



**NOAA, NATIONAL WEATHER SERVICE, WEATHER FORECAST OFFICE**

**Miami, Florida 33165**

## Warm February Ends Cooler and Drier than Normal Winter in South Florida

After a record-cold December and a slightly cooler than normal January, temperatures in February rebounded to above normal levels over all of South Florida. The persistent low pressure area over the eastern United States in December and most of January began to relax and transition into an area of mid/upper atmospheric high pressure over the southeastern United States (Figure 1). This pattern shift lead to milder Atlantic air influencing South Florida and less intrusions of continental or Arctic air masses in February versus early in the winter. This milder pattern is most commonly observed during La Niña episodes such as the one currently in place.

Following are the average February 2011 temperatures and departure from normal in degrees F:

<b>Location (beginning of period of historical record)</b>	<b>Feb 2011 Avg Temp</b>	<b>Departure From Normal</b>	<b>Rank</b>
Miami (1895)	72.0	+2.9	17 <sup>th</sup> warmest
Fort Lauderdale (1912)	71.7	+3.5	13 <sup>th</sup> warmest
West Palm Beach (1888)	70.7	+3.5	19 <sup>th</sup> warmest
Naples (1942)	68.5	+3.4	17 <sup>th</sup> warmest

Despite the warm February, winter temperatures over South Florida averaged well below normal at all main climate sites, heavily weighed by the coldest December on record when all sites averaged 9 to 11 degrees below normal. This resulted in the winter of 2010-2011 being as cool if not slightly cooler than last year’s chilly winter. December 2010 to February 2011 ended up about 2 to 3 degrees below normal.

Here are average December 2010-February 2011 temperatures and departures from normal in degrees F and ranking for select locations:

<b>Location (beginning of period of historical record)</b>	<b>Dec 2010-Feb 2011 Avg Temp</b>	<b>Departure From Normal</b>	<b>Rank</b>
Miami (1895)	66.8	-3.2	29 <sup>th</sup> coldest
Fort Lauderdale (1912)	66.3	-2.1	15 <sup>th</sup> coldest
West Palm Beach (1888)	65.0	-2.3	19 <sup>th</sup> coldest
Naples (1942)	63.2	-2.1	8 <sup>th</sup> coldest

The winter of 2010-2011 will be remembered for the very cold December in which three separate freeze events occurred over South Florida, something not seen in this area since records began in the late 1800s and early 1900s. These exceptionally cold periods severely impacted the agricultural community in South Florida, with total losses directly related to the December freezes estimated at just over \$10 million.

Coldest temperature readings observed this winter ranged from the lower 20s over portions of Glades County to the lower and mid 30s over the metro areas along both the Atlantic and Gulf coasts. Freezing temperatures were observed over all but the immediate coastal sections of South Florida.

## **Precipitation**

A very dry February capped off a drier than normal winter over all of South Florida. February rainfall totals were less than 1 inch virtually everywhere except for isolated spots in Palm Beach County. Over most of Broward and Miami-Dade counties, rainfall totals were less than a tenth of an inch. These totals rival the very dry February of 2009 and rank among the top 10 driest on record for the month at several locations. The high pressure area over the southeast United States, in addition to favoring warmer than normal temperatures, also contributed to the drier than normal conditions due to cold fronts being shunted north of our area or moving through our area with little or no accompanying precipitation.

Following are February 2011 rainfall totals, departure from normal in inches and ranking for selected locations:

<b>Location (beginning of period of historical record)</b>	<b>Feb 2011 Rainfall</b>	<b>Departure From Normal</b>	<b>Rank</b>
Miami (1855)	0.23	-1.84	7 <sup>th</sup> driest
Fort Lauderdale (1912)	0.01	-2.53	2 <sup>nd</sup> driest
West Palm Beach (1888)	0.89	-1.66	24 <sup>th</sup> driest
Naples (1942)	0.17	-2.00	7 <sup>th</sup> driest
Miami Beach (1927)	0.12	-2.02	4 <sup>th</sup> driest
Moore Haven (1918)	0.37	-1.68	12 <sup>th</sup> driest
Juno Beach	1.87		
Big Cypress (Hendry)	1.24		
LaBelle (1929)	0.73	-1.43	15 <sup>th</sup> driest
Marco Island	0.48		

Immokalee	0.42		
Canal Point (1941)	0.38	-1.89	10 <sup>th</sup> driest
Hollywood (1963)	0.22	-3.15	
The Redland (1942)	0.14	-1.84	7 <sup>th</sup> driest
Oasis Ranger Station	0.02		

Despite a near to above normal January precipitation-wise, the winter of 2010-2011 went down as a dry one over all of South Florida. Most of the southern peninsula recorded less than half (50%) of the normal December-February rainfall, with areas around Lake Okeechobee and portions of Miami-Dade County receiving 50 to 75 percent of normal (Figure 2). These totals are not uncommon during La Niña patterns which favor below normal winter precipitation across South Florida. In fact, the top 9 strongest La Niña winters going back to 1950 averaged about 50 to 80 percent of the normal rainfall. Therefore, the winter of 2010-2011 was even drier than the average of the strongest La Niña winters.

