

Florida Annual Climate Summary for 2017

Prepared by Daniel J. Brouillette, Florida Climate Center

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Temperatures

Temperatures in Florida in 2017 were, once again, much above historical averages. The statewide annual average temperature registered 72.8°F, some 2.7°F above the 20th-century average value of 70.1°F (Figure 1). As such, 2017 was the second-warmest year in the instrumental record in Florida, ranked after 2015 (Figure 2). The instrumental record extends back to 1895. Florida was similar to the rest of the contiguous United States in registering a much warmer-than-average year. In the contiguous United States, the annual average temperature was 54.58°F, some 2.56°F above the 20th-century average value of 52.02°F, allowing 2016 to rank third warmest on record (since 1895) nationwide after 2012 and 2016, respectively. Notably, it was the warmest non-El Niño on record nationwide.

From a review of observations collected at stations in the ASOS/AWOS network, NWS COOP network, and Florida Automated Weather Network (FAWN), the highest temperature recorded in Florida in 2017 was 102°F at the Joshua FAWN station (DeSoto County) on the afternoon of 27 July.

The lowest temperature recorded in Florida in 2016 was 21°F at Niceville COOP station (Okaloosa County), Jasper COOP station (Hamilton County), and DeFuniak Springs FAWN station (Walton County) on the morning of 9 January and Jacksonville Cecil Field AWOS station (Duval County) on 16 March. Many locations on the panhandle and in the northern part of the peninsula registered their annual minimum temperatures on those two mornings, and the 16 March cold outbreak featured temperatures that never had been so low so late in the season.

A continued trend this year has been the presence of greater positive anomalies in daily minimum (overnight) temperatures compared to anomalies in daily maximum (daytime) temperatures, especially during the warmer half-year. Contributing greatly to the recent large positive anomalies in and high rankings of mean temperature, this trend is likely related to higher humidity values, which may be related to consistently higher-than-average sea-surface temperatures in the western Atlantic Ocean, including the Gulf of Mexico.

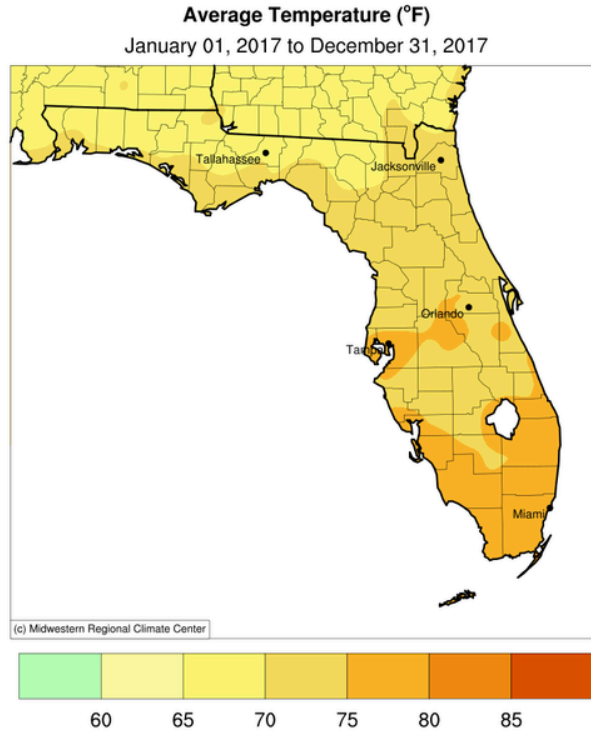


Figure 1: Map displaying annual average (mean) temperature in Florida in 2017.

