

Jambalaya



WFO Lake Charles Newsletter

Winter/Spring 2008 Edition

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NWS Lake Charles County Warning Area Facts

Counties: **6 in Southeast Texas**
Parishes: **16 in Southwest Louisiana**
Marine Zones: **6 in Northwest Gulf of Mexico**
CWA Land Area: **21,472 square miles**

CWA Population: **1,565,315**
Most Populated County/Parish: **Jefferson County (248,605)**
Least Populated County/Parish: **Cameron Parish (9,708)**
Largest City: **Beaumont, TX (112,434)**



Meet The Staff

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Winter Weather across Southeast Texas & Southwest Louisiana

January and February are the main two months during the year in which measurable snow and ice can be expected across Southeast Texas and Southwest Louisiana. This is due to colder arctic air outbreaks (with deeper arctic air as fronts push further southward through the Gulf of Mexico), and stronger winter dynamics (with the jet stream dipping further south than any other time of the year).

For Lake Charles, the last snowfall of 1 inch or greater was in February of 1988. The last major snowfall occurred on January 11, 1973, when 4 inches fell. There were also a few January snowfalls of between 2 and 4 inches in the 1940's.

SNOW

- *Flurries* - Light snow falling for short durations. No accumulation or light dusting is all that is expected.
- *Snow Showers* - Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- *Snow Squalls* - Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- *Blowing Snow* – Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.
- *Blizzard* – Winds over 35 mph with snow and blowing snow reducing visibility to near zero.

SLEET

- Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and causes a hazard to motorists.

FREEZING RAIN

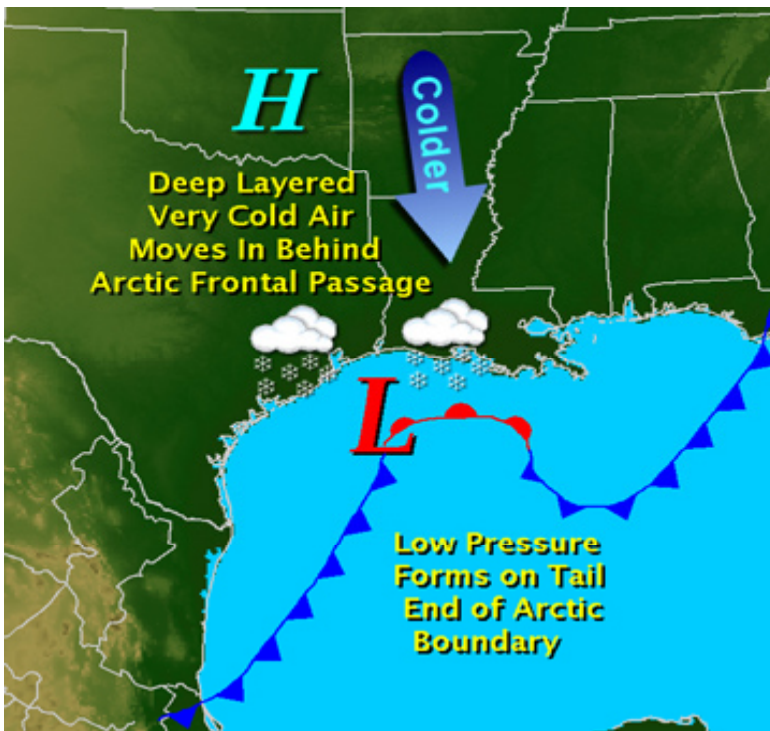
- Rain that falls onto a surface with a temperature below freezing. This causes the rain to freeze to surfaces, such as trees, cars, bridges and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.

The largest official snowfall record in Lake Charles occurred in February 1960, when 5 inches fell. However, the highest snowfall record, though unofficial, was 24 inches which fell on February 14-15, 1895. This amazing snowstorm produced a similar snowfall record in Beaumont of 30 inches, and Lafayette also saw its largest snowfall of 14 inches during this same storm.

What Makes a Winter Storm?

COLD AIR - below freezing temperatures in the clouds and near the ground are typically necessary to make snow. For freezing rain, a layer of warm air must exist aloft with below freezing air near the ground.

