

= 1971 Atlantic hurricane season =

The 1971 Atlantic hurricane season was fairly active with several notable storms . Hurricane Edith , the strongest of the season , was a Category 5 on the Saffir @-@ Simpson scale , the highest category on the scale . It struck Nicaragua at peak intensity , killing dozens , and later hit southern Louisiana . Until 2003 , Hurricane Ginger held the record for the longest known duration of a North Atlantic tropical cyclone , lasting 27 @.@ 25 days from early September to early October ; it is currently the second longest @-@ lasting Atlantic hurricane . Ginger moved ashore in North Carolina , producing heavy rains and damaging winds . An unnamed storm in August attained hurricane status further north than any other Atlantic hurricane .

The season officially began on June 1 , and lasted until November 30 , 1971 ; these dates conventionally delimit the period of each year when most tropical cyclones form in the Atlantic basin . With thirteen tropical storms , of which six became hurricanes , the season was active . Despite the activity , damage in the United States totaled about \$ 235 million (1971 USD , \$ 1 @.@ 37 billion 2016 USD) , which National Hurricane Center forecaster Paul Hebert noted was " pretty small considering we had five storms in a row strike the U.S. " Most of the damage came from Tropical Storm Doria , which affected much of the East Coast of the United States . Hurricane Fern struck Texas after executing an unusual track , dropping heavy rainfall and producing flooding . The first storm , Arlene , developed on July 4 off the coast of North Carolina . Activity was steady through most of the season , and the last storm , Laura , dissipated on November 22 .

= = Storms = =

= = = Tropical Storm Arlene = = =

The origins of Arlene were from a cold front that exited the East Coast of the United States on July 2 and stalled offshore . A frontal wave developed the next day , steadily developing due to thermal instability . On July 4 , the system organized into a tropical depression about 120 mi (195 km) southeast of Cape Hatteras , North Carolina . While in its formative stages , it dropped rainfall along the coast of the Carolinas , peaking at 4 @.@ 11 in (104 mm) in Pinopolis , South Carolina . The depression tracked northeastward due to a ridge over New England , and the cyclone passed just southeast of the Outer Banks . After a Hurricane Hunters plane observed gale force winds , the depression was upgraded to Tropical Storm Arlene late on July 5 ; in the post @-@ season summary , meteorologist Neil Frank noted , " the surprising element in the development of Arlene was the rapidity of the transformation process . "

Upon being named , Arlene continued northeastward , possessing a circular mass of convection with spiral rainbands . Late on July 6 , the storm attained peak winds of 65 mph (100 km / h) , based on a ship report . It weakened thereafter , and Arlene transitioned into an extratropical cyclone late on July 7 just south of Newfoundland . The cyclone last observed early the following day . The storm capsized a boat in the Grand Banks of Newfoundland , and the crew of 12 was rescued .

= = = Unnamed Hurricane = = =

A hybrid @-@ type depression formed east of Bermuda on July 29 . It moved rapidly southwestward before turning to a northwest drift . On August 3 , it was classified as a tropical depression , and the next day the system passed near Bermuda . The depression accelerated to the northeast , strengthening into a tropical storm on August 5 . It intensified further due to baroclinity , or enhanced instability through different levels of the atmosphere caused by temperature and moisture gradients . On August 6 , a drilling rig about 230 mi (370 km) southeast of Newfoundland recorded sustained winds of 90 mph (140 km / h) with gusts to 126 mph (204 km / h) at an altitude of 325 ft (99 m) ; this suggested the storm attained hurricane status at 46 ° North , which is

the northernmost location for a tropical storm to intensify into a hurricane .

Despite the intensity , the cyclone was not purely tropical ; although the radius of maximum winds was only 35 mi (56 km) , the thermal structure did not resemble a tropical cyclone , and there was no precipitation or convection near the center . It continued northeastward and dissipated on August 7 to the southwest of Greenland . It was not named operationally , but it was later added to the Atlantic hurricane database .