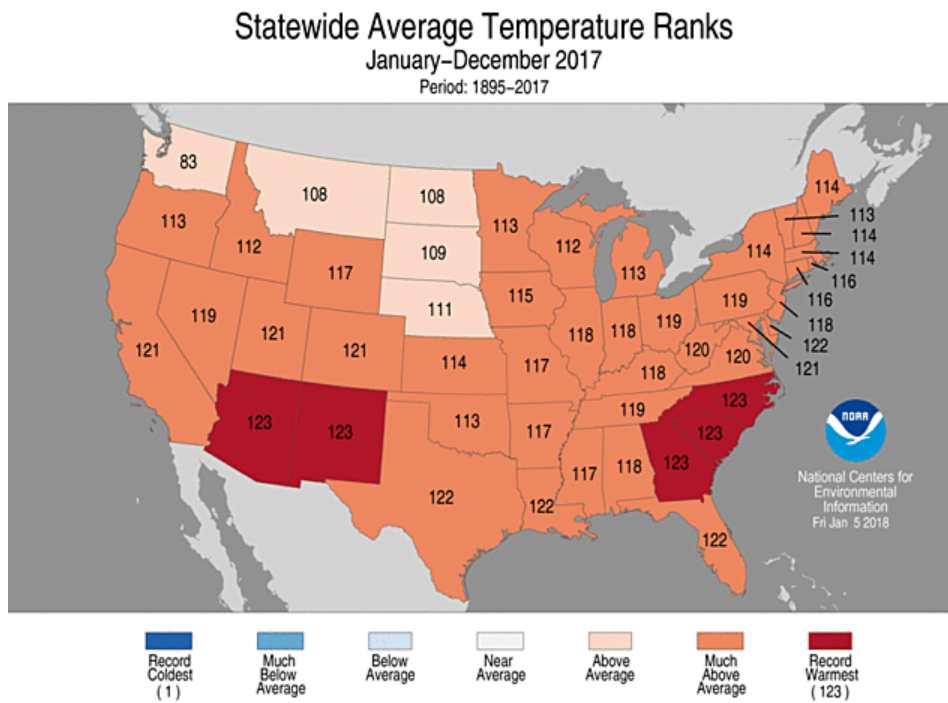


Figure 2: Map displaying the ranking of each state's annual average (mean) temperature in 2017.

Similar to the other states, Florida is broken into divisions of homogeneous climate. Seven such regions span from the Panhandle to the Keys: Panhandle (officially, Northwest; Division 1), North (2), North Central (3), South Central (4), Everglades and Southwest Coast (5), Lower East Coast (6), and Keys (7) (Figure 3).

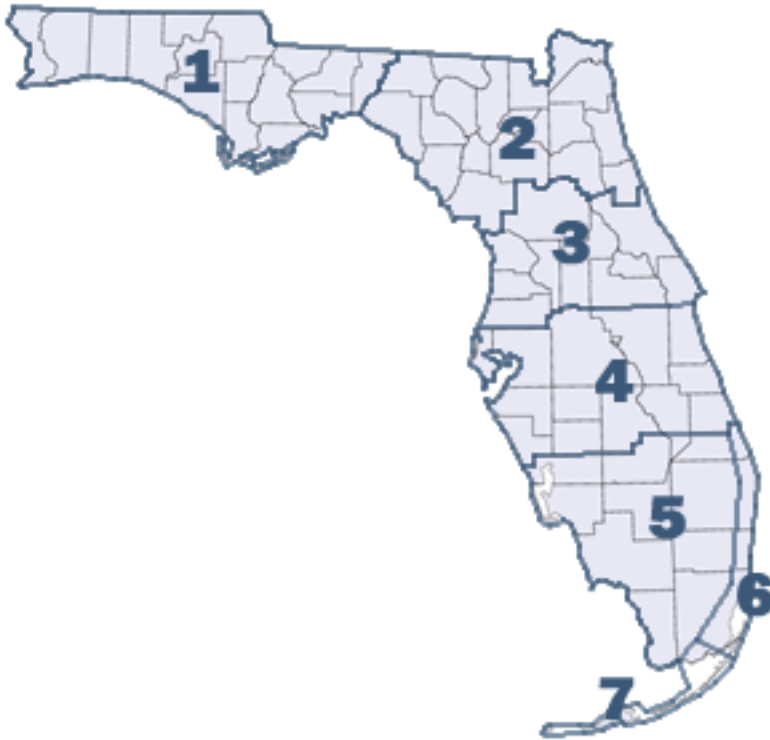


Figure 3: Map displaying Florida's seven climate divisions.

