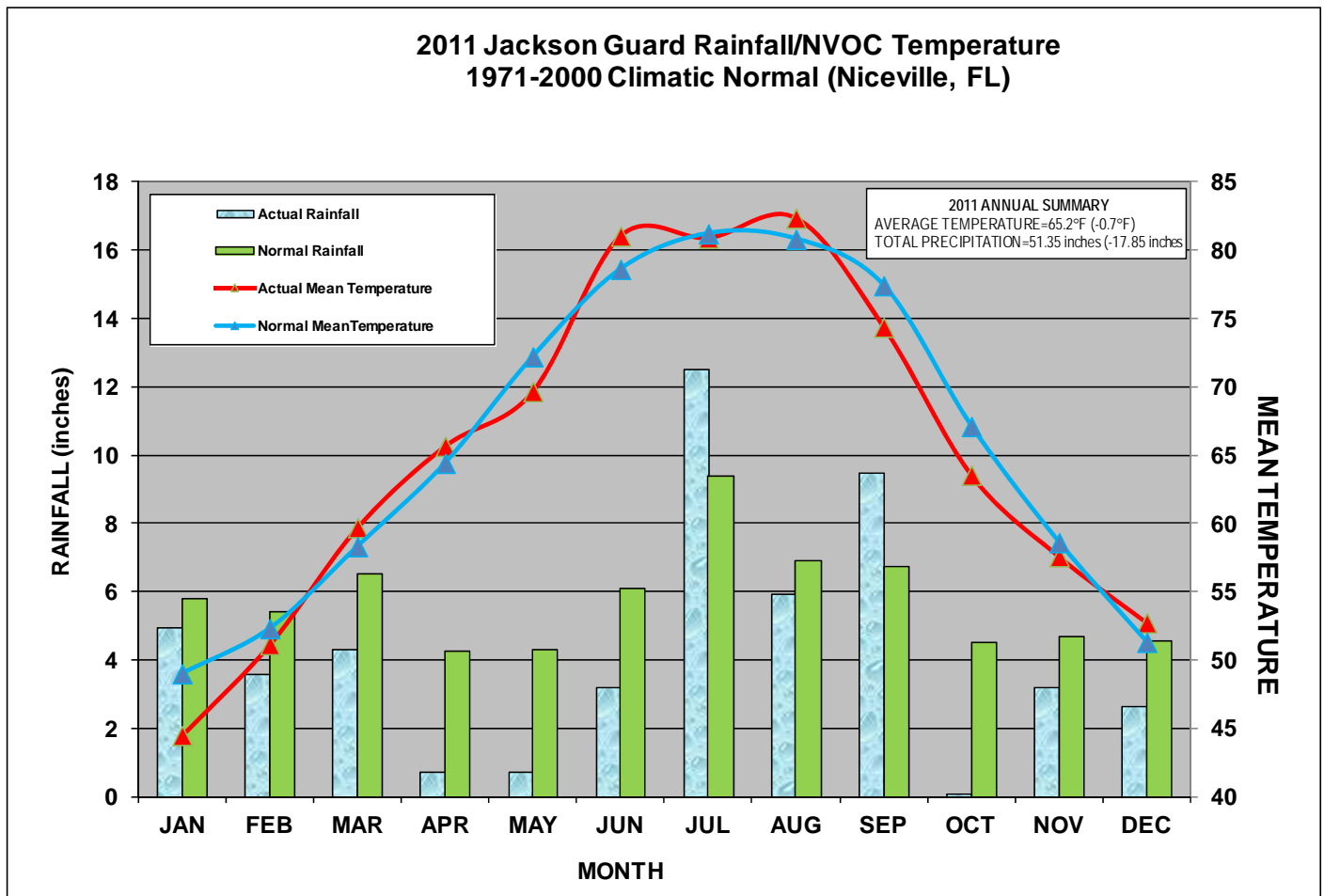


## Introduction

December 2011 produced above normal temperatures and below normal precipitation for Niceville, FL. The abnormally cool fall season ended when December's weather was influenced by the warmer and drier La Niña phenomenon and the notable absence of the brutally cold Arctic Oscillation of the past two winters. While the current La Niña is weaker than last year's event, weather systems caused the jet stream to split into two paths: 1) the stronger polar jet held colder air far to the north, and 2) a subtropical jet, oriented through a trough over the southwestern states of New Mexico and Texas passed over the Gulf of Mexico. As this pattern evolved, several slow moving fronts and upper-air disturbances passed through the local area with mild, polar-air masses. Four cold fronts cleared the area on the 7<sup>th</sup>, 17<sup>th</sup>, 23<sup>rd</sup>, and 27<sup>th</sup> December. An upper-air disturbance during the early morning hours of 12<sup>th</sup> December produced 3 to 5+ inches of rain around Tallahassee, FL covering Jefferson, Leon, Liberty, Madison, and Wakulla Counties, FL. Upper-air disturbances of the 20<sup>th</sup> & 21<sup>st</sup> December produced two separate streaks of heavy rainfall. Widespread rainfall of 2 to 6+ inches fell across Escambia, Santa Rosa, and extreme northwest Okaloosa Counties, FL. Record rainfall of *4.15 inches* was noted at the Pensacola Regional Airport and *4.44 inches* was recorded at the Jay Experiment Station (Santa Rosa County, FL). An estimated precipitation total in excess of 6 inches fell over Blackwater State Forest near Munson (Santa Rosa County, FL). The second heavy rainfall streak produced 2 to 4+ inches across Bay, Walton, & Washington Counties, FL on 21<sup>st</sup> December. By the 25<sup>th</sup> December, a gulf low formed offshore near southwest Louisiana and moved into the lower Mississippi Valley. The slow moving disturbance pushed a cold front (27<sup>th</sup> December) through the