== Hurricane Beth ==

On August 9 , an upper @-@ level low developed off the coast of Florida , and the next day spawned a tropical depression . The newly developed cyclone tracked slowly northeastward , eventually encountering conditions favorable for development . On August 14 , the depression intensified into Tropical Storm Beth off the coast of North Carolina , and it quickly strengthened into a hurricane by August 15 . After reaching peak winds of 85 mph (137 km / h) off the coast of Cape Cod , Beth slightly weakened and later moved ashore near Copper Lake , Nova Scotia . Shortly thereafter , Beth was swept up by a nearby cold front and transitioned into an extratropical cyclone .

The hurricane left extensive damage in its wake , especially to crops and infrastructure . Halifax International Airport reported 10 @. @ 49 in (266 mm) of rainfall in a 30 ? hour span , which caused widespread flooding . Several bridges in the region were washed out , while railways were covered by water , forcing trains to suspend their operation . Overall monetary damage from Beth is estimated up to \$ 5 @. @ 1 million (1971 USD , \$ 29 @. @ 8 million 2016 USD) . One person was indirectly killed by the hurricane in a traffic accident induced by heavy rainfall .

== Tropical Depression Eight ==

On August 11 , Tropical Depression Eight developed southwest of Fort Myers , Florida . It quickly moved ashore , reaching Lake Okeechobee before looping to the northwest . While moving across the state , it dropped heavy rainfall of around 10 in (250 mm) along the west coast . In Pinellas Park , the heavy rains led to flash flooding that forced 200 families from their house , including one that required evacuation from a helicopter . Damage in the region was estimated at \$ 250 @, @ 000 (1971 USD , \$ 1 @. @ 46 million 2016 USD) .

The depression emerged into the Gulf of Mexico on August 15 near Tampa , and later turned to the northeast ahead of an upper @-@ level low . On August 16 , it intensified as it moved ashore near Cedar Key , where hurricane @-@ force wind gusts were briefly observed . The depression dissipated on August 17 over South Carolina , although in that state it produced its heaviest rainfall , totaling 14 @. @ 11 in (358 mm) in Sullivan 's Island . In nearby Savannah , Georgia , the rainfall forced about 100 families from their houses in low @-@ lying areas . The remnants continued northeastward through the Mid @-@ Atlantic States and New England , crossing into Canada on August 20 .

== Tropical Storm Chloe ==

A tropical wave moved off the coast of Africa on August 13 , moving westward for several days before organizing into a tropical depression on August 18 about 460 mi (740 km) east of Barbados . It quickly moved through the Lesser Antilles , where it produced wind gusts up to 58 mph (93 km / h) . The cyclone also dropped heavy rainfall up to 6 in (150 mm) on Barbados and Martinique . After entering the eastern Caribbean Sea , the depression intensified into Tropical Storm Chloe on August 20 . About 18 hours after attaining tropical storm status , Chloe quickly strengthened to peak winds of 65 mph (105 km / h) about 215 mi (345 km) south of the Mona Passage , as reported by reconnaissance aircraft .

After reaching peak intensity , Chloe began weakening as it turned to the west @-@ southwest , and late on August 22 , it was downgraded to a tropical depression as a weakening ridge to its north cut off the low @-@ level inflow . For several days it continued generally westward , gradually losing

organization . While passing south of Jamaica , the storm prompted the evacuation of the SS Hope , a hospital ship , at Kingston . On August 25 , Chloe moved ashore in Belize as a weak tropical depression , and dissipated shortly thereafter without ever having caused significant damage or deaths . The remnants of Chloe later spawned Hurricane Lily in the eastern Pacific Ocean .

== Tropical Storm Doria ==

Tropical Storm Doria , the costliest storm of the season , developed from a tropical wave on August 20 to the east of the Lesser Antilles , and after five days without development attained tropical storm status to the east of Florida . Doria turned to the north , and reached peak winds of 65 mph (105 km / h) as it was making landfall near Morehead City , North Carolina . It turned to the northeast , and moved through the Mid @-@ Atlantic and New England as a tropical storm before becoming an extratropical storm over Maine on August 29 .