Annual mean-temperature values in all divisions ranked very high in the 1895-present instrumental record although in no division was the highest-ranked value recorded. These values were, as usual, lowest in the panhandle and highest in the Keys (Table 1).

DIVISION NO.	ANNUAL MEAN TEMPERATURE (°F)	RANKING (since 1895)
1	69.2	2 nd warmest
2	70.8	2 nd warmest
3	73.1	2 nd warmest
4	74.4	2 nd warmest
5	76.3	2 nd warmest
6	76.9	2 nd warmest
7	78.5	2 nd warmest

Table 1: Display of annual average temperature values (°F) compared to historical values by climate division.

Statewide and divisional mean temperatures are also calculated for each season (Table 2). Each season is three months long: winter (December-January-February), spring (March-April-May), summer (June-July-August), and fall (September-October-November). In the climate divisions that make up south Florida, winter 2016-2017 was the warmest on record, and much warmer than median conditions were observed elsewhere. For the other seasons, mean-temperature values were above historical median values generally, although summer on the panhandle featured a mean temperature near the historical median value. As in 2016, values for three of the four seasons ranked in the top ten statewide.

DIVISION NO.	WINTER (DJF)	SPRING (MAM)	SUMMER (JJA)	FALL (SON)
Statewide	64.7 (2)	71.7 (11)	81.9 (9)	74.2 (6)
1	59.3 (3)	68.7 (15)	82.4 (54)	69.9 (21)
2	61.5 (3)	69.8 (13)	81.3 (11)	71.7 (12)
3	64.9 (3)	72.2 (12)	82.0 (11)	74.6 (7)
4	67.1 (3)	73.3 (13)	82.5 (5)	76.1 (5)
5	70.5 (1)	74.7 (14)	83.2 (4)	78.5 (3)
6	71.6 (1)	75.4 (12)	83.2 (4)	78.9 (3)
7	73.9 (1)	77.2 (10)	84.3 (4)	80.5 (3)

Table 2: Display of seasonal mean temperature values (°F) and their ranking compared to the 1895-present instrumental record for the state and by division. Winter includes December 2015, consistent with the definition of that season. All rankings are higher than the median (e.g., 2nd warmest as opposed to 2nd coldest).

Statewide and divisional mean temperatures are also calculated for each month (Table 3). In all instances – except May, June, and September on the panhandle – all months in every climate division featured above-historical-median mean-temperature values.

DIV. NO.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
Fla.	62.7 (13)	65.4 (5)	66.1 (40)	72.1 (12)	76.9 (18)	80.1 (43)	82.8 (6)	82.7 (11)	80.3 (15)	74.9 (14)	67.3 (18)	61.9 (31)
1	58.1 (7)	61.1 (5)	63.0 (23)	69.4 (17)	73.7 (57)	78.0 (22)	81.6 (40)	81.4 (35)	77.2 (54)	71.1 (15)	61.4 (25)	54.6 (39)
2	60.0 (13)	62.6 (5)	63.3 (42)	70.4 (15)	75.7 (23)	79.4 (52)	82.5 (8)	82.0 (12)	78.8 (36)	72.9 (13)	63.5 (31)	58.3 (33)
3	62.9 (16)	65.3 (12)	66.1 (44)	72.6 (12)	77.8 (11)	80.4 (33)	82.7 (7)	83.0 (6)	80.7 (9)	75.2 (15)	67.9 (18)	62.8 (24)
4	64.6 (18)	67.2 (13)	67.8 (47)	73.5 (14)	78.5 (6)	81.0 (20)	83.1 (5)	83.3 (6)	81.8 (3)	76.6 (15)	70.0 (18)	65.3 (27)
5	67.8 (18)	70.4 (10)	70.2 (44)	74.8 (15)	79.1 (6)	81.8 (14)	83.8 (5)	84.0 (5)	83.2 (1)	78.5 (16)	73.9 (11)	68.5 (24)
6	69.1 (18)	71.3 (9)	71.1 (44)	75.8 (10)	79.4 (5)	81.9 (10)	83.9 (3)	83.9 (5)	83.0 (1)	78.7 (22)	75.0 (9)	69.4 (31)
7	71.4 (16)	73.1 (13)	73.2 (39)	77.3 (18)	81.1 (5)	83.1 (9)	85.0 (3)	84.8 (6)	84.4 (1)	80.3 (17)	76.8 (10)	71.6 (29)

