



2024 ANNUAL FLORIDA WEATHER & CLIMATE SUMMARY

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This report summarizes Florida's weather and climate in 2024. The year featured a continuation of temperatures that were well above-average, including a record hot summer, June-August. It was a very active hurricane season with three landfalling hurricanes along Florida's Gulf Coast. Two of these were major hurricanes that struck less than two weeks apart. Several parts of the state were impacted by extreme rainfall, mostly due to tropical systems that impacted the state throughout the heat season.

2024 is Warmest Year on Record for the U.S. and World, 5th-Warmest for Florida

Globally, 2024 ranks as the hottest year on record since 1850, when records began. 2024 was a **record warm year for the U.S.** as well, for the second year in a row. The average annual temperature for the contiguous U.S. was 55.5°F, which was 3.5°F above the 20th century average, according to the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI). **17 states recorded their warmest year on record**, with many of them in the Upper Midwest and Northeast regions (Figure 1).

2024 continued a trend of above-average warmth in Florida. According to the NCEI, **2024 ranks as the 5th-warmest year on record in Florida** since 1895. The statewide annual average temperature was 72.9°F, which was 2.8°F above the 20th century average of 70.1°F. The statewide annual average maximum temperature ranked 7th-warmest in 2024, at 83.0°F and +2.1°F above the long-term mean. The statewide annual average minimum temperature ranked 5th-warmest on record, at 62.8°F and +3.4°F above the long-term mean. Annual average temperatures observed for the year are shown in Figure 2, and statewide monthly average temperature departures are in Figure 3. Florida saw 12 consecutive months with near to above-average temperatures during 2024.

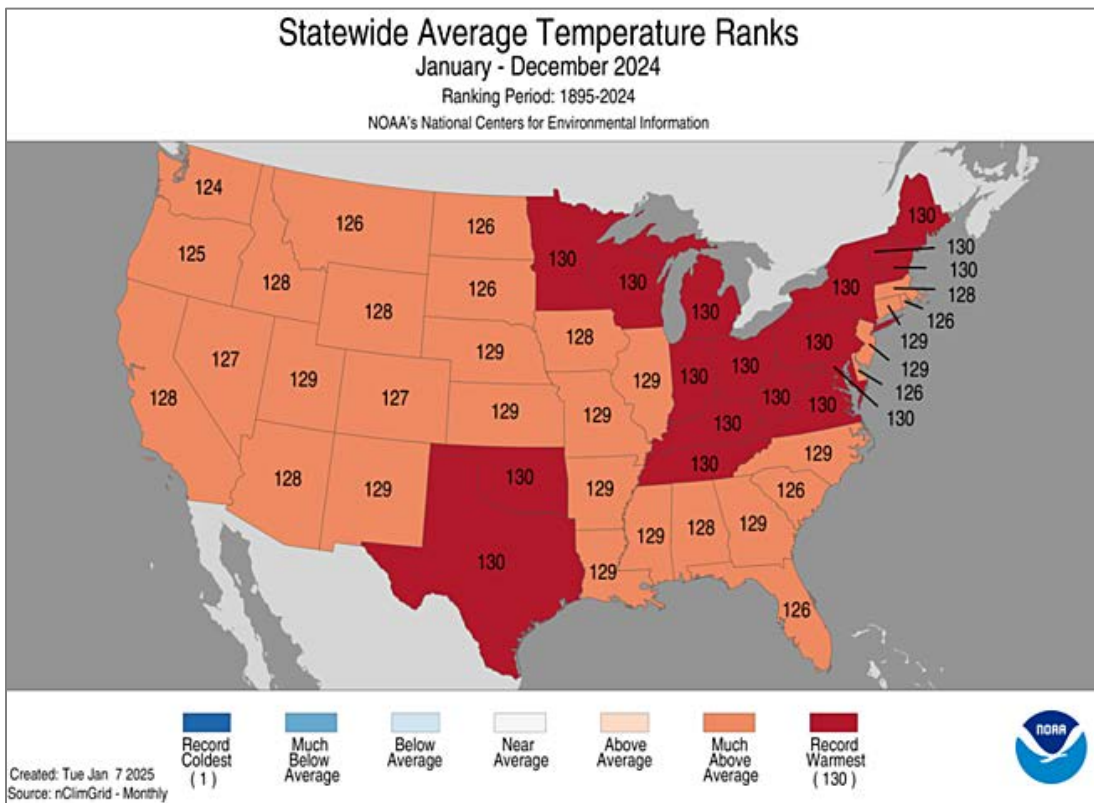


Figure 1. State-level rankings of annual average (mean) temperature in 2024, based on the historical instrumental record from 1901-2000, from NOAA/NCEI.

