

Rainy Season 2004 Story

Fourth Summer in Row with Above Normal Rainfall

A Review of Summer 2004 in West Central and Southwest Florida



One of many flood scenes on Florida's Suncoast during September 2004.
This photograph was taken on the State Road 54 bridge over the Anclote River (Pasco County)
just north of Elfers, a day after Frances exited the area.

Overview

Few Suncoasters will soon forget the summer of 2004, which began in typical fashion with a spate of strong to severe thunderstorms, was followed by a relatively dry and hot period toward the middle, and finished with a six week blitz of tropical cyclones.

Through mid July, areal rainfall was actually running below normal, though given the nature of Florida thunderstorms, some areas were quite wet while others were becoming parched. Conditions began to change thereafter, as general rainfall increased between mid July and early August, especially in the Tampa Bay metropolitan area.

Then came the hammer. From August 12th through September 27th, the Suncoast was affected directly or indirectly by five tropical cyclones, which produced some type of weather hazard for all residents. Each system

had its own "calling card".

Tropical Storm Bonnie, making landfall outside of the Suncoast, nonetheless caused overwash and minor coastal flooding along the Nature Coast. Hurricane Charley was the worst windstorm to rip Florida since Andrew. Hurricanes Frances and Jeanne were sister acts, fairly large systems tracking east to west across the peninsula from the Treasure Coast to the Nature Coast.

Frances will be remembered for two days of torrential rains and wind; Jeanne's faster movement held its similar effects to one day. Ivan, the other storm which did not pass over the Suncoast, pounded area beaches with high surf, causing substantial erosion. When it was all over, the region had not only experienced widespread and varying degrees of wind damage, but a large surplus of rainfall. Areal averaged rainfall was the highest of the past four years (each of which were somewhat above normal). Unlike prior years, when persistent favorable weather patterns dominated the rain production, 2004 was influenced by early season sea breeze convection, then a mid season pattern favoring the coast.

Prior to September, most locations were running at or just above normal. September sealed the much above normal values. Proof of the copious rains is shown in Table 1 (below). All but four river gaging points recorded top 10 crests; the others were in the top 20. Perhaps as a reward for the active season, October brought fair, uneventful weather. But the memories of the summer of 2004 will live on. Brief summaries of each month follow.