Table 3: Display of monthly average temperature values (°F) and their ranking compared to the 1895-present instrumental record for the state and by division. All rankings, except those that are in bold, are higher than the median (e.g., 2nd warmest as opposed to 2nd coldest).

Precipitation

Precipitation in Florida in 2017 was above the historical average when considered in the context of annual total averaged over the land area of the entire state. The statewide annual total precipitation (almost exclusively rain) was 58.51 inches, some 4.86 inches above the 20th-century average total of 53.65 inches (Figure 4). This total ranked 28th wettest, or in the upper tercile, in the instrumental record that stretches back to 1895 (Figure 5). In the contiguous United States, the annual total precipitation was 32.21 inches, some 2.27 inches above the 20th-century-average total of 29.94 inches and ranking 2017 as the 20th-wettest year on record (since 1895).

The greatest annual precipitation total in the state was 104.77 inches at a CoCoRaHS station located 2.1 miles east of Gonzalez (station number FL-ES-15; Escambia County). The highest total within only the NWS COOP and ASOS networks was 93.44 inches at Naples (Collier County). The lowest annual precipitation total was 38.12 inches at Key West International Airport (Monroe County).

The greatest daily, 24-hour precipitation total in 2016 was 14.83 inches on 6 June at an NWS COOP station 5 miles northeast of Everglades City (Collier County).

A light snowfall occurred in parts of the central and western panhandle on 8 December. Recorded totals were light, including 0.1" and a trace at CoCoRaHS stations located at 2.5 miles north-northwest of Gonzalez and 1.9 miles northeast of Pensacola, respectively, and a trace at the Pensacola International Airport. December snowfalls are particularly rare in Florida.

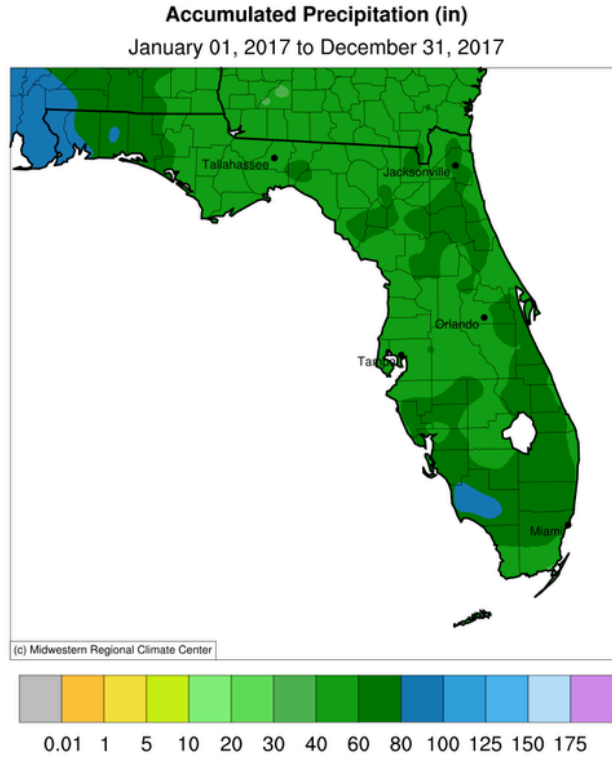


Figure 4: Map displaying 2017 annual liquid-equivalent precipitation (rainfall) total in Florida and the surrounding region.

