

= 2001 Atlantic hurricane season =

The 2001 Atlantic hurricane season was a fairly active Atlantic hurricane season that produced 17 tropical cyclones , 15 named storms , nine hurricanes , and four major hurricanes . The season officially lasted from June 1 , 2001 , to November 30 , 2001 , dates which by convention limit the period of each year when tropical cyclones tend to form in the Atlantic Ocean basin . The season began with Tropical Storm Allison on June 4 , and ended with Hurricane Olga , which dissipated on December 6 . The most intense storm was Hurricane Michelle , which attained Category 4 strength on the Saffir ? Simpson Hurricane Scale .

The most damaging storms of the season were Tropical Storm Allison , which caused extensive flooding in Texas , Hurricane Iris , which struck Belize , and Hurricane Michelle , which affected several countries . Three tropical cyclones made landfall on the United States , three directly affected Canada , and three directly affected Mexico and Central America . Overall , the season caused 105 fatalities , and \$ 7 @. @ 1 billion ( 2001 USD ; \$ 9 @. @ 49 billion 2014 USD ) in damage . Due to their severe damage , the names Allison , Iris , and Michelle were retired by the World Meteorological Organization .

= = Seasonal forecasts = =

Forecasts of hurricane activity are issued before each hurricane season by noted hurricane experts Philip J. Klotzbach , William M. Gray , and their associates at Colorado State University ; and separately by NOAA forecasters .

Klotzbach 's team ( formerly led by Gray ) defined the average number of storms per season ( 1950 to 2000 ) as 9 @. @ 6 tropical storms , 5 @. @ 9 hurricanes , 2 @. @ 3 major hurricanes ( storms reaching at least Category 3 strength in the Saffir @-@ Simpson Hurricane Scale ) and ACE Index 96 @. @ 1 . NOAA defines a season as above @-@ normal , near @-@ normal or below @-@ normal by a combination of the number of named storms , the number reaching hurricane strength , the number reaching major hurricane strength and ACE Index .

= = = Pre @-@ season forecasts = = =

On December 7 , 2000 , Gray 's team issued its first extended @-@ range forecast for the 2001 season , predicting above @-@ average activity ( 13 named storms , 8 hurricanes , and about 4 of Category 3 or higher ) . It listed an 63 percent chance of at least one major hurricane striking the U.S. mainland . This included a 43 percent chance of at least one major hurricane strike on the East Coast , including the Florida peninsula , and a 36 percent chance of at least one such strike on the Gulf Coast from the Florida Panhandle westward . The potential for major hurricane activity in the Caribbean was forecast to near average .

On April 5 , 2001 , a new forecast was issued , calling for 12 named storms , 7 hurricanes , and 3 major hurricanes . The increase in the forecast was attributed to the warm sea surface temperatures , although the agency noted that the season would likely not be as active as previous ones due to the effect of a weak to moderate El Nino . The estimated potential for at least one major hurricane to affect the U.S. was upped slightly to 65 percent ; the East Coast potential also went up slightly , and from the Florida Panhandle westward to Brownsville , Texas , the probability remained nearly the same .

= = = Mid @-@ season forecasts = = =

On August 7 , 2001 , Gray 's team issued their first mid @-@ season forecast for the 2001 season , keeping the forecast number at 12 named storms , with 7 becoming hurricanes and 3 becoming a major hurricane , noting that sea surface temperatures and sea level pressures continued to be favorable for above @-@ average hurricane activity . The estimated potential for at least one major hurricane to affect the U.S. was upped slightly once again to 69 percent ; the East Coast potential

also went up slightly to 50 % , and from the Florida Panhandle westward to Brownsville , Texas , the probability was also upped slightly .

On August 8 , 2001 , NOAA revised its season estimate slightly upwards to nine to twelve named storms , of which 6 to 8 were to be hurricanes , and 2 to 4 major hurricanes . The agency noted that sea surface temperatures continued to be favorable for above @-@ average hurricane activity , and due to the likelihood that El Nino would not develop during the peak of the season , there was a reduced likelihood of a below @-@ average year .

= = Season activity = =

The season 's activity was reflected with an accumulated cyclone energy ( ACE ) rating of 110 . 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 . Subtropical cyclones , including the latter portion of Allison and the initial portions of Karen , Noel , and Olga , are excluded from the total .