(continued on next page)



MOISTURE - needed to form clouds and precipitation. Air blowing across a body of water, such as a large lake or the ocean (like the Gulf of Mexico), is an excellent source of moisture.

LIFT - Needed to raise the moist air to form clouds and cause precipitation. An example of lift is warm air colliding with cold air and being forced to rise over the cold dome – also known as a front.

The picture at the top left is an example of a typical winter storm setup for our area. First, we need an arctic cold front to move through the area with a very deep layer of cold air (for all snow). If the layer of cold air is shallow, the precipitation type will likely be freezing rain.

Not shown is an upper level disturbance that would be moving towards the area from Texas or Mexico. On the east side of this disturbance there is favorable upper-air divergence, which would allow for the formation of an area of low pressure.

The greatest threat of wintry weather typically occurs on the northwest side of the area of low pressure - where the coldest air combines with moisture moving northward from the Gulf of Mexico.

EXTREME COLD

- Extreme cold often accompanies a winter storm or is left in its wake. Prolonged exposure to the cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible. Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat.
- How cold can it get in Southeast Texas and Southwest Louisiana in the winter? Here are the coldest temperatures ever observed across our region since official records began in the late 1890s & early 1900s.
 - Lake Charles: 3°F on February 12, 1899
 - Alexandria: 4°F on January 24, 1948
 - Lafayette: 6°F on February 12, 1899
 - New Iberia: 9°F on January 11, 1962 & December 23, 1989
 - Beaumont: 11°F on January 18, 1930

High Winds March 17-18, 2008



An intense area of low pressure developing across Texas from Monday March 17 into Tuesday March 18 combined with a strong area of high pressure across the Southeastern U.S. to create a tight pressure gradient across Southeast Texas and Southwest Louisiana. This led to two days of strong southeasterly winds

across the area, with the strongest winds occurring on Tuesday March 18. Peak wind gusts ranged from 45 to 55 mph areawide. These gusty winds led to numerous reports of downed trees and power lines, power outages, and other minor damage.



*A large tree was blown down near Big Cane, LA
(photo by Sam Shamburger, Forecaster)*

This was the strongest non-convective wind event across Southeast Texas and Southwest Louisiana since October 15-16, 2006, when wind gusts up to 50 mph were observed.

By late in the day, a cold front pushing eastward across the area spawned a few severe thunderstorms over far eastern portions of Central and South-Central Louisiana, prompting the issuance of one Severe Thunderstorm Warning and two Tornado Warnings. No evidence of tornadoes was found, but some reports of trees down were received with these storms.

Visit the NWS Lake Charles webpage at

<http://www.srh.noaa.gov/lch/events/031808.php>

for more information on this high wind event!

Record High January Sea Level Pressure at Lake Charles January 2, 2008

A very strong 1056mb surface high pressure system moved south across Western Canada into the Northern Rockies on New Year's Eve into New Year's Day. Only weakening slightly to 1049mb, the high dominated most of the Midwest into Texas on the 2nd. At 9:53 am on January 2nd, Lake Charles, LA broke the January sea level pressure with 1045.3 millibars, or 30.87 inches of mercury. This pressure ranks as the third highest ever measured in Lake Charles, LA.

While morning temperatures were cold, only the lower to mid 20s (except 18 degrees at Alexandria Esler Field, LA) were noted for the mornings of the 2nd and 3rd. During the other notable record high pressure events listed in the table below, morning lows reached the lower to mid teens.

