

= 1972 Atlantic hurricane season =

The 1972 Atlantic hurricane season had only four fully tropical named storms ? the fewest since 1930 . It officially began on June 1 , 1972 , and lasted until November 30 , 1972 . These dates conventionally delimit the period of each year when most tropical cyclones form in the Atlantic basin . The first storm , Subtropical Storm Alpha , developed on May 23 off the Southeast United States and struck Florida , causing minor damage and two fatalities . Although several other tropical depressions developed , only Tropical Depression Five is known to have affected land .

The most significant storm of the season was Hurricane Agnes , which at the time was the costliest United States hurricane , until Frederic in 1979 . After brushing the western tip of Cuba , the hurricane made landfall on the Florida Panhandle . It caused at least \$ 2 @. @ 1 billion ( 1972 USD ) in damage and 137 fatalities , mostly from inland flooding in Pennsylvania and New York . The strongest hurricane of the season was Betty , which reached peak winds of 105 mph ( 165 km / h ) while west of the Azores . Tropical Storm Carrie passed just offshore of Massachusetts , causing heavy rainfall and resulting in four fatalities , but leaving only \$ 1 @. @ 78 million in damage .

The remaining tropical systems ? Dawn , Charlie , and Delta ? caused no significant effects on land . A strong El Niño kept hurricane activity at a minimum , with only four tropical storms , three subtropical storms , and three hurricanes . It was also one of only five hurricane seasons since 1944 to have no major hurricanes ? the other years being 1968 , the 1986 , 1994 , and 2013 . In addition , the season was the first to name subtropical storms , using the Phonetic Alphabet , rather than the standard naming list . Collectively , the storms of the 1972 Atlantic hurricane season resulted in 137 deaths and over \$ 2 @. @ 1 billion in damage .

= = Season summary = =

The Atlantic hurricane season officially began on June 1 , 1972 . Although 19 tropical cyclones developed , only seven of them reach tropical storm intensity , below the 1950 @- @ 2000 average of 9 @. @ 6 named storms per season . Of the seven tropical or subtropical storms , three of them strengthened into a hurricane , which is also below average . None of the three hurricane became major hurricanes , which is Category 3 or greater on the Saffir ? Simpson hurricane wind scale . Overall , the season was inactive , despite having a similar number of tropical waves as the previous season . The lack of activity was attributed to an El Niño ? which causes below normal sea surface temperatures over the eastern Atlantic ? and strong vertical wind shear . One subtropical storm and two hurricanes made landfall during the season and caused at least 137 fatalities and more than \$ 2 @. @ 1 billion in damage . The last storm of the season , Subtropical Storm Delta , became extratropical on November 7 , about 23 days before the official end of hurricane season on November 30 .

Tropical cyclogenesis first occurred in the month of May , with the development of Subtropical Storm Alpha . The month of June featured three tropical cyclones , including Hurricane Agnes and two tropical depressions . Three more systems formed in July , though all of them failed to reach tropical storm status . August was the most active month of the season , with five systems , including Hurricane Betty , Tropical Storm Carrie , and three tropical depressions . September featured slightly less cyclogenesis , with Hurricane Dawn , Subtropical Storm Charlie , and two tropical depressions . An additional three tropical depressions formed in October . Subtropical Storm Delta was the sole system in November , lasting from November 1 to November 7 .

The season 's activity was reflected with an Accumulated Cyclone Energy ( ACE ) rating of 36 , the lowest value since 1962 . Broadly speaking , ACE is a measure of the power of a tropical or subtropical storm multiplied by the length of time it existed . Therefore , a storm with a longer duration , such as Betty , will have high values of ACE . It is only calculated for full advisories on specific tropical and subtropical systems reaching or exceeding wind speeds of 39 mph ( 63 km / h ) . Accordingly , tropical depressions are not included here . After the storm has dissipated , typically after the end of the season , the NHC reexamines the data , and produces a final report on each storm . These revisions can lead to a revised ACE total either upward or downward compared to the

operational value .

= = Storms = =

= = = Subtropical Storm Alpha = = =

A subtropical depression developed from a cold @-@ core low pressure area southeast of the Carolinas on May 23 . After initially moving northeastward , it turned sharply southward on May 26 due to a building ridge of high pressure . Later that day , the system strengthened into Subtropical Storm Alpha and proceeded to move toward the coast of Georgia . After peaking with maximum sustained winds of 70 mph ( 110 km / h ) , Alpha began weakening . Late on May 27 , the storm made landfall near Brunswick , Georgia , with winds of 45 mph ( 75 km / h ) . Alpha weakened to a subtropical depression and dissipated after entering the northeastern Gulf of Mexico on May 29 .

