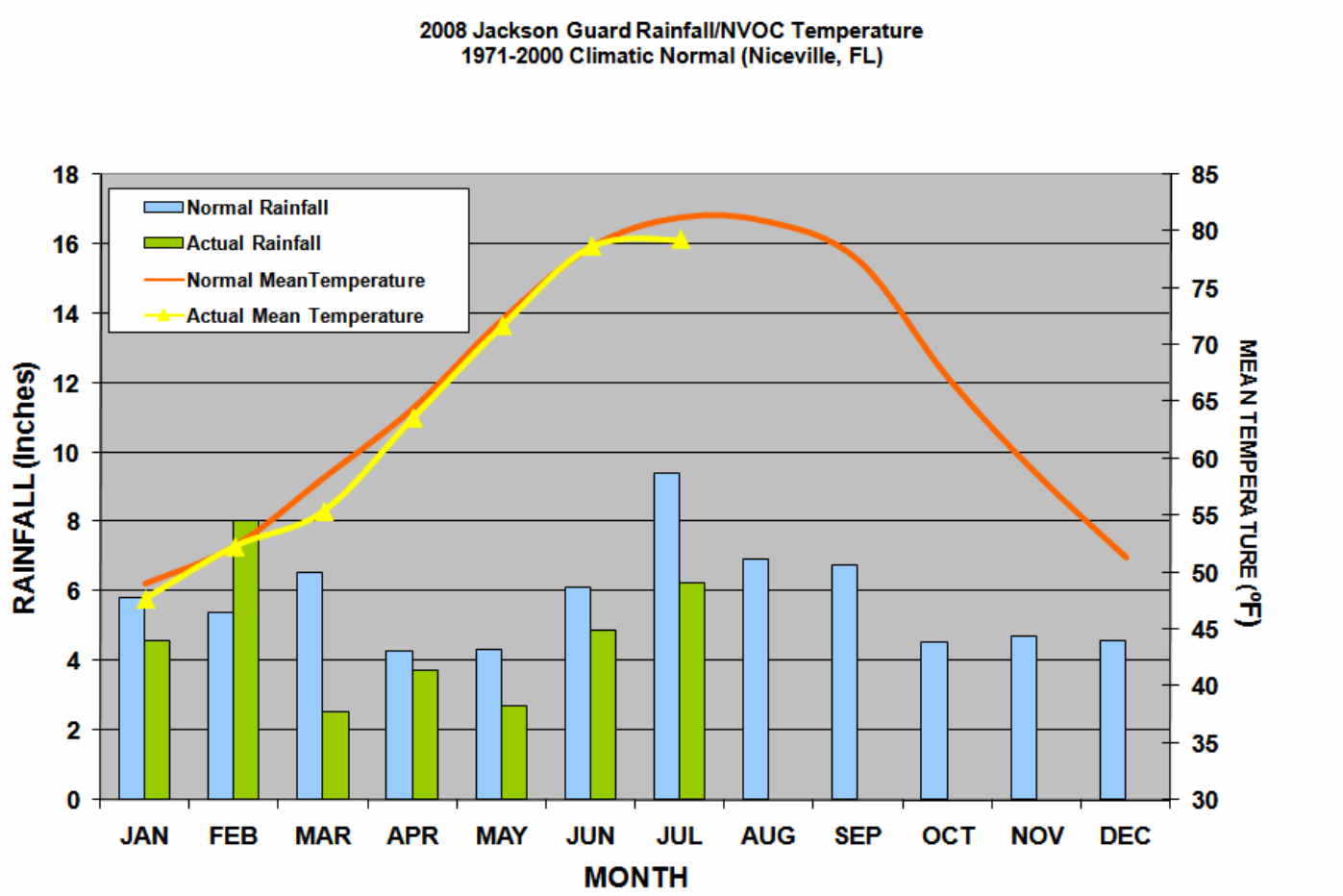
Introduction

July 2008 had below normal temperatures and precipitation for Niceville, FL. An anomalous upper-level trough over the central and eastern U.S. produced below average temperatures over the local area. Additionally, a moderate Madden-Julian Oscillation during early to mid month caused numerous thunderstorms and this feature caused the tropical Atlantic to become active with the formation of three named storms, two became hurricanes and one became a major hurricane. On average, July produces one tropical storm and every other July produces a hurricane. Two rare frontal passages cleared the FL panhandle on the 1st & 15th July. Temperatures were seasonal after mid month with dry weather as a high pressure ridge dominated the southeast U.S. until the last week of July when another trough slid down the eastern U.S. with the return of scattered cloudiness and rainfall. There were fifteen days with measureable rainfall recorded at Jackson Guard (Eglin AFB Natural Resources). Despite the rainfall frequency, abnormally dry (D0) drought conditions persisted in the FL panhandle except for parts of Santa Rosa and Escambia Counties.



