= Tropical Storm Bret (1981) =

Tropical Storm Bret made a rare landfall on the Delmarva Peninsula in June 1981 . The fifth tropical cyclone and second named storm of the season , Bret developed as a subtropical storm from a large area of frontal clouds near Bermuda on June 29 . Moving westward , the subtropical storm intensified while producing deep convection , and was consequently reclassified as a tropical storm early on June 30 . Around that time , Bret peaked with sustained winds of 70 mph (110 km / h) . The storm then began weakening and struck near Oyster , Virginia as a minimal tropical storm early on July 1 . Upon moving inland , Bret weakened to a tropical depression and subsequently accelerated prior to dissipating over northern Virginia that same day .

In its early stages , Bret dropped light rainfall on Bermuda , peaking at 3 @.@ 34 inches (85 mm) . Impact in the United States was generally minor . In Virginia , the storm produced up to 4 @.@ 48 inches (114 mm) of rain in Big Meadows section of Shenandoah National Park . Along the coast , minor beach erosion occurred due to tides up to 0 @.@ 9 feet (0 @.@ 27 m) above normal . In western Pennsylvania , locally heavy rainfall flooded some streets and basements . Elsewhere , Bret dropped 1 to 3 inches (25 to 76 mm) of precipitation to several states . One fatality was confirmed after a woman was killed by rip currents at Nags Head , North Carolina .

= = Meteorological history = =

A large band of frontal clouds became situated over the northwestern Atlantic Ocean on June 27 . By the following day , satellite imagery indicated that a low @-@ pressure area began developing northwest of Bermuda , along the northwest periphery of the frontal cloud band . Substantial amounts of deep convection eventually formed north and west of the low center . Thus , the system was designated as a subtropical storm at 1200 UTC on June 29 , while centered approximately 575 miles (925 km) east of Cape Hatteras , North Carolina . The system continued to gain convection and intensify while tracking westward toward the Mid @-@ Atlantic states at a forward speed of 20 mph (32 km / h) . Early on June 30 , a well @-@ defined atmospheric circulation became apparent on infrared satellite imagery . As a result , subtropical storm transitioned into Tropical Storm Bret later that day at 0600 UTC .

Upon becoming a tropical cyclone early on June 30 , Bret attained maximum sustained winds of 70 mph (110 km / h) . About six hours later , at 1200 UTC , the storm also attained its minimum barometric pressure of 996 mbar (29 @.@ 4 inHg) . Around 2200 UTC on June 30 , a reconnaissance aircraft flight observed hurricane @-@ force winds , though Bret was not upgraded to a hurricane because the minimum barometric pressure was considered too high . About an hour later , the National Hurricane Center noted that Bret was moving westward toward Virginia at 20 mph (25 km / h) and entering a region of colder sea surface temperatures , causing further intensification to become unlikely . Subsequently , the storm curved west @-@ northwestward and rapidly weakened . At 0500 UTC on July 1 , Bret made landfall near Oyster , Virginia on the Delmarva Peninsula as a minimal tropical storm . About an hour later , the storm emerged into the Chesapeake Bay and weakened to a tropical depression . Later on July 1 , Bret moved inland over mainland Virginia and continued to weaken , until dissipating over the northern portion of the state .

= = Preparations and impact = =

In its early stages , the subtropical precursor of Bret tracked north of Bermuda and dropped light rainfall on the island , peaking at 3 @.@ 34 inches (85 mm) .

While Bret was approaching the East Coast of the United States , various National Weather Service offices issued gale warnings . At 2000 UTC on June 30 , a gale @-@ force warning was issued for a portion of the North Carolina coastline extending from Cape Hatteras northward , including Albemarle and Pamlico sounds . Simultaneously , another gale warning was issued for areas along the Chesapeake Bay south of the Patuxent River in Maryland and on the east coast from Ocean City , Maryland to Virginia Beach , Virginia . Around 0300 UTC on July 1 , all gale warnings were

discontinued in North Carolina , while the remaining warnings in Maryland and Virginia were canceled about five hours later . Additionally , a small craft advisory was also posted for the North Carolina and Virginia coastlines . Officials in North Carolina closed off beaches at Nags Head , Kitty Hawk , and Kill Devil Hills from swimmers due to rip currents and tides . After Bret dissipated , the small craft warning remained in effect and mariners were told to remain in port until the weather calmed .

In Virginia , Bret produced relatively light rainfall , peaking at 4 @.@ 48 inches (114 mm) in Big Meadows , a section of Shenandoah National Park . At the time of Bret 's landfall , portions of the Mid @-@ Atlantic states were experiencing a strong drought , though the amounts of precipitation were not enough for farmers in Virginia to save their crops . In Virginia Beach , local street flooding and a brief tornado were reported . Minor beach erosion occurred in the area due to tides reaching about 0 @.@ 9 feet (0 @.@ 27 m) above normal . One fatality was confirmed in North Carolina when a woman was killed after getting stuck in rip currents at Nags Head . Offshore , two boats lost contact with the Coast Guard during the approach to land , one of which washed up at Cape May , New Jersey and the other on the Virginia coast . The Coast Guard began cleanup of an oil spill at Nags Head caused by Bret off the coast . About 8 miles (13 km) of the shoreline was filled with oil , little of which polluted the water . Most of the oil was thin and easily cleanup private contractor . Locally heavy rainfall in western Pennsylvania flooded streets and basements in some areas . The town of Brookville was inundated with up to 4 inches (100 mm) of water . Elsewhere , Bret dropped 1 to 3 inches (25 to 76 mm) of precipitation in several states . Overall , no considerable damage was reported .