= = Storms = =

= = = Tropical Storm Allison = = =

Tropical Storm Allison developed from a tropical wave in the northern Gulf of Mexico on June 4 , 2001 , and struck the northern Texas coast shortly thereafter . It drifted northward through the state , turned to the south , and re @-@ entered the Gulf of Mexico . The storm continued towards the east @-@ northeast , made landfall on Louisiana and then moved across the southeast United States and Mid @-@ Atlantic . Allison was the first storm since Tropical Storm Frances in 1998 to affect the northern Texas coastline .

The storm was a major flood disaster throughout its path from Texas to the Mid @-@ Atlantic . The worst of the flooding occurred in Houston , Texas , where over 35 in ( 890 mm ) of rain fell . The storm killed 41 people , of which 27 drowned . The storm also caused over \$ 5 billion in damage ( 2001 USD ; \$ 6 @.@ 68 billion 2014 USD ) , making it the costliest and second @-@ deadliest tropical storm on record in the United States . Allison destroyed 2 @,@ 744 homes , leaving 30 @,@ 000 homeless with residential damages totaling to \$ 1 @.@ 76 billion ( 2001 USD ; \$ 2 @.@ 35 billion 2014 USD ) .

= = = Tropical Depression Two = = =

A tropical depression formed from a low level circulation on July 11 , well to the east of the Windward Islands . It attained a maximum strength of 30 mph ( 45 km / h ) , with a pressure of 1 @,@ 010 mbar ( 30 inHg ) , though vertical wind shear from a subtropical ridge to the north caused it to dissipate on July 12 .

= = = Tropical Storm Barry = = =

On July 24 , a tropical wave moved off the coast of Africa and tracked westward . The wave entered the Caribbean on July 29 and gained in organization and convection , and organized into Tropical Storm Barry on August 3 . After fluctuations in intensity , the system attained peak winds of 70 mph ( 110 km / h ) in the Gulf of Mexico , and headed northward before moving ashore along the Gulf Coast .

The storm affected Florida ; rainfall peaked at 8 @.@ 9 in ( 230 mm ) at Tallahassee , and winds gusts topped out at 79 mph ( 127 km / h ) . Three people in Florida were killed by the storm , and total damage is estimated at around \$ 30 million ( 2001 USD ; \$ 40 @.@ 1 million 2014 USD ) .

### == Tropical Storm Chantal ==

Tropical Storm Chantal developed from a tropical wave on August 14 in the tropical Atlantic Ocean . It tracked rapidly westward for much of its duration , and after degenerating into a tropical wave it passed through the Windward Islands . Chantal reformed and reached a peak intensity of 75 mph ( 110 km / h ) twice in the Caribbean Sea , and each time , wind shear and later land interaction prevented strengthening to hurricane status . On August 21 Chantal moved ashore near the border of Mexico and Belize , and it dissipated the next day .

The storm produced a wind gust of 71 mph ( 115 km / h ) in Caye Caulker , although stronger winds were possible in a convective band to the north . On the Yucatan Peninsula , heavy rainfall led to mudslides across Quintana Roo , leaving some areas isolated .

### == Tropical Storm Dean ==

A tropical wave spawned Tropical Storm Dean on August 22 over the Lesser Antilles . Strong wind shear quickly weakened Dean to cause it to dissipate on August 23 . The remnants turned northward , and redeveloped on August 26 to the north of Bermuda . Located over warm waters and in an area of favorable conditions , Dean steadily strengthened while moving to the northeast , and peaked just below hurricane status on August 27 southwest of Newfoundland . The storm subsequently weakened over cooler waters , and became extratropical on August 28 . Tropical Storm Dean lightly affected Newfoundland , though no damages were reported .

### == Hurricane Erin ==

Hurricane Erin developed from a tropical wave on September 1 , and strengthened to a 60 mph ( 95 km / h ) tropical storm as it moved to the west @-@ northwest . After weakening due to wind shear , the remnants re @-@ organized into a tropical depression the next day , and Erin strengthened into a hurricane on September 9 while moving northwestward . The hurricane quickly intensified and reached peak winds of 120 mph ( 195 km / h ) later on September 9 . A trough turned Erin to the northeast , and after passing just east of Cape Race , Newfoundland it became extratropical on September 15 . The extratropical remnant continued northeastward and lost its identity near Greenland on September 17 . Hurricane Erin brushed Newfoundland , producing a sustained wind of 53 mph ( 85 km / h ) with a gust of 67 mph ( 108 km / h ) at Cape Race . Along the coast , the passage of the storm led to wave heights of up to 30 ft ( 9 @. @ 3 m ) .