Following are December 2010-February 2011 rainfall totals, departure from normal in inches and ranking for selected locations:

<b>Location (beginning of period of historical record)</b>	<b>Dec 2010-Feb 2011 Rainfall</b>	<b>Departure/Percent From/Of Normal</b>	<b>Rank</b>
Miami (1855)	3.99	-2.14 (65%)	32 <sup>nd</sup> driest
Fort Lauderdale (1912)	2.26	-6.03 (28%)	9 <sup>th</sup> driest
West Palm Beach (1888)	3.95	-5.49 (42%)	23 <sup>rd</sup> driest
Naples (1942)	2.67	-3.04 (46%)	17 <sup>th</sup> driest
Miami Beach (1927)	4.64	-1.92 (71%)	26 <sup>th</sup> driest
Moore Haven (1918)	5.73	-1.74 (70%)	37 <sup>th</sup> driest
The Redland (1942)	4.62	-1.32 (78%)	21 <sup>st</sup> driest
Hollywood (1963)	3.61	-4.52 (44%)	
Juno Beach	7.97		
Immokalee	3.06		
Brighton (Glades)	3.49		
Marco Island	3.29		
LaBelle (1929)	5.54	-0.64 (90%)	38 <sup>th</sup> driest
Canal Point (1941)	3.49	-3.45 (50%)	14 <sup>th</sup> driest
NWS Miami (FIU Main)	4.80		

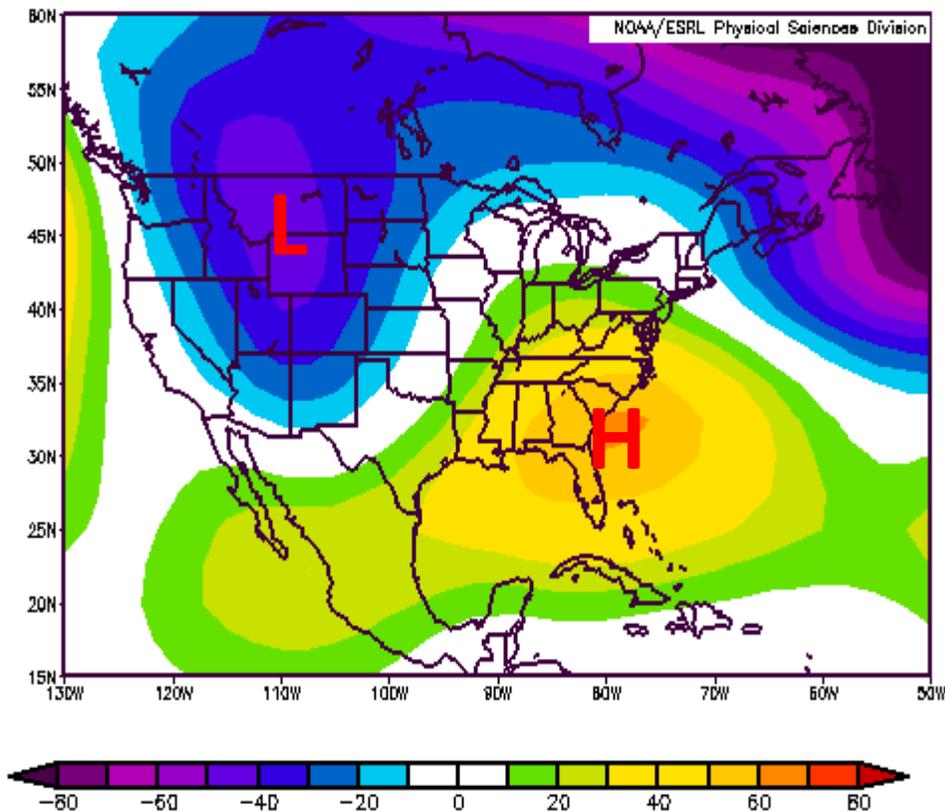
## Outlook for March-May

With the current La Niña expected to persist into much of the spring, [the outlook by the Climate Prediction Center](#) calls for an enhanced likelihood of below normal rainfall and near normal temperatures. This is essentially a continuation of the dry pattern observed this winter. Long range models suggest a greater than 60 percent chance of below normal rainfall through May, with near normal temperatures in March and April possibly transitioning to above normal temperatures in May.

The persistent dry pattern expected through the end of our dry season, in combination with gradually increasing temperatures through the spring, means that the threat of wildfires increases substantially during the months of March, April and May. All persons are strongly urged to take measures to reduce the chance of wildfires. Visit the [Florida Division of Forestry web site](#) for more information on how to help prevent wildfires.

