

= Tropical Storm Edouard (2002) =

Tropical Storm Edouard was the first of eight named storms to form in September 2002 , the most such storms in the North Atlantic for any month at the time . The fifth tropical storm of the 2002 Atlantic hurricane season , Edouard developed into a tropical cyclone on September 1 from an area of convection associated with a cold front east of Florida . Under weak steering currents , Edouard drifted to the north and executed a clockwise loop to the west . Despite moderate to strong levels of wind shear , the storm reached a peak intensity of 65 mph (100 km / h) on September 3 , but quickly weakened as it tracked westward . Edouard made landfall on northeastern Florida on September 5 , and after crossing the state it dissipated on September 6 while becoming absorbed into the larger circulation of Tropical Storm Fay .

Tropical Storm Edouard dropped moderate rainfall across Florida , exceeding 7 inches (175 mm) in the western portion of the state . Though Edouard was a tropical storm at landfall , wind speeds along the storm 's path over land were light . The rain flooded several roads ; however , there were no casualties , and damage was minimal .

= = Meteorological history = =

An area of cloudiness and rainshowers developed several hundred miles east @-@ southeast of Bermuda on August 25 , likely in association with a low @-@ level disturbance that formed along a cold front . For several days , it moved southwestward , and , while located on the southwestern end of an upper @-@ level trough to the north of Puerto Rico , deep convection throughout the system increased . The system tracked westward , and initially remained disorganized while surface pressures remained high . The system turned to a northwest drift , and began to slowly organize on August 30 while located a few hundred miles northeast of the Bahamas . A broad low @-@ pressure area developed on August 31 though convection remained disorganized as winds of 20 to 25 mph (32 to 40 km / h) were reported in squalls . Conditions remained favorable for continued organization , and convection increased and persisted across the system . The system developed into Tropical Depression Five on September 1 after developing a low @-@ level circulation while located about 140 miles (225 km) east of Daytona Beach , Florida .

Upon first forming , the tropical depression was located in an area of light to moderate westerly wind shear . With a ridge to the north and west of the depression , the system moved to the northwest under weak steering currents . The depression slowly strengthened and intensified into Tropical Storm Edouard on September 2 while located about 120 miles (190 km) east of Jacksonville , Florida . The storm remained disorganized with wind shear displacing most of the deep convection from the low @-@ level circulation . Upon becoming a tropical storm , forecasters initially predicted Edouard to gradually turn to the northeast , and within three days be located a short distance off the coast of South Carolina with winds of 60 mph (95 km / h) . However , forecasters admitted little confidence in the prediction , and later forecasts predicted the storm to execute a loop and track westward into northern Florida or southern Georgia . Shortly after the tropical cyclogenesis of Edouard , steering currents became weak , resulting in the storm to turn sharply eastward . Late on September 2 deep convection developed over the center , though the center quickly became exposed again . The environment appeared to become more hostile on September 2 and 3 with increasing shear and dry air overspreading the center . Despite the conditions , the storm maintained vigorous convection over the eastern portion of the circulation , and it quickly intensified on September 3 to reach peak winds of 55 mph (90 km / h) . A Reconnaissance Aircraft flight into the system estimated surface winds of up to 60 mph (95 km / h) and reported flight level winds of 82 mph (132 km / h) .

Shortly after peaking in intensity , Tropical Storm Edouard began to weaken as convection diminished from vertical shear and dry air , and later on September 3 the center was exposed from the steadily decreasing convection . The development of a weak and narrow mid @-@ level ridge turned the storm to the west @-@ southwest towards northeastern Florida . Despite strong levels of wind shear , Edouard remained a tropical storm while producing sporadic amounts of deep

convection , and on September 4 the banding structure improved . Early on September 5 , Edouard made landfall near Ormond Beach , Florida as a minimal tropical storm , and almost immediately weakened to a tropical depression over land . It tracked across the state for about 13 hours and entered the Gulf of Mexico near Crystal River . Initial forecasts predicted Edouard to restrengthen to a tropical storm over the northeastern Gulf of Mexico , though uncertainty was noted due to the development of Tropical Storm Fay in the northwestern portion of the gulf . Upon entering the Gulf of Mexico , the depression encountered strong wind shear from the outflow of Tropical Storm Fay . Edouard generated minimal amounts of intermittent convection along the southeastern portion of its circulation , enough for it to remain a tropical cyclone . By September 6 the remaining convection dissipated , and Edouard dissipated while becoming absorbed into the larger circulation of Tropical Storm Fay .

= = Preparations = =

Three hours after developing , the National Hurricane Center issued a tropical storm watch from Titusville , Florida , to Brunswick , Georgia , due to uncertainty in the track of the storm . Hours after becoming a tropical storm , a tropical storm warning was issued from Fernandina Beach , Florida , to the mouth of the Savannah River , with a tropical storm watch further northward to the mouth of the South Santee River in South Carolina , though these were cancelled after Edouard turned to the east . About 10 hours before landfall , the National Hurricane Center issued another tropical storm warning from Titusville , Florida to Brunswick , Georgia , with a tropical storm watch further south to Sebastian Inlet , Florida .

Two days before the storm made landfall , several Florida counties were monitoring the progress of the storm . Though no serious impact was anticipated , Brevard County officials identified possible shelters if warranted . Putnam County officials placed several shelters on standby , and utility crews in Duval County were placed on standby in the event of power failure . Several media releases of information were issued regarding the storm . The State Emergency Operation Center was on Level 2 , or partial activation , and the state government organized two conferences to discuss county actions in regards to the storm . The National Weather Service issued a flood watch hours before Edouard made landfall for much of eastern Florida due to the expected rainfall from the storm .

The South Carolina Emergency Management Division monitored the progress of the storm , and the Division increased its awareness level in response to the storm . Important state agencies in South Carolina government were notified to be ready to respond if the need arose .

= = Impact = =

In Bermuda , the outflow from the storm produced cloudy conditions throughout the island . Squally conditions were reported a short distance to the west of the island , though no rain was reported on Bermuda .

While moving erratically off the east coast of Florida , Tropical Storm Edouard produced rough surf conditions and rip currents along many beaches . Beachgoers and visitors were advised to exercise extreme caution . The storm produced water levels about 6 inches above normal near Cape Canaveral , though elsewhere wave action and storm tides were not significant . Despite being a tropical storm at landfall , sustained tropical storm force winds were not observed . A rainband ahead of the storm produced a 39 mph (63 km / h) wind gust at Patrick Air Force Base , and a station in St. Augustine recorded a wind gust of 38 mph (61 km / h) . Sustained winds peaked at 31 mph (50 km / h) at Patrick Air Force Base . Edouard dropped light to moderate rainfall in eastern Florida , primarily during 2 to 3 hour periods . The highest official rainfall total peaked at 2 @. @ 5 inches (64 mm) at Orlando Executive Airport , though unofficial totals reached as high as 4 @. @ 8 inches (122 mm) in Rockledge . Rainfall was higher in western Florida , peaking at 7 @. @ 64 inches (194 mm) in DeSoto County with an area near Tampa reporting over 7 inches (175 mm) .

Moderate rainfall resulted in river flooding along the St. Johns River , resulting in flooding along roads in Seminole County . Roadway , urban , and lowland flooding was also reported in Brevard

and Orange counties . Roadway flooding was extensive in some areas , resulting in road closures in Oviedo , Cocoa Beach , and Cape Canaveral . Heavy rainfall in Pinellas Park caused heavy street flooding along an intersection on U.S. Highway 19 . No casualties were reported , and damage was minor .