

## 18. Weather

Florida has a unique climate with weather patterns influenced mainly by the fact that Florida is a peninsula that straddles the tropic and temperate latitudes. The state experiences both tropical (summer) and temperate (winter) weather throughout the year.

Florida is mainly affected by high-pressure systems. Fair weather and cool air dominate most of the year; only occasionally, mostly in the winter, but also most dramatically in summer or fall, as with hurricanes, do low-pressure systems of high humidity, cloudiness and storms, pass over Florida.

### The Bermuda High and Trade Winds

During summer and early fall, most of Florida lies under the western edge of the Bermuda high, a massive, semi-permanent high-pressure system covering much of the Atlantic Ocean. Southeasterly (Trade) winds blow warm, humid air into the state and keep cold fronts at bay. Warm summer days heat the land, causing updrafts which cause afternoon thunderstorms, while sea breezes keep the beaches clear. As night falls, the pattern reverses: the sea becomes warmer than the land, updrafts form over water, winds shift to blowing from land to sea, and the storms are blown out to sea.

From late summer through fall easterly waves may intensify as they travel over the tepid Atlantic or Caribbean waters. Some will strengthen into tropical storms, a low-pressure system of circular bands of thunderstorms with winds exceeding 39 miles per hour. If a tropical storm increases strength more and winds reach over 73 miles per hour, it becomes a hurricane. Florida is hit by many tropical waves and tropical storms every year and usually has 1 or 2 hurricanes.

Rain is very common in Florida; it varies greatly from northern temperate Florida to south tropical Florida. In central Florida, the average rainfall is between 50 and 54 inches per year with over 80% of that rainfall occurring in late spring and summer with thunderstorms. Florida, especially central Florida, is known as the “Lightning Capital of the World” or “Lightning Alley” with an average of 50 strikes per square mile per year. Lightning is an electric discharge that can be from cloud to cloud or cloud to ground. Florida gets over a million ground strikes every year and over 10 million strikes that never touch the ground.

### Records (Florida)

Deadliest Hurricane:	September 17, 1928	1800 dead
Costliest Hurricane:	Aug 24 <sup>th</sup> , 1993	\$23 Billion
Most Powerful Hurricane:	Labor Day, 1935	200+ MPH
Highest Temperature:	June 29 <sup>th</sup> , 1931	109° F at Monticello
Lowest Temperature:	February 13, 1899	-2° F at Tallahassee
Most Rain in 24 Hours:	September 5 and 6, 1950	38.7 inches at Yorktown
Most Snow:	January 10, 1800	5” along the Georgia, Florida border

## Seasons

The seasons are most pronounced in North Florida and the Panhandle where there may be a 70 to 80 degree swing in high and low temperatures through the year. In Central Florida, the seasonal changes are less evident as the masses of water on each side moderate the weather. In southernmost Florida, seasonal changes are marked more by a change in rainfall than by a change in temperature.

Seasons result from the *inclination* (tilt) of the earth, and the resulting angle at which the sun hits the earth. During the winter, the Northern Hemisphere is tilted away from the sun so there is less exposure to sunshine, therefore cooler temperatures, while during the summer the Northern Hemisphere is tilted towards the sun exposing more of the hemisphere to the sun's heat.

Spring officially begins on or about March 21<sup>st</sup> (Spring Equinox). Cold fronts are still sweeping across Florida causing thunderstorms and showers. Spring is relatively mild and sunny.

Summer begins around June 21<sup>st</sup>. At this time, the Bermuda High, bringing heat, humidity and summer storms, replaces cold fronts. During this wet season, Florida has average daytime highs in the 90's.

Fall begins around September 22<sup>nd</sup>. In Central and South Florida, September is still a summer month with temperatures in the 90's. It is also the wettest month of the year. Around October, Florida usually starts to dry out with cold fronts cooling the state. By November, the state normally experiences mild, sunny days and cool nights.

Winter, the shortest season in Florida, officially starts on December 21<sup>st</sup>. Cold fronts increase, bringing breezy, cool days. Central Florida has average daytime temperatures around 65 degrees. Winter is normally the dry season, receiving only 10 to 20% of the yearly average.

## El Niño

Some years, a weather pattern resulting from unusual warming of the water in the shallower western Pacific Ocean causes a change in rainfall seasons around the globe. Wet and dry seasons reverse in Florida, making for a wet winter and dry summer. Global warming is resulting in more and more frequent El Niño years. The long-term effects of these climate changes are likely to be felt before they are completely understood. When conditions change, species must either also change or move – or die. Plants that depend on normal spring and summer rains may not flower and reproduce well in El Niño years, stressing those species and the network of species, plant and animal, that depend on them. Some species will certainly go extinct. Some that could not adjust in time to increased temperatures in their range have already gone extinct. The accelerated change occurring now is outstripping Nature's ability to adjust in time.