In North Carolina , Doria produced moderate rainfall , resulting in localized flooding and damage . The storm spawned a tornado near Norfolk , Virginia , damaging twelve houses and downing hundreds of trees . Tropical Storm Doria dropped heavy precipitation in New Jersey , peaking at 10 @.@ 29 in (261 mm) in Little Falls . The rainfall led to record @-@ breaking river levels and flooding in several houses , resulting in damage to dozens of houses across the state . Moderate damage and rainfall continued along its path into New England and southeastern Canada . In all , Tropical Storm Doria caused seven deaths and \$ 147 @.@ 6 million (1971 US \$, \$ 862 million 2016 USD) .

== Hurricane Fern ==

Hurricane Fern was the first of four tropical systems to develop in association with an extended surface trough across the Gulf of Mexico into the open Atlantic , along with Ginger , Heidi , and a strong tropical depression . Fern developed on September 3 in the central Gulf of Mexico . It moved over southern Louisiana the next day , but due to increased ridging to the north the depression moved southwestward back over water . On September 7 , the depression intensified into Tropical Storm Fern ; it is rare for a tropical depression to move over land in the continental United States (excluding Florida) and later attain tropical storm status . Fern later turned to the northwest , intensifying into a hurricane on September 8 . It quickly reached peak winds of 90 mph (140 km / h) , but later weakened as it curved to the southwest , moving ashore on September 10 between Freeport and Matagorda , Texas as a tropical storm . Fern dissipated on September 13 over northeastern Mexico .

The precursor of Fern dropped rainfall up to 5 in (130 mm) of rainfall across South Florida , while totals of up to 10 in (250 mm) were reported in southeastern Louisiana where it made its first landfall . As it struck Texas , Fern produced strong winds up to 86 mph (138 km / h) , along with 5 to 6 ft (1 @.@ 5 to 1 @.@ 8 m) storm tides and heavy rainfall ; the highest precipitation total was 26 @.@ 0 in (660 mm) in Beeville . The heavy rainfall caused severe flash flooding that isolated numerous small towns in the southeastern portion of the state , damaging 7 @,@ 500 buildings . In all , Fern left two indirect deaths and moderate damage totaling \$ 30 @.@ 2 million (1971 USD , \$ 171 million 2016 USD) .

== Hurricane Edith ==

Hurricane Edith , the strongest storm of the season , developed from a tropical wave on September 5 to the east of the southern Lesser Antilles . It moved quickly across the southern Caribbean Sea , intensifying into a hurricane just off the north coast of South America . Edith rapidly intensified on September 9 and made landfall on Cape Gracias a Dios as a Category 5 hurricane on the Saffir @-@ Simpson Hurricane Scale . It quickly lost intensity over Central America and after briefly entering the Gulf of Honduras it crossed the Yucatán Peninsula in Mexico . After moving across the Gulf of Mexico , a trough turned the storm to the northeast and Edith , after having restrengthened

while accelerating towards the coast , made landfall on Louisiana with winds of 105 mph (170 km / h) on September 16 . Edith steadily weakened over land and dissipated over Georgia on September 18 .

The hurricane killed two people when it passed near Aruba . Striking northeastern Central America as a Category 5 hurricane , Edith destroyed hundreds of homes and killed at least 35 people . In Texas high tides caused coastal flooding but little damage . Edith caused moderate to heavy damage in portions of Louisiana due to flooding and a tornado outbreak from the storm . One tornado , rated F3 on the Fujita Scale , damaged several homes and injured multiple people in Baton Rouge . The tornado outbreak extended eastward into Florida . Damage in the United States totaled \$ 25 million (1971 USD , \$ 146 million 2016 USD) .

== Hurricane Ginger ==

Hurricane Ginger was the longest lasting Atlantic hurricane on record until 2003 , when the 1899 San Ciriaco hurricane was retroactively found to have lasted longer . The eighth tropical cyclone and fifth hurricane of the season , Ginger spent 27 @.@ 25 days as a tropical cyclone , and lasted from September 6 to October 3 . The storm developed in a large region of convection across the Gulf of Mexico and western Atlantic , and for the first nine days of its duration tracked generally east- or northeastward while gradually strengthening to peak winds of 110 mph (175 km / h) . On September 14 Ginger slowed and turned to a general westward track , passing near Bermuda on September 23 ; there , the hurricane produced gusty winds and high waves , but no damage .