July 2008 Climate Summary

Jackson Guard rainfall for July totaled **6.21** inches and the Niceville (NVOC) Regional Sewer Board, Inc. recorded **7.15** inches. Eglin AFB recorded **3.35** inches for the month, *4.35* inches *below* the normal of 7.70 inches. Pensacola, FL recorded **5.56** inches, which is *2.46* inches *below* the normal of 8.02 inches. There were 15 thunderstorm days which is 3 days below normal; 15 days had measurable precipitation, which is 2 days above the normal July average. The heaviest rainfall at Jackson Guard was 2.12 inches which was recorded on 7th July. Also on this date, NVOC recorded a record 24-hour rainfall of 2.45 inches breaking the previous record of 1.71 inches in 1996. Year to date rainfall at Eglin AFB is **26.69** inches, which is 9.87 inches below the normal of 36.56 inches. Year to date rainfall at Pensacola, FL is **33.13** inches, which is 5.99 inches below normal of 39.10 inches.

The monthly mean temperature was **79.3**°F which was *1.9*°F *below* normal. This is the sixth coolest July mean on record for Niceville. The average high temperature at Niceville NVOC was **87.9**°F (*3.4*°F *below* normal). The highest temperature of the month was 93°F observed on the 22nd July. There were 9 days when the maximum temperature reached 90°F or above, which was 11 days below normal. The average low

temperature was **70.7**°F (*0.4*°F *below* normal). The lowest temperature of the month was 64°F observed on 1st July. There were 24 days when the minimum temperature fell to 70°F or above. A record high minimum temperature was established on 31st July when 77°F broke the old record of 75°F (1985).

The Keetch-Byram Drought Index (KBDI) at the end of July 2008 was ***moderate***; however, the trend was decreasing as widespread moderate precipitation fell at the end of the month. The Florida Division of Forestry's fire weather outlook for the summer 2008 forecasts a return to normal conditions. Moderate values of the KBDI are an indication that above normal conditions are somewhat favorable for the occurrence and rapid spread of wildfires when the index exceeds ***500*** during the summer months of June-July-August for north Florida. The values below are an indicator of drought conditions in the counties containing Eglin AFB natural resources.

Florida County	**Average KBDI** (31July08)	**Florida County**	**Average July 2008 Rainfall (inches)**
Santa Rosa	507	Santa Rosa	6.12
Okaloosa	527	Okaloosa	5.03
Walton	533	Walton	4.99
Gulf	383	Gulf	5.60

For more information on daily KBDI values, visit the Florida Division of Forestry: KBDI index.

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-Tropical Prediction Center, Southeast Regional Climate Center, Florida Division of Forestry, and Community Collaborative Rain, Snow, and Hail Network websites. NVOC Regional Water Sewer Board, Inc. in Niceville, FL provided the temperature and rainfall data.

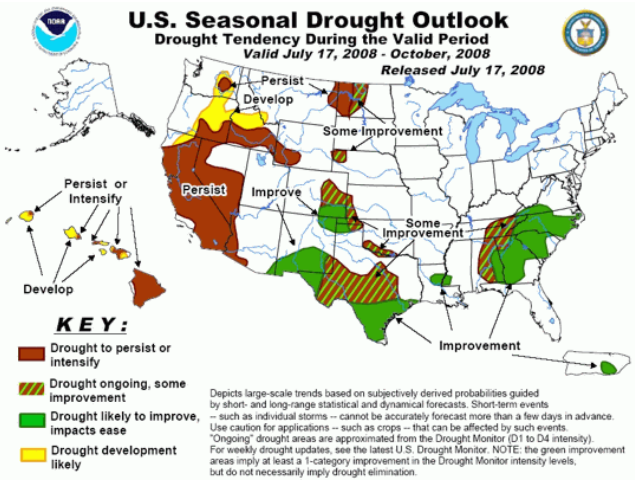


Figure 1. Long-term drought outlook through October based upon long-term climate models trends and soil moisture effects.

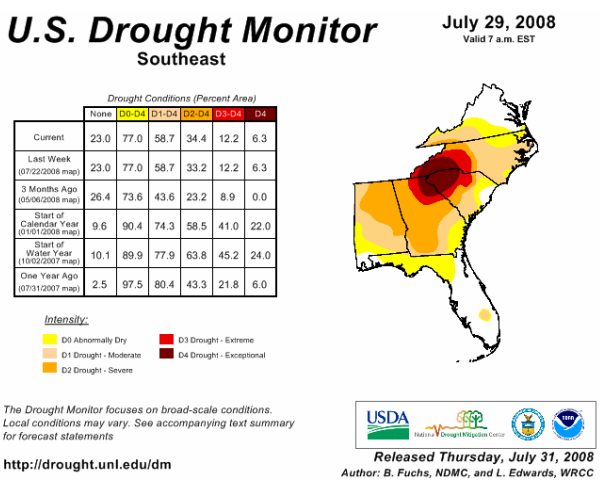


Figure 2. Latest Drought Monitor Index for southeast U.S.

