



MIAMI-SOUTH FLORIDA

National Weather Service Forecast Office

<http://www.weather.gov/miami>

SOUTH FLORIDA WINTER 2016-2017 SUMMARY

Very Little Cold Weather

Record Warm Winter at Miami and Fort Lauderdale

March 3, 2017: it wasn't much of a winter in South Florida from a cool weather perspective as warmest meteorological winter (December to February) temperature records were broken at Miami and Fort Lauderdale, along with the 2nd warmest on record in Naples and equaling the 5th warmest on record in West Palm Beach. Additional temperature data is included below in the temperature section of the summary.

Winter 2016-2017 was also drier than normal, except for a few spots of near to above normal precipitation in Miami-Dade and Broward counties (more details in precipitation section).

A lack of strong cold fronts was a main reason for the warmer and drier than normal winter conditions, with warmer than normal sea-surface temperatures surrounding Florida another contributor to the warm temperatures. Although the recently concluded [La Niña](#) episode was on the weak side, it likely set the stage for the prevailing warm and dry weather pattern. La Niña winters in the southern United States, including Florida, are typically characterized by warm and dry conditions due in large part to a northward displacement of the jet stream which reduces both the number and strength of cold fronts moving through Florida. The observed upper-tropospheric wind pattern this winter (Figure 1) matched this pattern closely.

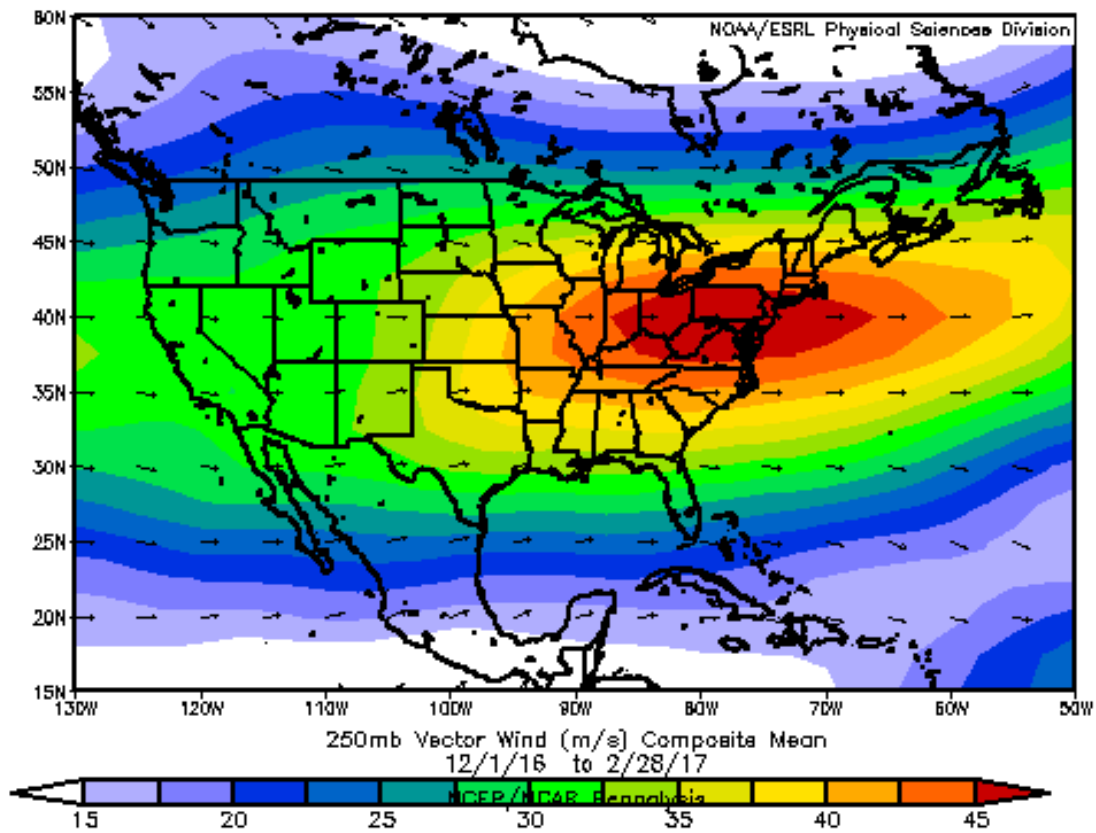


Figure 1: 250 mb (upper tropospheric) mean winds from December 2016 through February 2017. Dark orange and red swath represents the mean position of the jet stream during this time period which was displaced well north of Florida

