

= 1973 Atlantic hurricane season =

The 1973 Atlantic hurricane season was the first season to use the Saffir ? Simpson hurricane scale , a scale developed in 1971 by Herbert Saffir and Robert Simpson to rate the intensity of tropical cyclones . The season produced 24 tropical and subtropical cyclones , of which only 8 reached storm intensity , 4 became hurricanes , and only 1 reached major hurricane status . Although more active than the 1972 season , 1973 brought few storms of note . Nearly half of the season 's storms affected land , one of which resulted in severe damage .

The season officially began on June 1 , 1973 , and lasted until November 30 , 1973 . These dates conventionally delimit the period of each year when most tropical cyclones form in the Atlantic basin . However , the first system formed on April 18 , more than a month before the official start . Three more depressions formed before June 1 ; however , none attained storm intensity . The first named storm of the year was Hurricane Alice which formed on July 1 and became the first known cyclone to affect Bermuda during July . More than a month later , the second hurricane , Brenda , formed and was considered the worst storm to strike Mexico along the eastern coast of the Bay of Campeche , killing 10 people .

Later in August , Tropical Storm Christine became the easternmost forming tropical cyclone on record when it developed formed over Guinea . The most intense storm of the season was Hurricane Ellen , a Category 3 cyclone that remained over open water . The final named storm was meteorologically significant in that it became the first recorded tropical cyclone to transition into a subtropical cyclone . No names were retired during the season ; however , due to the addition of male names into the list of Atlantic hurricane names in 1979 , several of the names were removed and have not been used since .

= = Season summary = =

The first storm of the 1973 hurricane season , forming in mid @-@ April , developed more than a month before the official start of the season . Several other short @-@ lived , weak depressions formed before and during June ; however , none reached storm intensity . The first named storm , Alice , formed on July 1 . Tracking generally to the north , Alice also became the first hurricane of the season as well as the first known cyclone to impact Bermuda during July . Shortly after Alice dissipated over Atlantic Canada , another depression formed . By the end of July , two more non @-@ developing depressions formed and the first subtropical cyclone , given the name Alfa , developed off the east coast of the United States . This storm was short @-@ lived and dissipated on August 2 just offshore southern Maine . The first half August was relatively quiet , with only one depression forming . However , later in the month , the season 's second hurricane , Brenda , formed in the northwestern Caribbean . Peaking just below Category 2 status on the newly introduced Saffir ? Simpson hurricane scale , Brenda made the first recorded landfall in the Mexican State of Campeche .

Later in August , Tropical Storm Christine became the easternmost forming tropical cyclone in the Atlantic basin on record , developing over the western African country of Guinea on August 25 . The system traveled for several thousand miles before dissipating in the eastern Caribbean Sea in early September . At the start of the month , a new tropical storm formed in the Gulf of Mexico . This storm , named Delia , became the first known cyclone to make landfall in the same city twice . After moving inland a second time , Delia eventually dissipated on September 7 . As Delia dissipated another depression formed in the same region , eventually making landfall in the same city as Delia , Freeport , Texas . Another brief depression formed several days later . On September 13 , the strongest storm of the season , Ellen , formed over the eastern Atlantic . After tracking northwest for several days , Ellen eventually attained hurricane status as it turned westward . Several days later , the hurricane turned northeast due to an approaching frontal system . Shortly before becoming extratropical , Ellen reached major hurricane intensity at a record northerly latitude .

In late September , a brief depression affected northern Florida before dissipating . After a week of inactivity , the second subtropical storm of the year formed over the central Atlantic . This storm ,

named Bravo , gradually intensified , becoming fully tropical , at which time it was renamed Fran , a few days later . Upon being renamed , Fran had intensified into a hurricane and maintained this intensity for several days before dissipating east of the Azores on October 12 . A few days after Fran dissipated , the final named storm of the year formed in the central Caribbean Sea . A slow moving system , Gilda gradually intensified just below hurricane @-@ intensity before striking Cuba and moving over the Bahamas . A few days after passing through the islands , Gilda became the first storm on record to transition from a tropical cyclone into a subtropical cyclone . A large storm , Gilda eventually became extratropical near Atlantic Canada and dissipated later that month . Around the time Gilda was dissipating , a weak depression briefly existed near the Azores . The final storm of the year was a strong depression in the southern Caribbean Sea . This system was active for less than two days but may have briefly attained tropical storm intensity as it made landfall in southern Nicaragua .