Niceville area with brief rainfall of 1+ inches during the early morning hours. No severe weather was reported across the western FL panhandle, but a lightning strike and subsequent fire destroyed a large home in the Hammock Bay subdivision west of Freeport (Walton County), FL on the 27<sup>th</sup> December.



## December 2011 Climate Summary

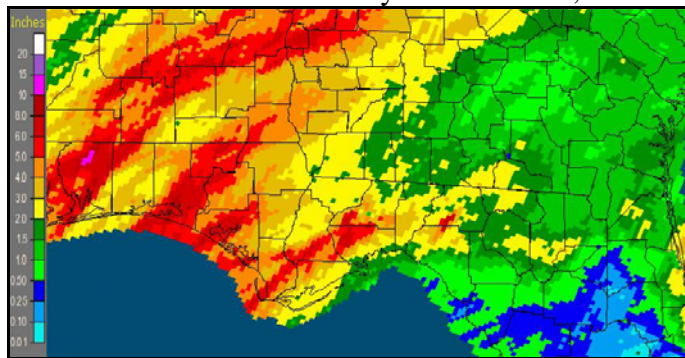
The monthly mean temperature was **52.7°F** which was 1.4°F *above* normal. This was the 27<sup>th</sup> warmest December since Niceville record keeping began in 1938. The average high temperature at Niceville NVOC was **63.6°F** (0.2°F *below* normal). The highest temperature of the month was **73°F** observed on the 7<sup>th</sup> December. The average low temperature was **41.8°F** (3.0°F *above* normal). The lowest temperature of the month was **27°F** observed on the 1<sup>st</sup> and 2<sup>nd</sup> December. There were 6 mornings when the minimum temperature was  $\leq 32^\circ\text{F}$  which was 4 days *below* normal. One record high minimum were established during the month. On the 22<sup>nd</sup> December **64°F** broke the previous record of 62°F (1998). **Annual Niceville 2011 mean temperature of 65.25°F was the 15<sup>th</sup> coolest since record keeping began in 1938.**

Jackson Guard rainfall for December totaled **2.64** inches and the Niceville (NVOC) Regional Sewer Board°F, Inc. recorded **2.60** inches. There were 9 days with measurable precipitation in Niceville, which is 1 day *above* normal December average. There was 2 thunderstorm days (22<sup>nd</sup> & 26<sup>th</sup> December), which is 1 day *above* normal. Eglin AFB recorded **2.63** inches for the month, 2.02 inches *below* the normal of 4.65 inches. Pensacola, FL recorded **7.70** inches, which is 3.15 inches *above* the normal of 4.55 inches. Number of days with measureable rain during 2011 was 96 days. **Annual Niceville 2011 rainfall of 51.97 inches was ranked as the 23<sup>rd</sup> driest since record keeping began in 1927.**