While over the western Atlantic Ocean , Ginger became the last target of Project Stormfury , which sought to weaken hurricanes by depositing silver iodide into tropical cyclone rainbands . The plane dropped silver iodide into the center of Ginger , although there was no effect due to Ginger 's large eye and diffuse nature ; Ginger was the last seeding done by the project . Ginger ultimately struck North Carolina on September 30 as a minimal hurricane , lashing the coastline with gusty winds that caused power outages across the region . Heavy rainfall flooded towns and left heavy crop damage , with 3 million bushels of corn and 1 million bushels of soybean lost . Damage in the state was estimated at \$ 10 million (1971 USD , \$ 58 @.@ 4 million 2016 USD) . Further north , moderate rainfall and winds spread through the Mid @-@ Atlantic states , although no significant damage was reported outside of North Carolina .

== Tropical Storm Heidi ==

Tropical Storm Heidi was the last of the four tropical systems to develop from the extended surface trough of low pressure , forming on September 11 northeast of the Bahamas and intensifying into a tropical storm the next day . After initially moving to the northwest , Heidi curved northeastward and attained its peak intensity of 65 mph (100 km / h) on September 14 off the coast of Virginia . The storm failed to become a well @-@ organized system , and it gradually weakened while accelerating north @-@ northeastward . On September 15 , shortly after Heidi moved ashore in Maine , it was absorbed by a broad extratropical cyclone over the northern Appalachians .

Heidi did not directly cause any fatalities or severe damage . However , the larger extratropical storm drew in moisture from Heidi , producing rainfall from North Carolina through northern New England , including a peak of 9 @.@ 38 in (238 mm) in southeastern Pennsylvania . The heavy rains triggered extensive flooding that caused over a dozen fatalities and left thousands of residents homeless in Pennsylvania and New Jersey . In Chester , Pennsylvania a stone dam collapsed , forcing hundreds of families to evacuate and damaging homes , businesses , roads , and bridges . Governor Milton Shapp declared a state of emergency in several Pennsylvania counties following the floods .

== Hurricane Irene ==

A tropical wave spawned a tropical depression on September 11 about 800 mi (1300 km) east of

the Windward Islands . The cyclone tracked nearly due westward at a low latitude , passing through the southern Windward Islands and later over northern South America . In the southwest Caribbean Sea , it intensified to a tropical storm and later a hurricane . Irene made landfall on southeastern Nicaragua on September 19 , and maintained its circulation as it crossed the low @-@ lying terrain of the country . Restrengthening after reaching the Pacific , Irene was renamed Hurricane Olivia , which ultimately attained peak winds of 115 mph (185 km / h) before weakening and dissipating over northwestern Mexico .

In the Atlantic , Irene produced moderate rainfall and winds along its path , although impact was greatest in Nicaragua where it moved ashore as a hurricane . A total of 96 homes were destroyed , and 1 @, @ 200 people were left homeless . The rainfall resulted in widespread flooding , killing three people in Rivas . In neighboring Costa Rica , Hurricane Irene caused more than \$ 1 million (1971 USD , \$ 5 @. @ 84 million 2016 USD) in damage to the banana crop . The hurricane was the first actively tracked tropical cyclone that moved into the eastern Pacific Ocean from the Atlantic ocean .

= = = Tropical Storm Janice = = =

The origins of Janice were from a tropical wave that moved off the coast of Africa on September 18 . It developed into a tropical depression on September 21 about 1050 mi (1700 km) west @-@ southwest of Cape Verde , which was the easternmost formation of the named storms this season . The next day , the depression intensified into Tropical Storm Janice , and quickly reached peak winds of 65 mph (105 km / h) . The storm never became well @-@ organized , with its peak winds located east of the broad center . Despite being in a climatologically favored region for further development , Janice weakened due to increased wind shear from Hurricane Ginger . The circulation became elongated and separated from the convection , and on September 24 the storm weakened to a tropical depression . Later that day Janice dissipated just northeast of the Lesser Antilles as it was absorbed by Ginger . Around that time , it produced rainfall in the northeastern Caribbean , reaching 4 in (100 mm) on Saint Kitts ; no damage or fatalities were reported .