= = Storms = =

= = = Hurricane Alice = = =

The first named storm formed out of the interaction between tropical wave and a mid @-@ level tropospheric trough northeast of the Bahamas in late @-@ June . A well @-@ defined circulation became apparent by June 30 and satellite images depicted cyclonic banding features . The following day , the system intensified into a tropical depression and shortly thereafter became a tropical storm as reconnaissance aircraft recorded gale @-@ force winds . An area of high pressure to the east of Alice steered the storm generally to the north . Decreasing wind shear allowed the storm to become increasingly organized and a well @-@ defined eye developed by July 3 . By this time , reconnaissance had determined that the storm had intensified into a hurricane , with maximum winds reaching 80 mph (130 km / h) .

On July 4 , the storm reached its peak intensity with winds of 90 mph (150 km / h) and a barometric pressure of 986 mbar (hPa ; 29 @.@ 11 inHg) , as the eastern portion of the eyewall brushed Bermuda . After passing the island , Alice began to accelerate in response to a mid @-@ level trough over the eastern United States and weakened . By July 6 , winds head decreased below hurricane intensity as the storm neared Atlantic Canada . Later that day , Alice made landfall in eastern Newfoundland with winds of 60 mph (95 km / h) before transitioning into an extratropical cyclone .

During its passage of Bermuda , Alice produced sustained winds up to 75 mph (120 km / h) and gusts to 87 mph (140 km / h) . No major damage was recorded on the island , though the winds blew down a few trees and powerlines . The heavy rainfall , peaking at 4 @.@ 57 in (116 mm) , ended a three @-@ month drought in Bermuda . Although Alice tracked through Atlantic Canada , no impact was recorded .

= = = Subtropical Storm Alfa = = =

During late July , an upper @-@ level low , with a non @-@ tropical cold core , formed near Cape Hatteras , North Carolina and tracked southward . Gradually , the circulation lowered to the surface and developed subtropical characteristics . On July 31 , the system attained gale @-@ force winds off the Mid @-@ Atlantic coast and was named Alfa , the first name from the list of subtropical storm names for the 1973 season . Tracking north @-@ northeast , the system intensified very little as it paralleled the coastline . By August 1 , the system weakened below subtropical storm intensity as it neared New England . The following day , Alfa dissipated just off the southern coast of Maine . The only effects from Alfa was light to moderate rainfall in New England , peaking at 5 @.@ 03 in (128 mm) in Turners Falls , Massachusetts . Most of southern Maine recorded around 1 in (25 mm) , with a maximum of 2 @.@ 59 in (66 mm) in Saco .

== Hurricane Brenda ==

Hurricane Brenda originated from a tropical wave that moved off the western coast of Africa on August 9 ; however , the initial wave quickly weakened upon entering the Atlantic Ocean . By August 13 , the wave began to regenerate as it passed through the Lesser Antilles . Several days later , convection associated with the system consolidated into a central , organized mass and on August 18 , the system had become sufficiently organized to be declared a tropical depression while situated near the Yucatán Channel . Early the next day , the depression strengthened into Tropical Storm Brenda as it made landfall in the northern portion of the Yucatán Peninsula . After moving inland , a strong ridge of high pressure over Texas forced the storm to take an unusual track , eventually leading it to enter the Bay of Campeche on August 20 .

Once back over water , Brenda began to intensify , attaining hurricane status late on August 20 . The next day , a well @-@ defined eye had developed and the storm attained its peak intensity as a high @-@ end Category 1 hurricane with winds of 90 mph (150 km / h) and a minimum pressure of 977 mbar (hPa ; 28 @.@ 85 inHg) . The storm made landfall later that day near Ciudad del Carmen , Mexico at this intensity , becoming the first hurricane on record to strike the region . After moving inland , Brenda rapidly weakened to a depression by the morning of August 22 and dissipated later that day .

Already suffering from severe flooding that killed at least 18 people and left 200 @,@ 000 homeless , Hurricane Brenda worsened the situation with torrential rainfall and additional flooding . The storm killed at least 10 people in the country . Following the damage wrought by Brenda , a large earthquake struck the region , hampering relief efforts and collapsing numerous structures . Winds on land gusted up to 112 mph (180 km / h) , leading to severe wind damage . Two of the fatalities occurred in Campeche after 80 % of the city was flooded . This was considered the worst flooding in the city in over 25 years . An estimated 2 @,@ 000 people were left homeless as a direct result of Brenda throughout Mexico . Offshore , a freighter with 25 crewman became trapped in the storm after its engines failed . They were safely rescued several days later once the storm had dissipated .

