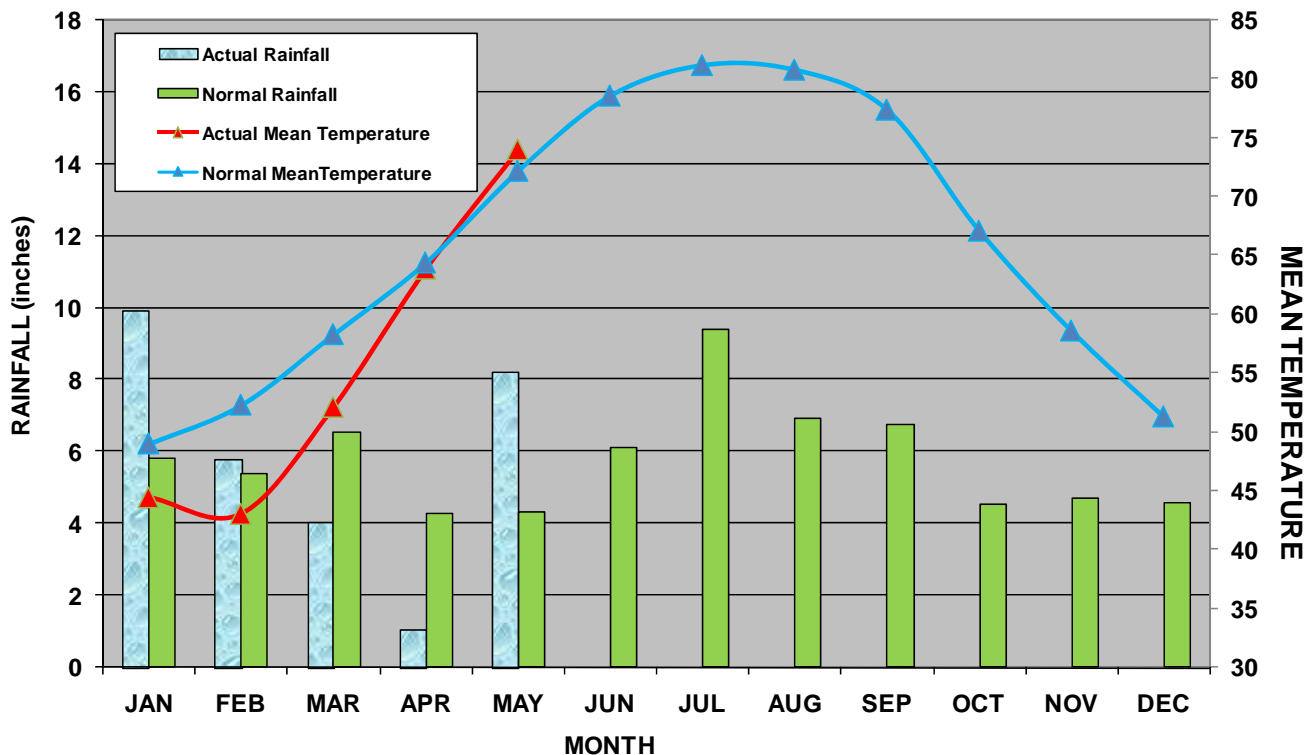


Introduction

May 2010's temperature and precipitation averaged above normal for Niceville, FL. Two cold fronts cleared the FL panhandle on the 3rd & 8th May. Stormy weather marked the first and fourth weeks while seasonal conditions prevailed during the middle of May. May 2010 ranked as the *eleventh* wettest May since records began in 1927. See Figure 1 for regional rainfall distribution. A long-lived strong pressure gradient brought incredibly moist tropical air to the southeast U.S. from 30th April to 4th May 2010. This same storm system deluged Nashville, TN with 13.57 inches of rain and 17.74 inches on Franklin, TN. Rainfall was also extremely heavy across the local area with the highest recorded rainfall of 10.10 inches was measured near Freeport (Walton County, FL) during this event. Other Okaloosa County, FL rainfall totals included: Destin--8.47 inches; Niceville--6.91 inches; Shalimar--6.29 inches; Mary Esther--6.02 inches; Eglin AFB--5.61 inches; Hurlburt Field--5.46 inches; and Duke Field--3.38 inches. Daytime temperatures averaged slightly below normal due to persistent cloudiness and an active sea breeze. Overnight minimum temperatures fluctuated, but averaged much above normal due to unseasonably moist airmass regimes. May 2010 ranked as the *thirteenth* warmest average May since record keeping began in 1938. Daytime temperatures soared briefly to middle to upper 90's on 23rd-24th May as a brief surge of dry continental air produced compressional heating of the air. By month's end, a pattern change commenced with an upper level trough cutting off into an upper level low along the MS/AL border which spun down a weak Gulf low over the coast. Widespread rainfall returned with isolated heavy rainfall 3+ inch amounts reported near Pensacola (Escambia County, FL), Milton (Santa Rosa, FL), and Crestview (Okaloosa County, FL) on the 29th /30th May. Quarter-size hail fell on Eglin AFB south of Mossy Head (Walton County, FL) and winds toppled a power pole on Antioch Road west of Crestview during the late morning hours of the 29th May.