### == Hurricane Felix ==

A tropical wave spawned a tropical depression on September 7 near the Cape Verde islands , which degenerated back into a tropical wave the next day due to strong shear . It redeveloped back into a tropical depression on September 10 , and intensified into Tropical Storm Felix the next day while tracking generally northward . By September 13 , it intensified into a hurricane , and subsequently it underwent rapid deepening , becoming a major hurricane on September 14 with peak winds of 115 mph ( 185 km / h ) . By that time , Felix had turned to the northeast , and subsequently entered an area of unfavorable conditions . The hurricane gradually weakened , deteriorating to a tropical storm on September 17 . Cool waters and higher wind shear caused additional weakening while Felix nearly stalled to the southwest of the Azores . Late on September 18 , the storm weakened to a tropical depression , and early the next day Felix dissipated .

### == Hurricane Gabrielle ==

Hurricane Gabrielle originated in a weak low- to mid @-@ level trough that was nearly stationary a short distance off the southeastern coastline of the United States . A cut off low formed over Florida

on September 9 , and an associated surface low pressure system formed , that was soon designated Tropical Depression Eight . The storm gradually intensified , and made landfall on Florida before emerging into the Atlantic Ocean and accelerating northeastward , as it reached peak intensity as a minimal hurricane .

Hurricane Gabrielle produced moderate winds along coastal areas of western Florida , reaching 58 mph ( 93 km / h ) at Venice . The tide flooded the northern shoreline of Charlotte Harbor and at the entrance to the Peace River , while further to the south a surge of greater than 3 ft ( 0 @. @ 91 m ) inundated the barrier island at Fort Myers Beach and flooded some cars . Gabrielle brushed the eastern coast of Newfoundland ; the rainfall set the all time six @-@ hour precipitation record at St. John 's , with a total of 3 @. @ 54 in ( 90 mm ) . Hundreds of homes and buildings were damaged by the passage of Gabrielle , totaling several million dollars in damage .

= = = Tropical Depression Nine = = =

A tropical depression formed from a tropical wave in the Caribbean on September 19 , north @-@ northwest of San Andres Island . It attained a maximum strength of 35 mph ( 56 km / h ) , and made landfall near Puerto Cabezas on September 20 . After losing its closed circulation over land , it reformed into Hurricane Juliette in the East Pacific .

= = = Hurricane Humberto = = =

Hurricane Humberto formed from an area of low pressure generated by Hurricane Gabrielle . The low formed into a tropical depression on September 21 while south of Bermuda , tracking northwest , and was named Tropical Storm Humberto the next day . It began moving north , and then northeast as it passed Bermuda and strengthened into a hurricane . Humberto headed over the colder waters of the far north Atlantic Ocean , and dissipated quickly on September 27 .

= = = Hurricane Iris = = =

Tropical Depression Eleven formed just southeast of Barbados on October 4 . It traveled across the Windward Islands , and was named Tropical Storm Iris while south of Puerto Rico on October 5 . Iris continued to the west and intensified . After passing just south of Jamaica , Iris reached Category 4 hurricane strength , and made landfall near Monkey River Town , Belize on October 9 at Category 4 strength , but weakened rapidly . It dissipated later that day .

The storm produced an 8 to 15 ft ( 2 @. @ 4 to 4 @. @ 6 m ) storm surge . Numerous homes were destroyed , and the banana crop suffered extensive damage . An exact death toll is unknown , but 31 are confirmed dead , three in the Dominican Republic , eight in Guatemala , and 20 from the M / V Wave Dancer , a ship that capsized off the Belize coast .

= = = Tropical Storm Jerry = = =

Tropical Storm Jerry formed as a tropical depression from a tropical wave on October 6 near Barbados . The storm intensified into a tropical storm early the following day on October 7 while initially located under an environment of weak vertical wind shear . After reaching its peak of 50 mph ( 80 km / h ) , Jerry passed just south of Barbados late on October 7 and through the Windward Islands on October 8 . Deterioration in organization occurred , and Jerry dissipated while moving rapidly westward well south of Puerto Rico .

= = = Hurricane Karen = = =

A cold front and an upper level trough interacted on October 10 to the south of Bermuda , and formed an extratropical storm . The storm passed near Bermuda on October 12 , producing hurricane @-@ force winds on the island . It then organized , becoming a subtropical cyclone on

October 12 and a tropical cyclone on October 13 . Karen strengthened to reach 80 mph ( 130 km / h ) winds as a Category 1 hurricane on the Saffir ? Simpson Hurricane Scale , and after weakening over cooler waters , it made landfall on Nova Scotia as a tropical storm . It quickly became extratropical .