== Tropical Storm Christine ==

The easternmost forming Atlantic tropical cyclone on record , Tropical Storm Christine , originated as a tropical wave over Africa in mid @-@ August . As it neared the Atlantic Ocean , the wave spawned a tropical depression at 14 @.@ 0 ° W , over the country of Guinea , unlike most cyclone producing waves which travel several hundred miles over water before spawning a depression . Although it was already a depression , advisories on the storm were not issued until August 30 , five days after its formation . For several days , the depression maintained its intensity as it steadily tracked west across the Atlantic . It eventually attained tropical storm intensity on August 28 . Despite the lack of aircraft reconnaissance in the region , the intensity was determined by wind readings from a German cargo ship that passed through the storm .

On August 30 , the first reconnaissance mission into the storm found tropical storm @-@ force winds and the first advisory was issued that day , immediately declaring the system as Tropical Storm Christine . Three days later , Christine attained its peak intensity just below hurricane @-@ status with winds of 70 mph (110 km / h) and a minimum pressure of 996 mbar (hPa ; 29 @.@ 41 inHg) . Shortly thereafter , increasing wind shear caused the storm to weaken as it neared the Leeward Islands . As it passed over Antigua on September 3 , Christine weakened to a tropical depression and eventually dissipated near the Dominican Republic later that day .

During its passage through the Leeward Islands , Christine produced torrential rainfall , peaking at 11 @.@ 74 in (298 mm) in southeastern Puerto Rico . These rains led to flooding on several islands . One person was killed during the storm after being electrocuted by a downed power line on a flooded road . Schools were closed ahead of the storm in Puerto Rico and the United States Virgin Islands as a precaution following the issuance of flood warnings . Six scientists had to be evacuated from the small island of Aves once the storm posed a threat to them . No major damage was

reported on any of the affected islands in the wake of Christine .

== Tropical Storm Delia ==

On August 27 , a tropical wave formed over the central Caribbean and tracked towards the west @-@ northwest . The system gradually developed organized shower and thunderstorm activity . By September 1 , a tropical depression developed from the wave . By September 3 , the depression had intensified into a tropical storm , receiving the name Delia , and began tracking more towards the west . A complex steering patten began to take place later on that day , resulting in the creation of a more hostile environment for tropical cyclones in the Gulf of Mexico . As Delia neared the Texas coastline , it managed to intensify into a strong tropical storm with winds of 70 mph (110 km / h) . The lowest pressure was recorded at 986 mbar (hPa ; 29 @.@ 11 inHg) at this time . Shortly thereafter , the cyclone made its first landfall in Freeport , Texas late on September 4 . After executing a counterclockwise loop , the storm made landfall in Freeport again on September 5 . After moving inland , the storm quickly weakened , becoming a depression on September 6 before dissipating early the next day over northern Mexico .

Due to the erratic track of the storm along the Texas coastline , widespread heavy rains fell in areas near the storm and in Louisiana . Tides up to 6 ft (1 @.@ 8 m) , in addition to rainfall up to 13 @.@ 9 in (350 mm) , caused significant flooding in the Galveston @-@ Freeport area . Up to \$ 3 million was reported in damages to homes due to the flooding . Throughout Louisiana , there was substantial flooding of farmland . Damages to crops amounted to \$ 3 million . In addition to the flooding rains produced by Delia , eight tornadoes also touched down due to the storm , injuring four people . Five people were killed during Delia , two drowned during floods , two died in a car accident and the other died from a heart attack while boarding up his home .

== Tropical Depression Eleven ==

On September 6 , a tropical depression formed over the northwestern Caribbean Sea within a trough of low pressure extended southeastward from Delia , which was situated over southeast Texas at the time . The depression remained weak until it reached the Texas coastline on September 10 . Once onshore , it produced significant rainfall , causing significant damage that was attributed to Tropical Storm Delia . After turning northeast and tracking inland , the depression quickly increased in forward speed before dissipating over North Carolina on September 14 .

Along the coasts of Texas and Louisiana , the depression produced significant amounts of rainfall , peaking at 11 @.@ 15 in (283 mm) near Freeport . Several areas in southern Louisiana recorded rainfall exceeding 5 in (130 mm) with a maximum amount of 9 @.@ 2 in (230 mm) falling in Kinder . Significant rainfall was also recorded in the Carolinas and Georgia , with numerous areas recording over 3 in (76 mm) . A maximum of 9 @.@ 35 in (237 mm) fell near Whitmire , South Carolina before the system dissipated . In all , the depression resulted in an additional \$ 22 million in crop losses in southern Louisiana .