Rough seas generated by the storm resulted in two people drowning in Florida and halted work to deepen a harbor at the Mayport Naval Station in Jacksonville . Tides along the Georgia coast reached 2 to 3 ft ( 0 @.@ 61 to 0 @.@ 91 m ) above normal , which caused some flooding and beach erosion . Wind gusts reached 58 mph ( 93 km / h ) on Saint Simons Island . The winds knocked down trees and power lines , leaving some people without power in eastern Georgia . Damage was minor but widespread in the state , estimated at over \$ 50 @, @ 000 . Moderate rains spread in coastal areas from South Carolina through southern Florida . Alpha was the first named subtropical storm .

= = = Hurricane Agnes = = =

A polar front and an upper trough over the Yucatán Peninsula spawned a tropical depression on June 14 . The storm emerged into the western Caribbean Sea on June 15 , and by the following day , it strengthened into Tropical Storm Agnes . The storm curved northward and brushed western Cuba on June 17 . Agnes continued to intensify , and on June 18 , it was upgraded to a hurricane . Minimal fluctuations in intensity occurred before the storm made landfall near Panama City , Florida , on June 19 . After moving inland , Agnes rapidly weakened and was only a tropical depression when it entered Georgia . Thereafter , weakening slowed as the storm crossed over Georgia and into South Carolina . However , while over eastern North Carolina on June 21 , Agnes re @-@ strengthened into a tropical storm , as a result of baroclinic activity . Early the following day , the storm emerged into the Atlantic Ocean before re @-@ curving northwestward and making landfall near New York City as a strong tropical storm . Agnes quickly merged with a non @-@ tropical low pressure system on June 23 .

Heavy rainfall occurred in western Cuba , causing flooding that destroyed 97 houses , isolated a few cities , and flatted crops in low @-@ lying areas . The storm left seven fatalities . Agnes caused a significant tornado outbreak , with at least 26 confirmed twisters , 24 of them in Florida and the other two in Georgia . The tornadoes alone resulted in over \$ 4 @. @ 5 million in damage and six fatalities . At least 2 @, @ 082 structures in Florida suffered either major damage or were destroyed . About 1 @, @ 355 other dwellings experienced minor losses . Though Agnes made landfall as a hurricane , no hurricane force winds were reported . Abnormally high tides resulted in extensive damage , especially between Apalachicola and Cedar Key . The storm left nine deaths and approximately \$ 40 million in damage in Florida . Generally minor effects were also recorded in the states of Alabama , Delaware , Georgia , Ohio , South Carolina , and Tennessee , as well as the New England region . However , one fatality was reported in Delaware and three were recorded in Georgia .

The most significant effects , by far , occurred in Pennsylvania , mostly due to severe flooding . Precipitation peaked at 18 in ( 460 mm ) in Schuylkill County , causing several creeks and rivers crest at record height , including the Delaware , Juniata , Lackawanna , Susquehanna , and West Branch Susquehanna rivers . More than 100 @, @ 000 people were forced to leave their homes due

to flooding . In the state of Pennsylvania , more than 3 @, @ 000 businesses and 68 @, @ 000 homes were destroyed , leaving at least 220 @, @ 000 people homeless . Overall , Agnes is ranked as the worst natural disaster in Pennsylvania . New York also suffered severe damage . Similarly , rivers in the state crested high , including the Allegheny , Chemung , Genesee , Susquehanna , and Tioga rivers . Corning , Elmira , and Olean , as well as many other Southern Tier towns , were severely flooded . Throughout New York , 32 @, @ 8232 homes were damaged and 628 others were damaged . A total of 1 @, @ 547 small businesses were extensively damaged or demolished . In Canada , a mobile home was toppled , killing two people . Overall , Agnes caused 131 fatalities and over \$ 2 @. @ 1 billion in damage .

= = = Hurricane Betty = = =

An area of disturbed weather appeared on satellite imagery while forming within an old frontal zone on August 21 . At 1200 UTC on the following day , a subtropical depression developed about 290 mi ( 470 km ) north @- @ northeast of Bermuda . The system strengthened slowly as it headed east @- @ northeastward or eastward and by August 24 , it became Subtropical Storm Bravo . During the next 24 hours , minimal intensification occurred . However , a deepening high @- @ level trough and a building ridge enhanced outflow and deep convection on August 25 . Additionally , reconnaissance aircraft flights began indicating a transition to a warm @- @ core . Unfavorable northwesterly winds briefly halted further development , though by late on August 26 , Bravo resumed acquiring tropical characteristics after another deepening trough accelerated the storm eastward .