**2010 Jackson Guard Rainfall/NVOC Temperature
1971-2000 Climatic Normal (Niceville, FL)**



May 2010 Climate Summary

Jackson Guard rainfall for May totaled **8.83** inches and the Niceville (NVOC) Regional Sewer Board, Inc. recorded **7.93** inches, which is 84% *above* normal (4.32 inches). There were 9 days (including 7 days with thunder) with measurable precipitation, which is 3 days *above* the normal May average. Eglin

AFB recorded **6.97** inches for the month, 3.45 inches *above* the normal of 3.52 inches. Pensacola, FL recorded **7.98** inches, which is 3.58 inches *above* the normal of 4.40 inches. Niceville official climate station (Niceville Valparaiso Okaloosa County Regional Sewer Board, Inc.) *set their all time May daily precipitation record of 5.88 inches on 4th May*. The previous record was 3.72 inches set back on this date in 1978. The previous all-time May rainfall record was 5.10 inches (21st May 1989) and this was the *ninth* greatest rainfall ever recorded in Niceville, FL.

Year to date 2010 rainfall at Eglin AFB was **28.20** inches which is 5.08 inches *above* the normal of 23.12 inches. Year to date 2010 rainfall at Pensacola, FL was **30.03** inches, which is 5.32 inches *above* the normal of 24.71 inches.