Temperatures

Below are graphics with temperature data for the four main climate sites in South Florida:



Record Breaking Winter Warmth

Location	Average Winter Temp(°F)
Miami International Airport	74.2 (4.6 degrees above normal)
Ft. Laud./ Hollywood Int'l Airport	73.3 (3 degrees above normal)
Palm Beach International Airport	71.2 (4 degrees above normal)
Naples Municipal Airport	70.7 (4.6 degrees above normal)

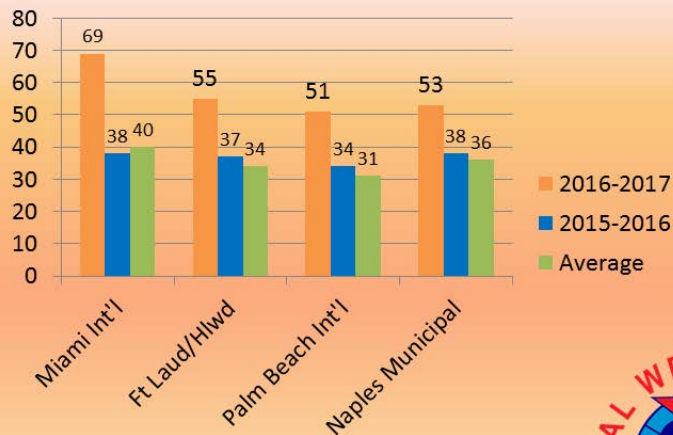
- The meteorological winter (December through February) of 2016-2017 was the **warmest on record in Miami and Fort Lauderdale**
- At West Palm Beach, it was tied for the 5th warmest on record and warmest since 1950
- At Naples, it was the 2nd warmest on record, falling short of the record of 71.5 degrees set in 1948-1949
- Record number of 80+ degree days in Miami (69 days out of 90)

Beginning of period of record for each location:
 West Palm Beach – 1888
 Miami – 1895
 Ft. Lauderdale – 1913
 Naples - 1942



Wednesday, March 01, 2017

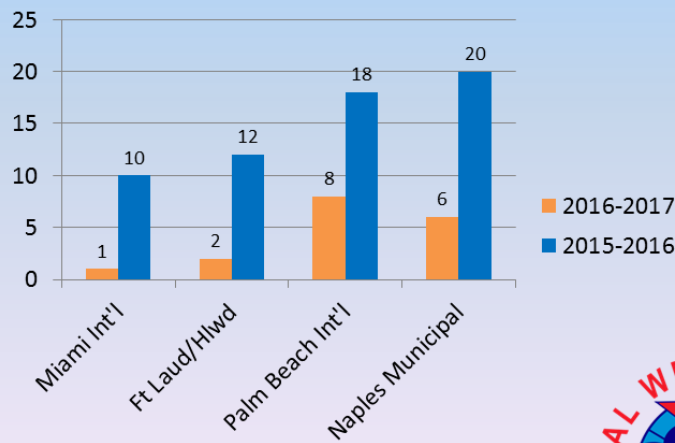
Lot of Warm Days in Winter 2016-2017



Number of Days of 80F or greater



Very Few “Cool” Days in Winter 2016-2017



Cool days defined as days with max below 70F and/or min below 50F (arbitrarily determined)



Other noteworthy statistics and data:

- **Miami International Airport:** The highest temperature recorded was 87 degrees set on six different days (December 6th, 14th and 19th, January 7th and 22nd and February 8th) and the lowest temperature recorded was 51 degrees on January 8th and 30th. The temperature reached or exceeded 80 degrees on 69 days, a record for Miami. The temperature failed to drop below 50 degrees for the first winter on record in Miami.

- **Palm Beach International Airport:** The highest temperature recorded was 88 degrees on February 19th and the lowest temperature recorded was 43 degrees on January 31st. The temperature reached or exceeded 80 degrees on 51 days, tying the 5th highest number of days above 80 on record. The number of days below 50 degrees was six (6) which is well below the 30-year mean of 16.

- **Fort Lauderdale/Hollywood International Airport:** The highest temperature recorded was 88 degrees on December 6th and February 19th and the lowest temperature recorded was 48 degrees on January 8th. The temperature reached or exceeded 80 degrees on 55 days, tying the 14th highest number of days above 80 on record. The number of days below 50 degrees was only 1 which is well below the 30-year mean of 11.

