

Introduction

March 2011 produced above normal temperatures and below normal precipitation for Niceville, FL. The La Niña phenomenon finally influenced the local region with the expected warmer conditions abruptly ending winter dormancy and allowing for a rapid greening of spring vegetation. Temperatures after midmonth strongly rebounded into the mid 80's (10-12°F above normal) as a ridge of high pressure dominated the central U.S. The weather pattern was progressive as long periods of dry continental air were interrupted with stormy intrusions of unstable Gulf moisture. Cold fronts cleared the Florida panhandle on the 6th, 9th, 15th, 24th, 28th & 30th March and a warm front associated with a Gulf low occurred on 30th March. Thunderstorms were associated with squall lines which moved through the area on the 6th, 9th, & 30th March. A severe weather outbreak on the 9th March produced several tornados from New Orleans, LA to Mobile, AL. This squall line entered the western FL panhandle and spawned an EF-1 (Enhance Fujita) tornado in McDavid, FL (Escambia County) damaging five buildings with winds between 86-109 m.p.h.. Other smaller EF-0 tornados struck near Walnut Hill (Escambia County) and Bagdad, FL (Santa Rosa County) with winds 65 to 85 m.p.h. Considerable roof damage in excess of \$100,000 was reported. One inch hail was also observed northwest of Pensacola, FL. Rainfall ranged from 1.5 to 4+ inches with a CoCoRAHS observer in Ensley, FL (Escambia County) receiving 4.07 inches. Typically, March is the wettest month of the winter/spring season, but was 1/3 drier than normal as the cold fronts of 15th & 24th March came through without precipitation. The 20-day period from 10th though 29th March was practically rain free and some of the driest air of the season arrived on the 24th March with relative humidity falling to nearly 10%. This dry weather aggravated a hazardous fire situation as arson fires had burned 5,000+ acres from the 24- 25th March and covered the coastal counties with a noticeable smoke odor. Severe weather of the 26-27th missed the western Florida panhandle but struck southeast AL and southwest GA with quarter-sized hail and an EF-1 tornado from an incredible wall cloud (Figure 1). Very heavy rains of 6 to 11+ inches caused flooding over west central Florida from the 25th-31st March and severe weather struck the Tampa Bay region with 9 tornados reported on the 31st March.