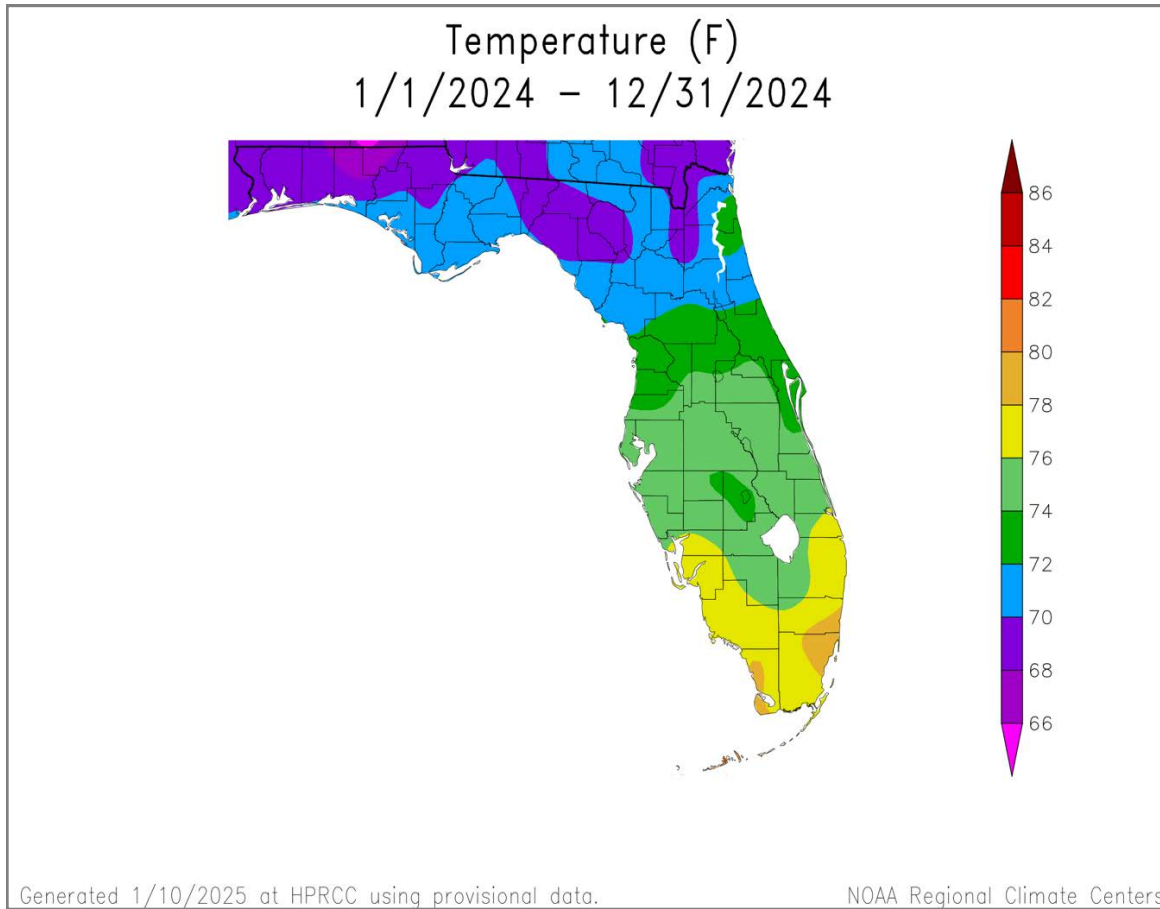


Figure 2. 2024 annual average temperatures, in °F, in Florida from January 1, 2024 – December 31, 2024, courtesy of the High Plains Regional Climate Center.

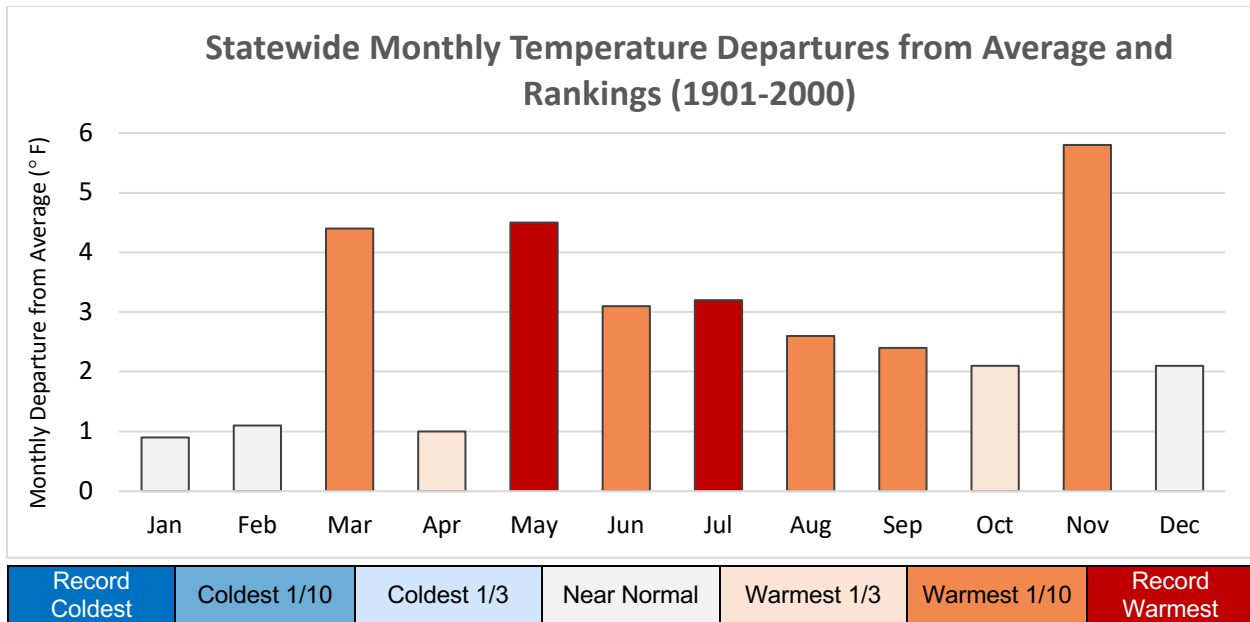


Figure 3. 2024 statewide monthly average temperature departures and their rankings from the long-term average (1901-2000) for Florida.

2024 Heat Season Records

Florida experienced persistent summer heat. **Summer (June-August) 2024 ranked as the warmest summer on record in Florida** based on statewide average temperatures, June through August, dating back to 1895. The statewide summer average temperature was 83.5°F, which was +3.0°F above the long-term mean and tied with 1998 for the warmest summer on record. **May 2024 ranked warmest May on record**, and **July 2024 was the warmest July on record** in Florida.

The heat season, May-October, was record hot for several stations in the state. **Orlando, Fort Myers, Punta Gorda, Fort Lauderdale, and Palm Beach** experienced their hottest heat seasons on record. **Tampa** tied for its warmest heat season on record, tied with 2021 and 2019. **Key West** also tied for its warmest heat season on record, tied with 2023, dating back to 1872.

County-Level Temperature Rankings

Annual average temperature rankings by county are shown in Figure 4. **Nearly every county in the state experienced one of their top 5 warmest years** on record. In addition, many stations experienced one of their warmest years on record, based on annual average temperatures. This includes **Punta Gorda** (warmest), **Tallahassee** (2nd-warmest), **Ft. Lauderdale** (2nd-warmest), **Homestead** (3rd-warmest), **Jacksonville** (4th-warmest), **Daytona Beach** (4th-warmest), **Ocala** (5th-warmest), and **Key West** (5th-warmest).