- **Naples Municipal Airport:** The highest temperature recorded was 88 degrees on December 19th and 20th and February 27th and 28th, and the lowest temperature recorded was 42 degrees on January 8th. The temperature reached or exceeded 80 degrees on 53 days, tying the 12th highest number of days above 80 on record. The number of days below 50 degrees was six (6) which is well below the 30-year mean of 21.

2016-2017 marked the second consecutive winter without freezing temperatures at any of the official NWS observation stations (ASOS and COOP), the first time with consecutive non-freezing winters since the winters of 1992-1993 and 1993-1994.

The hottest day of the winter was February 19th when west winds drove temperatures into the upper 80s to 90 degrees area-wide, except only 81 “Gulf-cooled” degrees in Naples. Homestead General Airport and Miami Executive Airport in West Kendall hit 91 degrees that day, with 90-degree highs observed at North Perry Airport in Pembroke Pines, Fort Lauderdale Executive Airport and The Redland. At Miami Executive Airport and The Redland it was the first 90-degree reading in February in at least 20 years, and in over a decade at Fort Lauderdale Executive and North Perry airports.

Precipitation

The northward position of the jet stream throughout most of the winter led to fewer frontal passages associated with significant precipitation. This resulted in drier than normal conditions for almost all of South Florida (Figures 2 and 3), with only parts of metro and coastal Miami-Dade and Broward counties recording above normal precipitation. This was in stark contrast to the winter of 2015-2016 when many areas had their wettest winter on record. In 2016-2017, eastern areas ranged mostly between 4 and 7 inches for the winter, while interior and western areas only recorded between 2 and 4 inches. The lack of rainfall, primarily across the interior and Gulf coast, led to the [development of moderate drought conditions](#) by mid-February (Figure 4).