**2011 Jackson Guard Rainfall/NVOC Temperature
1971-2000 Climatic Normal (Niceville, FL)**

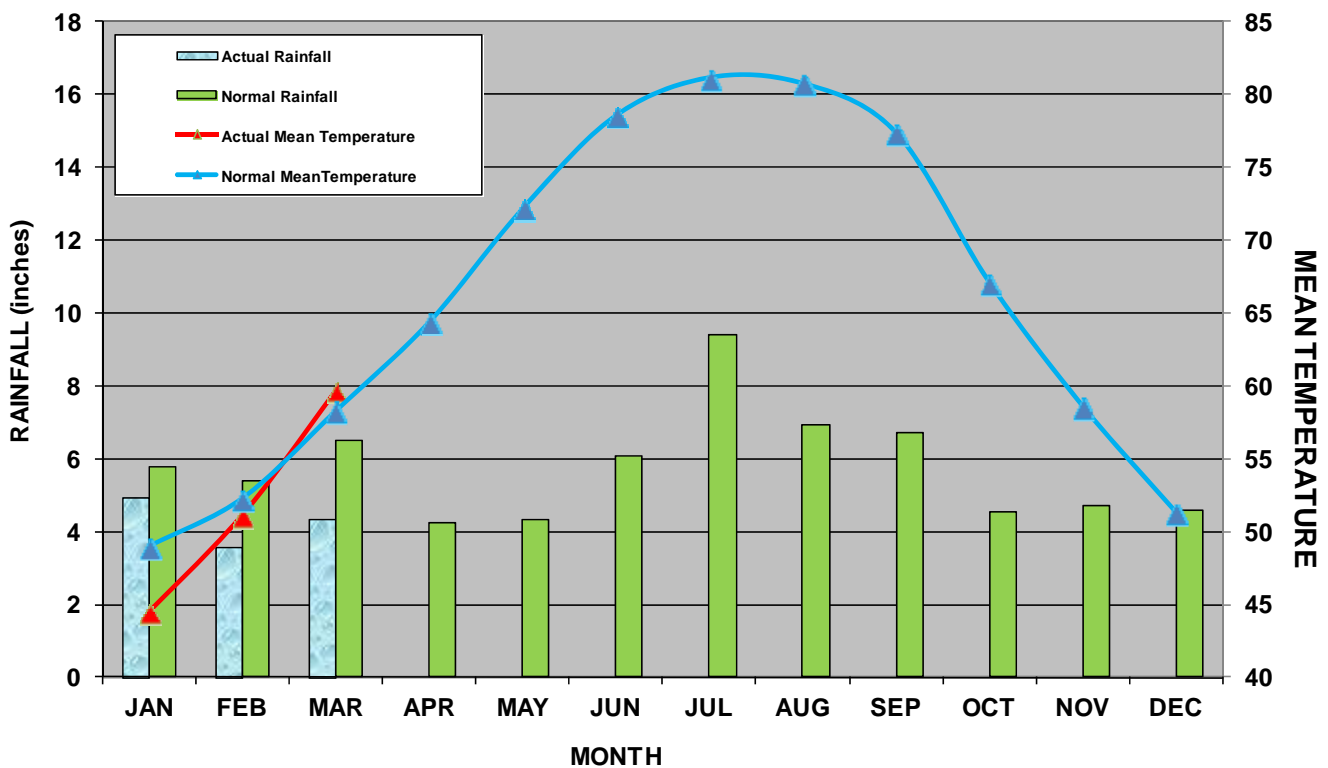




Figure 1. A wall cloud (arrow) in Randolph County, Georgia that spawned an EF-1 tornado on March 26, 2011 (courtesy of the Tallahassee, FL National Weather Service).

March 2011 Climate Summary

Jackson Guard rainfall for March totaled **4.33** inches and the Niceville (NVOC) Regional Sewer Board, Inc. recorded **4.86** inches. Eglin AFB recorded **4.44** inches for the month, *1.51* inches *below* the average (1940-2010) of 5.95 inches. Pensacola, FL recorded **6.80** inches, which is *0.40* inches *above* the normal (1971-2000) of 6.40 inches. There were 6 days with measurable precipitation at the NVOC, which is 1 day *below* the March average. There were 3 thunderstorm days, which is 1 day *below* normal. A record 24-hour rainfall total of 2.30 inches observed on the 10th March broke the previous record of 0.75 inch set back in 2001.

The [Keetch-Byram Drought Index](#) (KBDI) at the end of March 2011 was *very low*. The values below are an indicator of soil moisture conditions in the counties containing Eglin AFB natural resources based upon reported rainfall. Currently D-1 (moderate) drought exists in coastal areas of the western Florida panhandle and D-2 (severe) is present across inland areas of the northwest FL. See Figure 2 for March 2011 Doppler precipitation estimates.

Florida County	Average KBDI (1 April 2011)	Florida County	Average March 2011 Rainfall (inches)
Santa Rosa	173	Santa Rosa	4.76
Okaloosa	171	Okaloosa	4.89
Walton	169	Walton	4.91
Gulf	149	Gulf	2.84

For more information on daily KBDI values, visit the Florida Division of Forestry: [KBDI index](#).

Florida: Current 30-Day Departure from Normal Precipitation
Valid at 4/3/2011 1200 UTC- Created 4/3/11 19:15 UTC