August Climatology

August continues the hot-humid weather pattern established during July. The maritime tropical airmass flows around the west side of the Bermuda high-pressure that continues the landbreeze-seabreeze phenomenon of frequent thundershowers. During the month of August, an average of three tropical storms form, of which two become hurricanes somewhere in the Atlantic, Caribbean, or Gulf of Mexico.

Thunderstorm frequency averages 17 days with 13 days of measurable rain. Rainfall averages **6.95** inches at Eglin AFB and **6.91** inches at Niceville. The maximum 24-hour Eglin AFB rainfall is 6.10 inches recorded on August 14, 1987. Record August rainfall is 14.83 inches (1992). The driest August produced only 1.90 inch in 1986.

Average monthly temperatures range from **74º**F to **89º**F. The record high is 104ºF (August 5, 1947) and the record low is 61ºF (August 30, 1992). High temperatures, 90ºF or above average 16 days and above 95ºF occur an average of two days during August. Low temperatures below 70ºF are rare during the month.

Relative humidity (RH) averages 77%. RH > 70% occurs 70 percent of the time. The highest hourly humidity (average RH = 85%) 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. during the afternoon. Highest August wind gust was 105 m.p.h. in 1970 from the west northwest.

La Niña Transitions to Neutral ENSO Conditions

Current conditions indicate that the near surface temperatures of the equatorial Pacific have increased indicating that the current La Niña phase is over. Recent water temperature measurements average 0.1°C below normal in the east-central Pacific and the trend has weakened considerably since mid-February 2008. El Niño Southern Oscillation (ENSO)-neutral conditions will continue through the fall of 2008. Weekly summary updates can be found at Climate Prediction Center La Nina Weekly Update.

August 2008 Weather Outlook

The Climate Prediction Center 30-day outlook for August 2008 predicts a 40% chance for above normal temperatures and an equal chance for normal rainfall in the Florida panhandle.

July Tropical Weather Summary

Tropical cyclone activity during July 2008 was much above normal with three named storms, Hurricane Bertha, Tropical Storm Cristobal, and Hurricane Dolly. These combined storms produced the third greatest accumulated cyclone activity on record for July behind the years 2005 and 1916. Bertha set the July record of 17 days as the longest lived July Atlantic Basin tropical cyclone. Bertha and Dolly originated as Cape Verde systems, whereas Cristobal formed from a broad area of low pressure in the Gulf of Mexico that moved northeastward across Florida.

Bertha developed from a tropical wave off the west coast of Africa on 1st July becoming a tropical depression and tropical storm on 3rd July. By 6th July, Bertha became a hurricane and rapidly intensified to a major hurricane with sustained winds of 120 m.p.h. on 8th July. Bertha then weakened to a tropical storm as came within 40 miles of Bermuda. Bertha regained hurricane strength by 18th July and passed within 450 miles of Newfoundland, becoming an extratropical cyclone over the north Atlantic by 20th July. No damages or loss of life resulted from Hurricane Bertha.

Cristobal formed as a tropical depression on 18th July off the South Carolina coast and became a tropical storm by 19th July. The storm moved northeastward away North Carolina coast and reached its peak with sustained winds of 65 m.p.h. winds by 21st July 725 miles southwest of Nova Scotia. The storm became extratropical 380 miles east of Nova Scotia on 23rd July. No damages or loss of life resulted from Tropical Storm Cristobal.

Dolly developed from a tropical wave off Africa on 11th July and moved rapidly westward crossing the Windward Islands on 17th July. On 20th July, Dolly became a tropical storm in the western Caribbean about 300 miles east of the Yucatan Peninsula but quickly lost its organization upon landfall. On 21st July the center of low pressure reformed over the Bay of Campeche as Tropical Storm Dolly moved west northwestward to the western Gulf of Mexico coast. On 22nd July Hurricane Dolly formed and reached its highest sustained winds of 100 m.p.h. on 23rd July shortly before the eye crossed South Padre Island, southeast of Port Mansfield, TX. Dolly weakened to a tropical depression on 24th July as the center crossed the Rio Grande River, before the remnants dissipated northward over New Mexico and the Texas panhandle on the 28th July. One person drowned in rough surf in Panama City, FL and a man was electrocuted from a fallen power line in Mexico. Preliminary damage is estimated between a 750 million and 1 billion dollars.

