

...SOUTH FLORIDA 2008 ANNUAL WEATHER REVIEW...

...SLIGHTLY WARMER AND WETTER THAN NORMAL ACROSS MOST OF SOUTH FLORIDA...

The weather highlights of 2008 were the ending of drought conditions brought on by summer rains, as well as a continuation of warmer than normal temperatures.

PRECIPITATION:

A combination of a wetter than expected February, March and early April and a wetter than normal summer led to the ending of the drought which had plagued south Florida since 2006. Punctuating this increased rainfall was the passage of Tropical Storm Fay on August 18 and 19. Fay was a very wet tropical storm which brought a general average of 7 to 10 inches of rain to the area north of a Collier and Palm Beach county line including Lake Okeechobee and surrounding areas. Isolated amounts near the southwest shore of Lake Okeechobee were in the 12 to 15 inch range, with Moore Haven recording a two-day total of 16.17 inches. Southern portions of south Florida, including Broward and Miami-Dade counties, received anywhere from 3 to 5 inches of rain.

Fay's heaviest rainfall was observed over central Florida, which combined with the rain over and near Lake Okeechobee, led to a rapid rise of the Lake Okeechobee level. The lake, which was around 11 feet in early august, rose about 4 feet in less than a month to just over 15 feet by the beginning of September.

Yearly rainfall totals ranged from well above normal around Lake Okeechobee, to within 2 to 5 inches of normal over most of the remainder of south Florida. An exception to the near or above normal 2008 rainfall was Fort Lauderdale International Airport which ended up almost 13 inches below normal for the year. Western sections of south Florida showed a dramatic increase in 2008 rainfall compared to the dry 2007. Moore Haven's 2008 total of 66.15 inches was a whopping 37 inches above their 2007 yearly total. At Naples Regional Airport, the 2008 total of 48.27 inches exceeded the 2007 total by over 13 inches.

Here are some 2008 totals from around the area (in inches):

SITE	2008 PRECIP	DEPARTURE FROM NORMAL
MIAMI INTERNATIONAL	60.27	+ 1.79
PALM BEACH INTERNATIONAL	59.21	- 2.18
FORT LAUDERDALE INTL	51.28	- 12.91
NAPLES REGIONAL	48.27	- 3.63
MOORE HAVEN	66.15	+ 18.03
HOLLYWOOD	58.78	- 2.67
HOMESTEAD	57.61	- 1.22
MIAMI BEACH	56.22	+ 9.62
IMMOKALEE	47.78	- 1.55

TEMPERATURES:

2008 ended up slightly above normal temperature-wise across most of south Florida, although not as warm as in 2007 when all-time yearly average temperature records were set at Fort Lauderdale and Naples. Warmer than normal temperatures dominated from January through June, with cooler than normal temperatures prevailing from October through the first two weeks of December. This is the third straight year of above normal temperatures at Miami and West Palm Beach and the 12<sup>th</sup> straight year at Naples. At Fort Lauderdale, the 2008 average temperature of 78.13 ranks as the second warmest of all time (see note below), just behind the 2007 average of 78.23. At Miami International Airport, the 2008 average temperature of 77.72 is the fifth warmest of all time. It is interesting to note that the five highest yearly average temperatures at Miami International Airport have occurred since 1990.

The highest recorded temperatures for 2008 at the four main observing stations were: 97 in West Palm Beach on May 20<sup>th</sup>, 96 in Miami on May 11<sup>th</sup>, 96 in Naples on June 6<sup>th</sup> and 96 in Fort Lauderdale on May 18<sup>th</sup>, May 20<sup>th</sup> and May 21<sup>st</sup>.

Here is a listing of average yearly temperatures for 2008:

SITE	2008 AVG TEMP	DEPARTURE FROM NORMAL
FT LAUDERDALE HOLLYWOOD INTL	78.13	+ 2.2
MIAMI INTERNATIONAL	77.72	+ 1.0
PALM BEACH INTERNATIONAL	75.55	+ 0.3
NAPLES REGIONAL	75.03	+ 0.9

NOTE - The official Fort Lauderdale climate site was moved in 2002 from the Dixie Water Plant to the Fort Lauderdale/Hollywood International Airport. The new site has shown to be much warmer than the old site. This is probably because the airport is closer to the Atlantic Ocean and the fact that there is more concrete and asphalt at the airport site compared to the Dixie Water Plant site.