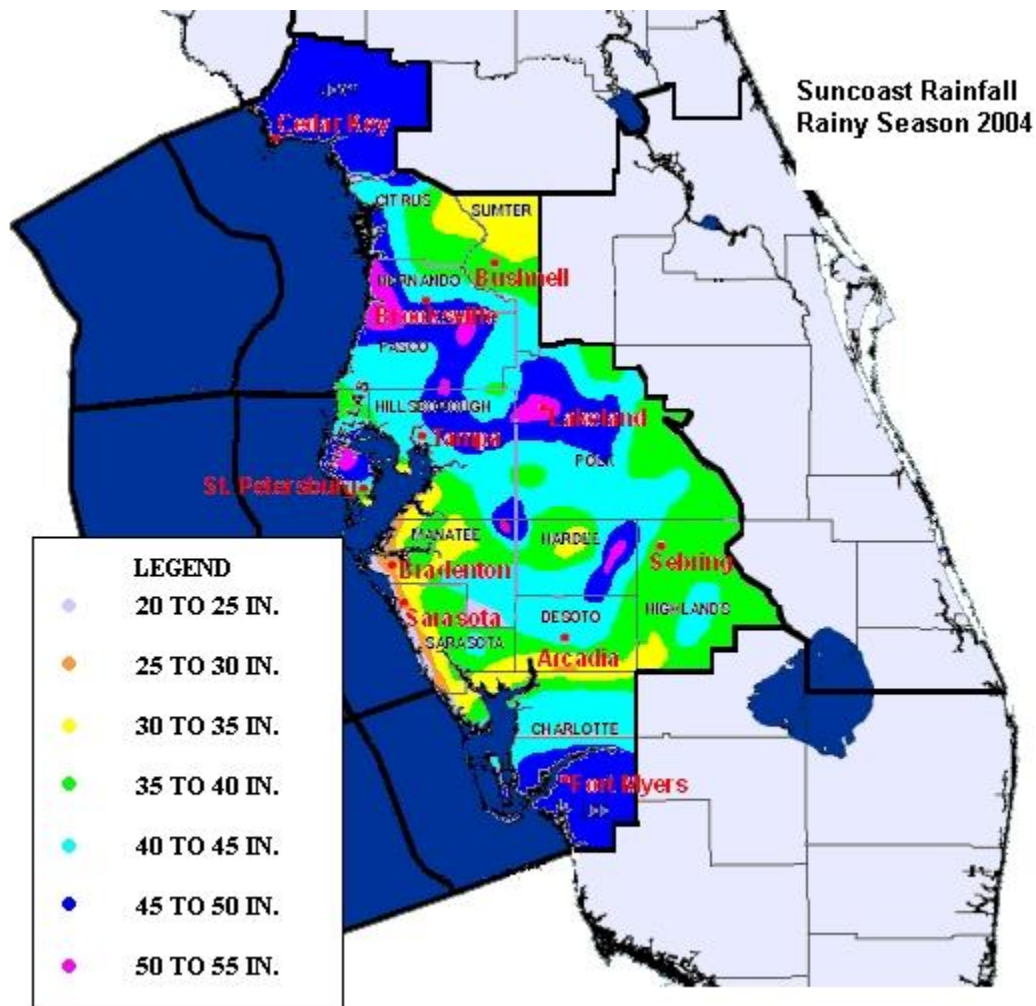


Figure 1. Total rainfall, June 1 through September 30. Data courtesy of Southwest Florida Water Management District and the National Weather Service.

