MIAMI-SOUTH FLORIDA
National Weather Service
Forecast Office
http://www.weather.gov/miami

January 2016 Weather Summary

Record Rainfall

February 2nd, 2016: El Niño impacts were in full swing across south Florida in January as conditions were in place for several periods of heavy rainfall and severe weather. The end result was a wet and stormy January, a hallmark of El Niño winters in this part of the country. All reporting sites recorded above normal rainfall by at least twice the normal amount, with some areas as much as 6 times the normal (Figure 1)! A total of 7 sites recorded their wettest January on record, with several others in the top 5. A full list of rainfall amounts and rankings is included in the table below.

Interior and western portions of south Florida received the most January rainfall, with many sites recording over 10 inches of rain and a maximum observed amount of 13.08 inches in Marco Island. Over eastern sections, rainfall was in the 6 to 9 inch range, with areas of western metro Palm Beach County over 10 inches (Figure 2). Two unofficial sites in western metro Palm Beach County measured 15 to 16 inches of rain. These amounts are more reminiscent of summer than winter!

With this much rain in January, hydrological impacts were noteworthy. The South Florida Water Management District recorded its wettest January since record-keeping began in 1932. As of February 1st, the level of Lake Okeechobee was over a foot above normal (Figure 3), and Fisheating Creek in Glades County was at flood stage from January 29th through the present time.

Below is a list of January rainfall and departure from normal statistics (in inches) for select locations:

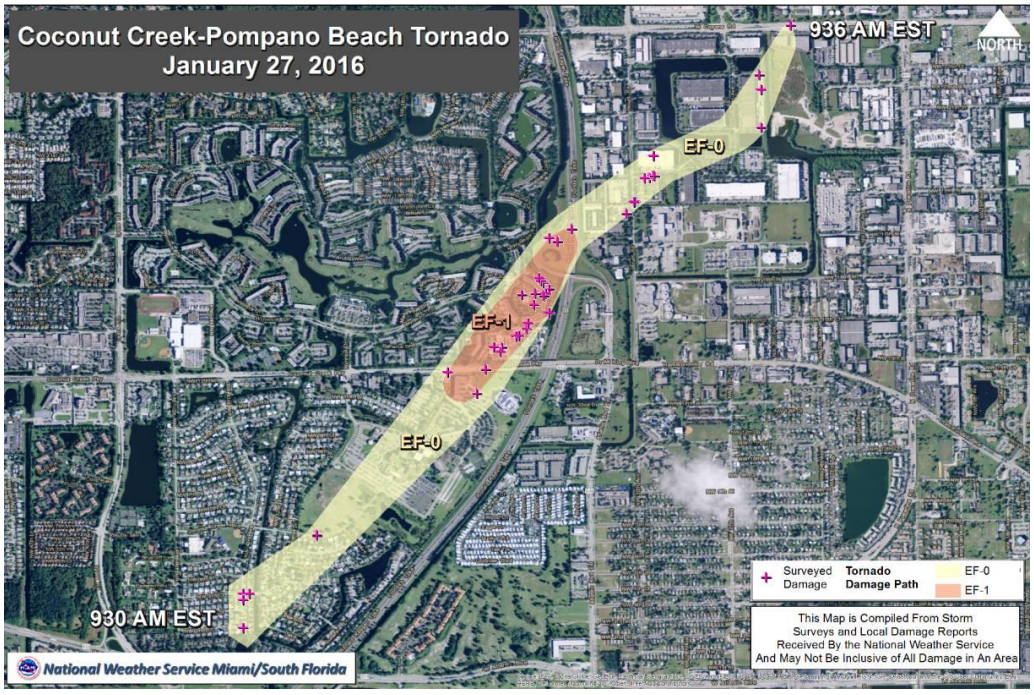
Location (Beginning of Period of Record)	Jan. 2016 Rain	Departure from Normal	Rank
Big Cypress - Hendry County	**10.64**		
Brighton Seminole Campground	**9.28**		
Canal Point (1942)	**10.55**	**+8.40**	**Wettest on rec.**
Ft Lauderdale/Hollywood Int'l Airport (1912)	**7.41**	**+3.78**	**8th wettest**
Fort Lauderdale Beach	**8.65**		
Fort Lauderdale Executive Apt	**7.28**		
Hialeah (1941)	**7.10**	**+5.18**	**Wettest on rec.**
Hollywood (1963)	**7.18**	**+3.55**	
Homestead General Airport (1990)	**5.85**	**+4.43**	
Immokalee (1971)	**10.36**	**+8.18**	**Wettest on rec.**
Juno Beach	**8.89**		
LaBelle (1930)	**10.36**	**+8.32**	**Wettest on rec.**
Marco Island	**13.08**		
Miami Beach (1927)	**7.35**	**+5.26**	**2nd wettest**
Miami International Airport (1911)	**7.57**	**+5.95**	**2nd wettest**
Moore Haven (1918)	**10.89**	**+9.14**	**Wettest on rec.**
Muse	**10.71**		
Naples East/Golden Gate	**11.83**		
Naples Municipal Airport (1942)	**7.54**	**+5.69**	**3rd wettest**
North Miami Beach	**8.62**		
NWS Miami – Sweetwater	**8.43**		
Oasis Ranger Station (1979)	**8.53**	**+6.69**	**Wettest on rec.**
Opa-Locka Airport	**6.62**		
Ortona	**11.46**	**+9.55**	**Wettest on rec.**
Palm Beach Gardens	**8.40**		
Palm Beach Int'l Airport (1888)	**9.90**	**+6.77**	**5th wettest**
Pembroke Pines/North Perry Airport	**5.82**		
Pompano Beach Airpark	**6.55**		
Tamiami Airport – West Kendall	**7.57**		
The Redland - Miami-Dade County (1942)	**7.08**	**+4.94**	**3rd wettest**
South Bay/Okeelanta	**11.47**		