Hurricane Return Period Graphic Discussion

Below are three graphics giving the probability of a hurricane return interval of 100 years that can be expected within 86 miles of any given coastal location. For example, a return period of 20 years of a category 3 hurricane averaged during the previous 100 years means that *five* major hurricanes had passed within 86 miles of that location. Therefore, you would expect for the western Florida panhandle, an additional ***3.7 to 3.8*** Category 3 or greater hurricanes within a radius of 86 miles over the next 100 years. This data is produced by the National Hurricane Center Risk Analysis Program.

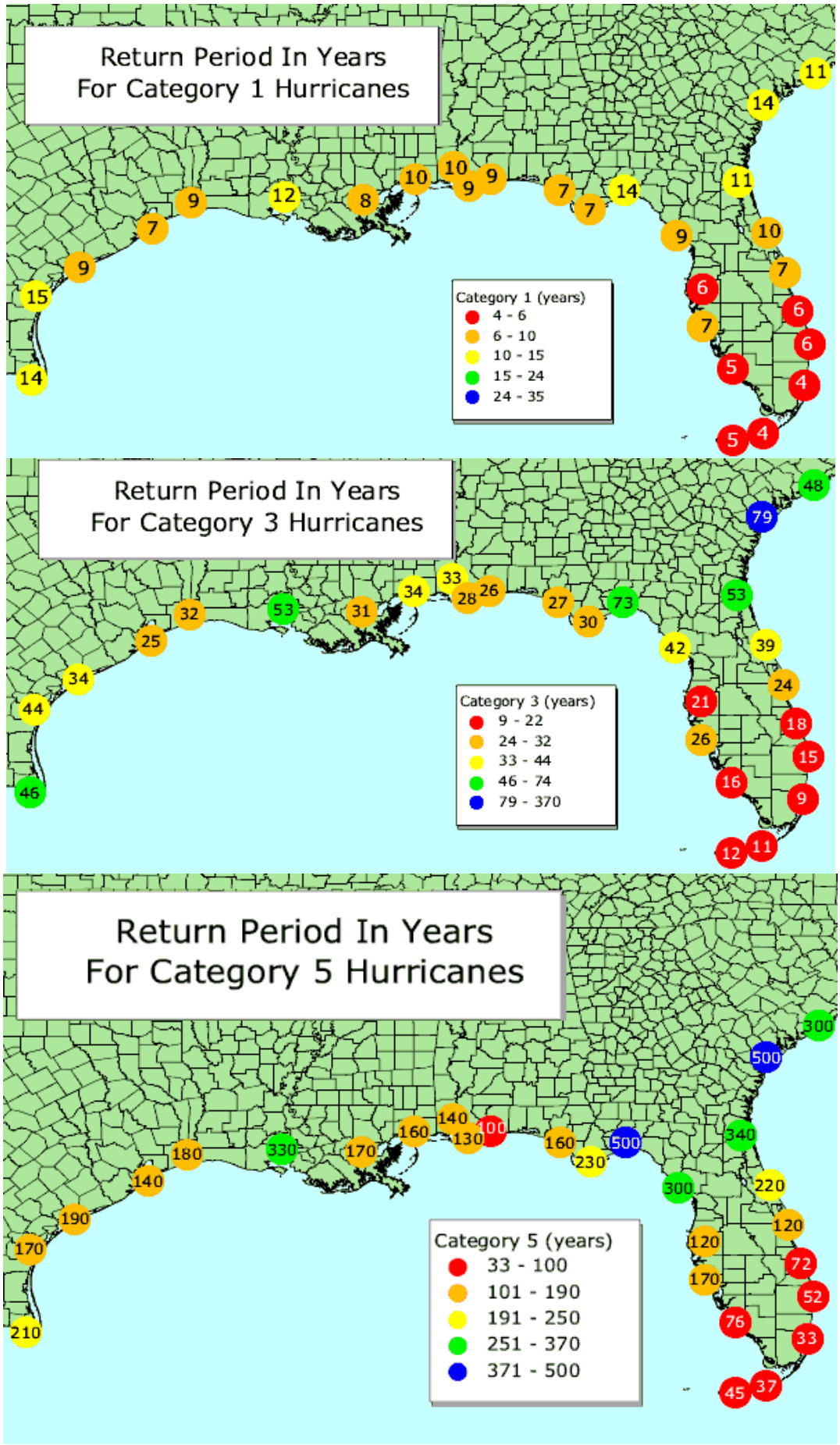


Figure 3. Return interval of category hurricane strikes. Courtesy of National Hurricane Center.