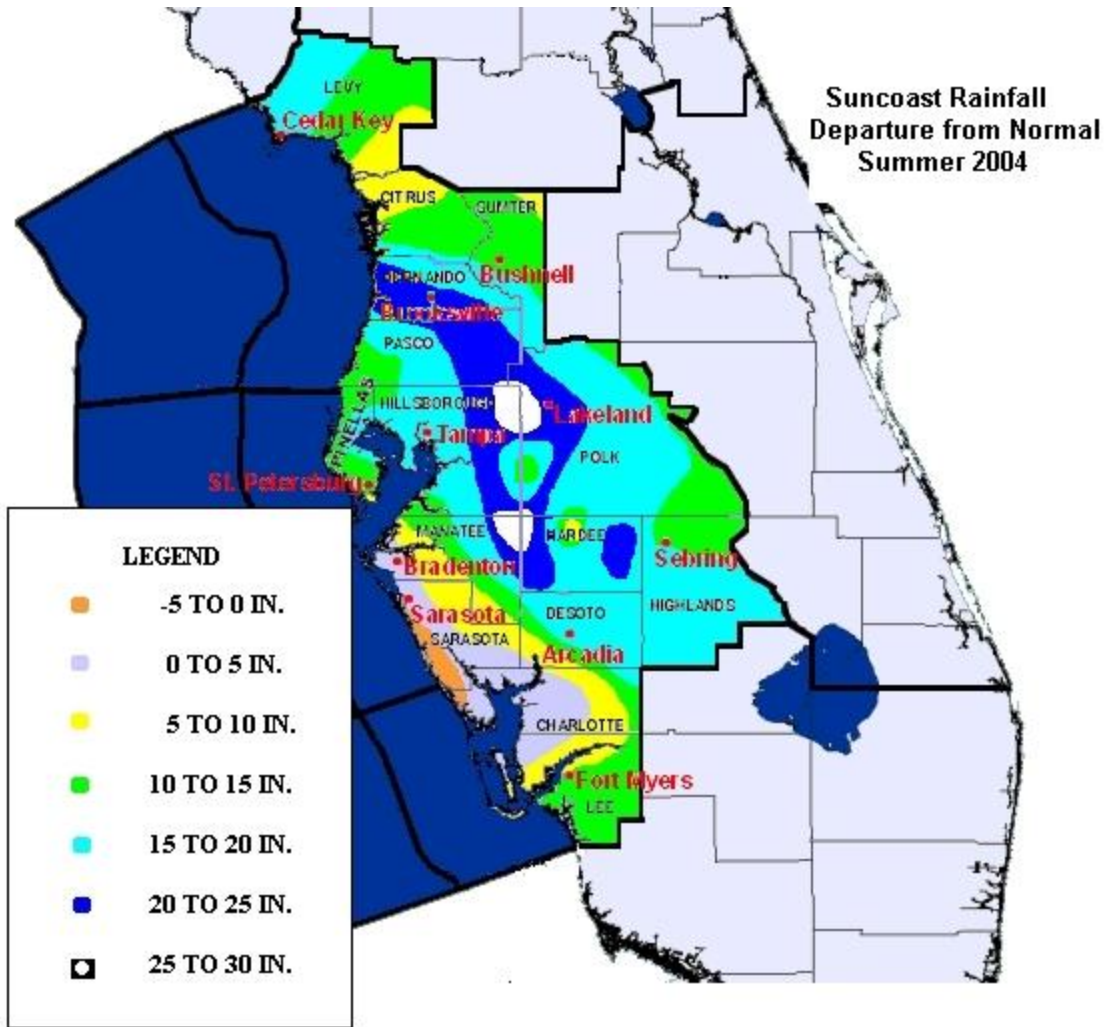


Figure 2. Total rainfall departure from 30 year climatic normals (1971-2000) for June through September, in 2004.

Table 1. Abbreviated Flood Stage Report, NWS Tampa Bay, Summer, 2004. Stages at Croom and Holder (Withlacoochee River) reached slightly higher values, than those listed here, in early October.

| River and Station | Flood Stage | Peak Crest | | Rank (yrs of rec) |
|------------------------------------|-------------|------------|--------------|-------------------|
| | | Stage (Ft) | Date | |
| Peace R. at Bartow | 8 | 11.13 | September 12 | 1 (73) |
| Hillsborough R. at Morris Brg | 32 | 34.38 | September 8 | 1 (32) |
| Cypress Crk at Worthington Gardens | 8 | 13.78 | September 11 | 1 (40) |
| Hillsborough R. at Zephyrhills | 10 | 13.93 | September 7 | 4 (64) |
| Withlacoochee R. at Dunnellon | 29 | 30.41 | September 27 | 4 (41) |
| Withlacoochee R. at Holder | 8 | 10.86 | September 30 | 5 (74) |
| Alafia R. at Lithia | 13 | 22.33 | September 7 | 5 (71) |
| Peace R. at Zolfo Springs | 16 | 22.42 | September 8 | 5 (70) |
| Withlacoochee R. at Croom | 8 | 11.64 | September 30 | 6 (65) |
| Withlacoochee R. at Trilby | 12 | 16.55 | September 29 | 6 (75) |

| | | | | |
|--------------------------------|----|-------|--------------|---------|
| Anclote R. at Elfers | 20 | 24.44 | September 7 | 7 (58) |
| Manatee R. at Myakka Head | 11 | 15.94 | September 6 | 9 (38) |
| Peace R. at Arcadia | 11 | 17.21 | September 11 | 11 (73) |
| Little Manatee R. at Wimauma | 11 | 17.09 | September 7 | 12 (65) |
| Myakka R. at Myakka State Park | 7 | 9.95 | September 11 | 12 (70) |
| Horse Cr. near Arcadia | 12 | 15.42 | September 10 | 17 (54) |
| Manatee R. at Rye Bridge | 11 | 11.06 | September 7 | N/A |

Monthly Reviews

June

Big Storms Soak Most, but Some Left Dry

June featured a number of strong to severe thunderstorm days, but only one true episode (8th) where 10 or more separate events were recorded. There were four tornadoes, including one F-1 (75 mph winds) on the 4th in Hardee County. The enhanced activity on the 4th may have been due to the proximity of a dying frontal zone over north Florida; the episode on the 8th was the first where deep southeasterly flow collided with the Gulf Coast sea breeze. More local downpours occurred from the 9th through the 14th, followed by a 10 day period of fairly dry weather before activity kicked in again for the last week of the month.