Severe Weather

Another indicator of the presence of El Niño is an increase in storminess. This was certainly the case in January across south Florida. A direct sign of this is an enhanced subtropical jet stream extending from the Gulf of Mexico across the Florida peninsula (Figure 4). This southward displacement of the jet stream helps to set up the necessary conditions for severe weather across Florida, including moisture, instability and wind shear.

A total of six storm systems affected south Florida, with each bringing strong winds, localized flooding and a total of three tornadoes. The storm of January 17th brought widespread 40-50 mph winds across the area, with one storm producing an estimated 70 to 90 mph in the Naples area. A sharp increase in ocean levels accompanied the squall line that moved onshore the Gulf coast that morning, leading to what is believed to be a "meteotsunami" (increase in water levels similar to that of a tsunami but caused by meteorological, not seismic, factors). Beachfront streets on the south end of Naples Beach were flooded up to a foot in depth, but the water receded rather quickly following the passage of the squall line.

The storms of January 27th and 28th also produced widespread impacts, including three tornadoes in southeast Florida. The strongest of these was an EF-1 tornado that struck parts of Coconut Creek and Pompano Beach in Broward County on January 27th.



Damage consisted mostly of uprooted trees and broken tree branches, with an area of more extensive damage in the Wynmoor community and adjacent Florida Turnpike where apartment building sustained roof damage, as well as vehicles moved and even flipped in parking lots and on the Florida Turnpike. On the following day, an EF-0 tornado did mostly tree damage to portions of Delray Beach and Boynton Beach.

Temperatures

The increased rainfall and resultant cloudy days had a direct impact on temperatures in January. Maximum daily temperatures averaged 1 to 2 degrees below normal, while the daily low temperatures were slightly above average. This is yet another marker of El Niño winters in south Florida in which a mainly below normal temperature signal is caused more by a decrease in daytime high temperatures that night/early morning lows. Despite the overall "coolness", no freezing temperatures were noted anywhere in south Florida which is unusual for January. The coldest mornings were January 24th and 25th when minimums in the 30s were observed across interior sections of southwest Florida as well as around Lake Okeechobee. A reading of 34 degrees was registered in Muse (western Glades County) on January 25th. There was some patchy frost across interior sections on the morning of January 25th.