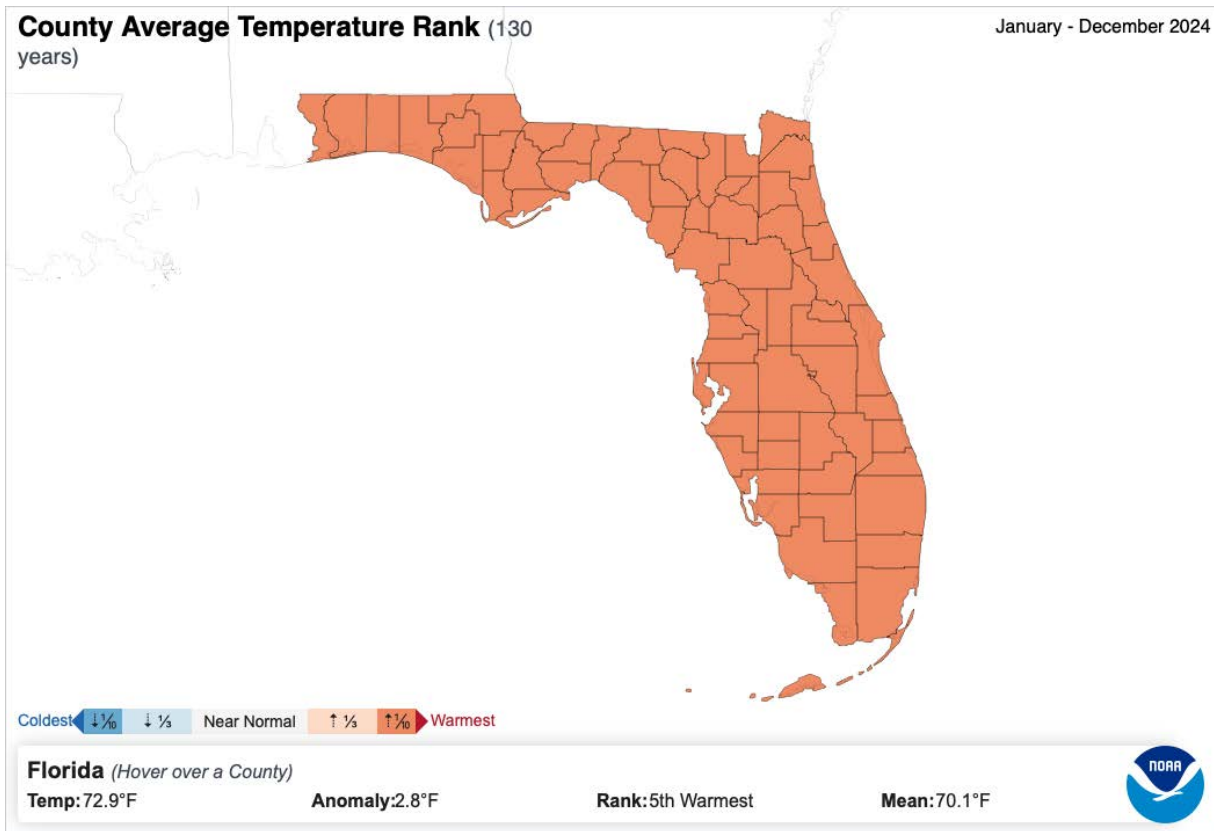


Figure 4. County-level rankings of annual average temperatures in 2024, based on the instrumental record from 1901-2000, from NOAA/NCEI.

Annual and Seasonal Temperature Rankings by Climate Division

Florida is divided into 7 climate divisions representing regions of generally homogenous climate. These 7 divisions are as follows: Panhandle (1), North (2), North Central (3), South Central (4), Everglades and Southwest Coast (5), Lower East Coast (6), and Keys (7) (Figure 5).

The 2024 annual average temperatures by climate division and their rankings are in Table 2. All seven climate divisions observed one of their top 10 warmest years on record in 2024.

Divisional seasonal average temperatures and their rankings (in parentheses) compared to the long-term average temperature (1901-2000) are provided in Table 3. With a strong El Niño event in place during the 2023-2024 winter, Florida experienced a mild winter. However, temperatures in spring, summer, and fall brought near-record warmth. Summer was record warm across north and central Florida and in the Keys, in climate divisions 2, 3, and 7, respectively.

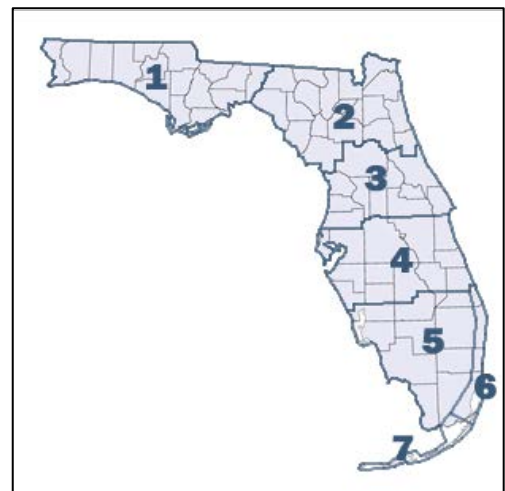


Figure 5. Map of Florida's seven climate divisions.

Table 2. Annual 2024 mean temperatures (°F) by climate division and rankings compared to historical values, based on data from the NOAA National Centers for Environmental Information.

DIVISION NO.	ANNUAL MEAN TEMPERATURE (°F)	RANKING (since 1895)
1	69.5	5 th warmest
2	70.9	5 th warmest
3	73.3	5 th warmest
4	74.4	6 th warmest
5	76.4	7 th warmest
6	77.3	5 th warmest
7	78.8	5 th warmest

Table 3. Statewide and divisional 2024 seasonal mean temperatures (°F) and their rankings compared to the 1901-2000 instrumental record, in parentheses. Winter includes December 2023, consistent with the definition of that season.