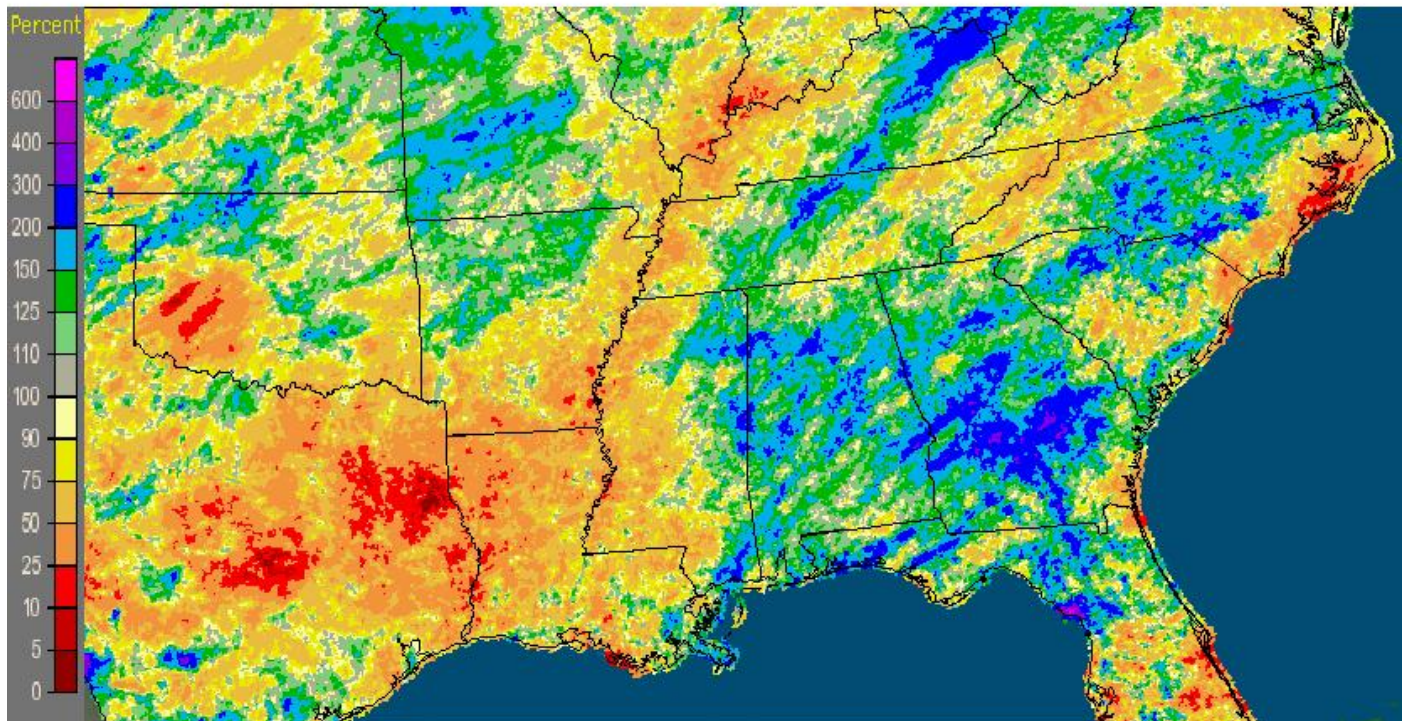


Figure 1. Percent of normal June 2010 rainfall Courtesy of NOAA.

The monthly mean temperature was **74.0**°F which is 1.8°F *above* normal. The average high temperature at Niceville NVOC was **82.7**°F (1.5°F *below* normal). There were 3 days when the maximum temperature was ≥ 90°F (1 day below normal). The highest temperature of the month was **96**°F recorded on the 25th May. This tied the maximum temperature for this date back in 1941. The average low temperature was **65.3**°F (5.1°F *above* normal). The lowest temperature of the month was **53**°F observed on 9th May. No new temperature records were established during the month.

The Keetch-Byram Drought Index (KBDI) at the beginning of June 2010 was estimated to be normal. Technical difficulties cause by the interruption in the flow of precipitation data from the National Weather Service on 14 May prevented the Florida Division of Forestry’s calculation of the KBDI values. Reporting is expected to resume later in the June 2010. Average Eglin AFB reservation rainfall was **7.75** inches.

Florida County	Average KBDI (14 MAY 2010)	Florida County	Average May 2010 Rainfall (inches)
Santa Rosa	169	Santa Rosa	7.90
Okaloosa	160	Okaloosa	7.34
Walton	144	Walton	8.57
Gulf	136	Gulf	3.96

2010 Atlantic Hurricane Season Outlook

The [NOAA](#) Climate Prediction Center (CPC) outlook (27 May 2010) calls for an *active to extremely active* hurricane season. The CPC suggests that there is a 70% probability of the following ranges compared to the 2005 Atlantic Hurricane Season, the most active season on record (in parentheses):

- 14 to 23 Named Storms (28 Named Storms)
- 8 to 14 Hurricanes (15 Hurricanes)
- 3 to 7 Intense Hurricanes –Category 3, 4, or 5 (7 Intense//2-Cat 3;1-Cat 4; 4-Cat 5)

The Colorado State University’s Klotzbach and Gray (2 June 2010) also calls for an above normal Atlantic Hurricane Season. The following forecast is compared to the NOAA average Atlantic Hurricane Season (in parentheses):

- 18 Named Storms (11 Named Storms)
- 10 Hurricanes (6 Hurricanes)
- 5 Intense Hurricanes –Category 3, 4, or 5 (2 Intense)

These outlooks take into consideration: 1) enhanced multi-decadal frequency that began in 1995, 2) equatorial Pacific El Niño Southern Oscillation (ENSO)-neutral conditions becoming La Niña conditions with favorable easterly winds and lessening wind shear, and 3) continuation of warmer than average sea surface temperatures (SSTs) in the eastern tropical Atlantic.

With the NOAA forecast citing a 95% confidence interval that the 2010 Atlantic Hurricane season will be normal to above normal (Figure 2), the main uncertainty is the expected development of the La Niña phenomenon. Figure 3 depicts the total number of hurricanes striking Florida counties for the period 1900 through 2007. The Florida Keys (Monroe County-31 strikes), has a 29% chance in any given year to have a hurricane landfall while the western Florida panhandle has a 10 to 13% chance. The CSU researchers cite a 50% probability for at least one major hurricane (Category 3-4-5) landfall on the Gulf Coast from the Florida panhandle westward to Brownville, TX compared with the 30% long-term average for the last century.