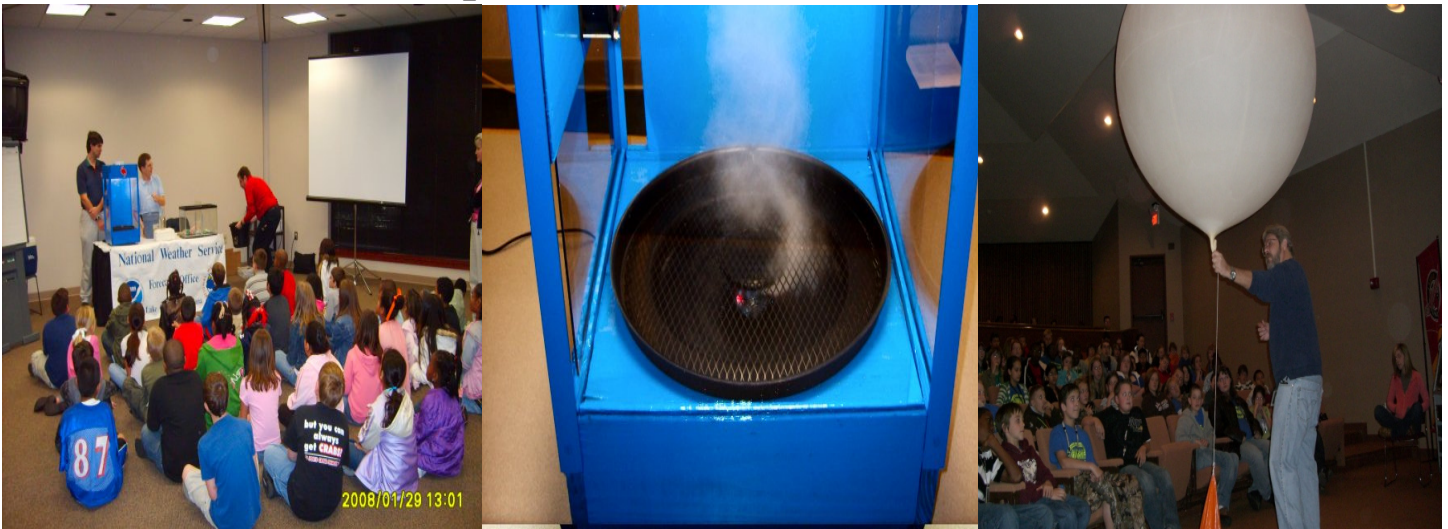
Top 4 Record High Sea Level Pressures for Lake Charles, LA		
Date	Pressure in inches	Pressure in millibars
December 23, 1989	30.91	1046.7
February 4, 1996	30.88	1045.7
January 2, 2008	30.87	1045.3
December 30, 1983	30.82	1043.7

Visit the NWS Lake Charles website at
<http://www.srh.noaa.gov/lch/events/010208.php>
 for more information!

NWS Lake Charles participates in JASON project at Lamar University

Employees of the National Weather Service in Lake Charles participated in the JASON project held at Lamar University from late January 2008 into early February 2008. Over the span of two and a half weeks, nearly 9,600 5th - 8th grade middle school students from Southeast Texas attended this function to learn more about this year's project -

Operation: Monster Storms.



From Left to Right:

1) Forecaster Donovan Landreneau, Service Hydrologist Jonathan Brazzell, and Lead Forecaster Joe Rua perform the cold/warm air displacement experiment; 2) Forecaster Donovan Landreneau's Hurricane-In-A-Box experiment; 3) HMT Todd Mogged demonstrates the upper air balloon (Photos: WFO Lake Charles)

NWS Lake Charles personnel participated by demonstrating various weather experiments such as the upper air balloon and radiosonde, cold and warm air (pressure) displacement, and even generating a real miniature hurricane within a box!

JASON is a nonprofit subsidiary of the National Geographic Society. JASON connects young students with great explorers and great events to inspire and motivate them to learn science. Its core curriculum units are designed for 5th to 8th grade classrooms but are flexible enough to be adapted for higher or lower grades.

To learn more about the JASON project, visit
<http://www.jason.org/public/home.aspx>
for more information!

2007 ATLANTIC HURRICANE SEASON: ANOTHER QUIET YEAR FOR THE UNITED STATES

The overall activity for the 2007 Atlantic Hurricane Season was near average. As far as the number of named storms that developed, 2007 was above average with fifteen. Of these named storms, six became hurricanes. The normal for a year (based on 1950-2000 averages) is ten named cyclones, of which six become hurricanes. One of the bizarre irregularities of the 2007 season was the fact that only twelve hurricane days (normal is twenty-five) were observed, which most of them were attributed to Category 5 hurricanes Dean and Felix in the Caribbean. This reduced activity cannot be explained at this time, especially since La Nina across the Equatorial Pacific Ocean typically enhances Atlantic hurricane seasons.

