= Tropical Storm Colin (2010) =

Tropical Storm Colin was a tropical cyclone that brought squally weather to Bermuda and caused extensive rip currents across the East Coast of the United States in August 2010 . The fourth tropical cyclone and third named storm of the 2010 Atlantic hurricane season , Colin developed as a tropical depression from a low @-@ pressure area in the central Atlantic on August 2 . After forming , the storm initially strengthened gradually , attaining tropical storm status early on August 3 . However , due to its acceleration to the west @-@ northwest , Colin was unable to maintain a closed circulation and subsequently degenerated into a trough later that day . The National Hurricane Center noted the possibility of regeneration over subsequent days , and by August 5 , Colin had once again become a tropical cyclone . Despite moderate wind shear impacting the system , Colin reached a peak intensity of 60 mph (95 km / h) on August 5 . However , vertical wind shear prevented further intensification and eventually weakened the storm . By early on August 8 , Colin had weakened to a tropical depression , and dissipated near Bermuda shortly after . Though it remained well offshore , Colin produced rough seas along the East Coast of the United States . At least 205 ocean rescues were made . In Bermuda , effects were generally minimal . Less than 1 inch (25 mm) of rain fell and winds remained below tropical storm force .

= = Meteorological history = =

The origins of Tropical Storm Colin can be traced back to an elongated tropical wave that moved westward from Nigeria to Senegal on July 28 . A nearly stationary trough separated from the wave as it continued westward . A larger tropical wave emerged off the west coast of Africa a few days later . A broad area of low pressure resulted from the consolidation of the two waves on August 1 , when it was situated about 750 mi (1210 km) west @-@ southwest of the Cape Verde Islands . Over the course of the next 24 hours , shower and thunderstorm activity became increasingly consolidated with the low , but the system lacked a well @-@ defined circulation to be considered a tropical cyclone at the time . However , on the next day , an Advanced Scatterometer (ASCAT) pass revealed that the circulation center had become sufficiently defined , and the National Hurricane Center (NHC) initiated advisories on Tropical Depression Four at 1200 UTC on August 2 . Further organization occurred as the depression moved around the southern periphery of a strong subtropical ridge . Thunderstorm activity became increasingly defined , and it is estimated that the depression became Tropical Storm Colin at 0600 UTC on August 3 while centered 840 mi (1350 km) east of the Lesser Antilles .

Early on August 3 , Colin 's forward motion increased , and the cyclone was unable to maintain a closed circulation . The tropical storm degenerated into a trough at 1800 UTC , although tropical storm @-@ force winds persisted . As the remnants passed north of the northern Leeward Islands , a reconnaissance aircraft investigated the system on August 4 , but no closed circulation was found . As the remnants approached a weakness in the subtropical ridge across the western Atlantic on August 5 , its forward speed gradually slowed as well . A combination of microwave and satellite imagery during the morning hours of August 5 revealed the reformation of a closed low , and Colin 's remnants regained tropical storm status at this time while located 280 mi (450 km) north @-@ northeast of San Juan , Puerto Rico .

Despite relatively unfavorable vertical wind shear impacting Colin , deep thunderstorm activity developed atop its center of circulation . Data from a reconnaissance aircraft during the afternoon hours of August 5 revealed that the system reached a peak intensity with winds of 60 mph (95 km / h) and a minimum barometric pressure of 1005 mbar (29 @.@ 68 inHg) . A few computer models , namely the Geophysical Fluid Dynamics Laboratory (GFDL) and Hurricane Weather Research and Forecasting model (HWRF) , predicted that Colin would briefly attain hurricane status . However , the surrounding moderate vertical wind shear prevented this . While turning towards the north on August 6 , the cyclone entered an area increasingly unfavorable wind shear and cooler sea surface temperatures , subsequently prompting the NHC to downgrade Colin to a tropical depression by 0000 UTC on August 8 . Further weakening occurred over the next few hours as the cyclone 's

center of circulation became elongated , and Colin once again degenerated into a trough of low pressure at 1200 UTC while located approximately 100 mi (160 km) southwest of Bermuda . The remnant trough persisted until early on August 9 , at which time it was situated 150 mi (240 km) northwest of the island .

= = Preparations and impact = =

 Following Colin 's regeneration into a tropical cyclone on August 5 , the Government of Bermuda simultaneously issued a tropical storm warning for the island . Along south @-@ facing beaches , Colin was expected to produce a storm surge between 2 and 3 ft (0 @.@ 61 and 0 @.@ 91 m) , possibly reaching as high as 5 ft (1 @.@ 5 m) . Significant rainfall was also anticipated , with totals averaging 4 to 6 in (100 to 150 mm) . These values were later decreased after Colin weakened on August 6 , with only a minimal storm surge forecast and rainfall roughly 1 in (25 mm) less than previously stated . By August 7 , all beaches were closed across the island due to rough seas and dangerous rip currents . The Royal Caribbean cruise ship , MS Explorer of the Seas , arrived in Bermuda that same day and was scheduled to set sail again on August 8 ; however , due to the threat of Colin , the vessel was forced leave later in the day instead of staying overnight . On August 8 , the tropical storm warning in place for Bermuda was downgraded to a watch as Colin weakened to a tropical depression ; it was discontinued hours later as the storm quickly dissipated .
 Due to Colin 's weakening to a tropical depression prior to its closest pass to Bermuda , its effects were significantly less than initially anticipated . Winds from the storm reached 31 mph (50 km / h) , with gusts to 37 mph (60 km / h) . Rainfall was limited to isolated showers and thunderstorms ; the Bermuda International Airport measured 0 @.@ 16 in (4 @.@ 1 mm) of rain in relation to Colin . Throughout the island , there were no reports of damage .
 Although situated several hundred miles off the coast of the East Coast of the United States , the outer effects of Colin were expected to create dangerous rip currents along the North and South Carolina coastlines , as well as waves as high as 3 to 4 ft (0 @.@ 91 to 1 @.@ 22 m) . On August 7 , a 51 @-@ year @-@ old man drowned off the coast of Ocracoke , North Carolina after being caught in a rip current . Shortly after his death , officials issued rip current and undertow threats for the region . Between August 7 and 9 , at least 205 ocean rescues were made along the North Carolina coastline due to rough seas produced by Colin .