions damaged a fishing vessel , leaving its two passengers drifting on the boat for 25 days before being rescued about 640 miles (1035 km) to the north @-@ northwest of Martinique . In all , seven people were killed on the island .

On Dominica , winds from the hurricane damaged power lines and downed trees in the northern portion of the island . High winds on Antigua damaged a few roofs , and also downed communications from two radio networks . The outer rainbands of the storm dropped light rainfall on the United States Virgin Islands , reaching about 1 @.@ 25 inches (32 mm) on Saint Thomas ; wind gusts peaked at 33 mph (53 km / h) on Saint Croix . Moderate rainfall continued into the Turks and Caicos Islands , with Grand Turk reporting a total of 4 inches (100 mm) in 36 hours .

On the east coast of Florida , Klaus produced 15 foot (4 @.@ 5 m) waves and tides of 3 feet (1 m) above normal . Beach erosion was reported along the east coast , due to persistent easterly winds . As the remnant moisture of Klaus entered the southeastern United States , it produced heavy rainfall between 10 ? 15 inches (250 ? 380 mm) of rainfall in South Carolina , with slightly lower totals in North Carolina . In South Carolina , the rainfall caused a dam to burst , killing four people . About two days after the remnants of Klaus entered the southeastern United States , Tropical Storm Marco made landfall on northwestern Florida , dropping more heavy rainfall and causing heavy damage across the region .

= = Retirement = =

Due to its impact on Martinique , the government of France requested the retirement of the name Klaus ; the World Meteorological Organization retired the name from the list of tropical cyclone names in the following year and replaced it with the name Kyle .