As mentioned above, most of the 2007 season's activity can be attributed to both category 5 hurricanes Dean and Felix, accounting for most of the hurricane days and half of the net season's activity. Both of these hurricanes also made landfall at category 5, which has never been observed in a single season. The other 4 hurricanes were category one storms, of which three of them were only hurricanes for twelve hours or less. The remaining tropical storms were fairly short lived as well.

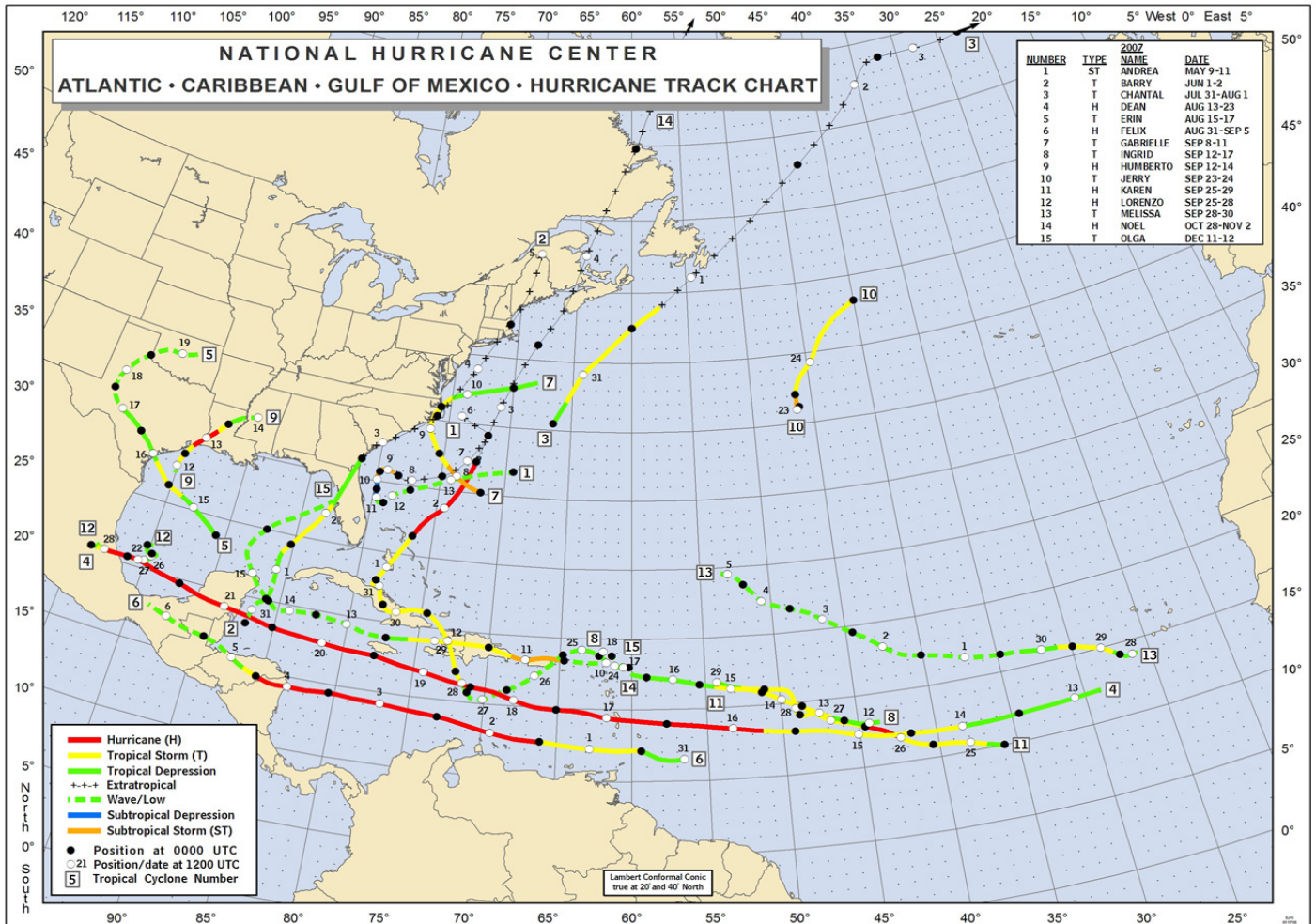
Officially for the United States, hurricane Humberto, tropical storm Gabrielle, and tropical depressions Barry, Erin, and #10 made landfall on the mainland. Additionally, subtropical storm Olga affected Puerto Rico as an out of season storm in December.