Tropical Storm Karen produced light to moderate winds across Atlantic Canada , peaking at 47 mph ( 76 km / h ) with a gust of 64 mph ( 103 km / h ) in Cape George in Antigonish County , Nova Scotia , along with a 26 mph ( 42 km / h ) report in Charlottetown , Prince Edward Island . Later , in Newfoundland and Nova Scotia , the storm system that absorbed Hurricane Noel produced strong winds that downed several trees and power lines which resulted in power outages .

= = = Tropical Storm Lorenzo = = =

An upper @-@ level tropospheric trough persisted in the eastern Atlantic Ocean , developing a circulation by October 26 which quickly organized . On October 27 , it developed into Tropical Depression Fourteen about 860 miles ( 1380 kilometers ) south @-@ southwest of the western Azores . Moving westward , the depression was forecast to attain winds of at least 60 mph ( 95 km / h ) , although it failed to reach that intensity . Banding features developed over the storm , and on October 30 it was upgraded to Tropical Storm Lorenzo . By early on October 31 , convection had begun to separate from the circulation , and later in the day Lorenzo became extratropical ; shortly thereafter , its remnants merged with a frontal system about 690 mi ( 1 @, @ 110 km ) west of the Azores .

= = = Hurricane Michelle = = =

Hurricane Michelle developed from a tropical wave that moved across the Atlantic , and formed into a tropical depression on October 29 . Convection increased , and the system formed into Tropical Storm Michelle on November 1 . It strengthened further , reaching its peak strength as a Category 4 . One of only four November Category 4 hurricanes , Michelle made landfall on south @-@ central Cuba with winds of 140 mph ( 225 km / h ) , the strongest Cuban landfall since Hurricane Fox in the 1952 Atlantic hurricane season .

The system that eventually became Hurricane Michelle dropped torrential rains in several countries , causing six deaths in Honduras and four deaths in Nicaragua , with an extensive yet unknown amount of damage . An additional 26 people were reported missing in Central America . Michelle went on to affect Cuba , where the storm produced 4 to 5 ft ( 1 @.@ 2 to 1 @.@ 5 m ) waves , along with a heavy storm surge . Rainfall amounts up to 29 @.@ 69 in ( 754 mm ) were recorded across the island .

= = = Hurricane Noel = = =

A non @-@ tropical frontal low developed from a cold front on November 1 to the west of the Azores . It intensified while moving west @-@ northwestward and gradually dissipated its frontal structure . It became a subtropical storm on November 4 about 775 nautical miles ( 1435 km ) south of Cape Race , Newfoundland . Operationally , the storm was considered a non @-@ tropical low , and the National Hurricane Center did not begin issuing advisories until it became a tropical cyclone . It moved slowly northward as convection organized into a ring around the center . As a result of a ship reporting hurricane @-@ force winds near the center , and due to the development of a weak mid @-@ level warm core , the subtropical cyclone was reclassified as Hurricane Noel on November 5 . Increasing westerly wind shear limited convection near the center , and Noel weakened to a tropical storm early on November 6 . Progressively cooler water temperatures contributed to weakening , and Noel became extratropical later on November 6 about 330 mi ( 530 km ) southeast of Newfoundland . The extratropical remnant continued to the northeast and was absorbed by a larger extratropical storm later that day .

### == Hurricane Olga ==

Hurricane Olga formed as a subtropical cyclone on November 24 and meandered westward where it reached hurricane status on November 26 . The storm attained peak winds of 90 mph ( 150 km / h ) before turning southeastward and weakening back into a tropical storm . Olga dissipated as a tropical cyclone on December 6 east of the Bahamas .

### == Season effects ==

### == Storm names ==

The following names were used for named storms that formed in the north Atlantic in 2001 . The names not retired from this list will be used again in the 2007 season . This is the same list used for the 1995 season except for Lorenzo , Michelle , Olga , and Rebekah , which replaced Luis , Marilyn , Opal , and Roxanne . Storms were named Lorenzo , Michelle , and Olga for the first time in 2001 . Names that were allocated for the 2001 season but were not assigned are marked in gray .

### == Retirement ==

The World Meteorological Organization retired three names in the spring of 2002 : Allison , Iris , and Michelle . They were replaced in the 2007 season by Andrea , Ingrid , and Melissa . Allison became the first Atlantic tropical storm to have its name retired .