



NOAA - National Weather Service

Tampa Bay Area

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...West Central and Southwest Florida Thunderstorm Season...

West Central and Southwest Florida is located in what is referred to as the Subtropics, located between the Temperate zone to the north and the Tropical zone just to the south. During the late spring and summer months of June through September the tropical [climate](#) shifts north into our area and this combined with the oceans surrounding the Florida peninsula and daily sea breezes leads to our Thunderstorm Season. This isn't to say that there aren't periods before and after this during May and again in October that can't see daily thunderstorms, it's just that these periods are usually associated with some kind of [upper level disturbance/trough](#) and not simply daytime heating combining with the sea breezes and deep [moisture](#).

When we're looking to determine the typical beginning of the Thunderstorm Season we need to take into account such things as air and sea surface temperature, the prevailing [wind direction](#) and speed, the amount of sunshine, the [sea breeze](#) development, and of course moisture because if you don't have moisture, then it's a little tough to get rain.

For our thunderstorm season to really get underway we look for a few things to come together. These include:

- The [Bermuda High](#) setting up with a general east to southeast wind flow across the Florida peninsula
- [Sea surface temperatures](#) climb to 28°C (82°/83°F) or higher over the eastern Gulf of Mexico, and not just along the coast
- Surface [dew points](#) remain at or above 21°C (70°F)
- Deep moisture. When we refer to "deep moisture", we are looking at the [precipitable water \(PW\)](#) values, which in general terms is all of the moisture one could squeeze out in a vertical column of the

atmosphere up to about 30,000 feet over a given location, then the amount or depth of water that you would get is the precipitable water. PW is measured in millimeters or inches and is usually calculated from the upper air soundings which are available twice a day at numerous locations across the United States and other parts of the world. The values of PW range from 0 to about 76 millimeters (or up to around 3 inches), but can vary greatly depending on the season and location. For West Central and Southwest Florida, typical values during our thunderstorm season range from around 43 to 48 mm (1.7 to 1.9 inches). When they fall to around 38 mm (1.5 inches) or less we tend to see very limited coverage.

Due to the fact that the summer Thunderstorm Season is dependent on multiple atmospheric phenomena coming together, there is no hard or solid date that defines the beginning or end of the season, and will vary from year to year. However, based on data over the past few decades, in most years the Thunderstorm Season across West Central and Southwest Florida becomes firmly established during the second or third week of June when all of the above ingredients come together.



During the summer Thunderstorm Season, the locations and timing for favored thunderstorm development on any given day changes based on the position and strength of the subtropical [ridge](#) (mentioned above). The National Weather Service in Ruskin, FL uses 8 varying subtropical ridge wind "regimes" to aid in daily thunderstorm forecasting. For more information

of the differences we see in our daily thunderstorms associated with these differing positions of the subtropical ridge (regimes 1 - 8), please see the following website:

https://www.weather.gov/tbw/Thunderstorm_Climatology

Some other helpful links are listed below:

SPC Observed Soundings:

<http://www.spc.noaa.gov/exper/soundings/>

SPC Sounding Climatology

<http://www.spc.noaa.gov/exper/soundingclimo/>

SPC Observed Upper Air Maps:

<http://www.spc.noaa.gov/obswx/maps/>

Sea Surface Temperature Maps:

<http://www.ospo.noaa.gov/Products/ocean/sst/contour/index.html>

[https://weather.msfc.nasa.gov/cgi-](https://weather.msfc.nasa.gov/cgi-bin/sportPublishData.pl?dataset=sst&product=sport_gomex1)

[bin/sportPublishData.pl?dataset=sst&product=sport_gomex1](https://weather.msfc.nasa.gov/cgi-bin/sportPublishData.pl?dataset=sst&product=sport_gomex1)