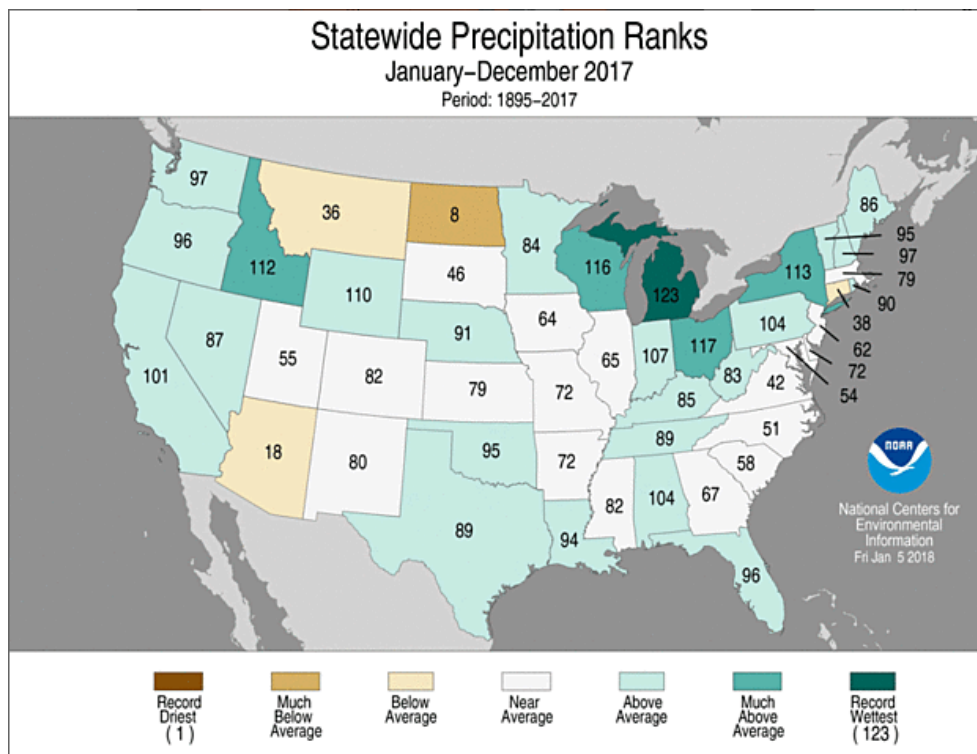


Figure 5: Map displaying the ranking of each state's 2017 annual liquid-equivalent precipitation total.

Divisional annual rainfall totals (Table 4) show that no part of the state was overwhelmingly drier or wetter compared to other parts within the historical record although the Keys and, to a lesser extent, the Panhandle, appear to have been driest compared to the historical record overall through the year.

DIVISION NO.	ANNUAL TOTAL RAINFALL (inches)	RANKING (since 1895)
1	60.09	50 th wettest
2	58.79	23 rd wettest
3	54.84	39 th wettest
4	56.17	37 th wettest
5	61.01	18 th wettest
6	64.98	22 nd wettest
7	44.40	45 th driest

Table 4: Display of 2017 annual total rainfall values (inches) compared to historical values by climate division.

Statewide and divisional rainfall totals (Table 5) are also calculated for each season. The 2016-2017 winter tended dry in most divisions although the divisional total for the Panhandle ranked just below the top decile and the divisional total for the northern half of central Florida ranked just below the top quartile. Spring divisional totals and rankings show that drier-than-median conditions were seen statewide, with the driest conditions in the central part of the state, contributing to an active wildfire season. The climatological summer was wet, buoyed by an especially wet June, featuring divisional totals that ranked in the top decile to quartile in all the state except the Keys. Fall divisional rankings were relatively high compared to the historical median values, primarily because of rainfall from Hurricane Irma in September on the peninsula and from Hurricane Nate in portions of the Panhandle.