- **Miami International Airport** had an average January temperature of 67.4 degrees Fahrenheit. **This is 0.8 degrees below the 30-year normal.** The average high temperature was 74F and the average low was 60F. The warmest temperature was 84 degrees on the 1st, 2nd and 9th and the coolest was 46 degrees on the 24th.

- **Palm Beach International Airport** had an average January temperature of 65.5 degrees Fahrenheit. **This is 0.2 degrees below the 30-year normal.** The average high temperature was 74F and the average low was 58F. The warmest temperature was 84 degrees on the 1st and the coolest was 40 degrees on the 24th.

- **Fort Lauderdale/Hollywood International Airport** had an average January temperature of 67.3 degrees Fahrenheit. **This is 1.7 degrees below the 30-year normal.** The average high temperature was 74F and the average low was 60F. The warmest temperature was 84 degrees on the 2nd, 9th and 10th and the coolest was 44 degrees on the 24th.

- **Naples Municipal Airport** had an average January temperature of 65.2 degrees Fahrenheit. **This is 0.7 degrees above the 30-year normal**. The average high temperature was 73F and the average low was 57F. The warmest temperature was 84 degrees on the 1st and the coolest was 44 degrees on the 25th.

Outlook for February through April

The NOAA Climate Prediction Center outlook for February through April is for equal chances of above, below and near normal temperatures and a high likelihood of above normal precipitation (Figures 5 and 6). This is essentially a continuation of the current El Niño-influenced pattern.

As a result, south Florida can expect periods of storminess and increased rainfall into the spring months. This means more opportunities for the necessary ingredients to come together to produce severe weather across the state, including strong thunderstorms, flooding and even tornadoes. All residents and visitors should remain aware of weather conditions and pay particular attention to upcoming significant weather events which may lead to severe weather.

Although freezing temperatures are less common in winters influenced by El Niño, they can still occur especially in the months of February and March.

Finally, the rip current risk increases in March as temperatures increase and more people head to the beach.

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.

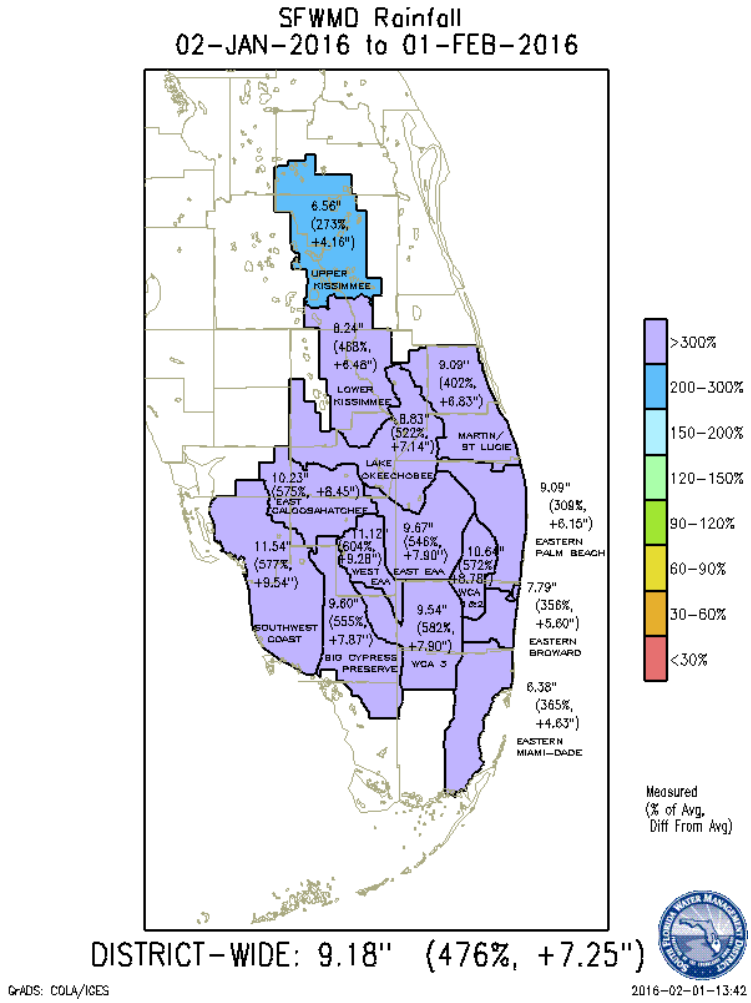


Figure 1*: January precipitation and departure from normal based on data from South Florida Water Management District*

