

= 1981 Atlantic hurricane season =

The 1981 Atlantic hurricane season officially began on June 1 , 1981 , and lasted until November 30 , 1981 . These dates conventionally delimit the period of each year when most tropical cyclones form in the Atlantic basin . The 1981 season was high in activity with 18 tropical depressions and twelve storms forming during the year . Nine of these systems made landfall . Cindy , Harvey , and Irene neither affected land directly nor indirectly .

Hurricane Dennis caused millions of dollars in damage in Dade County , Florida and produced the highest rainfall totals of any tropical cyclone this season . Tropical Depression Eight caused the most damage , due to flooding in Texas at the end of August , and led to most fatalities of any tropical cyclone this season (five) . Tropical Depressions Two and Eight caused a majority of the damage and fatalities this season , with both affecting Louisiana and Texas . Katrina was the only named storm with associated fatalities .

= = Seasonal activity = =

The 1981 season was high in activity with eighteen tropical depressions and twelve storms forming that year . The season began early , as Tropical Storm Arlene formed on May 6 . Arlene made landfall in Cuba , being absorbed by a low later . Tropical Depression Two moved out of the Gulf of Mexico into eastern Texas on June 5 , producing localized rainfall amounts of 12 inches (300 mm) and numerous tornadoes over Louisiana before recurving across the Southeast United States . Tropical Storm Bret formed as a subtropical low in the open Atlantic Ocean , and made landfall in the Delmarva Peninsula .

Tropical Depression Four formed in the Gulf of Mexico on July 25 , moving into Mexico the next day , and causing heavy rains in west Texas , Oklahoma , and Arkansas when its remnants moved into the United States . Tropical Storm Cindy formed on August 2 in the open Atlantic and became an extratropical cyclone on August 5 . Hurricane Dennis formed on August 7 near South America . Dennis degenerated into a depression while making landfall in the Leeward Islands , but regained storm strength while over Cuba . Dennis moved near the southeast United States coastline from Florida to Virginia , briefly becoming a hurricane . Dennis weakened into a tropical storm and was declared an extratropical cyclone on August 22 .

Tropical Depression Seven formed in mid @-@ August and tracked through the Windward Islands before dissipating in the eastern Caribbean Sea . Tropical Depression Eight led to a significant flooding event between San Antonio and Houston on August 30 and August 31 while recurving through Texas into Louisiana . Hurricane Emily formed on September 1 southeast of Bermuda . Emily made a cyclonic loop as a tropical storm . Emily strengthened into a hurricane out in the North Atlantic Ocean and by September 12 , was no longer identifiable . Hurricane Floyd was a Category 3 hurricane that grazed Bermuda , but no damage was reported . Hurricane Gert formed September 8 , strengthened into a Category 2 hurricane , and followed the same track as Floyd , dissipating near the Azores . Hurricane Harvey became the strongest storm of the season , reaching Category 4 strength . Harvey never affected land , but ships reported tropical storm @-@ force winds . Tropical Depression Thirteen brought gusts of tropical storm force to Bermuda in mid @-@ to @-@ late September . Hurricane Irene also stayed out at sea , reaching Category 3 strength and was extratropical in early October . The extratropical Irene made landfall in France .

Tropical Depression Fifteen was small and well @-@ organized as it crossed the tropical Atlantic before weakening as it moved through the northeast Caribbean and southwest North Atlantic during late September and early October . Tropical Storm Jose was a short @-@ lived storm forming out in the open Atlantic in late October . Jose never affected land and dissipated on November 1 near the Azores . Hurricane Katrina formed in the Caribbean Sea , and made landfall in Cuba after reaching hurricane strength . Katrina was the only named storm with fatalities . The final storm of the season , Subtropical Storm Three , formed in the Atlantic Ocean on November 12 and moved north , making landfall in Nova Scotia and becoming extratropical soon after .