DIVISION NO.	WINTER (DJF)	SPRING (MAM)	SUMMER (JJA)	FALL (SON)
Florida	8.25 (53 rd driest)	7.27 (23 rd driest)	28.34 (2 nd wettest)	15.72 (21 st wettest)
1	19.01 (14 th wettest)	10.12 (36 th driest)	26.63 (8 th wettest)	8.90 (39 th driest)
2	7.85 (38 th driest)	8.30 (44 th driest)	28.24 (3 rd wettest)	14.80 (22 nd wettest)
3	5.50 (35 th wettest)	5.22 (14 th driest)	27.01 (22 nd wettest)	16.89 (10 th wettest)
4	3.72 (24 th driest)	4.69 (10 th driest)	28.35 (17 th wettest)	19.23 (5 th wettest)
5	4.19" (45 th driest)	7.06 (26 th driest)	31.95 (4 th wettest)	18.09 (25 th wettest)

6	5.97" (58 th driest)	8.39 (35 th driest)	26.58 (16 th wettest)	25.53 (11 th wettest)
7	4.53" (55 th driest)	6.57 (41 st driest)	17.59 (50 th wettest)	16.28 (47 th wettest)

Table 5: Display of seasonal rainfall totals (inches) and their ranking compared to the 1895-present instrumental record for the state and by division. Winter includes December 2016, consistent with the definition of that season.

Statewide and divisional rainfall totals are also calculated for each month (Table 6). Highlights were a very wet January on the Panhandle from rain-laden frontal passages, a very dry March in the northern third of the state (including the Panhandle), a wet June statewide but especially in the northern third of the state as the wet season began, and a very dry November on the Panhandle.

DIV. NO.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Fla.	3.68 (35)	1.85 (24)	1.24 (10)	2.22 (39)	3.81 (61)	12.28 (2)	7.58 (52)	8.48 (22)	8.85 (17)	5.20 (25)	1.68 (48)	1.65 (33)
1	8.69 (4)	3.32 (33)	1.85 (8)	2.80 (50)	5.47 (20)	13.63 (2)	5.21 (19)	7.79 (40)	3.46 (38)	5.09 (19)	0.35 (3)	2.43 (19)
2	3.66 (49)	1.30 (11)	1.03 (7)	3.14 (52)	4.13 (40)	11.60 (3)	8.65 (22)	7.99 (35)	8.19 (22)	4.12 (35)	2.49 (48)	2.49 (57)
3	2.70 (50)	1.97 (47)	0.72 (7)	1.34 (25)	3.16 (61)	10.88 (13)	8.37 (42)	7.76 (45)	11.25 (7)	3.50 (49)	2.14 (46)	1.05 (30)
4	1.44 (47)	1.42 (35)	0.94 (16)	0.96 (20)	2.79 (45)	11.63 (12)	7.68 (61)	9.04 (24)	13.14 (6)	4.94 (30)	1.15 (46)	1.04 (36)
5	1.63 (57)	1.29 (44)	1.41 (46)	2.27 (61)	3.38 (42)	13.52 (10)	8.39 (34)	10.04 (14)	9.01 (29)	7.29 (21)	1.79 (60)	0.99 (45)
6	1.81 (61)	1.70 (50)	2.16 (55)	3.33 (51)	2.90 (25)	12.19 (18)	6.52 (54)	7.87 (37)	9.85 (34)	10.97 (24)	4.71 (22)	0.97 (31)
7	1.42 (61)	1.66 (59)	1.41 (56)	3.25 (41)	1.91 (29)	8.52 (26)	4.40 (47)	4.67 (36)	9.11 (30)	6.07 (52)	1.10 (38)	0.88 (40)

Table 6: Display of monthly rainfall totals (inches) and their ranking compared to the 1895-present instrumental record for the state and by division. Bolded rankings fall below the median (e.g., third driest), and non-bolded rankings fall above (e.g., third wettest).