DIVISION NO.	WINTER (DJF)	SPRING (MAM)	SUMMER (JJA)	FALL (SON)
Statewide	60.2 (38 th warmest)	72.8 (4 th warmest)	83.5 (1 st warmest)	75.6 (5 th warmest)
1	53.7 (43 rd warmest)	69.1 (11 th warmest)	83.0 (2 nd warmest)	72.1 (2 nd warmest)
2	56.7 (37 th warmest)	70.7 (6 th warmest)	83.4 (1 st warmest)	73.1 (8 th warmest)
3	60.9 (33 rd warmest)	73.3 (6 th warmest)	83.6 (1 st warmest)	75.7 (6 th warmest)
4	63.0 (47 th warmest)	74.4 (5 th warmest)	83.5 (2 nd warmest)	76.9 (7 th warmest)
5	66.4 (42 nd warmest)	76.2 (4 th warmest)	84.0 (3 rd warmest)	78.9 (4 th warmest)
6	68.5 (29 th warmest)	77.2 (2 nd warmest)	83.9 (3 rd warmest)	79.4 (6 th warmest)
7	69.9 (45 th warmest)	78.6 (3 rd warmest)	85.4 (1 st warmest)	81.1 (4 th warmest)

Precipitation in 2024 Mostly Above Average

Nationwide, precipitation was above average in 2024 with an average annual total of 31.58 inches, which ranked as the **29th-wettest year on record for the contiguous U.S.** (Figure 6). Annual precipitation in Florida was above the historical average, when considering the annual total averaged over the land area of the state. The 2024 statewide annual average precipitation was 56.82 inches (exclusively rainfall), which was +3.17 inches above the historical average of 53.65 inches (1901-2000). This ranked **44th-wettest** in the instrumental record dating back to 1895 for Florida. The wet season got off to a dry start, but summer made up for this lack with above-average precipitation during June-August. The year finished with drier than average conditions (Figure 8).

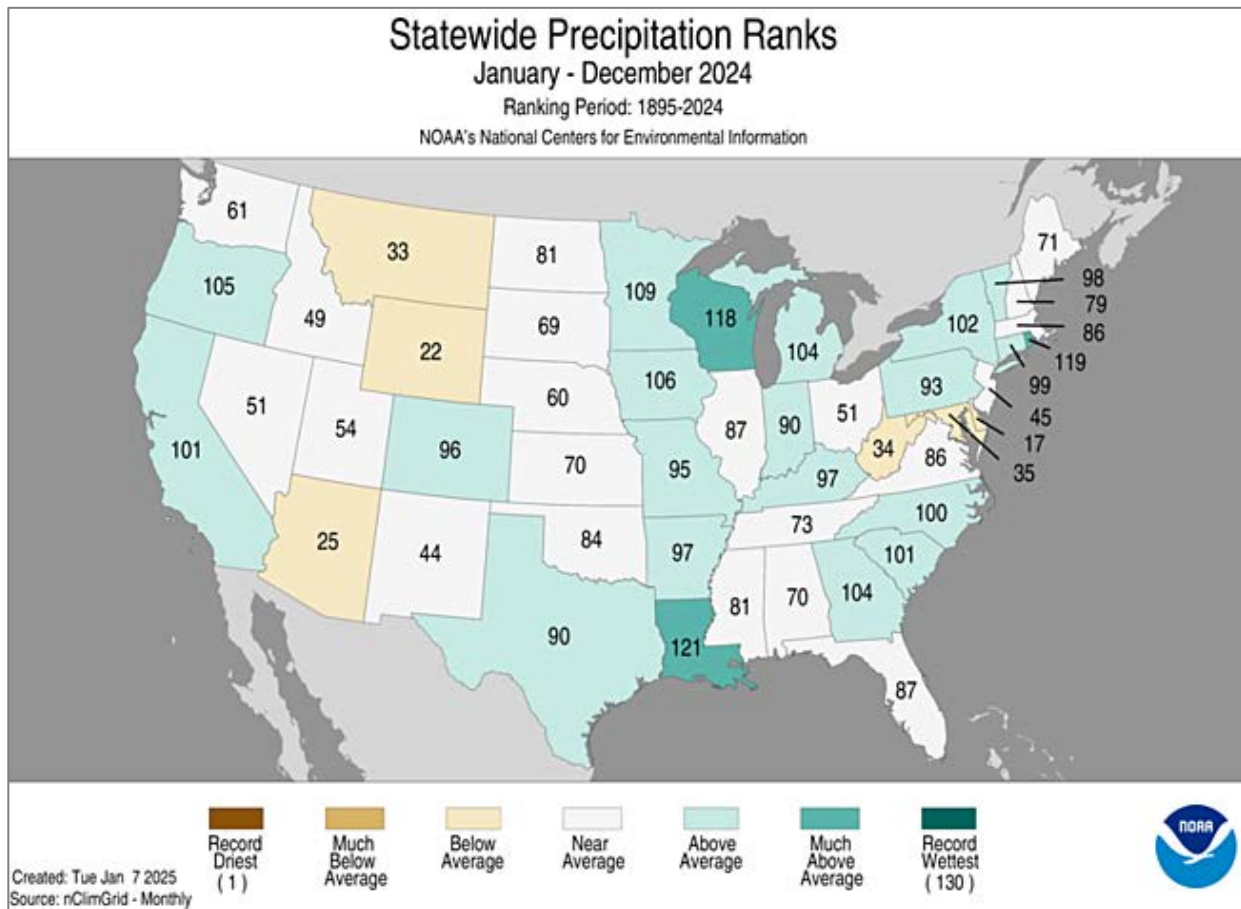


Figure 6. State rankings of annual average (mean) precipitation in 2024, based on the historical instrumental record from 1901-2000, from NOAA/NCEI.

Annual precipitation ranged from approximately 45 inches in parts of east-central and north-central Florida to near 80 inches in Southwest Florida and Apalachicola (Figure 7). Based on a review of stations from various station networks, the following annual rankings were found:

- A CoCoRaHS station (Naples 11.8 ENE) in Collier County reported the highest total annual rainfall for the year with 94.64 inches.
- Among the COOP and WBAN networks, the Fort Myers Page Field Airport recorded a maximum annual rainfall of 80.45 inches.
- The lowest total annual rainfall observed within the CoCoRaHS network was 31.42 inches (Winter Haven 6.6 SSE) in Polk County, based on stations with at least 90% complete data for the year.