After reconnaissance aircraft reported winds of 98 mph ( 158 km / h ) and satellite imagery indicated a storm with a classic cyclonic appearance , Bravo was reclassified as Hurricane Betty while located about 920 mi ( 1 @, @ 480 km ) west of the Azores on August 27 . After some further strengthening , Betty attained its peak intensity as a Category 2 hurricane with maximum sustained winds of 105 mph ( 165 km / h ) and a minimum barometric pressure of 976 mbar ( 28 @. @ 8 inHg ) early on August 28 . The hurricane then moved rapidly east @- @ northeastward before decelerating late on the following day . Around that time , northerly winds aloft caused Betty to weaken to a Category 1 hurricane . After briefly moving southward , the storm curved back to a general westward direction and fell to tropical storm intensity on August 31 . Later that day , Betty turned northward ahead of a trough and became extratropical about 565 mi ( 910 km ) northwest of Corvo Island in the Azores on September 1 .

= = = Tropical Storm Carrie = = =

A complex system combining a tropical wave and an upper level low led to the formation of a tropical depression east of Florida on August 29 . It managed to become a tropical storm on August 31 and reached initial peak winds of 60 mph ( 95 km / h ) later that day . However , upper @- @ level winds increased , causing Carrie to weaken to a minimal tropical storm by September 2 . Due to baroclinic processes , Carrie began to re @- @ intensify . As a result , Carrie attained its peak winds of 70 mph ( 110 km / h ) just prior to transitioning into an extratropical cyclone on September 3 . The extratropical cyclone continued northeastward , and struck eastern Maine on September 4 . By the following day , the extratropical cyclone dissipated over the Gulf of Saint Lawrence .

Carrie had a minimal impact on the East Coast south of New England , limited to increased swells , gusty winds , and light rainfall . The worst conditions occurred over southeastern New England , where wind gusts reached 84 mph ( 135 km / h ) and rainfall exceeded 1 ft ( 0 @. @ 30 m ) . Damage was most severe along and slightly inland from the coast . Thousands of people became stranded on offshore islands of Massachusetts after dangerous conditions created by the storm prompted the suspension of steamship service . Overall , damage was generally light , with total monetary losses valued at \$ 1 @. @ 78 million . Four deaths were blamed on the storm .

= = = Hurricane Dawn = = =

A tropical wave , combined with an upper tropospheric trough , resulted in the development of a tropical depression near Cay Sal Bank , Bahamas , on September 5 . Later that day , the depression struck Key Largo , Florida , before moving inland over the mainland of Florida . The storm brought very light rainfall to the state , peaking at 1 @. @ 19 in ( 30 mm ) in Tavernier . The system moved northeastward and soon re @-@ emerged into the Atlantic . While located north of Grand Bahama on September 6 , the depression intensified into Tropical Storm Dawn . On September 7 , a cold low pressure developed near Cape Hatteras , North Carolina , which would influence much of Dawn 's movement . Around that time , the storm strengthened into a Category 1 hurricane . Dawn then curved west @-@ northwestward on September 8 and peaked with maximum sustained winds of 80 mph ( 130 km / h ) and a minimum barometric pressure of 997 mbar ( 29 @. @ 4 inHg ) .

With Dawn appearing as a threat to the Mid @-@ Atlantic , storm and gale warnings were issued from Chincoteague Inlet , Virginia , to Cape May , New Jersey on September 8 . However , the hurricane veered southeastward on September 9 and weakened to a tropical storm . By late on September 10 , after the cold low pressure area relinquished influence over Dawn , the cyclone began moving westward , but continued to deteriorate . Dawn weakened to a tropical depression while well east of Georgia late on September 12 . The system approached the Sea Islands on September 13 , but curved northeastward and remained offshore . Dawn dissipated less than 15 mi ( 25 km ) east of Isle of Palms , South Carolina , on September 14 . The storm also produced very light rainfall in Georgia and South Carolina .

= = = Subtropical Storm Charlie = = =

A very small , circular subtropical depression developed about 460 mi ( 740 km ) northeast of Bermuda on September 19 . Initially , the storm moved north @-@ northeastward and strengthened into Subtropical Storm Charlie early the following day . It then moved quickly northeastward and continued to strengthen . Later on September 20 , Charlie peaked with maximum sustained winds of 65 mph ( 100 km / h ) . The system soon lost tropical characteristics and transitioned into an extratropical cyclone about 630 mi ( 1 @, @ 010 km ) east of Cape Race , Newfoundland , early on September 21 . However , the extratropical storm deepened significantly , reaching a barometric pressure of 944 mbar ( 27 @. @ 9 inHg ) , a reading typical of a strong Category 3 hurricane . Early on September 22 , the extratropical cyclone dissipated over the far north Atlantic .

