

Climate Summary for Florida – September 2023

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Online at: <http://climatecenter.fsu.edu/products-services/summaries>

Summary

- Average monthly temperatures in September were above normal but more tempered compared to the last few months.
- Monthly precipitation totals in September were above normal in the Peninsula and below normal across western Florida and the Panhandle.
- Extreme drought remained confined to coastal west-central Florida throughout the month, and severe drought emerged in the western Panhandle by month's end.
- An El Niño Advisory continues and there is increased confidence that it will persist into the winter (greater than 95% chance) and become a strong event (greater than 70% chance).

Average monthly temperatures in September were above average but more tempered compared to the summer months. Average temperature departures from normal ranged from -0.5 °F in Jacksonville to +2.3 °F in Naples for the month (see Table 1 and Appendix 1 for select cities). West coastal and southern locations experienced one of their top 5 warmest Septembers on record, including **Fort Myers** (2nd-warmest), **Tampa** (3rd-warmest), **Lakeland** (3rd-warmest), **Miami** (3rd-warmest), **Key West** (3rd-warmest), and **Sarasota** (4th-warmest). **Pensacola** had its 10th-warmest September on record. The record-breaking hot summer ended with **Key West, Miami, Pensacola, and Sarasota** all recording their hottest summer on record. Select daily high maximum temperature records tied or broken during the month of September are provided in Appendix 2.

Table 1. September average temperatures and departures from normal (°F) for selected cities.

Station	Mean Temperature	Departure from Normal
Pensacola	81.2	+1.2
Tallahassee	79.7	+0.6
Jacksonville	78.3	-0.5
Orlando	82.3	+1.3
Tampa	83.8	+1.1
Miami	84.7	+1.7
Key West	85.4	+1.3