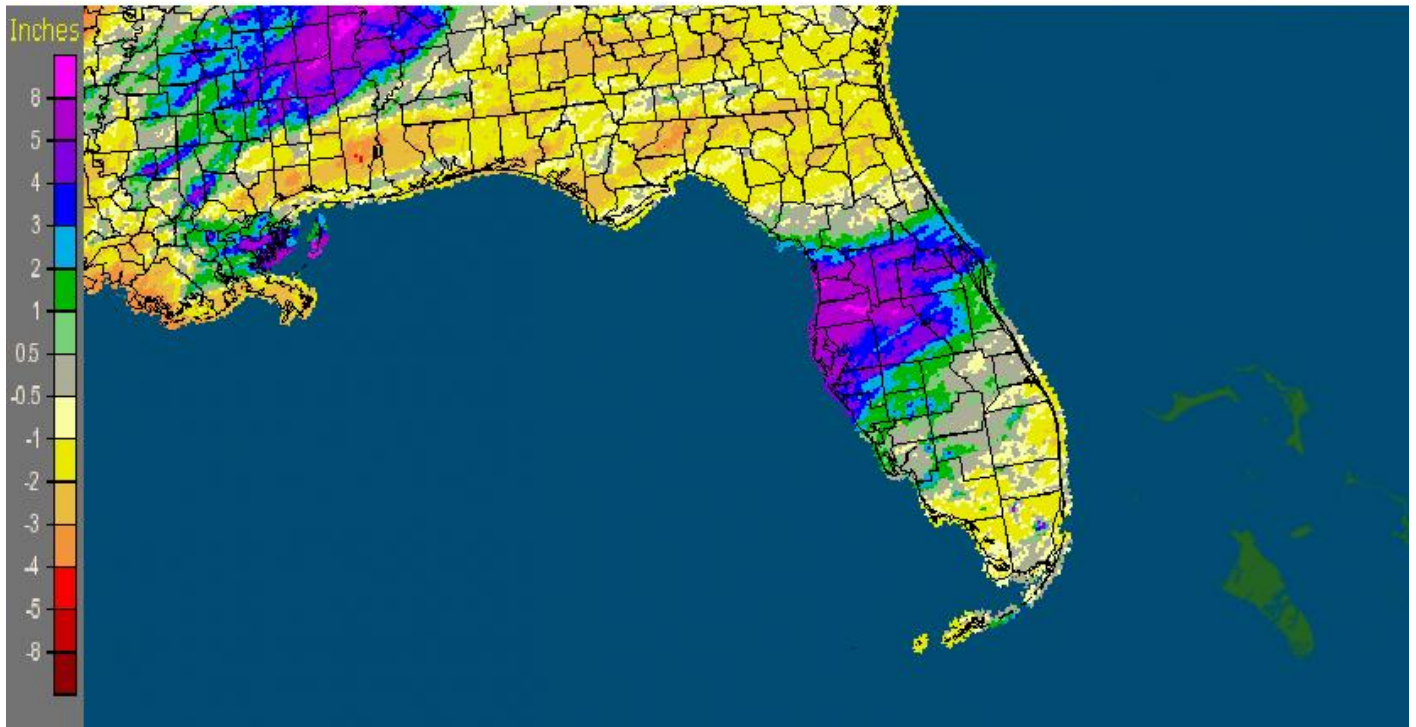


Figure 2. March 2011 departure from normal rainfall in inches. Note the west central Florida peninsula has a surplus of 5 to 8+ inches (violet color) above normal precipitation compared to the deficit of 1 to 2 inches (dark yellow) across north Florida. (Courtesy of National Weather Service).

The monthly mean temperature was **59.7°F** which was 1.4°F *above* normal. The average high temperature at NVOC was **71.6°F** (0.9°F *above* normal). The highest temperature of the month was 85°F recorded on the 25th March. A record low maximum temperature of 50°F on 7th March broke the previous record of 51°F in 1960. A record high maximum temperature of 83°F on 29th March broke the previous record of 82°F in 1986. The average low temperature was **47.8°F** (1.9°F *above* normal). The lowest temperature of the month was 33°F observed on 11th, 12th, & 13th March. There were 0 mornings when the minimum temperature was $\leq 32^\circ\text{F}$, which is 3 days *below* normal. Two record high minimum temperature records were established on the 23rd March with 64°F (old record 63°F-1975) and 27th March with 66°F (old record 64°F-1954).

La Niña Outlook

Sea surface temperatures (SST) are 0.8°C below average across much of the eastern and central equatorial Pacific, a trend marking a slow decline. Latest observations and model forecasts indicate that the current phase is past the September 2010-January 2011 nadir of 1.4°C. The current phase will gradually warm to a neutral phase by the summer 2011. Longer range model forecasts are split with the majority indicating neutral conditions by June 2011 and persisting into the 2011 winter. Several models also suggest the potential of continued La Niña conditions or the development of El Niño conditions during the fall 2011 (Figure 3). The short-term forecast calls for slightly warmer (<1.0°F) average temperatures through June. A rainfall deficient of nearly 4 inches through June would have a 60% chance of occurring. Drought conditions in the local area are expected to persist and may actually worsen through the remainder of the spring season.