== Hurricane Ellen ==

The strongest storm of the season , Hurricane Ellen , began as a tropical wave that moved off the western coast of Africa on September 13 . On the following day , the wave spawned an area of low pressure south of the Cape Verde Islands that quickly became a tropical depression . Tracking northeast , the system intensified into a tropical storm on September 15 after sustained winds of 45 mph (75 km / h) were reported by a French naval vessel ; however , due to sparse data on the storm , the first advisory on Ellen was not issued for two more days . A slightly elongated storm , Ellen gradually intensified over the open Atlantic and was steered by two troughs of low pressure . On September 18 , the storm took a nearly due west track and the system became increasingly organized , with an ill @-@ defined eye becoming present on satellite imagery .

The next day , Ellen intensified into a hurricane before taking a sharp turn to the north @-@

northwest in response to a weak trough moving northeast from the Bahamas . Gradually , the hurricane turned more towards the northeast and began to accelerate as well as intensify . Despite being at an unusually high latitude for development , the storm underwent a brief period of rapid intensification , strengthening into a Category 3 hurricane on September 23 . At that time , Ellen attained its peak intensity with winds of 115 mph (185 km / h) and a minimum pressure of 962 mbar (hPa ; 28 @. @ 41 inHg) . Upon attaining this intensity at 42 @. @ 1 ° N , Ellen had become a major hurricane farther north than any other tropical cyclone on record , and is one of two storms to become a major hurricane north of 38 ° N , the other being Hurricane Alex in 2004 . Shortly after peaking , Ellen transitioned into an extratropical cyclone before merging with a frontal system several hundred miles east of Newfoundland on September 23 .

= = = Tropical Depression Thirteen = = =

On September 24 , a depression formed northeast of the Bahamas . The following day , the NHC issued their first advisory on the system , declaring it a subtropical depression . The depression was displayed an asymmetrical structure , with most winds being recorded up to 300 mi (480 km) north of the center . Later that day , the subtropical depression organized into a tropical depression . Upon doing so , the NHC issued small craft advisories for coastal areas between North Carolina and St. Augustine , Florida . Tracking north @-@ northwestward in response to a break in a subtropical ridge to the north , the depression eventually made landfall near Marineland , Florida and quickly weakened , dissipating before reaching the Gulf of Mexico .

Heavy rain fell in association with the depression in parts of Florida and Georgia . A maximum of 6 @. @ 74 in (171 mm) fell in Orlando while several other areas recorded over 3 in (76 mm) of rain . Over land , wind gusts reached 40 mph (65 km / h) in some locations . Offshore , swells produced by the system reached 10 ft (3 @. @ 0 m) , impacting several vessels in the region . Minor beach erosion and coastal flooding was reported in parts of South Carolina as a result of the storm . In parts of coastal Georgia , high water resulted in several road closures and flooded a few homes . Police officers in Savannah reported that wave were topping the local seawall ; however , no damage was reported .

= = = Hurricane Fran (Bravo) = = =

The final hurricane of the season , Fran , originated from an area of convection north of Hispaniola on October 1 . By October 4 , the system interacted with a mid @-@ tropospheric trough near the southeast United States , resulting in the formation of a surface low . Tracking eastward , showers and thunderstorms began to develop around the circulation ; however , the structure of the system was not fully tropical . Late on October 8 , the cyclone had become sufficiently organized to be classified a subtropical depression . Cold air from the remnants of a cold front became entrained within the circulation ; however , the cold air gradually warmed . The following day , winds increased to gale @-@ force and the depression was upgraded to a subtropical storm , at which time it was given the name Bravo .

By October 10 , Bravo had intensified substantially , as hurricane hunters recorded hurricane @-@ force winds roughly 15 mi (25 km) from the center of the storm . Following this finding , the National Hurricane Center reclassified the system as a tropical system and renamed it Fran , dropping its previous designation of Bravo . Steered generally eastward by a deep surface low in the westerlies , Fran accelerated towards the Azores Islands . Shortly after bypassing the islands on October 12 , the central pressure of Fran decreased to 978 mbar (hPa ; 28 @. @ 88 inHg) , the lowest recorded in relation to the hurricane . Shortly after reaching this intensity , the hurricane transitioned into an extratropical cyclone and quickly merged with a cold front off the coast of France . Although Fran passed near the Azores , no impact was recorded on any of the islands .

= = = Tropical Storm Gilda = = =

The precursor to Tropical Storm Gilda was a large convective system partially due to a tropical wave . It gradually became better organized over the northwestern Caribbean Sea , and on October 15 , a tropical depression formed off the coast of Nicaragua . As it drifted to the northeast , it strengthened to a tropical storm , peaking at 70 mph (110 km / h) winds . Before it hit the coast of Cuba , it weakened enough to cause only minor damage . By the time it struck the island , it had become very disorganized in nature .