Though area average rainfall was above normal, there were dry pockets, particularly along the shoreline of Tampa Bay where the bay breeze interfered with the Gulf breeze/land interaction, and at the beaches, which typically receive less rain early in the summer. Heaviest rains were in the northern suburbs of Tampa. Monthly rainfall is shown in Figure 3.

July

Flip the Coin: Dry, then Wet

A record-tying 11 days with no measurable rain at Tampa International Airport started the month. High pressure through the depth of the atmosphere maintained subsidence, and light surface flow resulted in only isolated to scattered afternoon and evening thunderstorms along bay breeze, sea breeze, and boundary collisions. The peak of the dry, hot weather was reached on the second weekend (10th/11th), when beach surf temperatures were just above 90, reducing the cooling effect of the sea breeze. High temperatures each afternoon were in the mid 90s - including at the coast. Soon after, the pattern changed - and temperatures, both on land and in the Gulf, would never be as hot for the rest of the season.

About a week later, an elongated trough extended from the western Ohio Valley to the northern Gulf Coast, and the resulting deep southwesterly flow produced a three day period (17th through 20th) of substantial rains along the Suncoast from Manatee County northward. Conditions briefly dried out through the 24th, followed by a return to more typical conditions to end the month, as weak upper level disturbance east and west of the state gradually increased moisture. Monthly rainfall is shown in Figure 4.

August

More than Charley

How about a tornado episode, a cold front, and a torrential deluge in South Tampa? These were just a few of the other events which marked a wild - and wet - month. Whereas July began with 11 straight days with no rain, the first seven in August were the wettest on record in Tampa. An unusually deep early month trough developed across the northeastern U.S., and the associated cold front swept all the way to the central Florida peninsula before stalling. This front, which brought comfortable temperatures and humidity all the way to Jacksonville and Tallahassee, triggered intense rainfall for two days in the Tampa Bay and Lakeland metropolitan areas, with widespread urban flooding in low lying and poor drainage locations. More than 10 inches had already fallen at Tampa by the 10th, and things were brewing in the tropics.

On the 12th, tropical storm Bonnie raced into the central Florida panhandle, and outer lines of showers and thunderstorms struck the Nature Coast with torrential downpours and wind gusts in excess of 40 mph. Hurricane Charley ripped across the peninsula from the Lee County islands through Charlotte, Desoto, Hardee, and Polk Counties on the 13th, but rainfall was confined to a 50 mile wide area, with generally 2 to 4 inches. Charley spawned at least half a dozen tornadoes, mostly over interior west central Florida in feeder bands ahead of the eyewall. Leftover vorticity, or "spin", from Charley's circulation on the 14th enhanced thunderstorm activity - in fact, areal rainfall was much higher along the Suncoast from Bradenton north. The "spin" produced another swath of tornadic storms, including at least three observed tornadoes.

A brief period of quiet weather followed for the next several days, but mainly inland afternoon and early evening storms became more common between the 19th and 24th. However, Tampa residents may remember the early evening of the 25th, when colliding boundaries set off a nearly stationary cell which dropped more than 3 inches in 2 hours over much of the city. The storm knocked out power to thousands of city residents, and destroyed one lane of Bayshore Boulevard for a half mile stretch. Monthly rainfall is shown in Figure 5.