One significant freeze affected south Florida in the early days of 2008. The morning of January 3<sup>rd</sup> brought the coldest temperatures of the year to the area, and in some places the coldest temperatures observed in the past five years. Temperatures dropped below freezing over much of interior south Florida away from the metro areas, with a low of 28 degrees in Palmdale. Over the metro areas, temperatures were mainly in the mid to upper 30s. Despite the freezing temperatures, crop damage was relatively limited compared to the freezes of 2006 and 2007. Lowest observed temperatures at the four main observing stations were: 34 in Naples, 35 in West Palm Beach, and 39 degrees at both Miami and Fort Lauderdale International airports. All the coldest temperatures were recorded on J+anuary 3<sup>rd</sup>.

TROPICAL CYCLONES:

The hurricane season of 2008 can be called as the "season of near-misses" for south Florida. For the third year in a row, south Florida was spared the direct effects of a hurricane. Nevertheless, the region was significantly impacted by Tropical Storm Fay which passed over the

South Florida peninsula on August 19. The main impact from Fay was very heavy rains which caused extensive flooding over portions of Collier, Hendry and Glades counties (for more information on rainfall totals from Fay, please see precipitation section above). Fay also spawned an EF2 tornado in Wellington (Palm Beach County) which caused over \$1 million in damage. In all, Fay resulted in over \$2 million dollars in property damage in south Florida alone. Tropical Storm Fay marked the beginning of an active period of tropical storms and hurricanes that threatened south Florida. Category Four Hurricane Gustav passed over western Cuba on August 30<sup>th</sup> and over the southeast Gulf of Mexico on August 31<sup>st</sup>. The outermost rain bands of Gustav affected mainly the far southern portion of the peninsula, with strong southeast winds causing rip currents which claimed three lives on Broward County beaches. Gustav was quickly followed by Tropical Storm Hanna which passed near the northern Bahamas on September 1<sup>st</sup> and 2<sup>nd</sup>. The outer bands of Hanna produced heavy rains, minor flooding and beach erosion in Palm Beach County. One week later, Major Hurricane Ike tracked south of the Florida peninsula but the large size of the storm brought outer rain bands and tropical storm force winds to the southern tip of the peninsula and the southwest Florida Gulf coastal waters.

#### WEATHER-RELATED DEATHS:

RIP CURRENTS: Once again, rip currents killed more people in south Florida than any other weather-related hazard. A total of 9 people drowned on south Florida beaches from rip currents, all of them in Broward County. This represents the most rip current drownings in south Florida since 1997, and the most in Broward County since reliable records began in 1979. Three of these drownings occurred on Labor Day weekend when the outer circulation of Hurricane Gustav produced strong southeast winds which were the ideal setup for very strong and dangerous rip currents.

Only one other weather-related death occurred in 2008: an indirect death from a vehicle accident during Tropical Storm Fay in Palm Beach County.

LIGHTNING: a total of 11 injuries from lightning strikes were reported across south Florida in 2008, but no deaths were reported. This is the first year since 2004 in which no deaths from lightning were reported in south Florida. In addition to the nearly dozen injuries, lightning caused an estimated \$70,000 in damage to structures and vehicles.

In all, 10 people died from weather-related hazards in 2008, down from 15 in 2007.

#### SEVERE WEATHER/TORNADOES:

A total of seven tornadoes were reported across south Florida in 2008. Four of these tornadoes caused significant damage. On February 12<sup>th</sup>, a severe weather and tornado outbreak produced two damaging tornadoes; one in Everglades City rated as an EF0 causing over \$400,000 in damage and another in southwest Fort Lauderdale, also an EF0, causing \$350,000 in damage. On August 14<sup>th</sup>, an EF1 tornado touched down in Hialeah causing an estimated \$150,000 in damage. Finally, a strong EF2 tornado with highest winds estimated at 115 mph ripped across portions of

Wellington from an outer band of Tropical Storm Fay, causing \$1.25 million in damage.

Severe non-tropical weather events of note occurred on February 12 (tornado outbreak), April 6, May 23-24 and June 18-25 (hail and wind).

Severe thunderstorms, tornadoes and flooding caused a combined estimated total of \$3 million dollars in damage.

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