

# Climate of Louisiana

## Introduction

This publication consists of a narrative that describes some of the principal climatic features and a number of climatological summaries for stations in various geographic regions of the State. The detailed information presented should be sufficient for general use; however, some users may require additional information.

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Unpublished climatological summaries have been prepared for a wide variety of users to fit specific applications. These include wind and temperature studies at airports, heating and cooling degree day information for energy studies, and many others. Tabulations produced as by-products of major products often contain information useful for unrelated special problems.

The Means and Extremes of meteorological variables in the Climatography of the U.S. No.20 series are recorded by observers in the cooperative network. The Normals, Means and Extremes in the Local Climatological Data, annuals are computed from observations taken primarily at airports.

The editor of this publication expresses his thanks to those State Climatologists, who, over the years, have made significant and lasting contributions toward the development of this very useful series.

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## **Climate of Louisiana**

Topographic Features- Louisiana lies roughly between latitudes 29.5 and 33° North and from the 94<sup>th</sup> meridian eastward to the Mississippi River. Elevations increase gradually from the coast northward, rising to over 100 feet above sea level on uplands and 400 to 500 feet on some of the hills in the northwest. In the north are low rolling hills, while in the east many bluffs dot the river plain. Coastal marshes and bayous are features of the southern terrain. The Mississippi Delta, a fertile sedimentary deposit, comprises a third of the State's total area.

Drainage in Louisiana is into the Gulf of Mexico. The Red River basin comprises the largest drainage area in the State. The Red joins the Atchafalaya and Old rivers, the latter forming an outlet to the Mississippi River. Most of the water from the Red flows to the Gulf through the Atchafalaya System. Because of an extensive levee system there is not much drainage directly into the Mississippi within the State. Lowlands bordering the Red and upper Atchafalaya are also protected by levees.

Southern Louisiana is mostly low and level with elevations generally less than 60 feet above mean Gulf of Mexico level. The runoff is through numerous sluggish streams or bayous which flow through lakes and marshland. The larger marshlands are mainly in the coastal area, extending farthest inland in the southeast. A great part of the southwestern region is drained through the Calcasieu River. The extreme southwestern part of the State drains into the Sabine River which forms more than half of the western boundary. The Pearl River drains a relatively small area in the southeast and forms the southeastern boundary.

The principal influences that determine the climate of Louisiana are its subtropical latitude and its proximity to the Gulf of Mexico. The average water temperatures of the Gulf of Mexico along the Louisiana shore range from 64 degrees Fahrenheit (° F) in February to 84 in August. Elevation and type of soil are factors of some importance.

In summer the prevailing southerly winds provide moist, semitropical weather often favorable for afternoon thunderstorms. With westerly to northerly winds, periods of hotter and drier weather interrupt the prevailing moist condition. In the colder season, the State is subjected alternately to tropical air and cold, continental air, in periods of varying length. Although warmed by its southward journey, the cold air occasionally brings large and rather sudden drops in temperature, but conditions are usually not severe.

Louisiana is south of the usual track of winter storm centers, but occasionally one moves this far south. In some winters a succession of low pressure centers will develop in the Gulf of Mexico and move over or near the State. Additionally, the State is occasionally in the path of tropical storms or hurricanes.

From December to May the water of the Mississippi River is usually colder than the air temperature, which favors river fog formation, particularly with weak southerly winds. In the more southern section, lakes also serve to modify the extremes of temperature and to increase fogginess over narrow strips along the shores.

Temperature- The average annual temperature ranges from 64 in the northern divisions to 69° F in southern divisions. The lowest January average is 45 in the northwest and north-central ranging upward to 53 in the southeast. The July average is 82 to 83° F statewide. As for the number of days with temperatures equal to or greater than 90° F: Shreveport and Alexandria average about 90 days, Lake Charles and New Orleans average 75 days.

Louisiana's highest temperature ever recorded was 114° F at Plain Dealing on August 10, 1936. The -16° F at Minden on February 13, 1899 is the lowest temperature for the State. Despite these extreme readings, temperatures above 110 and subzero are rare.

The average number of days with temperatures of 32° F or colder decreases from 36 at Shreveport to less than 10 at New Orleans. Near the mouth of the Mississippi River a freeze can be expected only about once in seven years. Growing seasons are long, ranging from 220 days in the north to over 300 days in the southern portion of the State.