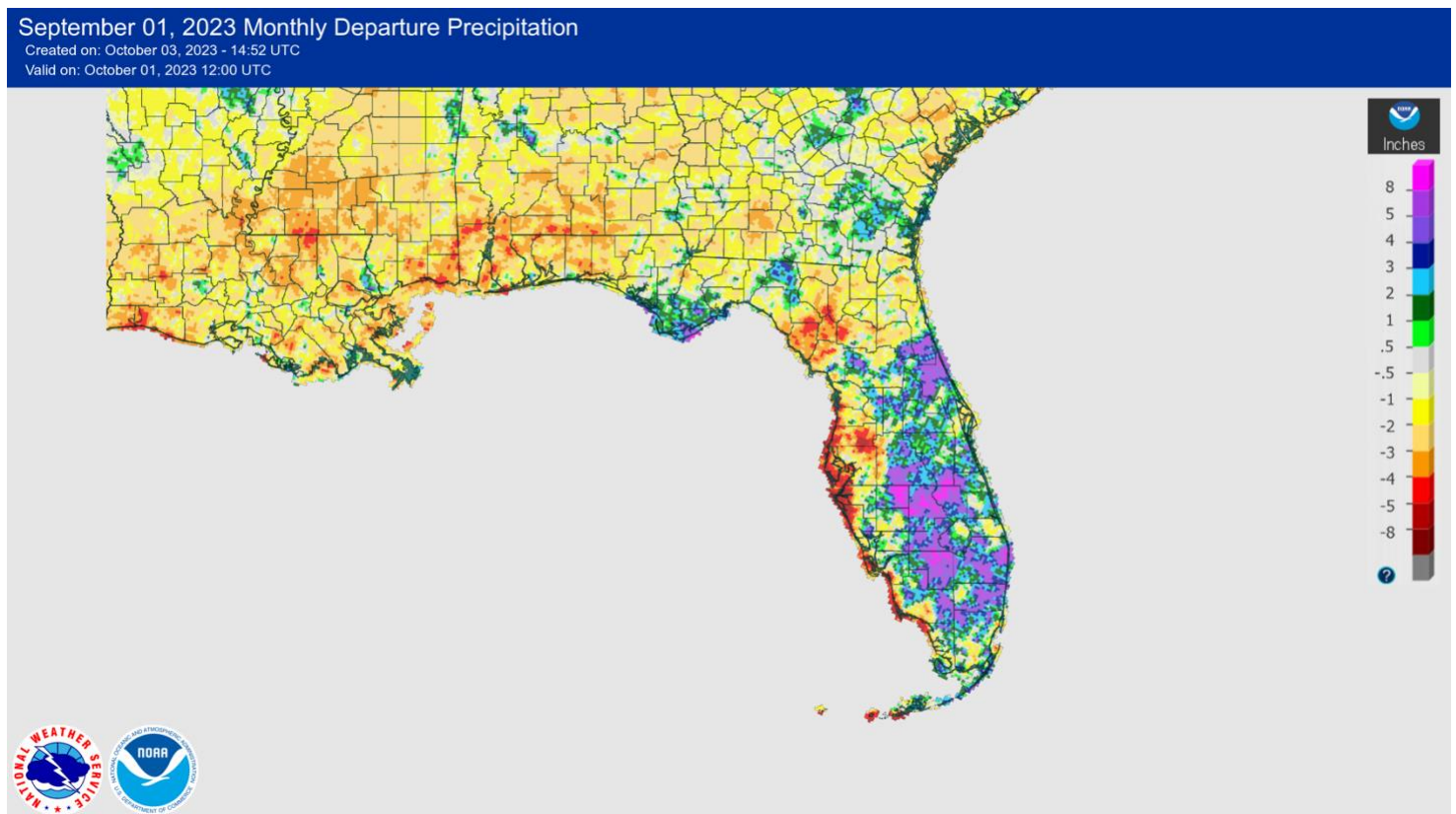


Monthly rainfall totals in September were above normal in the Peninsula and below normal across western Florida and the Panhandle. The monthly precipitation departures from normal ranged from -5.62 inches in Naples to +5.18 inches in West Palm Beach (see Table 2 and Appendix 1 for select locations). Most of the rainfall during the month occurred in the central and eastern Peninsula. While Idalia’s rainfall led to a contraction of drought in southwest Florida, monthly precipitation totals along the west Florida coast were below normal and not enough to bring coastal areas out of drought. Venice, Sarasota, and Tarpon Springs continue to experience their driest year on record, to date.

Table 2. September precipitation totals and departures from normal (inches) for selected cities.

Station	Total Rainfall	Departure from Normal
Pensacola	3.53	-3.08
Tallahassee	5.29	+0.38
Jacksonville	9.00	+1.44
Orlando	7.28	+0.91
Tampa	5.97	-0.12
Miami	12.76	+2.54
Key West	8.77	+1.53

Figure 1. A graphical depiction of the monthly rainfall departure from normal (in inches) for September (courtesy of NOAA).



El Niño Advisory.

El Niño, the warm phase of the El Niño Southern Oscillation climate pattern in the tropical equatorial Pacific Ocean, continued in August. There is strong confidence that El Niño will persist through the Northern Hemisphere winter 2023-24, with greater than 95% chance through January – March 2024. Forecasters are more confident in the probability of a strong El Niño event ($\geq 1.5^{\circ}\text{C}$ for the November-January seasonal average in Niño-3.4), above a 70% chance. While El Niño events favor wetter and cooler than normal winters in Florida, the odds of a cooler-than-normal winter is increasingly less likely with the warming temperature trends seen over the last decade in the state.

Hazardous Weather Events in September.

According to the Local Storm Reports issued by the local National Weather Service offices serving Florida, there were 339 individual local reports of hazardous weather events recorded across the state during the month of September (see Table 4 for a breakdown by event type). Two fatalities occurred during the month, one from a lightning strike and another due to rip currents. Several injuries were also reported from rip currents. Severe thunderstorms caused extensive damages and many downed trees throughout the month. Straight-line wind gusts were estimated at 85-90 mph in Wakulla County on the 8th.

Table 3. Breakdown of storm reports submitted in Florida during the month of September (compiled from Iowa State University/Iowa Environmental Mesonet).

Report Type	Number of Reports
Heavy Rain	49
Flood	14
Coastal Flood	15
Flash Flood	4
Hail	29
Lightning	2
Non-Thunderstorm Wind Gust	4
Non-Thunderstorm Wind Damage	0
Tornado/Waterspout/Funnel Cloud	3 / 24 / 11
Thunderstorm Wind Damage	64
Thunderstorm Wind Gust	117
Rip Currents	3

Daily Record Events in September.

Table 4. Summary of daily records broken in Florida in September (source: NCEI Daily Weather Records).