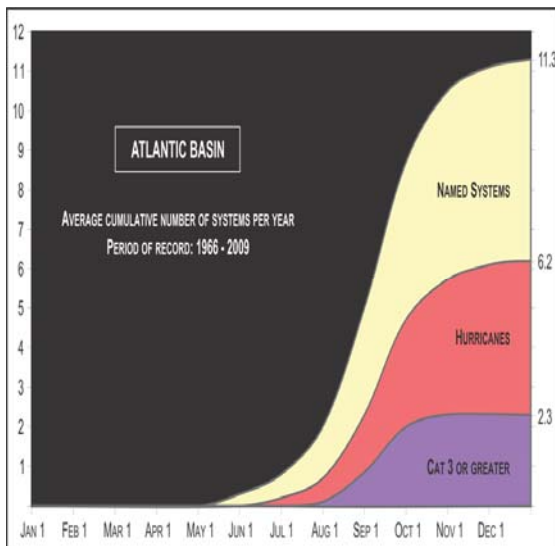


Figure 2. National Oceanic & Atmospheric Administration (NOAA) chart depicting average Atlantic Hurricane numbers of 11 named storms, 6 hurricanes and 2 intense hurricanes.

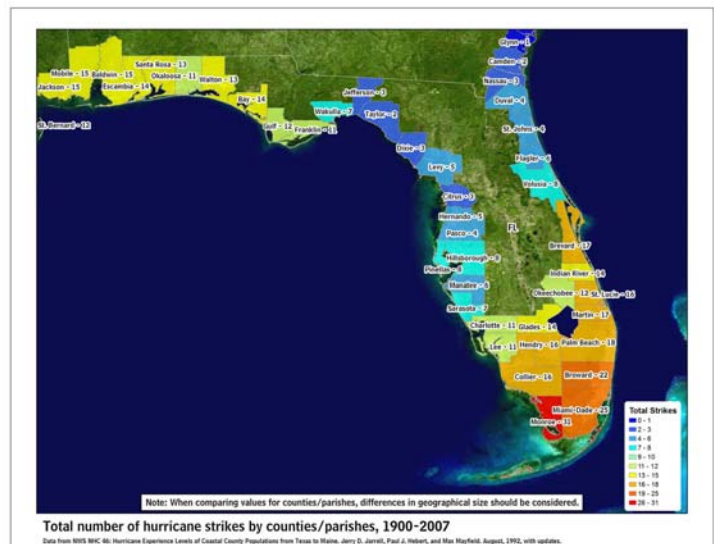


Figure 3. Hurricane strikes by Florida Counties for the period 1900 through 2007. Okaloosa County has 11 hurricane strikes and Santa Rosa and Walton Counties have 13 strikes each.

Deepwater Horizon Oil Spill Consequences for the 2010 Atlantic Hurricane

The highest number of named storms in June is three, which occurred in 1936 and 1968. Since the 1995 start of the enhanced multi-decadal frequency, five tropical storms have formed. There is a 36% chance of having a named June storm. Since all five tropical storms have passed the vicinity of the Deepwater Horizon spill, significant transport of the oil slick is a possibility. Depending on the storm's track, a westward moving storm would drive the oil further into the Florida coastline due to the counterclockwise circulation. Alternatively, an eastward moving storm would push the oil further offshore. Considering a 10°C rise in sea surface temperatures, chemical and biochemical reactions happen twice as quickly. As the Gulf of Mexico begins to heat up to the minimum sea surface temperature of 26.5°C (80°F) for tropical storm formation, a doubling effect of natural degradation occurs. At the same time steering winds in June-July are mostly westerly, tropical systems originating in the Gulf will generally track northeastward moving the oil slick offshore from the Florida panhandle; thus, speeding the breakup of the oil.

Since 1979 ITOX I oil spill in the Gulf of Mexico's Bay of Campeche (Figure 4) is the only oil spill incident to have been affected by tropical storms, very little knowledge is known of its results. Hurricane Henri (Category 1) displaced a 310 ton cap during early stages to contain the oil spill from the seafloor. On the barrier islands of Texas, Hurricane Allen (Category 5) and a tropical depression helped break up the oil and removed 80% from the sandy beaches, but severe damage due to the toxicity of the oil affected Texas coastal estuaries.