Here are the details on the cyclones that did affect the United States and Puerto Rico. Barry was a weakening tropical storm that made landfall as a depression near Tampa Bay, Florida at 3:00 PM EDT on June 2nd. Erin was a weakening tropical storm that made landfall as a depression near Corpus Christi, Texas at 6:00 AM CDT on August 16th. Gabrielle was a tropical storm that affected the North Carolina Outer Banks, making landfall along Cape Lookout National Seashore at 11:30 AM EDT on September 9th. Humberto will go down in history as the fastest strengthening tropical cyclone just before a United States landfall. Humberto strengthened from a 25-knot depression at 4:00 AM CDT September 12th to an 80-knot category one hurricane at the time of landfall just east of High Island, Texas at 2:00 AM CDT on September 13th. Olga was an out of season subtropical storm that made landfall across north central Puerto Rico just west of Vega Baha at 3 AM AST December 11th.

The next page will illustrate the tracks of all 15 cyclones that affected the Atlantic, Caribbean, and Gulf of Mexico during 2007, along with detailed storm statistics.

2007 ATLANTIC HURRICANE SEASON STATISTICS

Number	Type	Name	Dates	Minimum Pressure MB / Inches	Maximum Winds Knots / MPH
1	Subtropical Storm	ANDREA	May 06 - 14	1001 / 29.56	50 / 58
2	Tropical Storm	BARRY	May 31 - June 05	997 / 29.44	50 / 58
3	Tropical Storm	CHANTAL	July 31 - August 05	994 / 29.35	45 / 52
4	Hurricane	DEAN	August 13 - 23	905 / 26.72	150 / 173
5	Tropical Storm	ERIN	August 15 - 19	1003 / 29.62	35 / 40
6	Hurricane	FELIX	August 24 - September 4	929 / 27.43	150 / 173
7	Tropical Storm	GABRIELLE	September 08 - 11	1004 / 29.65	50 / 58
8	Hurricane	HUMBERTO	September 12 - 14	985 / 29.09	80 / 92
9	Tropical Storm	INGRID	September 12 - 18	1002 / 29.59	40 / 46
10	Tropical Storm	JERRY	September 23 - 24	1003 / 29.62	35 / 40
11	Hurricane	KAREN	September 25 - 29	988 / 29.18	65 / 75
12	Hurricane	LORENZO	September 25 - 28	990 / 29.23	70 / 81
13	Tropical Storm	MELISSA	September 28 - October 05	1005 / 29.68	35 / 40
14	Hurricane	NOEL	October 24 - November 06	980 / 28.94	70 / 81
15	Tropical Storm	OLGA	December 10 - 16	1003 / 29.62	50 / 58



This winter brought a very active weather pattern to southeast Texas and southwest Louisiana. Multiple storm systems charged through the area bringing everything from snow and sleet to high winds and severe weather. One weather system, however, was unusual in the fact that it resulted in all of these types of weather across the forecast area.

*January 18-19
Gulf Low
&
Gale Force Winds*

January 18-19 saw a strong low pressure system move across the northern Gulf of Mexico. The strength of this system caused a tight pressure gradient across the area, resulting in numerous high wind reports along and south of I-10 and out into the coastal waters. Sustained winds and wind gusts to gale force - 34 knots (39 mph) or greater - were common offshore. In addition to these winds, a line of severe thunderstorms developed in the outer coastal waters producing wind gusts to hurricane force - 64 knots (74 mph) or greater - far offshore. Onshore, many sites from Beaumont, TX to Lafayette, LA recorded gusts to 35 mph or greater.