Precipitation- Mean annual precipitation ranges from 48 inches in Caddo Parish to as much as 75 inches in parts of St. Helena Parish.

During the summer months, seasonal rainfall usually increases from the northwest (10 inches) toward the southeast (22 inches). In the winter this pattern is reversed with the heaviest seasonal precipitation (17 inches) in the area extending from the Carroll parishes southwestward to Winn and southward to St. Landry, with the least (13 inches) in the lower Delta. During the summer months the moist tropical air results in almost daily showers in the coastal parishes; however, shower frequency diminishes with distance from the Gulf Coast toward the northern parishes. In the winter months the northern portion of the State is invaded by cold air which tends to stall and become stationary. This sometimes produces prolonged rains over that area, while clear weather continues in the southern parishes. The pattern of spring rains is similar to that of winter, while fall rains are distributed in the same manner as summer rains, heaviest closest to the coast. However, fall is the driest season, with precipitation ranging from 12 inches in the north to 15 inches in the southeast. Spring precipitation ranges from 13 inches on the coast to 17 inches in the central interior.

The heaviest rains of short duration are associated with thunderstorms, although tropical systems or their remnants sometimes cause prolonged heavy rains. Rains of as much as 20 inches in a month have occurred at most stations, and falls of as much as 10 inches in 24 hours are not rare. Although Louisiana is the wettest state in the Union, droughts are not unknown, especially during the summer and fall. For instance, in New Orleans, where the normal annual precipitation is 64.16 inches, there can be three consecutive weeks without measurable precipitation. Showers and thunderstorms occur quite often in all parts of the State, during the summer. Most of these storms are convective in nature and occur at the peak of daytime heating. Snow and sleet are extremely rare in Louisiana.

Heavy rains cause minor floods each year. And, major floods do occur. However, flood control systems (levees and floodways) normally prevent major damage or loss of life.

Tropical systems have the potential to harm life and property in Louisiana, especially along the coast. The State experiences, on average, one tropical system a year. While not all of the tropical systems are hurricanes, they can still pack a punch regardless of intensity. September is the most active month for tropical weather in Louisiana.

Hurricane Katrina made landfall in southeastern Louisiana near Buras on August 29, 2005 as a category 4 storm with sustained winds of 140 mph. The storm brought devastation and loss of life that were nearly incomprehensible. The city of New Orleans, much of which sits below sea level, was inundated with up to 20 feet of water when several levees were breached. Insured damages from Louisiana eastward to the western portion of the Florida panhandle were in \$50 billion range. Uninsured or underinsured losses were estimated in the \$100 to \$150 billion range. This made Katrina the most costly weather-related disaster in US history. Additionally, nearly 1,100 citizens of Louisiana lost their lives in the storm. More than 300 were killed elsewhere. This was the largest number of weather-related fatalities in the US since the 2,500 death toll from the “Lake Okeechobee Storm” of 1928.

Tornadoes, often spawned by thunderstorms, are much smaller than hurricanes and their winds can be even more intense. On average, 25 tornadoes are reported in the State each year. They can cause severe localized damage.

Climate and the Economy- Louisiana agriculture is well adapted to climatic influences, with major crops grown in fairly well-defined regions. Cotton is grown primarily in the northern and central districts where summer rainfall is generally insufficient for other crops, while rice is grown on the flat prairie lands or the southwest with its plentiful water supply. Sugar cane is grown primarily in the south-central, the western portion of the southeast, and the southern portion of the central district, where copious rainfall and a long growing season are nearly ideal. Citrus fruits are grown in a narrow strip bordering the Mississippi River south of New Orleans, where freezes are uncommon.

The industrialization of parts of Louisiana is no doubt partly due to the favorable climate and unfailing water supply. Chemicals, petroleum, sulfur, aluminum, paper, shipping, fishing, trapping, and tourist trade are all important to the economic activities of the State. Construction is carried on throughout the year. The “frost line” offers no problem as freezes are usually of one to three days duration, and freezing of the soil is rare even in the northern parishes.

Warm weather outdoor activities are possible for a longer period of the year than in the northern states. Golfing is a year-round activity, but swimming is confined to the warmer half of the year even on the coast. Tourism has become a major enterprise and the State offers many historical attractions.