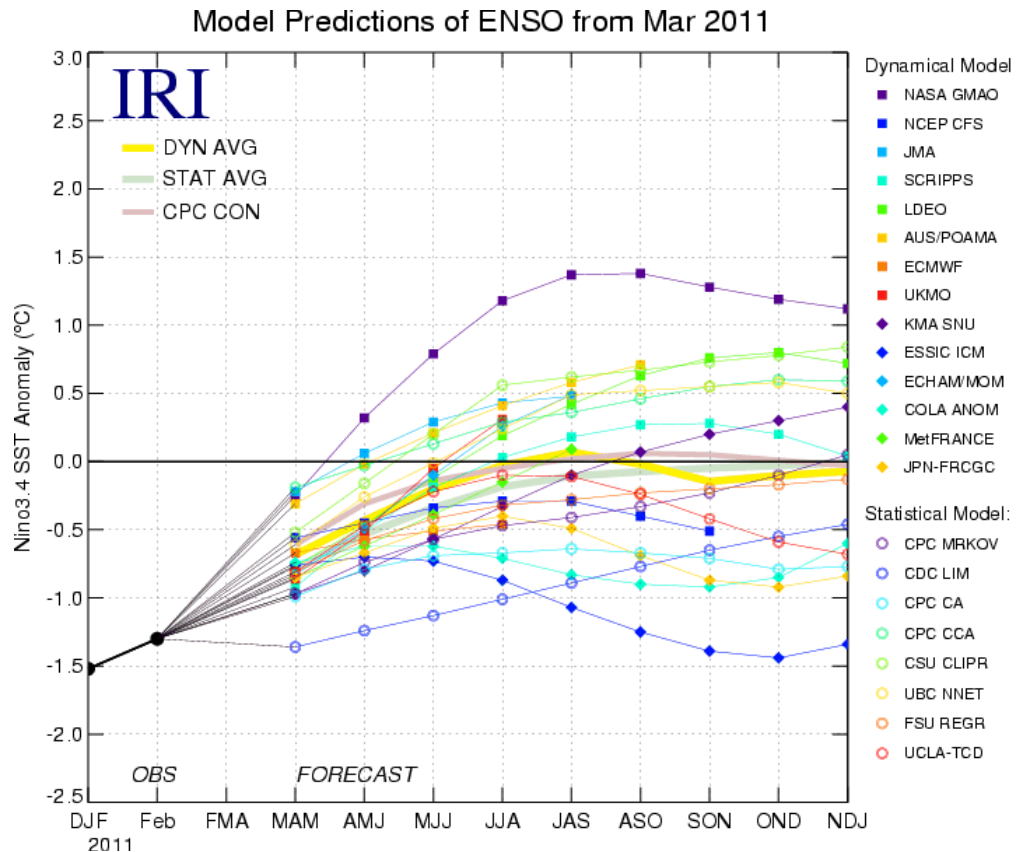


Figure 3. International Research Institute (IRI) forecast for the El Niño Southern Oscillation (ENSO) model forecast released on 16 March 2011.

April Outlook

The Climate Prediction Center [30-Day Outlook](#) for April 2011 predicts *equal chances* for normal temperatures and a 33% *below normal* chance of rainfall for north Florida.

April Climatology

April is one of the driest months of spring with a distinctive 5 to 7°F increase in daytime temperature of over March average highs. The month transitions to a lower frontal passage frequency at the same time the sea breeze effect awakens as the Gulf of Mexico warms. Frontal passages tend to diminish over the course of the month; the combination of a moderate sea breeze or dry frontal passages can cause some unpredictable wildfire behavior. Evapotranspiration from greening vegetation may aggravate soil moisture loss even after rainfall occurs.

Thunderstorm frequency averages 4 days during April and 6 days have measurable rainfall. Normal rainfall is 4.39 inches at Eglin AFB and 4.26 inches at Niceville recording stations. The maximum 24-hour Niceville, FL rainfall is 7.75 inches recorded on April 1, 2005. Record Niceville April rainfall is 24.21 inches (2005). The driest April at Niceville produced 0.00 inch in 1981.

Average Niceville monthly temperatures range from 53°F to 77°F. The record high for Niceville is 101°F (April 18, 2002) and the record low for Niceville is 20°F (April 1, 1987). The threat of frost is rare and minimum temperatures below 32°F average less than one day over the past 30 years.

Relative humidity (RH) averages 70%. RH > 70% occurs 55 percent of the time. The highest hourly humidity (average RH = 82%) occurs between the hours of 3 and 5 a.m.

Surface winds are calm or northerly during the nighttime and early morning hours. Afternoon southerly winds occur with the speed averaging between 8 to 10 m.p.h. during the afternoon. Highest April wind gust was 57 m.p.h. in 1950 from the northwest.

This information was compiled from Jackson Guard rainfall observations. NVOG Regional Water Sewer Board, Inc. in Niceville, FL provided the temperature and additional rainfall data. Other reports were obtained from Eglin AFB 46th Weather Squadron, Mobile National Weather Service, NOAA Climate Prediction Center, Southeast Regional Climate Center, Community Collaborative Rain, Hail, & Snow (CoCoRaHS) Network, and the Florida Division of Forestry websites.