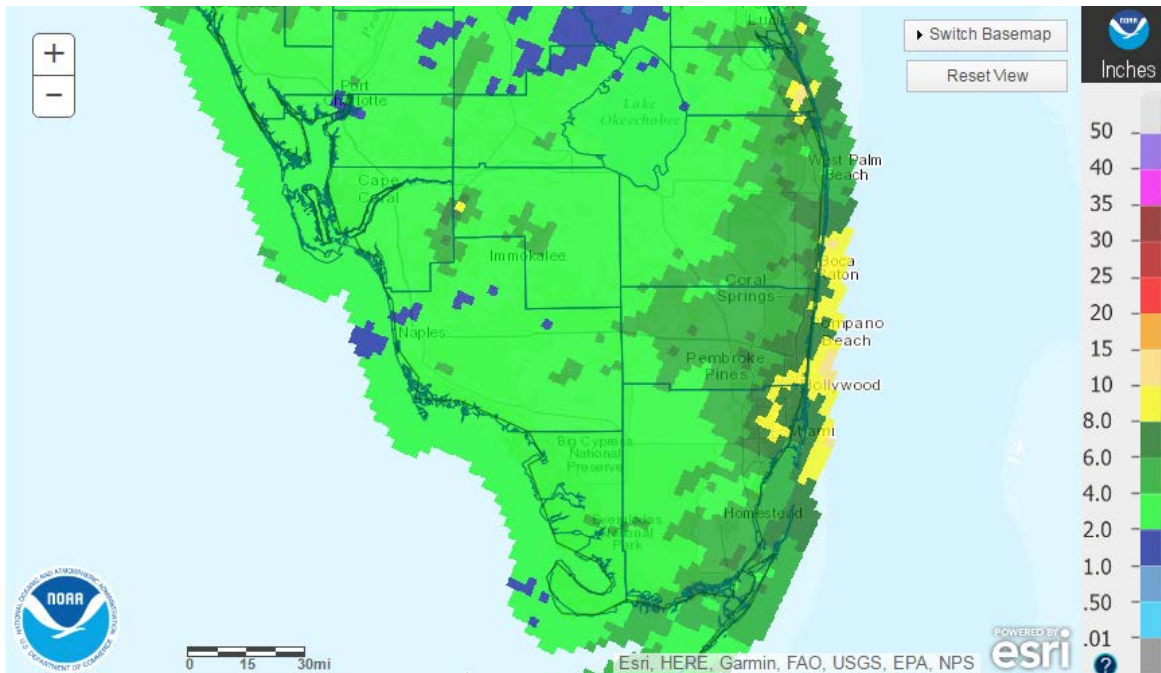


Figure 2: Rainfall from December 2016 through February 2017

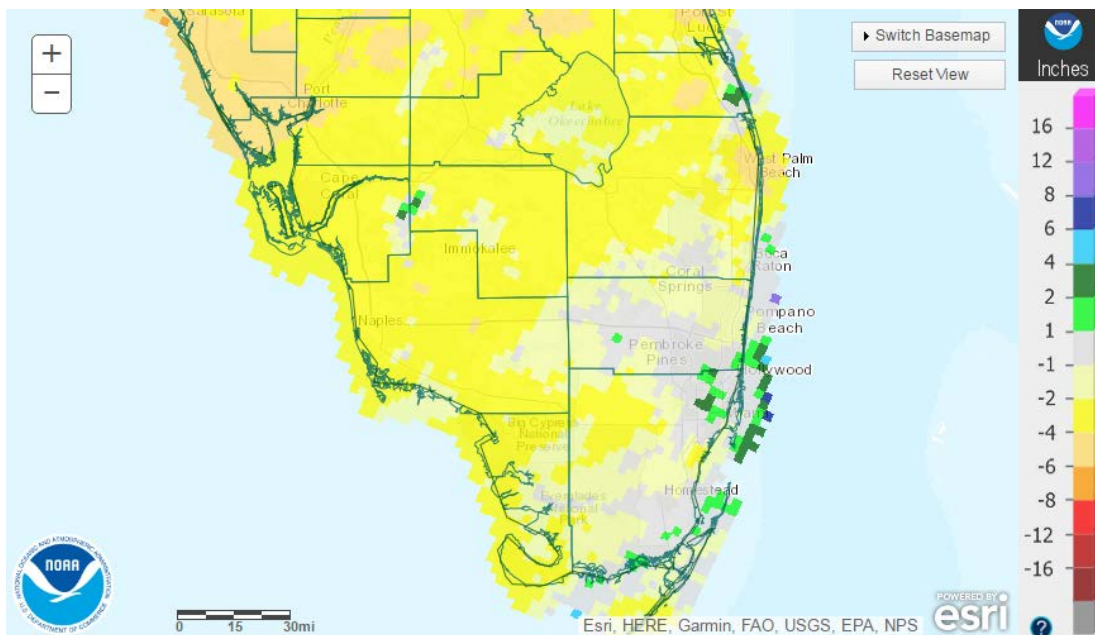
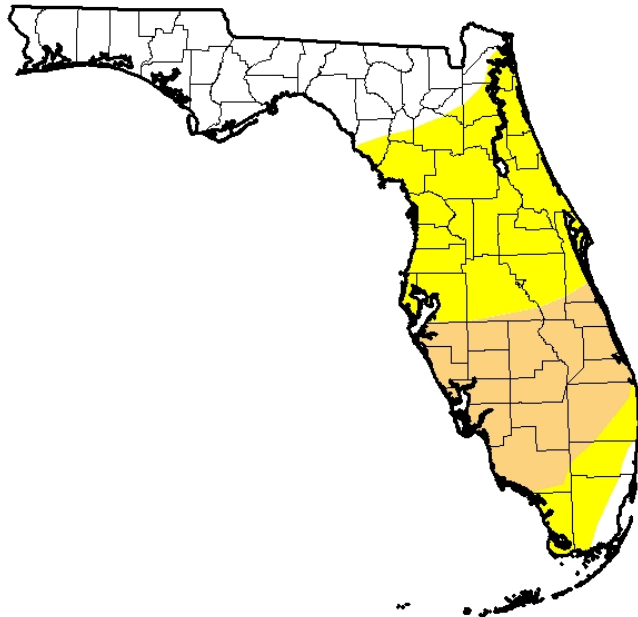


Figure 3: Rainfall departure from normal from December 2016 through February 2017. Most of the area received below normal precipitation, with the largest departures over interior sections of Collier County as well as in the West Palm Beach area. A few spots in coastal Miami-Dade and Broward counties received above normal rainfall

**U.S. Drought Monitor
Florida**

February 28, 2017
(Released Thursday, Mar. 2, 2017)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	35.25	64.75	25.47	0.00	0.00	0.00
Last Week 2/21/2017	35.25	64.75	25.47	0.00	0.00	0.00
3 Months Ago 11/29/2016	58.98	41.02	24.37	17.37	7.40	0.00
Start of Calendar Year 1/2/2017	14.17	85.83	6.07	0.00	0.00	0.00
Start of Water Year 9/27/2016	92.99	7.01	0.00	0.00	0.00	0.00
One Year Ago 3/1/2016	92.45	7.55	0.00	0.00	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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<http://droughtmonitor.unl.edu/>