The season 's activity was reflected with a cumulative accumulated cyclone energy (ACE) rating of

100 , which is classified as " near normal " . ACE is , broadly speaking , a measure of the power of the hurricane multiplied by the length of time it existed , so storms that last a long time , as well as particularly strong hurricanes , have high ACEs . ACE is only calculated for full advisories on tropical systems at or exceeding 34 knots (39 mph , 63 km / h) or tropical storm strength . Although officially , subtropical cyclones are excluded from the total , the figure above includes periods when storms were in a subtropical phase .

= = Storms = =

= = = Tropical Storm Arlene = = =

Arlene was a very unusual tropical storm in 1981 . It formed on May 6 , well before the beginning of the normal hurricane season . It developed out of a disturbance that moved from the Pacific Ocean across Central America into the Caribbean Sea . As the disturbance tracked northeast across the western Caribbean , it became a tropical depression , then on May 7 reached tropical storm strength near the Cayman Islands . Arlene struck eastern Cuba on the night of May 7 , and the passage over land weakened it to a depression . It restrengthened briefly over the southeastern Bahamas , but weakened again and was absorbed by another system . Reported damage was minimal .

= = = Tropical Depression Two = = =

A tropical depression formed in the Bay of Campeche near Veracruz , Mexico , on June 3 . The system moved north @-@ northwest , lured by a cyclone over the southern Plains . Tropical Depression Two made landfall along the upper Texas coast on June 5 , spreading up to 15 inches (380 mm) of rainfall northeast of the point of landfall . A total of nine tornadoes struck the western Gulf coast , with eight touching down in Louisiana . Three people died ; two due to flooding and one from an associated tornado . The depression quickly recurved through the Mississippi Valley , and deepened as it moved off the coast of the Mid @-@ Atlantic states into the western subtropical Atlantic on June 7 . At least US \$ 4 million in damage was caused by this depression .

= = = Tropical Storm Bret = = =

Bret formed out of a subtropical low roughly 150 miles (240 km) off the coast of North Carolina . The storm moved west @-@ northwest , striking land in southern Maryland on July 1 . Bret weakened significantly just before landfall , and reported winds were below gale force . Rainfall amounts were light , with a narrow area of over one inch of rain reported near its track and within the central Appalachians . The highest rainfall amount reported was 4 @.@ 48 inches (114 mm) at Big Meadows , Virginia . No significant damage was reported , but one fatality was reported at Nags Head , North Carolina due to riptides .

= = = Tropical Depression Four = = =

A tropical disturbance moved across the Caribbean sea between July 20 and July 24 before moving across the Yucatán peninsula . After emerging into the south @-@ central Gulf of Mexico , the disturbance organized into a tropical depression early on July 25 . The depression moved west @-@ northwest into northeast Mexico on July 26 before its surface circulation dissipated . Heavy rains fell across western Texas , Oklahoma , and Arkansas when the remains of this system interacted with a stationary front across the southern Plains between July 28 and July 30 .

= = = Tropical Storm Cindy = = =

A subtropical depression that developed along a cold front organized into Tropical Storm Cindy on

August 2 , in the open Atlantic midway between Bermuda and Nova Scotia . Cindy tracked east @-@ northeast until it became extratropical on August 5 as it moved over colder water . The storm never affected land and caused no known damage .

= = = Hurricane Dennis = = =

Dennis began as Cape Verde @-@ type hurricanes typically do . A tropical wave leaving the coast of Africa on August 5 developed into Tropical Storm Dennis on August 7 near Cape Verde . Unlike most such storms , Dennis degenerated to a tropical wave before reaching the Windward Islands on August 12 . This wave crossed the Caribbean , passing over Jamaica before reaching the southwestern coast of Cuba on August 15 .

Once near Cuba , the wave began rapid organization , restrengthening into a tropical storm . It crossed Cuba , then moved into southern Florida . Over Florida , steering currents weakened and the storm stalled . On August 19 , Tropical Storm Dennis reemerged over water , skimming the coasts of the Carolinas before accelerating out to sea . Dennis reached hurricane strength before becoming extratropical on August 22 .

Most damage associated with Dennis was from the heavy rainfall caused by its slow passage over Florida , although two tornadoes were also reported within Florida . The highest amount registered was near Homestead , Florida , where 25 @.@ 56 inches (649 mm) of rain was measured . Agriculture damage in Dade County , Florida was estimated at \$ 15 million (1981 USD) . Coastal areas of the Carolinas were also affected by heavy rainfall , with spots seeing over 10 inches (250 mm) , as well as minor beach erosion .