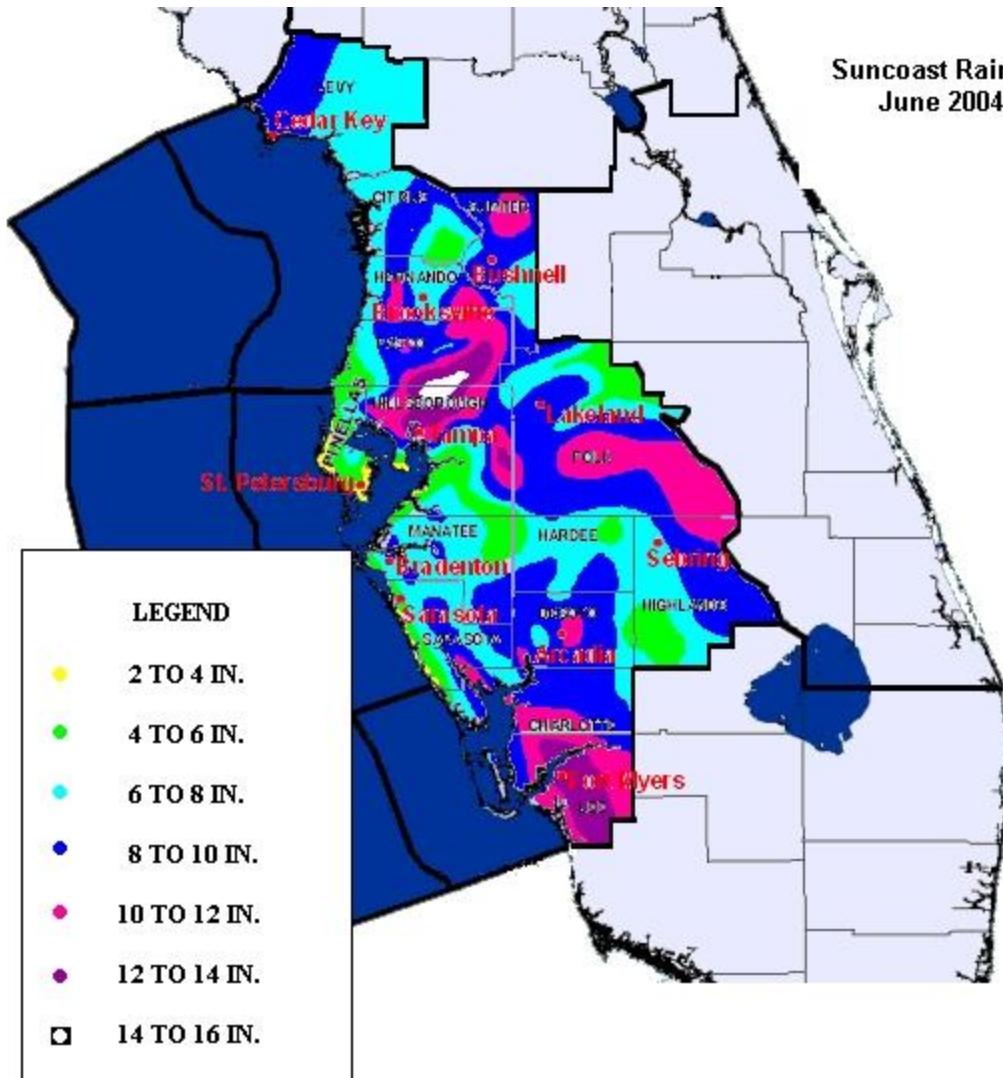
September

Hurricane Hangover

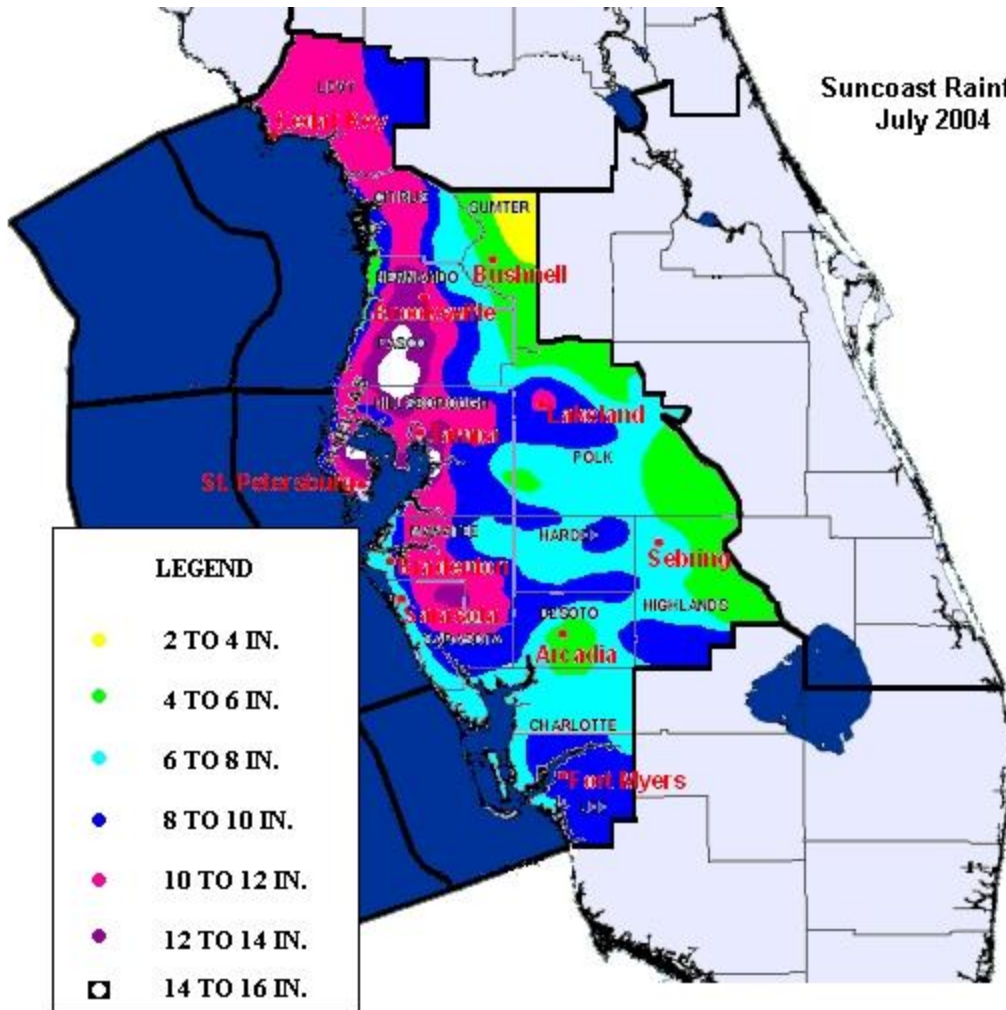
Hurricane preparations, statewide, were finally put to the test. Years of wondering if Florida was "overdue" were put to rest - big time - as the first 27 days of the month were spent watching, waiting, bracing for, then dealing with, three storms. Frances (September 4-7), Ivan (September 16), and Jeanne (September 25-26) each affected the Suncoast. For most, the primary damage was confined to roof shingles and large tree limbs, though increased property damage occurred to poorly constructed homes and older mobile homes, as well as elevated residences such as high rises along the coast. Major river flooding, especially after slow-moving Frances, caused the bulk of significant property damage. Despite the Suncoast's relatively good fortune, the entire area suffered hurricane fatigue by the end of the season. Frances' duration and timing (Labor Day weekend), as well as additional rainfall on the 8th and 9th, hampered cleanup and power restoration efforts.