Figure 4: Drought Monitor for end of February 2017

Following are December 2016-February 2017 rainfall totals, departure from normal in inches and ranking (top or bottom 20) for selected locations:

Location (Beginning of Period of Record)	Dec 2016-Feb 2017 Rainfall (inches)	Departure from Normal	Rank (+/- 20)
Brighton Reservation (Glades Co.)	1.79		
Canal Point (1941)	4.13	-2.31	
Cape Florida	6.96		
Everglades (1924)	3.93	-1.24	
Fort Lauderdale/Hollywood Int'l (1912)	6.87	-2.18	
Fort Lauderdale Executive Airport	5.74		
Fort Lauderdale Dixie Water Plant	6.33		
Fort Lauderdale Beach	8.75		

Hialeah (1940)	9.88	+2.97	14th wettest
Hollywood (1963)	8.78	-0.27	
Homestead General Airport (1990)	4.47	-0.70	
Immokalee (1970)	3.63	-2.82	
Juno Beach	6.68		
LaBelle (1929)	2.67	-3.48	T-13th driest
Marco Island	3.07		
Miami Beach (1928)	6.45	-0.02	
Miami International Airport (1895)	7.04	+1.13	
Moore Haven (1918)	2.62	-2.92	20th driest
Muse	2.83		
North Miami Beach	9.40		
Naples East/Golden Gate	5.15		
Naples Municipal Airport (1942)	2.27	-3.13	13th driest
NWS Miami	6.93		
Oasis Ranger Station (1978)	4.79	-0.39	
Opa-Locka Airport	5.72		
Ortona (1940)	2.80	-3.54	4th driest
Palm Beach Gardens	5.30		
Palm Beach International Airport (1888)	7.01	-2.32	
Pembroke Pines – North Perry Airport	8.05		
Pompano Beach Airpark	7.01		
Miami Executive Airport – W. Kendall	5.98		
The Redland (1942)	4.90	-1.22	
South Bay (15S)	4.06		

Severe Weather

The lack of strong fronts also resulted in very few thunderstorm events. Only 1 severe weather day occurred, January 23rd when a rare southward shift in the jet stream drove a strong cold front across the Florida peninsula. A squall line of strong to severe thunderstorms moved across southern Florida early in the morning, [spawning EF-1 tornadoes in Miami-Dade County and Palm Beach County](#).



Trees and home damaged by tornado in Miami Springs on January 23rd (NWS Storm Survey photo)



Large tree uprooted in Palm Beach Gardens on January 23rd (NWS Storm Survey photo)

Outlook for March-May

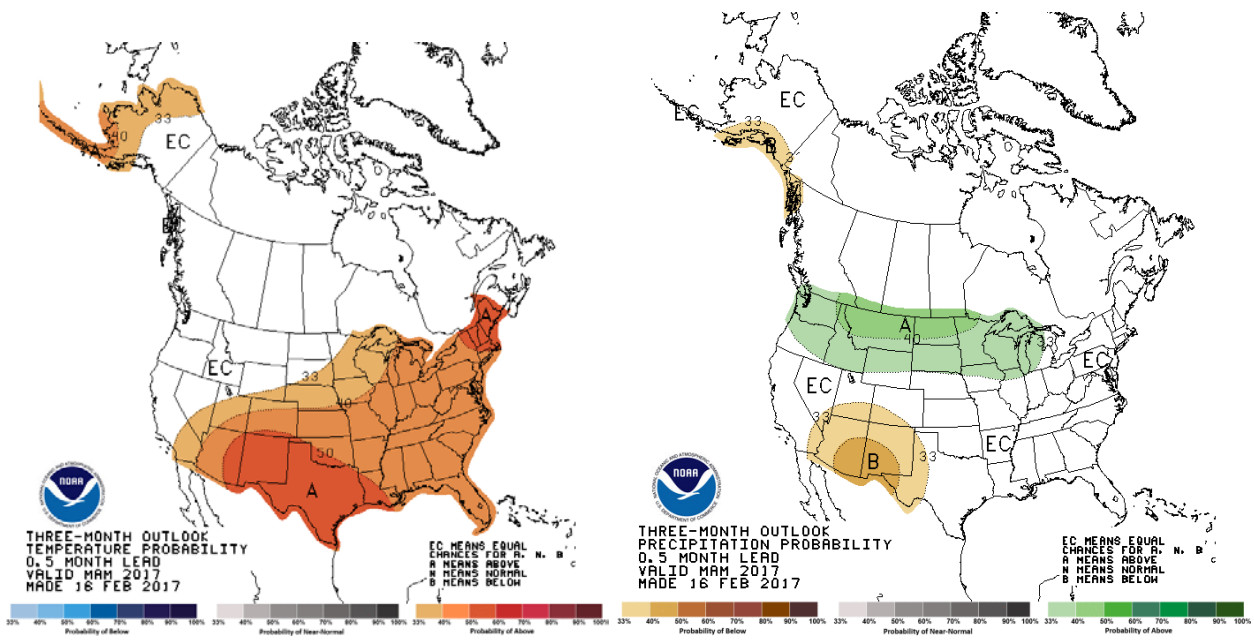
[The outlook by the NOAA Climate Prediction Center](#) for the period from March through May (Figures 5 and 6) calls for equal chances of wetter, drier or near normal precipitation along with an enhanced likelihood of above-normal temperatures continuing.