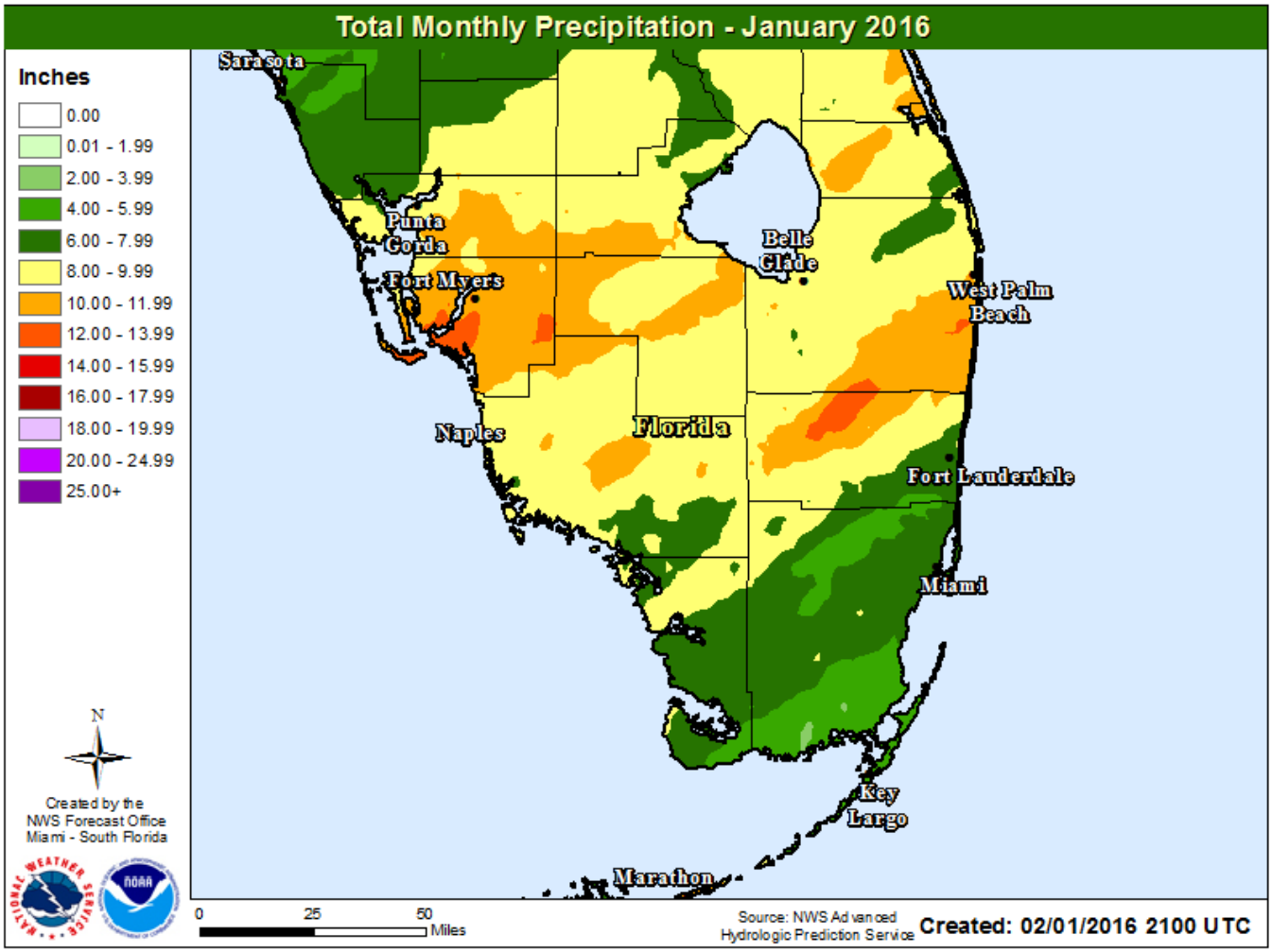


***Figure 2**: January precipitation*

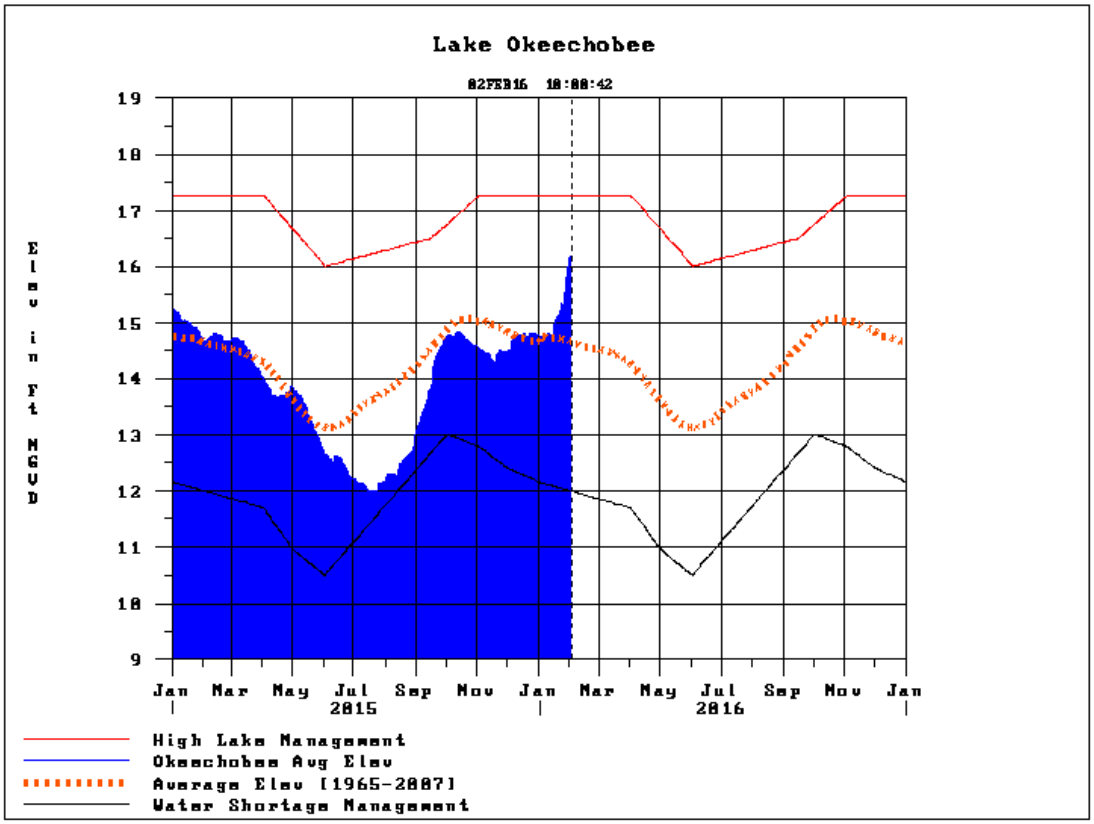


***Figure 3**: Lake Okeechobee Level*

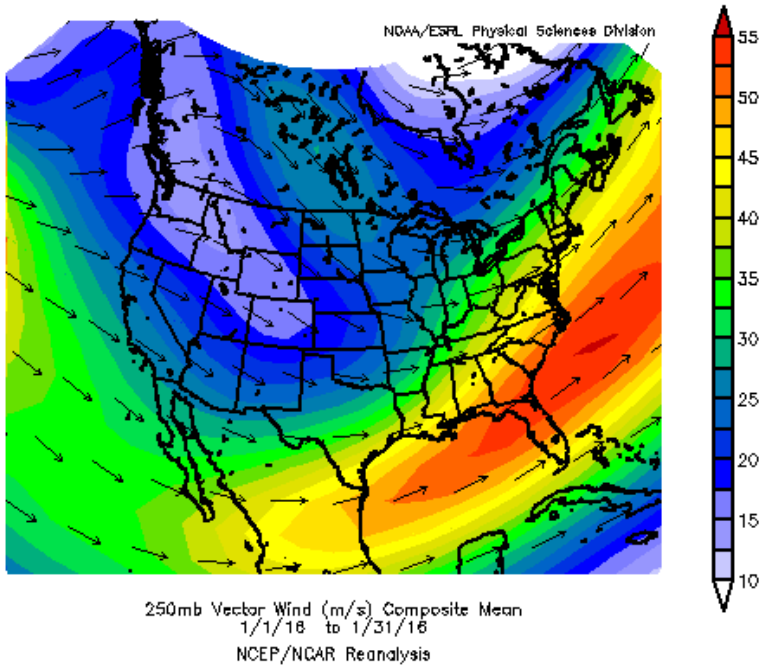