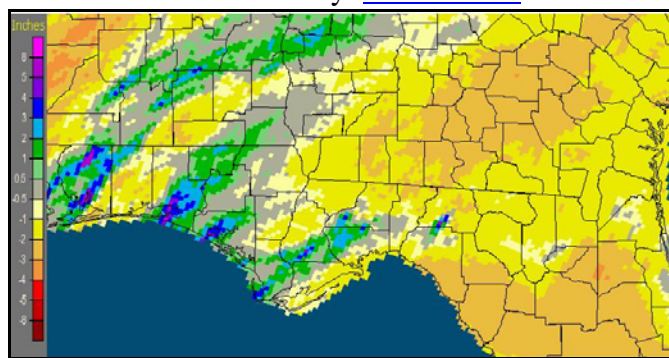
The [Keetch-Byram Drought Index](#) (KBDI) at the beginning of January 2012 ranged from *very low* in Santa Rosa County to *low* in Walton & Gulf County to *normal* in Okaloosa County. The values below are an indicator of soil moisture conditions in the counties containing Eglin AFB natural resources.

Florida County	Average KBDI (1 January 2011)	Florida County	Average December 2011 Rainfall (inches)
Santa Rosa	106	Santa Rosa	5.28
Okaloosa	246	Okaloosa	3.25
Walton	191	Walton	4.58
Gulf	194	Gulf	3.94

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



**Figure 1.** Total December 2011 rainfall (red=6 to 10 inches). Note violet color over north Santa Rosa County = 10+inches.



**Figure 2.** Departure from normal December 2011 rainfall in inches (yellow = 2 to 3 inches below normal over most of Okaloosa County).

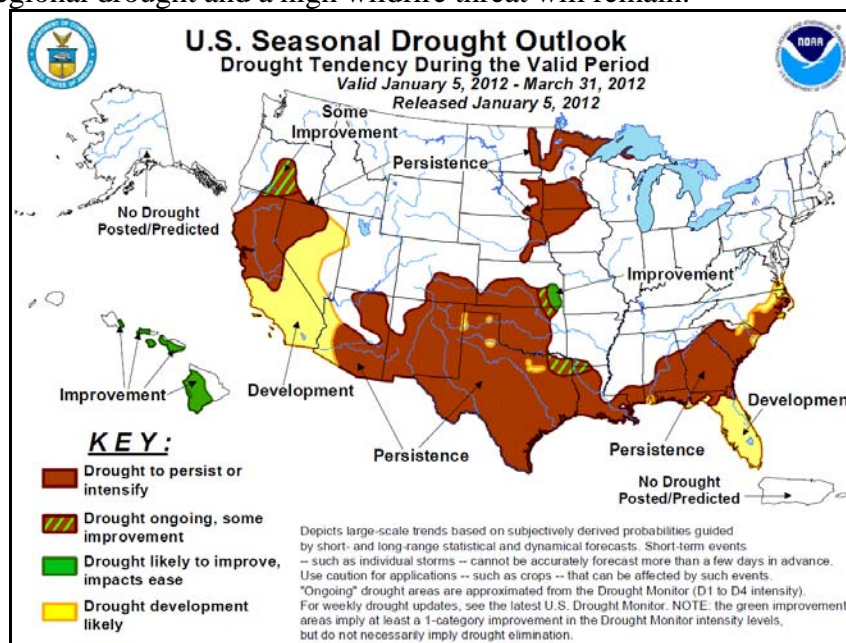
The summary below is the annual precipitation that occurred across the central Gulf coast

Station	2011 Rainfall (inches)	Normal Rainfall (inches)	Departure (inches) from Normal	(years)
Tallahassee	34.81	59.23	- 24.67	1981-2010
Pensacola	48.68	65.27	- 16.59	1981-2010
Mobile	50.42	66.15	- 15.73	1981-2010
Jackson Guard	51.35	69.20	- 17.85	1971-2000
Niceville (NVOC)	51.97	69.20	- 17.23	1971-2000
Eglin AFB	57.33	62.57	- 5.24	1940-2010