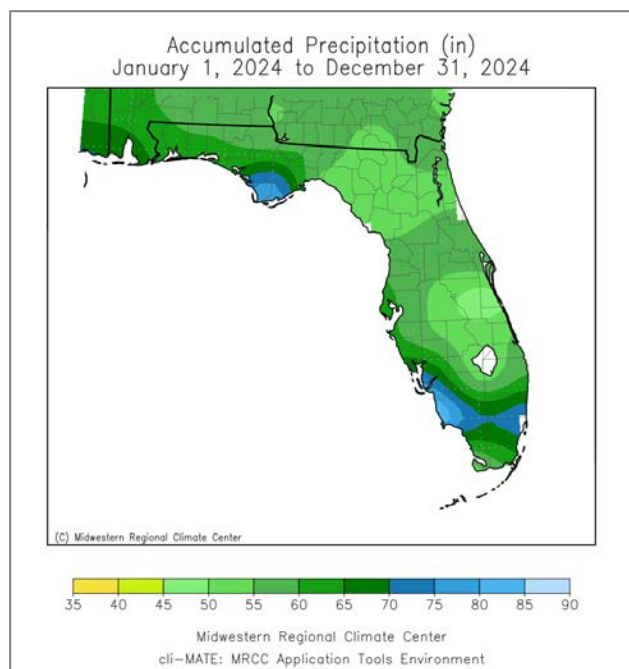


Figure 7. Total annual precipitation in Florida in 2024, courtesy of the Midwestern Regional Climate Center.

- Among the NWS COOP, ASOS, and FAWN (Florida Automated Weather Network) networks, the Ocala Jim Taylor Field station (WBAN) in Marion County recorded the lowest annual precipitation total of 19.21 inches.

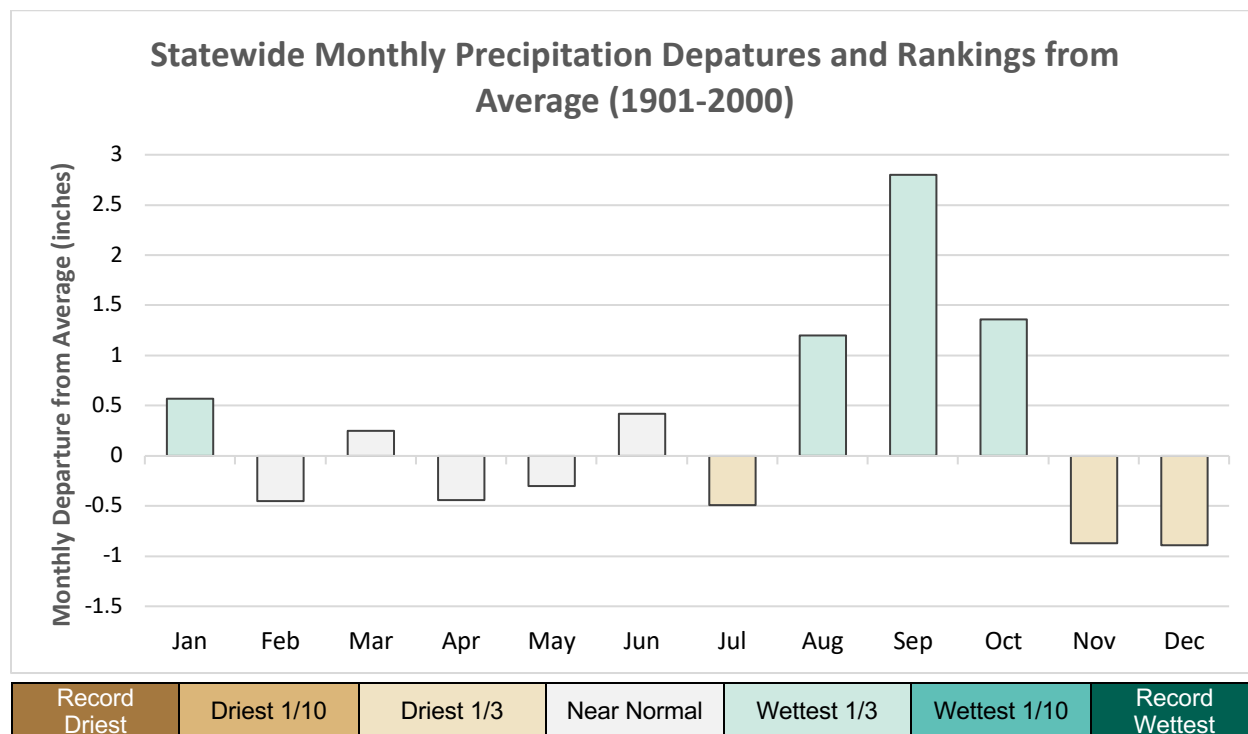


Figure 8. 2024 statewide average monthly precipitation departures and rankings from the long-term average (1901-2000) for Florida.

Annual and Seasonal Precipitation Rankings by Climate Division

Annual precipitation totals by climate division and their rankings (in parentheses) are provided in Table 4. Seasonal precipitation totals and rankings for each climate division are in Table 5. Seasonal rainfall fluctuated throughout the year. December was generally wet with a strong El Niño in place through about May. Spring was much drier across central and south Florida. Northwest Florida experienced its 13th-driest summer on record, while South Florida had its 14th-wettest summer on record. Fall was generally wet in most areas of the state as tropical cyclones brought multiple rounds of heavy rainfall.

Table 4. 2024 annual total precipitation (inches) by climate division and rankings compared to historical values, based on data from the NOAA/NCEI.

DIVISION NO.	ANNUAL TOTAL RAINFALL (inches)	RANKING (since 1895)
Statewide	56.82	44 th wettest
1	61.12	49 th wettest
2	54.31	53 rd wettest
3	54.96	41 st wettest
4	54.50	46 th wettest
5	58.07	28 th wettest
6	62.75	36 th wettest
7	55.68	17 th wettest

Table 5. 2024 statewide and divisional seasonal precipitation totals (in inches) and their ranking compared to the 1901-2000 instrumental record, in parentheses. Winter includes December 2023, consistent with the definition of that season.