Category	Number of Records
Highest daily max. temp.	34
Highest daily min. temp.	20
Lowest daily max. temp.	1
Lowest daily min. temp.	9
Highest daily precipitation	22
Total	86

Weather/Climate Highlights of the Month: Idalia contributes to a record-breaking disaster year.

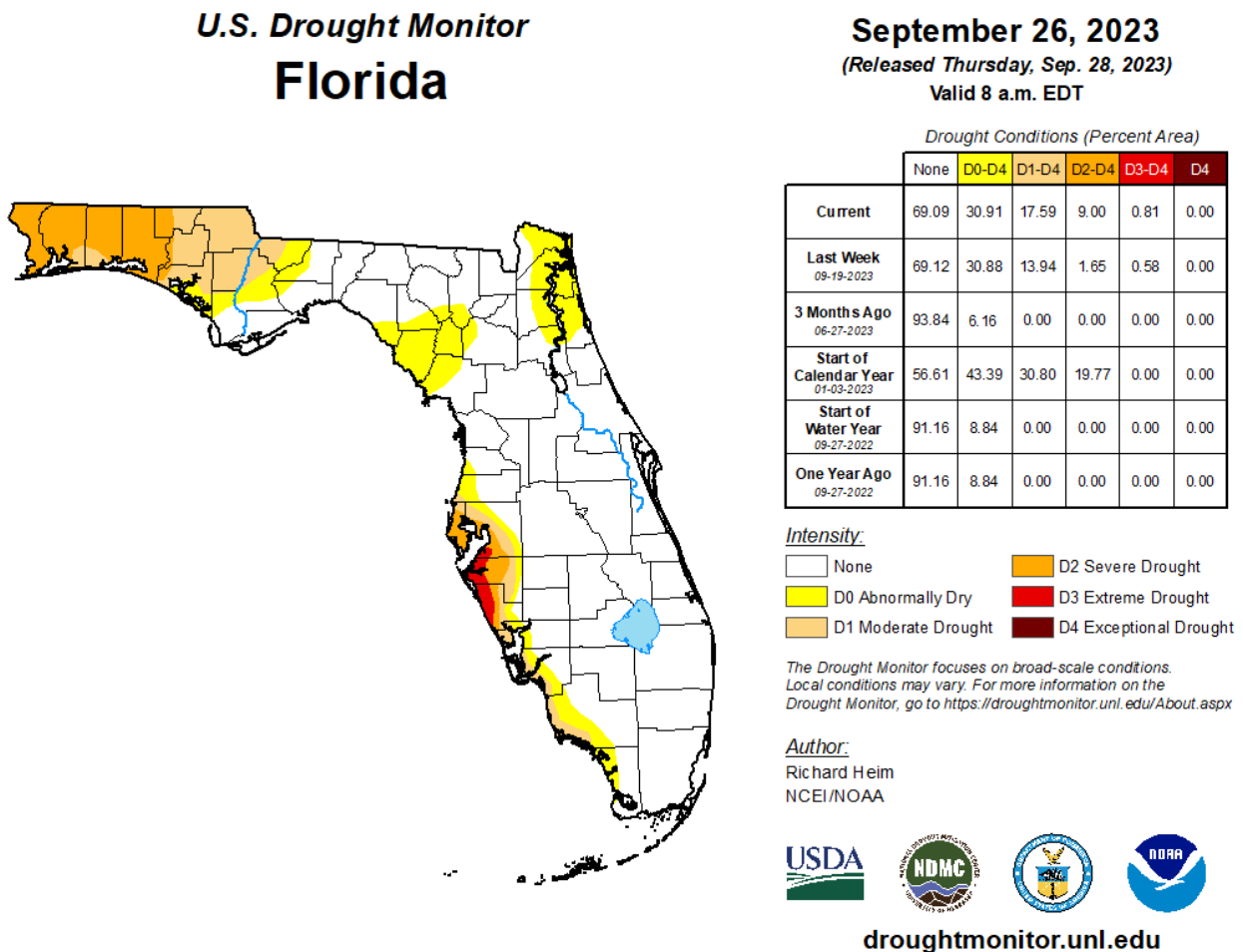
Hurricane Idalia’s estimated damages are in the \$2-\$5 billion range, contributing to a record-breaking disaster year. 2023 has had 23 billion-dollar disasters to date, which already sets a record for the highest annual number of billion-dollar disasters dating back to 1980. While total loss and damage assessments are still underway, Hurricane Idalia’s total agricultural losses in Florida alone are estimated at \$80-\$370 million. Idalia caused extensive damage to agricultural infrastructure and crops, with pecans, vegetables, harvestable fruit, and cotton especially hard hit in impacted areas of Florida and Georgia.