This system also brought moderate to heavy rain to the area with most location recording half an inch to two inches of rainfall. As an arctic air mass moved into the northern part of the forecast area, this rain began to mix with sleet and eventually snow. Numerous reports of snow were received from interior southeast Texas and central Louisiana. Though the snowfall was moderate at times, there was little accumulation since temperatures at the surface remained a couple degrees above freezing. However, the trace of snow recorded at Alexandria, LA on January 19 did tie the record snowfall set in 1948, the last time it snowed in Alexandria on this date.

This event was particularly significant in the scope and magnitude of weather it brought to the Lake Charles forecast area over the course of just 24 hours. The snow, sleet, rain, and hurricane force wind gusts in severe thunderstorms exemplified well the great range of weather types the winter season can bring to southeast Texas and southwest Louisiana.

Site	Location	Peak Wind Gust
Garden Banks 72	150 SW Amelia LA	100 mph
Eugene Island 281	82 S Burns Point	80 mph
Eugene Island 330	105 SW Amelia LA	71 mph
Hebert's Marina	15 SSW Lake Charles LA	39 mph
SE TX Regional Airport	Port Arthur TX	36 mph
Lake Charles Regional Airport	Lake Charles LA	36 mph
Lafayette Airport	Lafayette LA	36 mph

February 2008 Severe Weather



A large gustnado was photographed south of New Iberia near the highway 90/83 intersection at 145 pm on February 12, 2008 (photo courtesy of KLFY-TV)

Several rounds of severe weather struck the region during the month of February. Widespread reports of hail, damaging winds, and a few tornadoes occurred, with the most severe weather affecting Central Louisiana and South-Central Louisiana.

A strong to severe line of thunderstorms, associated with a strong cold front, moved from northwest to southeast across Southeast Texas and Southwest Louisiana during the late morning and afternoon hours on February 12, 2008. These thunderstorms produced numerous reports of large hail ranging from pea-size up to golf-ball size, with a few reports of high winds and minor wind damage. In addition, two weak landspout tornadoes occurred in South-Central Louisiana near the New Iberia airport and St. Martinville, and a large gustnado was caught on film south of New Iberia.

Two rounds of severe weather struck Southeast Texas and Southwest Louisiana from February 16th into February 17th. One area of strong to severe thunderstorms developed early in the morning on February 16th, with two reports of large hail across Central Louisiana. Late in the evening on February 16th into the early morning of February 17th, an intense line of severe thunderstorms (called a squall line) moved rapidly across the area from west to east, with numerous reports of large hail and wind damage. The worst damage was from an EF1 tornado along the leading edge of the squall line, which struck in and near Palmetto, Louisiana in St. Landry Parish.

A very busy month for severe weather continued as severe thunderstorms impacted the region again on February 21st. One long-track supercell developed near Sabine Pass, Texas and moved northeastward across Cameron, Calcasieu, Jeff Davis, Allen, Evangeline, St. Landry, and Avoyelles Parishes for several hours. Four EF0 tornadoes, several funnel clouds, large hail, and flooding were all produced by this single thunderstorm. Other severe thunderstorms dropped large hail and brought damaging winds to parts of the area as well.



A mobile home was rolled several times and destroyed by an EF1 tornado northeast of Palmetto, Louisiana on February 17, 2008 (photo by Sam Shamburger, forecaster)



A shed was destroyed and blown across a road by an EF0 tornado in the community of Bodoc, Louisiana on February 21, 2008 (photo by Sam Shamburger, forecaster)

Severe Weather Definitions

Severe Thunderstorm Watch

Issued when conditions are favorable for development of intense thunderstorms containing winds over 58 mph, and/or hail of penny size (0.75" in diameter) or larger

Severe Thunderstorm Warning

Issued when severe thunderstorms are occurring or imminent

Tornado Watch

Issued when conditions are favorable for severe thunderstorms to produce tornadoes

Tornado Warning

Issued when a tornado is detected by radar or is reported

Flash Flood Watch

Issued when conditions are favorable for intense rainfall to cause rapid water rises to occur

Flash Flood Warning

Issued when flash flooding is occurring or imminent

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NATIONAL WEATHER SERVICE LAKE CHARLES WEBSITE

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