On October 24 , cool , dry air entered the newly developed convection , and as a result it transitioned into a subtropical cyclone . Gilda became the first tropical system to pass through a subtropical stage prior to becoming extratropical . The large circulation continued northeast before becoming extratropical on October 27 . The remnants of Gilda intensified as they tracked near Atlantic Canada , attaining a central pressure of 968 mbar (hPa ; 28 @.@ 58 inHg) near Cape Race , Newfoundland . The system eventually dissipated near southern Greenland on October 29 .

Gilda caused heavy rain and mudslides in Jamaica , destroying six homes and killing six people . In Cuba , Gilda dropped over 6 in (150 mm) of rain , while 60 mph (95 km / h) winds were reported in the northern part of the country . In the Bahamas , Gilda caused significant crop damage from heavy rainfall and high tides . The storm 's persistent strong currents and easterly winds caused moderate beach erosion on the East Coast of the United States , mostly along the Florida coast . The extratropical remnants of the storm produced hurricane @-@ force wind gusts over parts of Atlantic Canada , peaking at 75 mph (120 km / h) ; however , no damage was reported .

= = = Other storms = = =

In addition to the eight named storms of 1973 and two notable tropical depressions , there were several minor systems that were classified as depressions by the National Hurricane Center . The first four systems of the year were not classified as fully tropical , rather they were associated with the remnants of decaying cold fronts . On April 18 , the first of these depressions formed northeast of the Bahamas and tracked in a curved motion before dissipating over open water on April 21 . Several days later , on April 24 , another depression formed in the same general region ; however , this system was shorter lived and dissipated two days later without significant movement . On May 2 , another partially tropical system formed over open waters . The cyclone tracked northeast and dissipated late on May 5 east @-@ southeast of the Azores . On May 11 , a brief depression formed near Bermuda but dissipated the following day . Roughly a week into the official hurricane season , the fifth depression of the year formed just offshore southeast Florida , near Miami . The system tracked northwest across the peninsula and briefly entered the Gulf of Mexico on June 8 before making landfall along the Florida Panhandle . The depression eventually dissipate on June 10 over South Carolina .

On June 23 , another depression formed along Florida , this time just onshore near the Georgia border . The system slowly tracked northeastward before dissipating on June 26 southeast of the North ? South Carolina border . As Hurricane Alice neared Bermuda on July 9 , a depression formed near the east coast of the United States ; however , the storm dissipated the following day . On July 19 , the first Cape Verde storm formed over the central Atlantic . This system did not intensify , remaining a weak depression and dissipated on July 21 without affecting land . The next day , a new depression formed over the southwestern Caribbean Sea near the coast of Nicaragua . The depression tracked over Central America , briefly moving back over water in the Gulf of Honduras before making a second landfall in Belize . The system persisted over land for a few days before entering the eastern Pacific late on July 25 .

Only one non @-@ developing depression formed during the month of August , an unusually eastward forming system . The depression was first identified just offshore eastern Africa on September 8 , near where Tropical Storm Christine formed later in the month . Tracking rapidly towards the west , the depression dissipated on September 11 over open waters . In addition to the two notable tropical depressions and two named storms in September , a slow @-@ moving depression formed south @-@ southeast of Bermuda on September 8 . Tracking generally northward , the depression dissipated early on September 10 without affecting land . Upon the

declaration of Hurricane Fran on October 10 , a new depression formed southwest of the strengthening hurricane . This system rapidly tracked northeast and dissipated two days later . Later that month , a slow @-@ moving depression formed near the Azores . This system tracked southeast and dissipated on October 30 without affecting land . The final system of the year formed near the northern coast of Panama on November 17 . The depression was noted as a " ... strong depression ... " by the National Hurricane Center and may have briefly attained tropical storm intensity before making landfall in southern Nicaragua on November 18 ; the system dissipated later that day over land .

= = Storm names = =

The following names were used for named storms (tropical storms and hurricanes) that formed in the North Atlantic in 1973 . Storms were named Christine , Delia , Ellen and Fran for the first time in 1973 . Due to the relatively minimal impact caused by storms during the season , no names were retired in the spring of 1974 ; however , due to the addition of male names in 1979 , the list was removed and replaced with a new set of names .

= = Subtropical storm names = =

The following names were used for subtropical storms in the Atlantic basin for this year . This year was the second and last year to use the phonetic alphabet . Although a storm was given the name Bravo , it was renamed Fran after acquiring tropical characteristics .

= = Season effects = =

This is a table of the storms in 1973 and their landfall (s) , if any . Deaths in parentheses are additional and indirect (an example of an indirect death would be a traffic accident) , but are still storm @-@ related . Damage and deaths include totals while the storm was extratropical or a wave or low .