= = = Subtropical Storm Delta = = =

A southwestward @-@ moving cold @-@ core low pressure area developed into a subtropical depression while located about 950 mi ( 1 @, @ 530 km ) west @-@ southwest of Flores Island in the Azores on November 1 . After forming , the system soon strengthened and was upgraded to Subtropical Storm Delta . Early on November 3 , Delta attained its peak intensity with maximum sustained winds of 45 mph ( 75 km / h ) and a minimum barometric pressure of 1 @, @ 001 mbar ( 29 @. @ 6 inHg ) . Around that time , the subtropical storm briefly moved southward , before beginning a general eastward movement on November 4 . Delta soon began to weaken and was reduced to a subtropical depression by the following day . It continued eastward until November 6 , at which time the storm decelerated and curved northward . Delta dissipated while located about 790 mi ( 1 @, @ 270 km ) southwest of Flores Island .

= = = Other storms = = =

In addition to the named storms , there were several weak depressions during the season . As Agnes was moving over the southeastern United States , a tropical depression formed approximately 400 mi ( 640 km ) southwest of Bermuda on June 19 . It moved northeastward and headed toward the island . The depression dissipated later the following day . The next system , numbered Tropical Depression Five , developed offshore North Florida on July 10 . Moving generally northward , Tropical Depression Five made landfall near Cape Fear in North Carolina on

July 12 . The depression dissipated over Virginia about two days later . Generally light rainfall was reported in several states , though 8 in ( 200 mm ) of precipitation was recorded on Cedar Island , North Carolina . Another tropical depression originated about 430 mi ( 690 km ) southwest of Flores Island in the Azores on July 16 . It trekked slowly until July 19 , at which time the system curved northeastward . Late the following day , the depression dissipated about 225 mi ( 360 km ) west of Flores Island . On July 31 , a tropical depression formed about 515 mi ( 830 km ) southeast of Bermuda . The depression moved southwestward , toward the Bahamas and Lesser Antilles , but dissipated about 225 mi ( 360 km ) northeast of Turks and Caicos Islands on August 3 .

A tropical depression developed over Senegal on August 5 . Tracking westward , the depression passed south of Cape Verde before dissipating southwest of the islands on August 8 . Four days later , another tropical depression originated about 175 mi ( 280 km ) east @-@ southeast of Charleston , South Carolina . It moved slowly northeastward and intensified slightly , but dissipated about 210 mi ( 340 km ) southeast of Cape Hatteras , North Carolina , on August 15 . The tenth tropical depression formed on August 16 while offshore Senegal . Moving generally westward , the cyclone crossed through Cape Verde and struck the islands of Fogo and Santiago . By August 18 , the depression dissipated . Another tropical depression developed about 800 mi ( 1 @, @ 300 km ) east @-@ southeast of Bermuda on September 3 . The system moved northeastward toward the Azores , but degenerated about 750 mi ( 1 @, @ 210 km ) southwest of Flores Island on September 5 . The next tropical depression formed on September 20 while located about 570 mi ( 920 km ) west @-@ southwest of Cape Verde . The storm tracked generally westward , but then began moving west @-@ northwestward on September 21 . Three days later , the depression dissipated about 890 mi ( 1 @, @ 430 km ) east @-@ northeast of Barbados .

On October 1 , a tropical depression originated about 700 mi ( 1 @, @ 100 km ) east @-@ southeast of Bermuda . The depression trekked generally northward and dissipated about 505 mi ( 815 km ) south @-@ southeast of Cape Race , Newfoundland , on October 3 . Yet another tropical depression formed about 120 mi ( 190 km ) west of Bolama , Guinea @-@ Bissau , on October 5 . The depression moved generally westward , before curving to the northwest on October 8 . Five days later , it turned northward while well northeast of the Lesser Antilles . By October 14 , the system began moving north @-@ northeast . The depression dissipated about 800 mi ( 1 @, @ 300 km ) east @-@ northeast of Bermuda on the following day . Yet another tropical depression formed about 445 mi ( 715 km ) southwest of Brava , Cape Verde , on October 16 . Initially the depression moved generally west @-@ northwestward and dissipated about halfway between Barbados and Cape Verde .

= = Storm names = =

The following names were used for named storms that formed in the North Atlantic in 1972 . Names that were not assigned are marked in gray . Storms were named Agnes , Betty and Dawn for the first time in 1972 . The name Agnes was later retired .

= = = Subtropical storm names = = =

The following names were used for subtropical storms ( sometimes called neotercanes ) in the Atlantic basin for this year . This year was the first year to use the Phonetic Alphabet for these storms . Names that were not assigned are marked in gray .