March through May marks the last part of the dry season which means that lengthy dry spells can still occur. The dry recently-concluded winter combined with normal spring dryness means that drought conditions are likely to develop over all of South Florida during the coming weeks (Figure 7).

March, April and May mark the peak of wildfire season as warmer temperatures can quickly dry out vegetation, especially during periods of little rainfall. All persons are urged to take measures to reduce the chance of wildfires. Visit the [Florida Forest Service web site](#) for more information on how to help prevent wildfires.

March and April also bring an increase in easterly winds to the area along with an increase in beach-goers. This significantly increases the risk of rip currents along the east coast beaches. A sharp increase in rip current-related drowning deaths and rescues occurs during the spring months due in part to this shift in the wind patterns and more people in the water. All residents and visitors visiting area beaches are strongly urged to heed the advice of Ocean Rescue lifeguards and swim near a lifeguard. [Visit the National Weather Service Rip Current Awareness page](#) for more information.

For the latest south Florida weather information, including the latest watches, advisories and warnings, please visit the National Weather Service Miami Forecast Office's web site at weather.gov/southflorida.



Figures 5 and 6: NOAA Climate Prediction Center outlook for March-May

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for February 16 - May 31, 2017
Released February 16, 2017

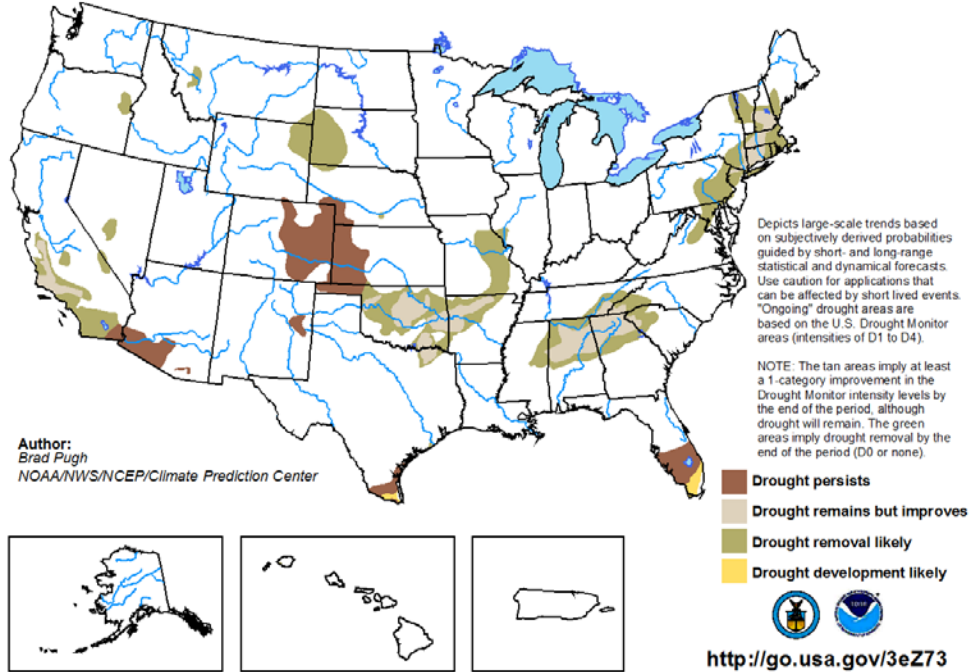


Figure 7: Spring Drought Outlook