Just when folks were getting back to normal at the end of Labor Day week, Ivan "The Terrible" entered the picture. Forecasts from Friday, September 10th were worse than any, including Charley - with a potential Category 4 monster paralleling the Suncoast just offshore by the following Monday. Tempers frayed from long lines at the tank, emptied plywood shelves, and just plain fear. Thankfully, Ivan stayed well west of the Suncoast, but the western panhandle from, Pensacola to Panama City, were not so lucky. Less than a week later, Jeanne began its steady - some said inevitable - march toward Florida's east coast. By then, most Floridians cried "Uncle!" and, in general, prepared less than they had for each of the previous storms. October couldn't come fast enough. The calm weather which prevailed through October helped speed recovery, and helped restore the fun loving, relaxed spirit that defines Florida. Monthly rainfall is shown in Figure 6.

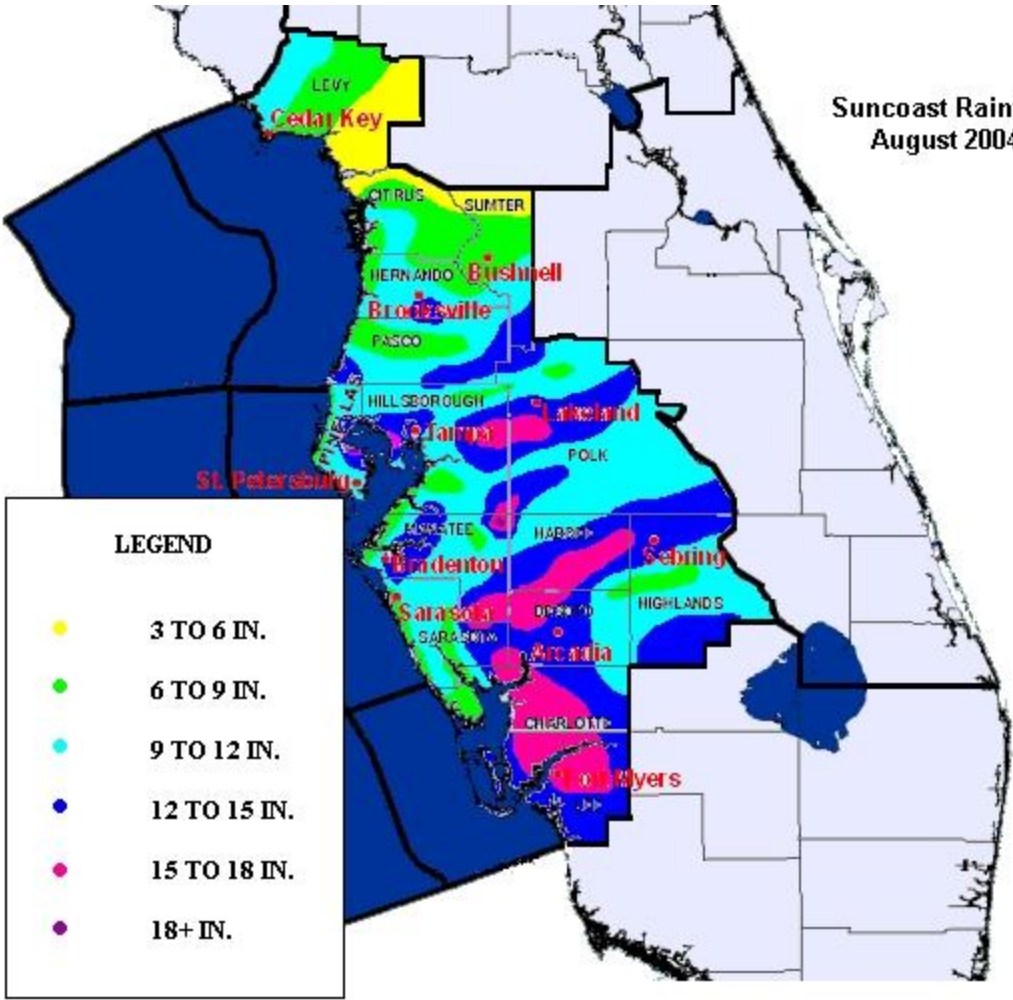
Suncoast Rainfall
June 2004

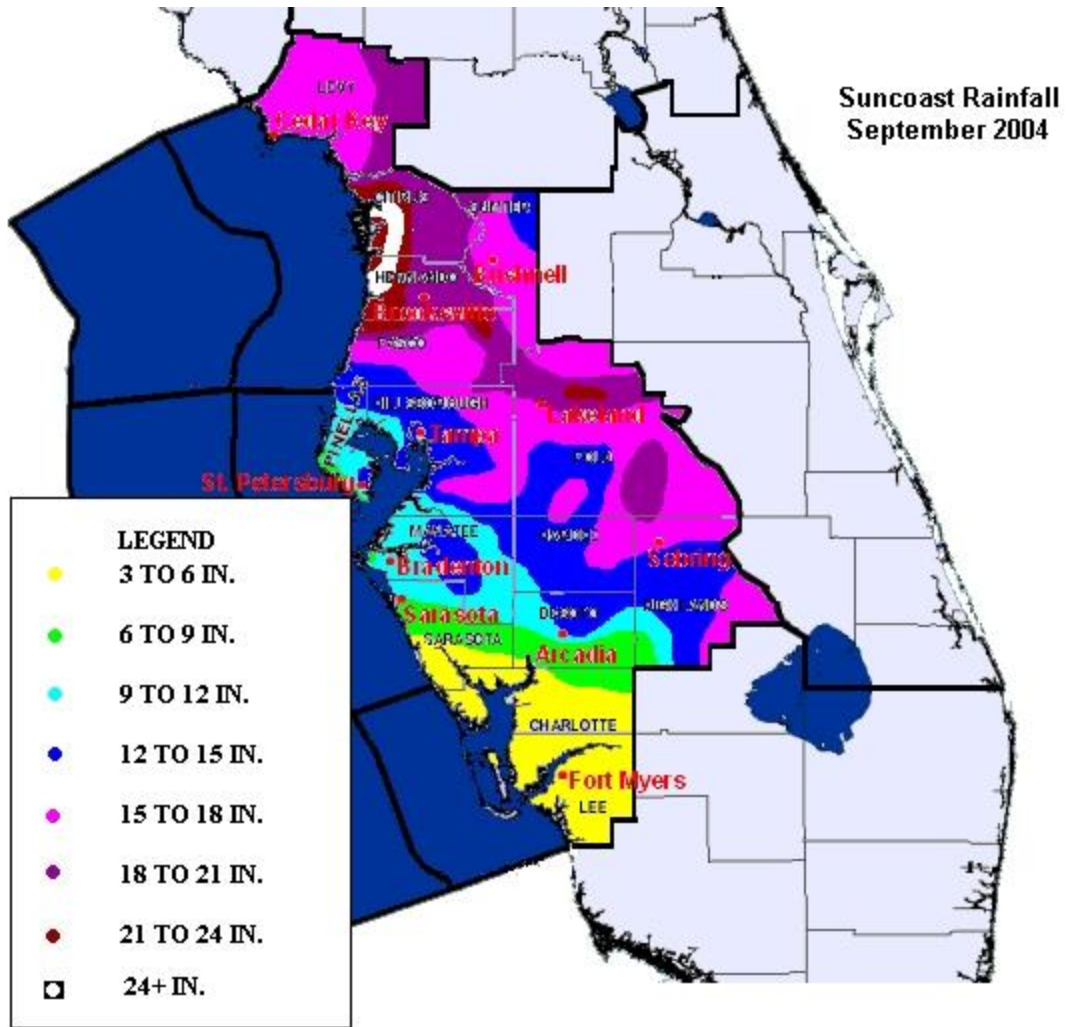


Suncoast Rainfall
July 2004



Suncoast Rainfall
August 2004





Figures 3 through 6: West Central and Southwest Florida summer 2004 rainfall for June (far left), July (middle left), August (middle right), and September (far right). Click on each for a larger image. Data courtesy of Southwest Florida Water Management DiTransitional and the National Weather Service. Thanks to Tom Blackburn (NWS ret.) for compiling the data.