## La Niña Update and Drought Outlook

Current conditions and statistical forecasts indicate that a moderate La Niña episode is at its lowest cold phase and will persist through February 2012. Current sea surface temperature (SST) departures of **1.0°C** occur across much of the central and east-central equatorial Pacific Ocean. The Oceanic Niño Index (ONI) is based on SST departures from an average in the Niño 3.4 region and is a principal measure for assessment of a La Niña episode. The most recent ONI value for the period September-November 2012 is **0.7°C**. Compared to the same period in 2011, the ONI was twice as strong at 1.4°C. The majority of dynamic and statistical models indicate Niño-3.4 temperature departures will gradually weaken, but that La Niña will continue into February-March-April 2012.

Parts of northwest Florida remain under moderate to extreme drought. Despite the isolate areas of near normal rainfall and surplus topsoil moisture, hydrologic recharge is not occurring. Drought persists due to the large 2011 rainfall departures in excess of 15 inches. The Climate Prediction Center's January – March 2012 outlook indicates a relatively high probability for *below median* precipitation across the Florida Panhandle where persistence is forecast (Figure 3). While short-term rainfall may slow additional drought expansion during the winter groundwater recharge, strong dry climate anomalies associated with La Niña promote persistence of the existing drought. Further drought development is most likely throughout Florida. March is a relatively wet month across the mid-South and early spring precipitation plays a critical role in drought severity heading into the growing season. Despite favorable short-term soil moisture recovery, confidence is high that regional drought and a high wildfire threat will remain.



**Figure 3.** Climatic Prediction Center Outlook for drought conditions through March 2012.

### January Outlook

The Climate Prediction Center <http://www.cpc.ncep.noaa.gov/products/predictions/30day/> outlook for January 2012 predicts equal chances for normal temperatures and a 40% probability for below normal rainfall for the northwest FL.

### January Climatology

January is the coldest winter month with polar fronts arriving every four to five days. Gulf lows form when the orientation of the jet stream traverses the Gulf of Mexico or induces a wave along a stationary front. These weather systems result in steady and showery weather producing moderate to heavy precipitation. No measurable snowfall or frozen precipitation has ever been recorded at Eglin AFB during January since records began in 1940. Obstructed visibility due to fog occur an average of 18 days. Advection or sea fog (warm air moving over colder Gulf water and inland waterways) can form anytime during the day.

Such fog events most often occur during the late afternoon and can persist for several days, especially during warming after an arctic air mass departs.

Thunderstorm frequency averages 2 days during January and 8 days have measurable rainfall. Long-term normal rainfall is **4.56** inches at Eglin AFB and **4.66** inches at Niceville recording stations. The maximum Eglin AFB 24-hour rainfall is 5.46 inches (26<sup>th</sup> January 1976) and Niceville 24-hour rainfall is 5.30 inches (4<sup>th</sup> January 1942). Record Eglin January rainfall is 19.97 inches (1991). The driest Eglin January produced only 0.18 inch in 2003.

Average monthly temperatures range from **60°F to 42°F** at Eglin AFB and **62°F to 38°F** in Niceville. The record high for Niceville is **80°F** (15<sup>th</sup> January 1941) and the record low is **4°F** (21<sup>st</sup> January 1985). Minimum temperatures below 32°F average seven days during January (Eglin AFB) and twelve days for Niceville.

Relative humidity (RH) averages 70%. RH > 70% occurs 53 percent of the time. The highest hourly humidity (average RH = 77%) occurs between the hours of midnight and 8 a.m.

Surface winds are primarily northerly during the day occur with speeds averaging up to 9 mph. Frontal waves and gulf lows alter winds to a northeast to southerly component. Highest January wind gust was 56 m.p.h. in 1983 from the west.

This information was compiled from Jackson Guard rainfall observations. NVOC Regional Water Sewer Board, Inc. in Niceville, FL provided the temperature and additional rainfall data. Other reports were obtained from Eglin AFB 46<sup>th</sup> Weather Flight, Mobile National Weather Service, NOAA Climate Prediction Center, Southeast Regional Climate Center, Florida Forest Service and Florida Automated Weather Network (FAWN) websites.