DIVISION NO.	WINTER (DJF)	SPRING (MAM)	SUMMER (JJA)	FALL (SON)
Statewide	11.58 (24 th wettest)	10.21 (65 th)	22.58 (52 nd wettest)	15.99 (19 th wettest)
1	16.84 (27 th wettest)	19.00 (14 th wettest)	14.38 (13 th driest)	16.28 (26 th wettest)
2	12.97 (27 th wettest)	11.81 (48 th wettest)	23.04 (44 th wettest)	12.24 (46 th wettest)
3	10.09 (33 rd wettest)	8.21 (50 th driest)	22.08 (62 nd driest)	17.49 (5 th wettest)
4	9.45 (26 th wettest)	4.58 (10 th driest)	25.09 (37 th wettest)	17.35 (12 th wettest)
5	7.89 (26 th wettest)	6.24 (18 th driest)	28.36 (19 th wettest)	16.98 (33 rd wettest)
6	8.87 (27 th wettest)	8.76 (41 st driest)	25.84 (21 st wettest)	20.20 (43 rd wettest)
7	9.92 (10 th wettest)	11.45 (27 th wettest)	23.01 (14 th wettest)	14.32 (54 th driest)

Annual Precipitation Rankings by County

Figure 9 shows 2024 county-level precipitation rankings. West-central coastal counties received surplus rainfall for the year. Pinellas, Hillsborough, Manatee, and Sarasota Counties experienced their 7th- or 8th-wettest years on record. Central and eastern counties had near-normal precipitation, while Osceola and Santa Rosa Counties were the driest counties in the state, ranking 29th- and 42nd-driest, respectively.

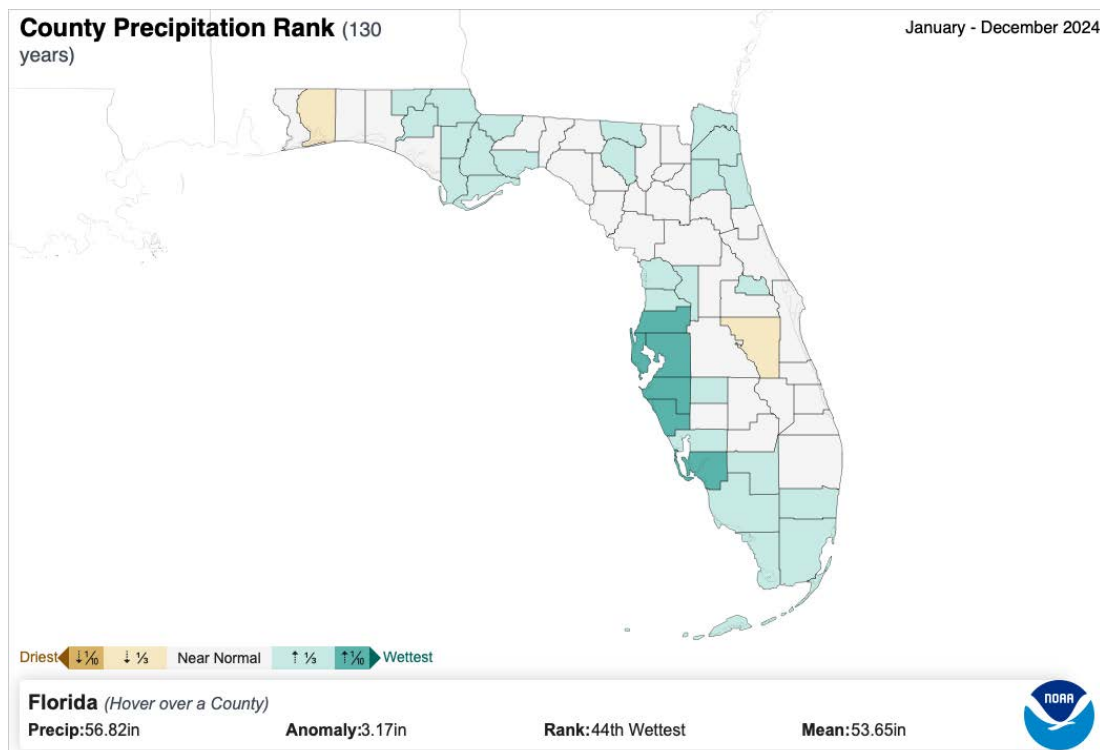


Figure 9. County-level rankings of annual average (mean) precipitation in 2024, based on the historical instrumental record 1901-2000, from NOAA/NCEI.

Notable Climate and Weather Events of 2024

2024 brought severe weather including urban flooding, straight-line winds, and tornadoes, as well as another devastating hurricane season with three hurricane landfalls along Florida’s Gulf Coast. This section features some of the most impactful events, including observations and impacts.

Daily Temperature and Rainfall Extremes Observed in 2024

The table below provides three of the top hottest and coldest temperatures recorded in the state in 2024 (January 1 – December 31), and the top three highest 24-hour rainfall totals, based on a review of stations in the NWS COOP, ASOS, FAWN and CoCoRaHS (Community Collaborative Rain, Hail, and Snow) networks. The heaviest 24-hour rainfall totals were all observed during Hurricane Milton.

STATION NAME	VALUE	COUNTY	DATE	STATION TYPE
Highest Temperatures				
1. Naval Live Oaks Florida	107°F	Santa Rosa	July 5, 2024	RAWS
2. St. Lucie West	103.7°F	St. Lucie	July 26, 2024	FAWN
3. Live Oak	103°F	Suwannee	June 16, 2024	COOP
Coldest Temperatures				
1. Pensacola 7 NNE	18°F	Escambia	January 17, 2024	COOP
2. Mayo	18°F	Lafayette	December 7, 2024	COOP
3. Crestview FAA/AP	18°F	Okaloosa	January 17, 2024	WBAN
Highest 24-hr Rainfall				
1. Dover	28.34 in.	Hillsborough	October 9, 2024	FAWN
2. Gibsonia 7.6	18.75 in.	Polk	October 10, 2024	CoCoRaHS
3. St. Petersburg (SPG)	18.54 in.	Pinellas	October 9, 2024	ASOS

A Record Wet Year in Tampa and Ft. Myers

Despite drought at the start of the year along coastal west-central Florida, this region experienced multiple extreme rainfall events in 2024 associated with tropical cyclones Debby, Milton and, to a lesser extent, Helene, as well as an active weather pattern during the rainy season. As a result, **the Tampa area recorded its wettest year on record** (134 years) with a total of 79.99 inches of rain, which was +30.51 inches above normal based on records dating back to 1891. **Fort Myers recorded its wettest year on record** (113 years) with a total of 80.45 inches of rain, which was +23.04 inches above normal based on records dating back to 1892. Other stations along the west-central and southwest coast experienced one of their top 5 wettest years on record, including Sarasota, Bradenton, Naples, and Lakeland.