= = = Tropical Storm Kristy = = =

The interaction between a tropical wave and an upper @-@ level trough led to the development of a tropical depression on October 18 , about 685 mi (1100 km) northeast of Puerto Rico . It moved quickly north @-@ northeastward , followed by a curve to the northeast . On October 20 , a ship reported winds of 45 mph (72 km / h) , indicating the depression intensified into Tropical Storm Kristy . As it reached this strength , an approaching cold front produced cooler , drier air over the storm . Kristy intensified slightly further to peak winds of 50 mph (85 km / h) before becoming indistinguishable from the cold front . By October 21 it transitioned into an extratropical cyclone before dissipating near the Azores .

= = = Tropical Storm Laura = = =

The final storm of the season , Laura , formed on November 12 in the western Caribbean Sea , and reached winds of 70 mph (120 km / h) as it approached western Cuba . Across the island , the storm produced heavy rainfall , peaking at 32 @. @ 5 in (830 mm) . The resulting flooding killed one person and caused crop damage , and also forced 26 @, @ 000 people to evacuate their homes . Initially , Laura was forecast to move across the island and impact the southern United States , but it executed a small loop and turned to the southwest . The storm moved ashore on Belize , one of only four November storms to affect the country . Little impact occurred during Laura 's final landfall , and it dissipated on November 22 over central Guatemala . Laura had the second highest accumulated cyclone energy (ACE) of any Atlantic tropical cyclone that did not attain hurricane status behind a tropical storm in 1913 .

== Other storms ==

In addition to the named storms and otherwise notable cyclones , there were several weak depressions during the season . After a June devoid of activity , three tropical depressions developed within the first ten days of July . The first became Tropical Storm Arlene on July 4 , and the second formed off the coast of Louisiana on July 6 . Tropical Depression Two moved westward due to a ridge to its northeast , and it struck just west of the Texas / Louisiana border before dissipating on July 8 . Its precursor dropped 3 @. @ 90 in (99 mm) near Carrabelle , Florida , but much less along its path . Just two days later , another tropical depression formed in the northwestern Gulf of Mexico , quickly moving ashore in southern Texas before dissipating on July 11 ; it dropped light rainfall along its path .

In August , there were two tropical depressions , in addition to the named storms and the notable Tropical Depression Eight . The first , Tropical Depression Five , developed in the central Gulf of Mexico on August 6 . It made landfall in Louisiana three days later , eventually dissipating over Mississippi . The other , designated Tropical Depression Eleven , formed over the Bahamas on August 28 . It moved westward , crossing Florida and the Gulf of Mexico before dissipating over southeastern Louisiana on September 1 . The depression dropped moderate rainfall along the Gulf Coast , peaking at 6 @. @ 82 in (173 mm) at Gulf Shores , Alabama .

There were three non @-@ developing tropical depressions in September , the first of which just off the coast of Africa on September 3 . It moved west @-@ northwestward , passing near Cape Verde before dissipating on September 8 . The next , Tropical Depression Eighteen , originated on September 8 east of Florida from the same trough that also spawned Fern , Ginger , and Heidi . It initially moved northward before curving to the west , making landfall near the Georgia / South Carolina border on September 11 before dissipating the following day . The other , Tropical Depression Nineteen , developed off the coast of Africa on September 10 , moving westward before dissipating on September 14 .

The final non @-@ developing tropical depression of the season formed on October 6 in the western Caribbean Sea . It crossed the Yucatán Peninsula the next day , dropping heavy rainfall up to 9 @. @ 09 in (231 mm) . The depression turned to the northeast due to an approaching upper @-@ level trough , and it transitioned into an frontal wave on October 10 . As the trough advanced ahead of the storm , a ridge built across the southeast United States , causing the cyclone to turn northward and parallel the west coast of Florida . It regained tropical characteristics before moving ashore near Apalachicola and dissipating on October 14 .

== Storm names ==

The following names were used for named storms (tropical storms and hurricanes) that formed in the North Atlantic in 1971 . Names that were not assigned are marked in gray . Storms were named Beth , Kristy and Laura for the first time in 1971 . No names were retired after the 1971 season .