= Hurricane Nate (2005) =

Hurricane Nate was an Atlantic hurricane that threatened Bermuda but remained at sea during early September 2005 . The fourteenth named storm and seventh hurricane of the annual Atlantic hurricane season , Nate formed southwest of Bermuda on September 5 and initially moved very slowly to the northeast . Early forecasts suggested a possible threat to the island , but Nate passed well to its south as a Category 1 hurricane on September 8 . After moving away from the island , the storm entered a region with cooler sea surface temperatures and unfavorable wind shear , causing it to weaken to a tropical storm before becoming extratropical on September 10 . The extratropical remnant was later absorbed by a larger weather system .

The hurricane caused no structural damage while tropical , although it generated rip currents in combination with other storms that killed one person off the New Jersey coast . Nate dropped light rainfall and produced gusty winds on the island of Bermuda . The remnants of hurricanes Nate and Maria contributed to heavy rainfall in parts of Scotland and later Western Norway , triggering a mudslide that killed one person . Canadian Navy ships en route to the US Gulf Coast , carrying relief supplies to assist in the aftermath of Hurricane Katrina , were delayed while trying to avoid Nate and Hurricane Ophelia .

= = Meteorological history = =

A tropical wave emerged from the west coast of Africa on August 30 and tracked westward across the Atlantic Ocean , maintaining a vigorous area of convection along the wave axis . By September 1 most of the deep convection had been stripped away by southwesterly wind shear . Despite this , the wave remained well @-@ defined as it continued west @-@ northwest . The wave split into two pieces ; the northern portion passed between the Leeward Islands and Hurricane Maria on September 3 , while the southern portion moved into the Caribbean Sea . On September 4 , the northern portion of the wave began to interact with an upper @-@ level low pressure system and an elongated trough that was located between Bermuda and the Leeward Islands ? the same trough which contributed to the development of Hurricane Ophelia . As a result of the low wind shear , convection redeveloped and organized along the wave axis . Convective banding formed around a broad surface low . It is estimated that the system developed into a tropical depression at 1800 UTC on September 5 . At the time it was located approximately 350 miles (560 km) to the south @-@ southwest of Bermuda .

Upon being designated , Tropical Depression Fifteen developed deep convection close to , and to the east of , the center of circulation . At the same time , banding features became better organized . Later on September 5 , the overall cloud pattern improved while thunderstorm activity condensed and deepened within the increasingly well @-@ defined circulation . Just six hours after being designated as a tropical depression , the cyclone intensified into a tropical storm ; it was given the name Nate by the National Hurricane Center . Over the following two days , Nate drifted slowly northeastward towards Bermuda .

Within the early hours of September 6 , Nate became quasi @-@ stationary under a weak steering pattern between Hurricane Maria and a disturbance over The Bahamas . Satellite imagery indicated that the cloud pattern continued to organize with excellent outflow surrounding the storm . Late on September 6 a developing banding eye feature became evident . Tropical Storm Nate strengthened further and became a hurricane at 1200 UTC on September 7 , as it began to turn away from Bermuda . Some models indicated that Nate could have been either absorbed by or merged with the larger Hurricane Maria , but the National Hurricane Center (NHC) forecast that Nate would survive as a separate system , which it did . The large low to the northeast of The Bahamas gradually opened into a broad trough as a shortwave trough approached from the northwest . The larger trough slowly became elongated in a northeast ? southwest manner late on September 7 . At the same time , the shortwave trough moved southward along the west side of the other trough . The increasing southwesterly flow along the southeast side of the broad trough caused Nate to accelerate northeastward . Nate reached its peak intensity of 90 mph (145 km / h) late on

September 8 as it passed 120 miles (205 km) southeast of Bermuda , while its strongest winds remained well offshore .

While at peak intensity , the storm maintained a well @-@ organized and " impressive " convective pattern . Soon after the storm peaked in strength , increasing wind shear and dry air caused Nate to weaken back into a tropical storm later on September 9 . Satellite imagery showed that the cloud pattern began to rapidly deteriorate . The hurricane was downgraded to a tropical storm at 1800 UTC on September 9 and continued to weaken as wind shear increased in association with an approaching trough and a related cold front . By late on September 9 , all of the already limited convective activity was confined to the eastern semicircle , leaving the low @-@ level center exposed . The storm was reduced to a swirl of low @-@ level clouds just hours later . Nate became extratropical the next day before becoming absorbed by a larger system by 0000 UTC on September 13 , to the north @-@ northeast of the Azores .

= = Impact , records , and naming = =

A tropical storm watch was issued for Bermuda early on September 7 , and later that day a tropical storm warning and a hurricane watch superseded it . However , the storm did not land on the island and the warnings were canceled as the storm moved away September 8 . Four cruise ships left the island early , and flights were canceled in anticipation of Nate . At 0400 UTC on September 8 , the National Hurricane Center assessed a 34 % chance that Nate would pass within 75 miles (121 km) of the island .

The outer bands of Nate brushed Bermuda with sustained winds of 35 mph (55 km / h) and widespread showers . Gusts were higher , peaking at roughly 50 mph (80 km / h) . Less than 1 inch (25 mm) of rain was recorded at Bermuda International Airport . " We definitely did not get the worst case scenario with this storm " , observed the Bermuda Weather Service ; there were no fatalities as a result of the storm in Bermuda , and no damage was reported . Two ships reported tropical storm @-@ force winds in association with the storm : the Maersk New Orleans , to the north of the storm 's center , and a ship with the call sign WCZ858 to the east @-@ southeast . Rip currents from Nate and the more distant Maria killed one and injured another in New Jersey ; several others were caught in rip currents , though they were able to escape . In the Carolinas , Nate also contributed to heightened seas , though this time in combination with Hurricane Ophelia and persistent unrelated northeasterly winds . A buoy just offshore Cape Fear recorded waves up to 12 ft (3 @.@ 7 m) .

Tropical energy from the remnants of Nate and Maria merged to form a broad storm system that would track toward parts of Europe . The mid @-@ latitude cyclone produced a day of heavy rains across the Scottish Highlands that included a 24 @-@ hour precipitation total of 5 @.@ 17 in (131 mm) on the Isle of Skye . As it continued north , the storm also dropped torrential rainfall over Western Norway . The region suffered extensive flooding and mudslides , including one that killed one person and injured nine more . Although the remnants of Nate and Maria avoided England , they broke a streak of above @-@ average temperatures in the region , filtering down much cooler Arctic air . In places , this led to the first frost of the winter season . Temperatures down to ? 1 @.@ 7 ° C (28 @.@ 9 ° F) were recorded following the influx of colder air , with readings below freezing as far south as Hertfordshire .

Four Canadian Navy ships headed to the Gulf Coast of the United States , carrying relief supplies to help in the aftermath of Hurricane Katrina , were slowed down trying to avoid Hurricanes Nate and Ophelia . The convoy included a destroyer , two frigates , and an icebreaker , and developed a plan to travel between the two hurricanes to minimize damage to their cargo . Crews , anticipating potentially rough seas and gusty winds even with the averted course , secured onboard supplies such as generators , chainsaws , diapers , and cots . The genesis of Tropical Storm Nate continued the unprecedented levels of tropical activity during the 2005 hurricane season ; when it developed on September 5 , it was the earliest in any season that the fourteenth named tropical cyclone formed , surpassing the previous record held by an unnamed storm during the 1936 season .