Tropical Storm Debby brought torrential rainfall along the west coast of Florida in early August as the storm moved north in the eastern Gulf of Mexico. Debby strengthened into a category 1 hurricane and made landfall in Taylor County in the Big Bend on August 5, 2024. The greatest

storm total rainfall was observed in Manatee and Sarasota Counties, peaking at over 18 inches over a 5-day period. Rainfall in the Tampa area ranged from 6-12 inches, and Fort Myers collected between 3 and 6+ inches from the storm.

Hurricane Milton was a major rain producer for the Tampa area. The Tampa International Airport recorded 11.43 inches of rain from Milton, which mostly fell in under 24 hours on the night of October 9 as the storm made landfall just to the south in Sarasota County. Storm total rainfall reported by CoCoRaHS observers in the Tampa Bay area ranged from 9-16+ inches.

Tallahassee May Tornadoes

On May 9-10, multiple tornadoes moved through the Florida Panhandle and Big Bend as an active weather pattern brought severe weather to the region. On the morning of Friday, May 10, an intense squall line moved through the region and spawned 5 confirmed tornadoes. Two EF2s moved through the center of Tallahassee and one EF1 moved across Leon County just south of Tallahassee. The 2 EF2 tornadoes in Tallahassee were on the ground for a long time – one traveled 19.6 miles and the other was on the ground for 27 miles. Both caused major damages to businesses and



Damages from tornadoes, May 10, 2024, in Tallahassee (source: Tallahassee Democrat).

residential areas, including damage observed at the Tallahassee Community College, parts of Florida State University campus, Florida A&M University campus, and businesses and homes along the south side of town. Damages exceeded damage from Hurricanes Hermine, Michael, and Idalia combined in terms of the number of broken power poles (400+ broken utility poles along the paths of the tornadoes), according to the City of Tallahassee. More information on these tornadoes can be found [here](#).

Heavy Rainfall and Flooding Event in June Across South Florida

On June 11-13, a mix of ingredients came together to produce multiple rounds of heavy rainfall over a period of a few days across South Florida. Deep tropical moisture moved into South Florida associated with an area of low pressure that was being monitored for tropical development, known as Invest 90L. This, combined with high atmospheric instability, led to a series of thunderstorms that converged into what are known as mesoscale convective complexes (MCSs) that generated copious rainfall over the region. The system produced hourly rainfall rates upwards of 5-7 inches, and some locations received well over a foot of rain total, causing extensive flash flooding. One of the factors that made this event possible was the exceptional amount of water present in the atmosphere, called precipitable water, which exceeded the 90th percentile for the day, according to the National Weather Service.

Several hourly and daily rainfall records were broken during this event. The Sarasota-Bradenton Airport set a new hourly rainfall record with 3.93” and a new daily rainfall record with 6.47” on June 11, which surpassed the previous record of 2.50” for that day in 1940, according to NWS Tampa Bay. Fort Myers set a new daily rainfall record of 3.86”, surpassing the old record of 2.14” in 2008. Figure 10 shows 3-day rainfall totals over South Florida from June 11 – 14, 2024. The heaviest rainfall fell as two bullseyes over southwest and coastal southeastern areas in the urban corridor of southeast Broward County and northeast Miami-Dade County, with localized amounts of 15-20 inches. The 72-hour storm totals, ending Friday June 14, exceeded 20 inches in several locations, including in Collier County, Hallandale in Broward County, and in Miami-Dade County. [A detailed meteorological account of the event is available from the NWS in Miami.](#)

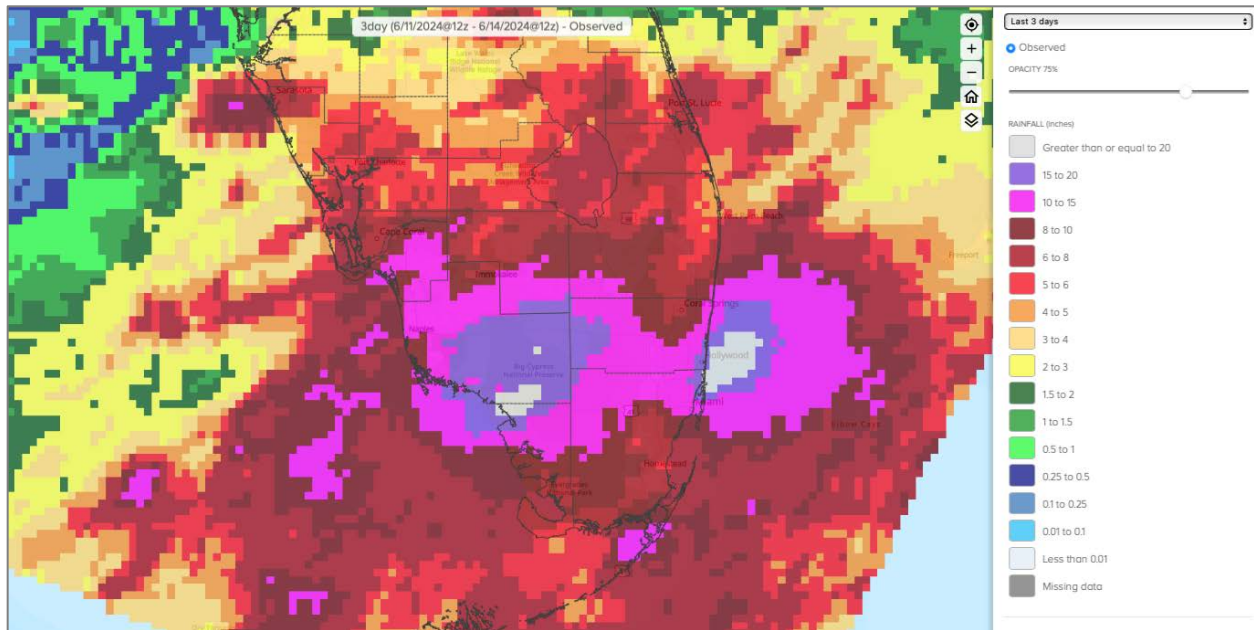


Figure 10. The 3-day observed rainfall totals in South Florida from June 11 – 14, 2024, courtesy of the National Water Prediction Service.

