

The New Smyrna Beach Tornado - 11/2/97

Here is an excerpt from the preliminary summary conducted by National Weather Service representatives on November 2nd, 1997 following the storm:

NWS PERSONNEL CONDUCTED A GROUND AND AIR SURVEY OF THE DAMAGE WHICH OCCURRED IN NEW SMYRNA BEACH AT APPROXIMATELY 1245 AM NOVEMBER 2. THE FOLLOWING IS A PRELIMINARY ASSESSMENT BASED ON THE SURVEY.

AN F0-F1 TORNADO TOUCHED DOWN ABOUT 4000 FEET WEST OF HIGHWAY 1 BETWEEN ENTERPRISE AND WAYNE AVENUES...THEN TRAVELLED E-NE DAMAGING SEVERAL HOMES AND DOWNING TREES AND POWERLINES...THEN LIFTED JUST WEST OF HIGHWAY 1 AFTER PASSING THE CHISHOLM ELEMENTARY SCHOOL. TREE TOP DAMAGE WAS OBSERVED FROM HIGHWAY 1...ACROSS RIVERSIDE DRIVE...THEN THE TORNADO STRUCK NEW SMYRNA BEACH HIGH SCHOOL PRODUCING F0-F1 DAMAGE. THE TORNADO THEN BEGAN PRODUCING CONTINUOUS F1-F2 DAMAGE...WITH ISOLATED LOCATIONS OF F3 DAMAGE FROM THE VENETIAN VILLAS SUBDIVISION WHERE SEVERAL HOMES WERE ALMOST TOTALLY DESTROYED AND THE DIAMOND HEAD CONDOS . THE TORNADO CROSSED THE INTRACOASTAL WATERWAY TO THE BARRIER ISLAND BETWEEN ROBINSON ROAD AND DUE EAST STREET WHERE SEVERAL HOUSES WERE AGAIN ALMOST TOTALLY DESTROYED. THE TORNADO THEN MOVED OUT TO SEA.

TOTAL PATH LENGTH: APPROXIMATELY 2 MILES.

FUJITA DAMAGE SCALE ESTIMATE: MOSTLY F2 WITH ISOLATED AREAS OF F3.

MAXIMUM WIND SPEED ESTIMATE: NEAR 160 MPH.

F-SCALE RATING BASED ON ROOF REMOVAL ON SEVERAL HOMES...SOME EXTERIOR/INTERIOR WALL FAILURES...LARGE TREES SNAPPED AND UPROOTED AND POWER POLES SNAPPED. SMALL MISSILES WERE GENERATED THAT PENETRATED STRUCTURES AND TREES. SEVERAL VEHICLES WERE OVERTURNED AND ROLLED.

PRELIMINARY NEWS REPORTS INDICATE:

TWO CONDOMINIUM BUILDINGS AND OVER 200 HOMES DAMAGED.

22 PEOPLE SUSTAINED MINOR INJURIES AND WERE ADMITTED TO HOSPITALS...

30 OTHERS TREATED ON SCENE. DAMAGE ESTIMATED BETWEEN \$10 AND \$14 MILLION.



New Smyrna Beach tornado track map with F-Scale estimates color-coded.
(Numbers on track above correspond to damage photos below)

Damage Photos 1-6, taken by NWS Survey Team:
Numbers correspond to those on the survey map, above.



Location 1. Damage to canal



Location 2. Damaged Condo.



Location 3. Debris field.



Location 4. Damage to a home.



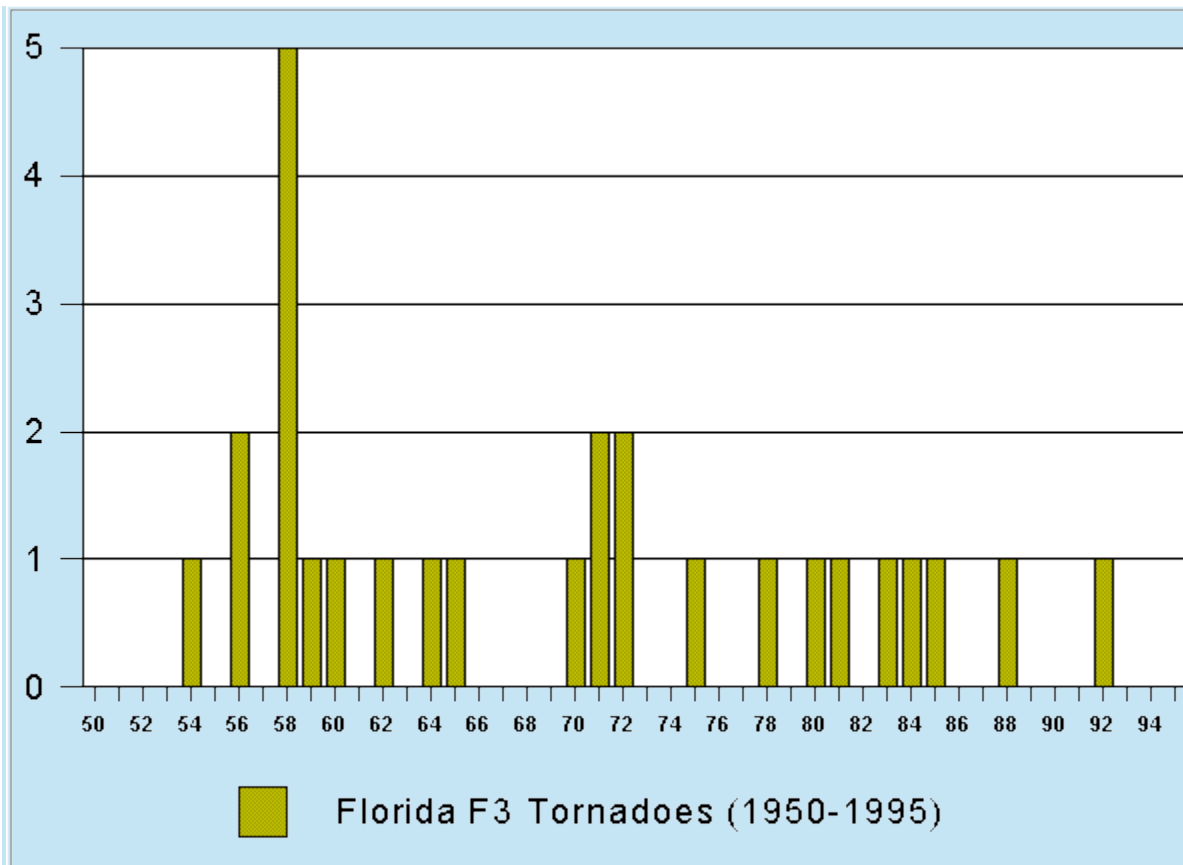
Location 5. More debris.