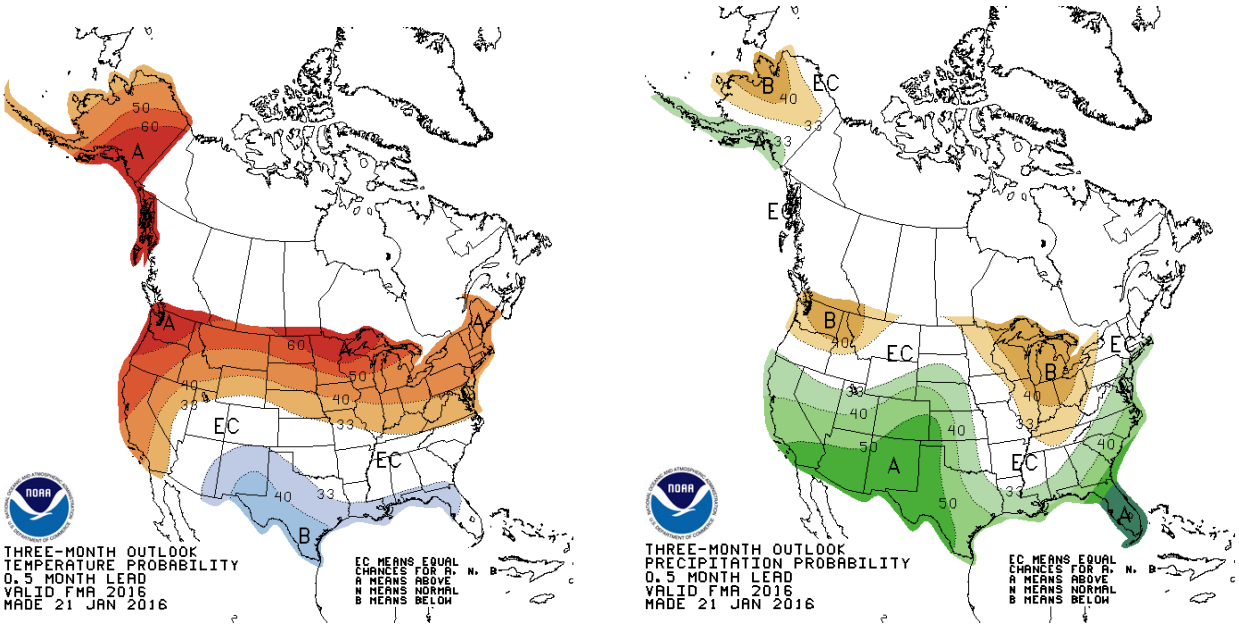


***Figure 4**: Mean 250 mb (upper tropospheric) wind speed for January. Red area across the Gulf of Mexico and Florida denotes the subtropical jet stream position*



***Figures 5 and 6**: February- April temperature (left) and precipitation probability (right) from NOAA's Climate Prediction Center (CPC).*