= = = Tropical Depression Seven = = =

This system developed across the tropical Atlantic ocean on August 18 , moving westward through the Windward islands into the eastern Caribbean Sea before dissipating on August 21 .

= = = Tropical Depression Eight = = =

This tropical depression formed in the Bay of Campeche on August 26 and moved slowly northwest , moving ashore northeast Mexico on August 29 and into the United States on August 30 . As an ill @-@ defined surface low , a large thunderstorm complex formed near its center that day , unleashing heavy rainfall in a band 50 miles (80 km) wide which stretched along a path 200 miles (320 km) long from Seguin , Texas to north of Houston , Texas . The highest rainfall amount reported was from Pine Springs in Fayette County , Texas , where 21 inches (530 mm) fell in the 24 ? hour period ending on the morning of August 31 . Five died in the town of Shiner , Texas due to the flood . Downtown Hallettsville flooded to a depth of 5 feet (1 @.@ 5 m) . Significant flooding occurred along the Lavaca , Guadalupe , and Colorado rivers in Texas . The cyclone spawned 14 tornadoes as well , including one at Scholes Field in Galveston , Texas which produced winds as high as 92 miles per hour (148 km / h) at 7 : 15 pm on August 31 .

Its surface circulation remained ill @-@ defined as it produced another round of heavy rainfall across northwest Louisiana on September 1 . A large mesoscale convective system moved in from Oklahoma and northeast Texas , dissipating what was left of this tropical depression by September 2 . Paid losses by the Federal Emergency Management Agency (FEMA) totaled nearly US \$ 21 million (1981 dollars) , with total damages exceeding US \$ 26 million (1981 dollars) .

= = = Hurricane Emily = = =

On September 1 , a subtropical storm became Tropical Storm Emily southwest of Bermuda . Emily moved northeast , crossing the island the next day , but measured winds were below tropical storm force . The storm continued generally northeast and strengthened into a hurricane . Hurricane Emily weakened over the north Atlantic and was no longer identifiable as a weather system by September

12 . Hurricane Emily caused beach erosion across the East Coast of the United States , but no other damage was reported .

= = = Hurricane Floyd = = =

Floyd was first tracked as a tropical depression on September 3 when it organized east of the Leeward Islands . As the depression moved northwest , it caused heavy rain . The highest rainfall reported was 5 @. @ 7 inches (140 mm) at Antigua . It strengthened into a tropical storm , then reached hurricane strength on September 7 .

Floyd turned to the northeast , and passed just southeast of Bermuda as a weakening hurricane . As a tropical storm , Floyd moved east across the Atlantic until losing its identity on September 12 .

No damages are associated with Floyd . Although Bermuda was directly affected , the island experienced the weaker half of the storm .

= = = Hurricane Gert = = =

A tropical wave exited western Africa on September 1 , gradually developing a concentrated area of convection . Early on September 7 , it was estimated that Tropical Depression Eleven about 400 mi (640 km) east of the Leeward Islands , based on satellite imagery . The next day , data from the Hurricane Hunters indicated the depression intensified into Tropical Storm Gert . The newly upgraded storm passed between the islands of Dominica and Guadeloupe and continued to intensify , making landfall on southeastern Puerto Rico with winds of 60 mph (95 km / h) late September 8 . After emerging into the Atlantic , Gert weakened while passing off the north coast of the Dominican Republic . It restrengthened while turning northward near the Bahamas , becoming a hurricane on September 10 . Midday on September 11 , Gert attained its peak intensity with winds of 105 mph (165 km / h) and a minimum pressure of 988 mbar (hPa ; 29 @. @ 18 inHg) . The hurricane turned northeastward and weakened over cooler waters , passing about 100 mi (160 km) north of Bermuda on September 12 as a tropical storm . On September 14 , Gert weakened further to tropical depression status , dissipating the next day .