Another Very Active and Devastating Hurricane Season

The 2024 Atlantic hurricane season was above average with 18 named storms, including 11 hurricanes and 5 major hurricanes. Florida was directly impacted by 3 landfalling hurricanes – Debby, Helene, and Milton. Two were major hurricanes at the time of landfall and struck just 13 days apart (Helene and Milton). All 3 hurricanes made landfall along Florida’s west coast. Hurricane Debby made landfall near Steinhatchee, Florida in Taylor County on the morning of August 5, very close to where Hurricane Idalia made landfall just a year earlier in August 2023.

Hurricane Helene Brought Record to Near-Record Storm Surge

Hurricane Helene struck Florida as a major category 4 hurricane with peak winds of 140 mph near Perry, Florida in Taylor County on the night of September 26, 2024. Helene devastated the Big Bend and Gulf Coast communities and went on to cause catastrophic flooding and damage across the Southeast U.S. in parts of Georgia, [North and South Carolina](#), [eastern Tennessee](#), and Virginia.

Helene's onshore winds produced record storm surge levels and coastal flooding along the western Gulf Coast of Florida and Big Bend. Major flooding, debris, and damages to structures were observed all the way from the Keys north to the Big Bend region. Among the hardest hit areas were those in the direct path of the storm, including Steinhatchee, Horseshoe Beach, and Cedar Key, where hundreds of homes, businesses, and other structures were destroyed or washed away. Cedar Key recorded a peak storm surge level of 9.3 feet, which was the highest storm surge seen there in over 100 years and surpassed the storm surge observed during Hurricane Idalia in 2023 (6.89 ft). Tampa experienced its highest storm surge in over 100 years, with over 6 feet of surge in the area, including at the following tide gauges: Old Port Tampa (6.8 ft), East Bay (7.2 ft), and Port Manatee (6 ft), all surpassing the previous records set last year during Idalia.

Hurricane Helene was the costliest weather event in the U.S. in 2024, with an estimated \$78.7B in damages across the Southeast U.S., according to NOAA. It became the deadliest hurricane to hit the U.S. mainland since Katrina (2005), with at least 219 fatalities.



Storm surge flooding in Hernando County from Hurricane Helene (credit: Hernando Co. Sheriff's Office).

Record Tornado Outbreak during Milton

Just 13 days following Helene's landfall, Hurricane Milton made landfall in Siesta Key, Florida in Sarasota County on October 9 as a category 3 hurricane with maximum sustained winds of 120 mph. Milton was unique in several ways:

- Milton produced a total of 47 confirmed tornadoes in Florida on the 9th, which is the strongest tornado outbreak from a tropical cyclone in Florida on record. This included 3 EF3 tornadoes, which tied with an outbreak in February 1998 for highest number of EF3 tornadoes in an outbreak in the state. In all, these tornadoes covered a total of approximately 271 miles and were responsible for 7 deaths and 14 injuries.
- The NWS offices serving Florida issued a record 126 tornado warnings on October 9, which was the highest number of daily tornado warnings on record in Florida, surpassing the number of tornado warnings issued during Hurricane Irma in 2017 (Figure 11 below).
- Milton's track followed a more atypical path. The storm formed in the southwestern Gulf of Mexico as a tropical depression and moved east-northeast across the Gulf of Mexico as it approached west-central Florida.
- Milton experienced what has been deemed “explosive intensification” in the Gulf. After becoming a named storm, it quickly developed from a category 1 hurricane with maximum sustained winds of 90 mph into a major category 5 hurricane with maximum sustained winds of 180 mph on October 7 – representing a 90 mph increase in under 24 hours. Milton weakened before landfall but managed to maintain hurricane strength as it moved east across the Florida Peninsula before moving out into the Atlantic Ocean.
- With a central pressure minima of 897 mb, [Milton ranks as the 5th most intense hurricane](#) overall in the Atlantic basin based on pressure.

More information on these hurricanes can be found through our post-storm summary reports at: <https://climatecenter.fsu.edu/products-services/special-reports>.

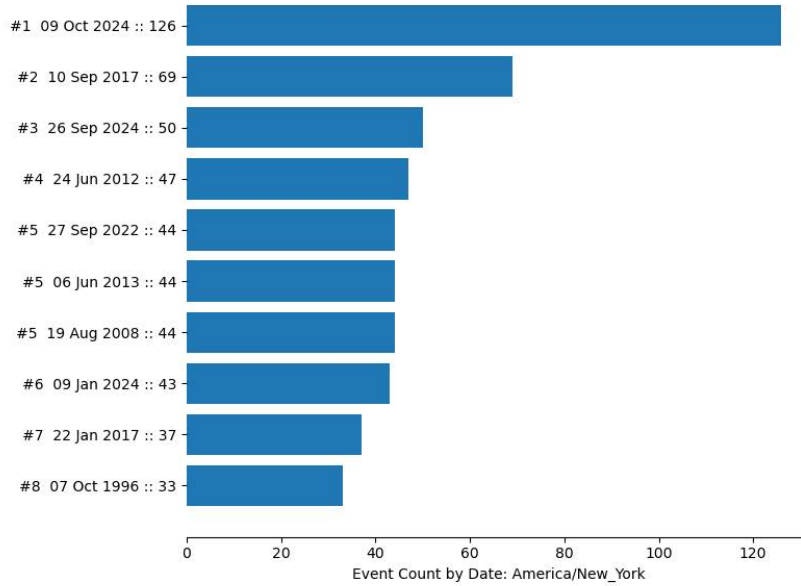


Damage from Hurricane Milton in Fort Pierce, Florida (credit: FEMA, Patrick Moore).



NWS Issued for Counties/Zones for State of Florida

Tornado Warning (TO.W) Events by Calendar Date [07 Feb 1986-09 Oct 2024]



Generated at 10 Oct 2024 10:18 AM CDT in 0.41s

IEM Autoplot App #243

Figure 11. Top eight events for number of tornado warnings issued in Florida in a single day on record, courtesy of the Iowa Environmental Mesonet.