Severe Weather

A severe-weather event is defined as an instance of damaging straight-line winds of 58 miles per hour or greater, hail of 1.00 inch or greater, or any tornado. NOAA's Storm Prediction Center (SPC) logs reports of severe-weather events across the United States. The SPC indicates that a total of 432 severe-weather reports were made in Florida in 2017, including 41 tornadoes, 44 instances of large hail, and 347 instances of damaging winds (Figure 6). The numbers of tornado and damaging-wind reports were below recent historical averages. Because the threshold for large hail was increased from 0.75 to 1.00 inch in 2010, it is difficult to comment on how this year's number of instances compares to the historical-average number.

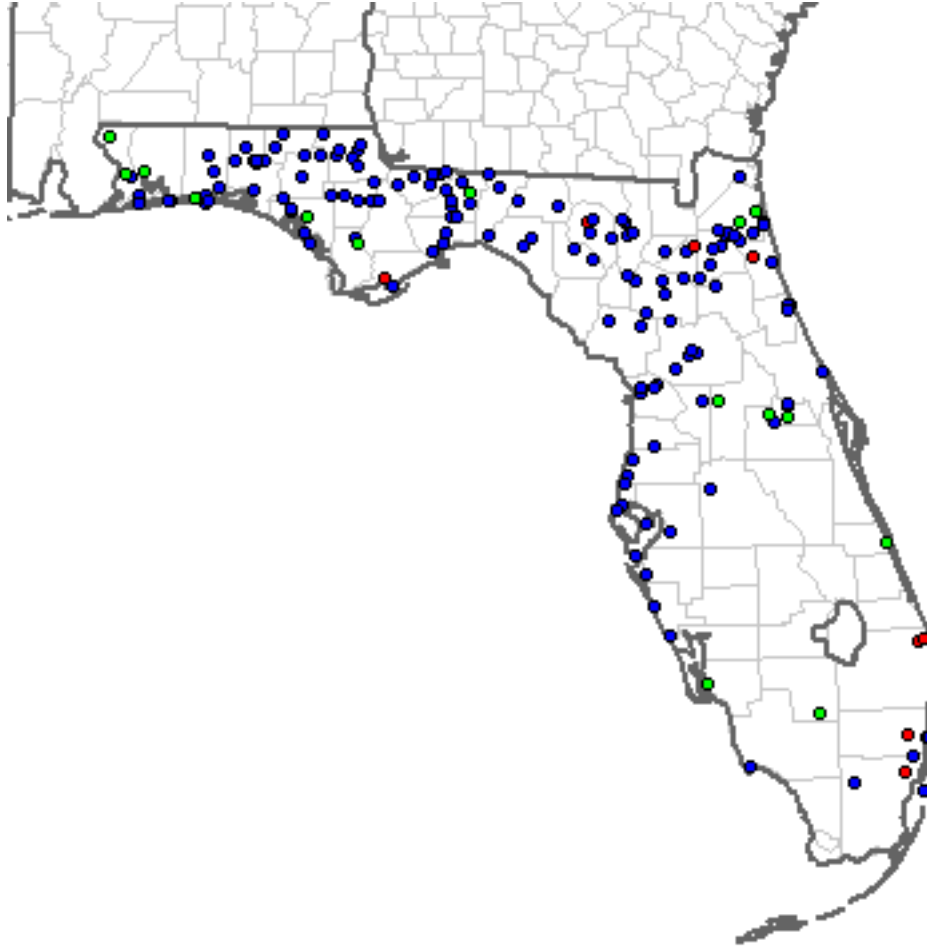


Figure 6: Map displaying the locations of severe-weather reports in Florida in 2017.