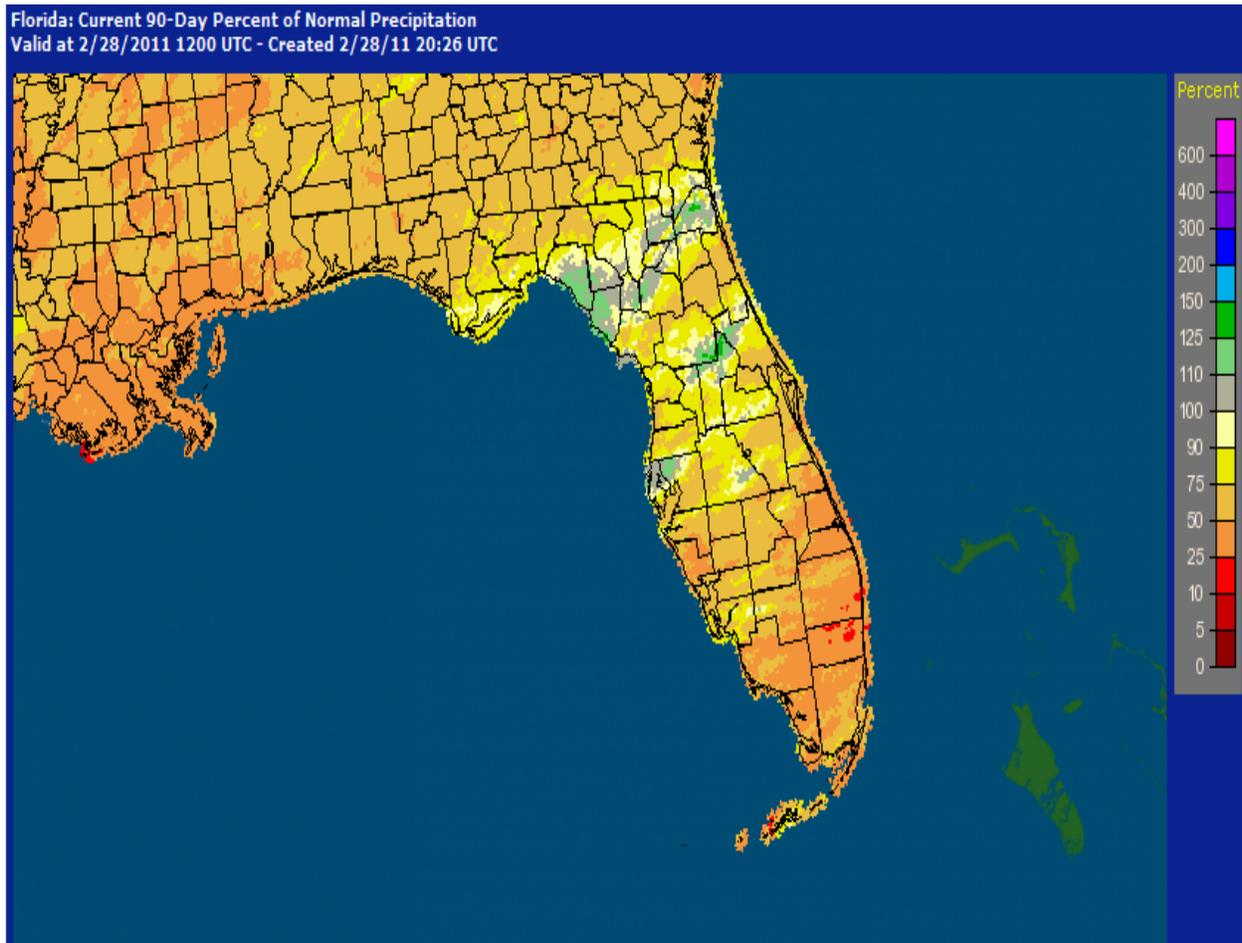
March and April typically bring an increase in easterly winds to the area, which significantly increases the risk of rip currents along the east coast beaches. A sharp increase in drowning deaths and rescues caused by rip currents occurs during the spring months due to this shift in the wind patterns. 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](http://weather.gov/southflorida).



**Figure 1:** Mean 500 mb (mid atmospheric) pattern during February 2011. High pressure (H) and associated ridge dominated the pattern over the southeast United States, leading to warmer than normal

temperatures, while low pressure (L) lead to colder than normal temperatures over the western United States. This was a reversal of the pattern which prevailed over the U.S. during most of December 2010 and January 2011. High pressure over the southeast U.S. limited the intrusion of very cold arctic air into Florida.



**Figure 2:** Rainfall percentage of normal from Dec 2010 through Feb 2011. Yellow and light orange colors denote areas of 50-90% of normal rainfall. Dark orange and red colors denote areas of less than 50% of normal rainfall.