Drought-Related Impacts.

Drought continued to impact the state throughout the month. Extreme drought along the west-central coast persisted with monthly rainfall totals below normal, while moderate drought persisted in the western Panhandle. Abnormally dry conditions emerged in northeast Florida by mid-month. By the 12th, roughly 1% of the state was in extreme drought (D3), 1% was in severe drought (D2), 10% was experiencing moderate drought (D1), and 14% was abnormally dry (D0), according to the U.S. Drought Monitor. By the end of the month, about 1% of the state was in extreme drought (D3), 8% was in severe drought (D2), 9% was in moderate drought (D1), and 13% was abnormally dry (D0) (see Figure 2 below).

As of September 30, the Lake Okeechobee water level was 15.73 ft. above sea level (Feet-NGVD29), which is above average for this time of year. At the first of the month, the water level was 15.36 ft. above sea level.

Figure 2. A graphical depiction of the latest drought conditions in Florida according to the U.S. Drought Monitor (courtesy of the National Drought Mitigation Center, University of Nebraska-Lincoln).



Agriculture-Related Impacts.

In mid-September, topsoil moisture conditions were adequate in 68% of the state, short in 25%, and very short in 2% of the state, while 5% of the state was experiencing surplus topsoil moisture conditions. By September 24, topsoil moisture conditions were adequate in 60% of the state, short in 30%, and very short in 1% of the state; 9% of the state was in surplus. For more information, consult the [Crop Progress and Conditions report](#), which is published by the USDA’s National Agricultural Statistics Service.

Appendix 1. Additional September departures from normal data for select Florida locations (source: NWS).

Station	Average Temperature (°F)	Departure from Normal (°F)	Total Rainfall (in.)	Departure from Normal (in.)
Gainesville	79.0	+0.2	3.80	-1.25
Sarasota	82.8	+0.6	1.88	-4.12
Naples	84.7	+2.3	2.08	-5.62
Fort Myers	83.7	+1.5	7.15	-1.85
West Palm Beach	82.8	+0.9	13.14	+5.18

Appendix 2. Select daily record high maximum temperatures broken or tied during September (compiled from NOAA).

Location	Date	Record (°F)	Broken/Tied	Last
Fort Lauderdale	1	95	Broken	94 in 1998
Vero Beach	1	93	Tied	93 in 2007
Ochopee	1	96	Tied	96 in 2009
Key West	1	95	Tied	95 in 2022
Homestead	2	98	Broken	97 in 2021
Tarpon Springs	4	98	Tied	98 in 1912
Crestview	6	96	Broken	95 in 1999
Tallahassee	6	96	Tied	96 in 2010
Daytona Beach	7	94	Tied	94 in 1949
Crestview	7	97	Tied	97 in 2019
Clermont	11	96	Broken	95 in 2019
Plant City	11	100	Broken	98 in 1915
Fort Myers	11	96	Tied	96 in 1990
Clermont	12	98	Broken	96 in 2015
Tampa	12	96	Broken	95 in 2021
Fort Myers	12	96	Broken	94 in 2021
Key West	12	94	Broken	92 in 1948
Miami	12	94	Broken	93 in 2022
Clermont	13	95	Tied	95 in 2015
Plant City	13	100	Broken	97 in 2018
Key West	13	94	Broken	92 in 2011
Miami	13	96	Broken	93 in 2022
Key West	14	95	Broken	93 in 2015
Homestead	15	95	Broken	94 in 2022
Key West	15	94	Broken	93 in 2007

Tampa	16	95	Broken	94 in 1987
Key West	16	93	Broken	92 in 2011
Bradenton	17	95	Tied	95 in 1990
Melbourne	18	93	Tied	93 in 2004
Key West	18	93	Broken	92 in 1990
Fort Pierce	19	95	Broken	94 in 2020
Clermont	26	96	Broken	95 in 2020
Ochopee	29	96	Broken	95 in 2011
Miami	29	93	Tied	93 in 1980