While passing through the Leeward Islands , Gert dropped moderate rainfall of 5 @. @ 85 inches (148 @. @ 5 mm) on St. Thomas . Winds gusted to 50 mph (85 km / h) on the island . In Puerto Rico , rainfall peaked at 6 @. @ 02 inches (153 mm) in the Puerto Rican municipality of Maricao . Gale warnings were issued for the Turks and Caicos Islands and later the southeastern Bahamas , and light rainfall occurred in the region , reaching 3 @. @ 20 inches (81 @. @ 28 mm) on the island of San Salvador . Winds were light in Bermuda .

= = = Hurricane Harvey = = =

Harvey formed in the central Atlantic , reaching hurricane strength only a few hours after first becoming a named system on September 12 . From its initial position several hundred miles east of the Leeward Islands , Harvey moved northwest . Its path began curving more to the north , and was considered a threat to Bermuda until the continuing curve took Harvey away from the island . Harvey 's track became more easterly , and the storm weakened and became extratropical as it approached the Azores . Harvey caused no reported damage , although several ships reported experiencing tropical storm force winds .

= = = Tropical Depression Thirteen = = =

The thirteenth tropical depression developed 275 mi (443 km) southwest of Bermuda on September 22 , and was initially expected to intensify into a tropical storm . Although it failed to further intensify , Tropical Depression Thirteen brought squalls to Bermuda with winds gusts of tropical storm force as it passed west of the island on September 23 . Moving northward , the system merged with a developing extratropical cyclone south of Nova Scotia on September 24 .

=== Hurricane Irene ===

Irene became a named storm midway between the Windward Islands and Cape Verde on September 23 , and its track mimicked that of Hurricane Harvey . The storm tracked northwest , becoming a hurricane on September 25 . Its track then began curving to the east , eventually resulting in motion to the northeast .

The storm weakened and became extratropical in early October . The remaining extratropical storm moved over France on October 3 .

=== Tropical Depression Fifteen ===

This tropical depression formed southwest of the Cape Verde Islands on September 27 , and tracked through the deep tropics before weakening as it moved over the Leeward Islands late on September 30 . Heavy rains occurred at Guadeloupe as the system passed by the island . The depression then recurved to the south and east of Bermuda late on October 3 .

=== Tropical Storm Jose ===

Jose was a weak and short @-@ lived tropical storm that formed far from land on October 29 . It moved generally northeast before becoming subtropical and then dissipating on November 1 near the Azores .

=== Hurricane Katrina ===

A tropical depression formed on November 3 in the western Caribbean Sea about 150 miles (240 km) south of the Cayman Islands . The depression moved north , reaching tropical storm strength as it moved through the Caymans . Katrina continued to strengthen , reaching hurricane strength half a day before landfall in Cuba . A weakening Katrina moved across eastern Cuba on November 6 . After emerging over water , the storm accelerated northeast through the Bahamas . Katrina 's circulation fell apart , and the storm merged with a front on November 8 .

Hurricane Katrina is reported to have killed two and caused widespread flood damage in Cuba 's Camagüey province . Katrina was the only named storm responsible for fatalities in 1981 .

=== Subtropical Storm Three ===

A frontal low over the warm waters of the Gulf Stream organized into an subtropical storm on November 12 while 400 miles (640 km) east of Jacksonville , Florida . After moving northeastward , it turned to the northwest , threatening the northeastern United States as an intensifying subtropical storm that was gradually developing tropical characteristics . A high pressure system turned it to the northeast , and after peaking at 70 mph (110 km / h) it became extratropical near Nova Scotia on November 17 . The storm produced significant beach erosion and coastal flooding .

== Storm names ==

The following names were used for named storms that formed in the north Atlantic in 1981 . No names were retired , so it was used again in the 1987 season . It was the first use for all of these names since the post @-@ 1978 naming change , except for Arlene , Cindy and Irene which had been previously used in 1959 , 1963 , 1967 , and 1971 . Names that were not assigned are marked in gray .

=== Retirement ===

Due to lack of major damage from the storms , the WMO did not retire any names in 1981 . They were used again in 1987 .

= = Season summary = =