Figure 4. Ixtoc I exploratory oil well burning in water at 160 feet depth poured 380 million gallons of crude oil from 3 June 1979 to 23 March 1980 after a 10 month effort to seal the well.

June Outlook

The Climate Prediction Center [30-Day Outlook](#) for June 2010 predicts near normal temperatures and precipitation for the western FL panhandle.

June Climatology

June starts off meteorological summer with hot, humid conditions. Thunderstorm frequency averages 11 days with 10 days of measurable rain. Lightning strikes generally occur between 2 p.m. and 6 p.m. and average 1 to 8 strikes per square mile. Rainfall averages **5.75** inches at Eglin AFB (climatic period 1940-2009) and **6.08** inches at Niceville recording stations (climatic normal 1971-2000). The maximum 24-hour Eglin AFB rainfall is 6.28 inches recorded on June 15, 1985 and 6.86 inches at Niceville also observed on June 15, 1985. Record June rainfall for Eglin is 15.84 inches (2003) and for Niceville is 16.20 inches (2003). The driest June produced only 0.66 inch in 1986 at Eglin and 1.37 inches in 1998 at Niceville.

Average monthly temperatures range from **68°F** to **90°F** for Niceville, FL. Niceville's record high is 102°F (June 28, 1950) and the record low is 48°F (June 1, 1984). During June, average high temperatures of 90°F or above occur on 14 days.

Relative humidity (RH) averages 72%. RH > 70% occurs 59 percent of the time. The highest hourly humidity (average RH = 84%) 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 11 m.p.h. The highest June wind gust was 69 m.p.h. in 1954 from the west-northwest.

June is the quietest month of the Atlantic hurricane season. On average, one named storm forms every three years in June (Figure 5). Typically, June storms only form over the Gulf of Mexico, Western Caribbean, and Gulf Stream waters just offshore Florida, where water temperatures are warmest. June storms originate from a cold front that move off the U.S. coast and stall out; the old frontal boundary serves as a focal point for the tropical disturbance. Whereas, African tropical waves off the Cape Verde Islands instigate about 85% of all major hurricanes, such systems are usually too far south in June to trigger tropical storm formation due to the slightly cooler waters of the tropical Atlantic at the start of the season.

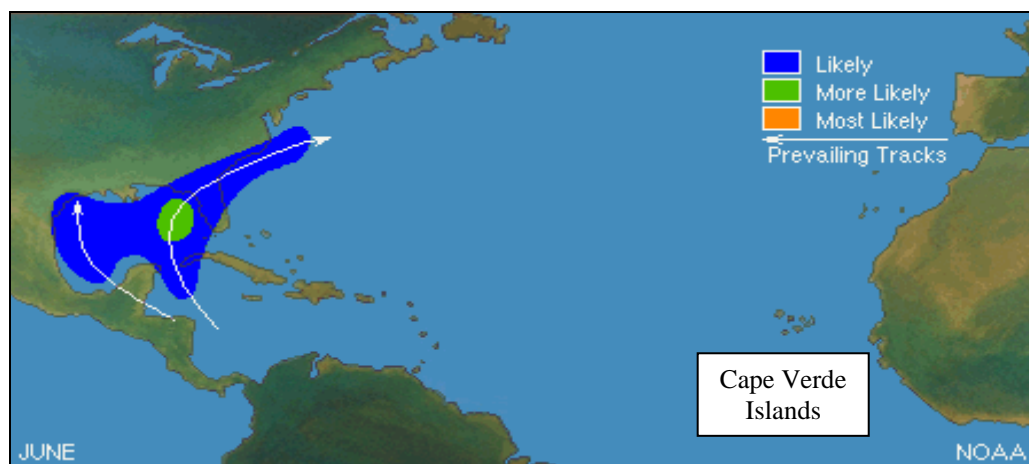


Figure 5. June climatology of tropical systems originating in the Gulf of Mexico.

This information was compiled from Jackson Guard rainfall observations. Other reports were obtained from Eglin AFB 46th Weather Squadron, Mobile National Weather Service, NOAA Climate Prediction Center, National Hurricane Center, Florida Division of Forestry, Southeast Regional Climate Center and the Weather Underground websites. NVOC Regional Water Sewer Board, Inc. in Niceville, FL provided the temperature and rainfall data.