= Tropical Storm Dean (1983) =

Tropical Storm Dean caused minor flooding along portions of the East Coast of the United States in September 1983 . The seventh tropical cyclone and fourth named storm the 1983 Atlantic hurricane season , Dean developed from a frontal low to the northeast of the Bahamas on September 26 . Initially subtropical , it gained characteristics of a tropical cyclone while tracking slowly north @-@ northeastward . By September 27 , the system was reclassified as Tropical Storm Dean . While tracking northward on September 28 , Dean peaked with winds of 65 mph (100 km / h) , shortly before curving west @-@ northwestward and slowly leveling @-@ off in intensity . Eventually , Dean made landfall in Virginia on the Delmarva Peninsula on September 29 as a weakening tropical storm . Dean rapidly weakened over land and was no longer classifiable as a tropical cyclone by early on October 1 .

Offshore Virginia , swells generated by the storm stranded a tugboat and injured two people . Waves along the coast also caused beach erosion , especially in Virginia and North Carolina . Inland , effects were minor and generally limited to mostly light rainfall . More than 100 campers on the Outer Banks of North Carolina were forced to evacuate due to flooding on North Carolina Highway 12 . Although near @-@ hurricane @-@ force wind gusts pelted coastal areas of Virginia and North Carolina , wind damage from the storm was minimal . The remnants of the storm brought rainfall to portions of New England , especially to Connecticut , where precipitation from the storm peaked at 4 @.@ 62 in (117 mm) . Damage from the storm was unknown , but presumed to be minimal .

= = Meteorological history = =

A frontal cloud band moved offshore the East Coast of the United States on September 22 . During the next few days , the cloud band became stationary while stretching from The Bahamas to northeast of Bermuda . Around that time , a 1 @,@ 035 mbar (30 @.@ 6 inHg) high pressure stalled over the Northeastern United States , producing a strong pressure gradient and gale force winds over the East Coast of the United States . While located about 455 mi (732 km) east of Vero Beach , Florida , a low @-@ level circulation developed within the frontal cloud band on September 26 . At around 1800 UTC that day , the NHC classified the system as a subtropical storm , due to a ship report of gale force winds 230 mi (370 km) from the center . Initially , it tracked north @-@ northeastward under the influence of the frontal cloud band that spawned the storm . The wind field quickly condensed , while the storm itself separated from the frontal cloud band . As a result , it was re @-@ classified as Tropical Storm Dean at 1800 UTC on September 27 while approximately 575 mi (925 km) east of Jacksonville , Florida . The National Hurricane Center , which initiated advisories on the storm at 2200 UTC on the same day , indicated that a weak ridge to the north and a cold low moving offshore of the Southeastern United States would cause Dean to move slowly and possibly curve northwestward .

Early on September 28 , a reconnaissance aircraft recorded Dean 's minimum barometric pressure of 999 mbar (29 @.@ 5 inHg) . Although forecast models initially indicated that the storm would continue northeastward , they quickly switched to a westward movement on September 29 . After curving northwestward later that day , Dean attained its maximum sustained wind speed of 65 mph (100 km / h) , as reported by a ship . While a reconnaissance aircraft flew into Dean north of center late on September 29 , it reported hurricane @-@ force wind gusts . However , the storm soon began to weaken . At around 1200 UTC on September 30 , Dean made landfall in Virginia on the Delmarva Peninsula with winds of 45 mph (75 km / h) . Operationally , the National Hurricane Center discontinued advisories four hours after Dean struck the state . At 1800 UTC on September 30 , the storm weakened to a tropical depression . At 0000 UTC on October 1 , Dean became unidentifiable as a tropical cyclone while located over Virginia near the mouth of the Potomac River . The remnants continued northwestward , before curving to the northeast while near the border of Virginia and West Virginia . It crossed the Mid @-@ Atlantic and New England before re @-@ emerging into the Atlantic Ocean near Boston , Massachusetts . By October 2 , the remnants of Dean had dissipated just offshore of the East Coast of the United States .

= = Preparations and impact = =

As Dean approached the United States , numerous gale warnings were issued . Many of these warnings were issued from North Carolina up to Rhode Island . Small craft advisories were also raised along much of the eastern seaboard , covering places between Cape Cod , Massachusetts to Jupiter Inlet , Florida . In Norfolk , Virginia , the naval station was placed under " hurricane condition 3 " , meaning that destructive winds were anticipated within 48 hours . In parts of North Carolina , residents were urged to prepare for the storm and remain out of the rough coastal waters .

As the storm moved inland over Virginia , its outer bands and high winds prompted more than 100 campers on Ocracoke Island and Cape Hatteras to evacuate after 1 ft (0 @.@ 30 m) of water flooded North Carolina Highway 12 . Along the coast , wave between 6 and 10 ft (1 @.@ 8 and 3 @.@ 0 m) were measured . Minor beach erosion ensued , although some beaches lost as much as 20 ft (6 @.@ 1 m) of sand . Squall lines associated with Dean brought near @-@ hurricane @-@ force wind gusts and brief , heavy rainfall . Winds caused little effect other than isolated power outages , especially on the Outer Banks . Aside from the minor damage caused by Dean , there was also a positive side to the storm . Throughout coastal waters off North Carolina , king mackerel appeared in near @-@ record numbers , improving the local fishing industry . Some catchers stated that they were finding some fish weighing up to 30 lb (14 kg) .

About 300 mi (480 km) off the coast of Virginia , large swells from Dean stranded a tugboat on September 29 with six people on board . Two of the crew were injured during the incident ; however , they were not seriously hurt . The ship was towed to Cape May , New Jersey later that day by the United States Coast Guard . Waves up to 8 ft (2 @.@ 4 m) caused beach erosion across the Virginia coastline . In addition to minor erosion , waves caused " slight flooding " at Buckroe Beach , totaling to $ 500 to $ 5 @,@ 000 in damage (1983 USD) . Although winds were estimated to have been around 60 mph (95 km / h) as the storm moved inland , structural damage was minimal . Many areas near Dean 's path experienced light rainfall of 1 to 3 in (25 to 76 mm) of rain , especially in Virginia where the statewide peak was 1 @.@ 29 in (33 mm) in Richmond .

In Maryland , thousands of tons of sand was removed by rough seas near Ocean City ; beach erosion also occurred at nearby Assateague Island . Additionally , wind gusts between 50 and 55 mph (80 and 89 km / h) resulted in minor damage , while minimal flooding was reported following rainfall . Damage in Maryland was light , totaling to between $ 500 and $ 5 @,@ 000 (1983 USD) . Minor effects were reported in Delaware , limited to winds gusts up to 50 mph (80 km / h) , which caused the loss of tons of sand along beaches . In coastal New Jersey , locally heavy rainfall resulted in traffic jams , downed power lines , and numerous commuting problems . In some areas of New York , especially in the southeastern portions of the state , rainfall exceeding 2 in (51 mm) in 24 hours flooded roadways and delayed trains . The remnants of Dean dropped light precipitation in New England . Rainfall from the storm peaked at 4 @.@ 62 in (117 mm) at the Cockaponset Ranger Station in Connecticut .