Location 6. Severe damage to a home.

....Historical Perspective On the New Smyrna Beach Tornado of November 2 1997....

The tornado that touched down in New Smyrna Beach before 1AM on November 2, 1997 traveled from just west of Highway 1, across the Intracoastal Waterway and the barrier island, to the Atlantic Ocean and reached F3 intensity (winds 158-206 mph) at times based on a survey by the NWS in Melbourne. Tornadoes are rated on a scale from F0 to F5 with F0 being the weakest and F5 the strongest. The vast majority of Florida tornadoes are of the weakest variety - F0 (winds less than 73 mph). Tornadoes above F2 (winds 113-157mph) are extremely rare in Florida. Tornadoes of F4 intensity (winds 207-260 mph) have only occurred on two dates in Florida history - April 15th 1958 and April 4th 1966. There has never been an F5 tornado (winds exceeding 260 mph) in Florida history. Tornadoes of F3 intensity like the New Smyrna Beach Tornado occur in Florida only once every few years on average.



The New Smyrna Beach Tornado was the strongest tornado to ever hit Volusia County. Other notable Volusia County tornadoes that occurred on May 3rd 1994 in Ormond Beach (F1) and October 7th 1996 in Edgewater (F2) pale in comparison to the New Smyrna Beach Tornado. The last comparable tornado of F3 strength to hit east central Florida occurred on April 4th 1966 and struck Brevard County - injuring over 100 people and destroying 150 trailers and 23 frame houses. Because of their extreme rarity and significance - strong tornadoes are surveyed by the NWS to determine an accurate F-Scale rating. The clearest indications of F3 damage in the New Smyrna Beach case include complete roof removal - internal wall failures - and near total destruction of well-built and anchored houses indicating estimated winds of 157 mph or greater.

One of the houses that was nearly destroyed had wind instruments that measured a peak gust of 168 MPH before being destroyed indicating that the F-Scale rating based on damage was indeed accurate.

Tornadoes of F3 intensity in Florida traditionally have been associated with severe injury and death due to the high wind speeds. Considering the damage caused by the New Smyrna Beach Tornado it is amazing there were no fatalities reported either during the tornado due to high winds or in the aftermath due to fallen power lines. Fortuitous aspects of this tornado case include the observations that two schools were hit that weren't in session, and no occupied mobile homes or trailers were in the tornadoes path.

Historically tornadoes that occur in the Florida dry season (October to May) have just as good a chance of occurring in the early morning hours as in the early evening. In fact, the strongest tornadoes typically do occur in the morning hours. This is just the opposite of typical Midwestern tornadoes which occur most often in the late afternoon and evening. Exactly why this happens in Florida is not known, and is a subject of continuing investigation, but it is clear from historical data that the worst tornadoes often occur from early to midmorning. The New Smyrna Beach Tornado occurred after midnight. Historically, it is just as likely a significant central Florida tornado in November will occur at 1AM in the morning as 2PM in the afternoon.

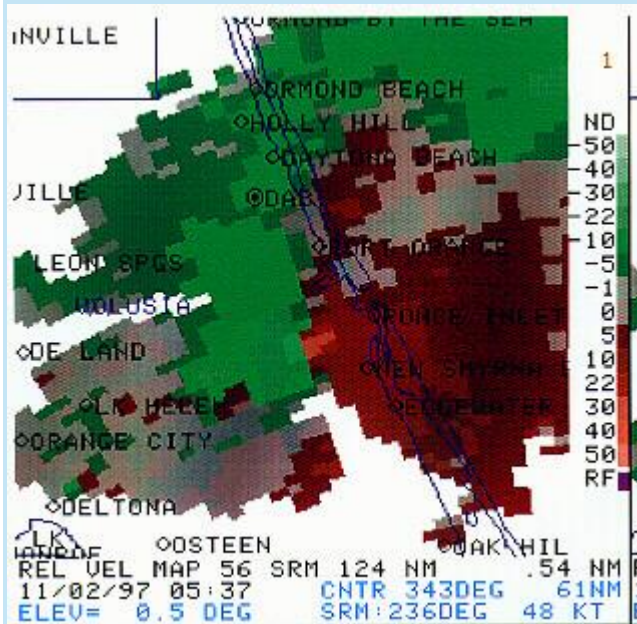
Because strong winter and springtime Florida tornadoes often occur in the early morning hours - warning citizens of their approach can be difficult. The National Weather Service programs NOAA Weather Radio which provides continuous weather information 24-hours a day and can warn citizens of approaching severe weather in the middle of the night by setting off an alarm on specially equipped radios. Recent improvements in the NOAA Weather Radio System called WRSAME, allow for warning residents of just the effected county - rather than alerting a large area.

METEOROLOGICAL OBSERVATIONS

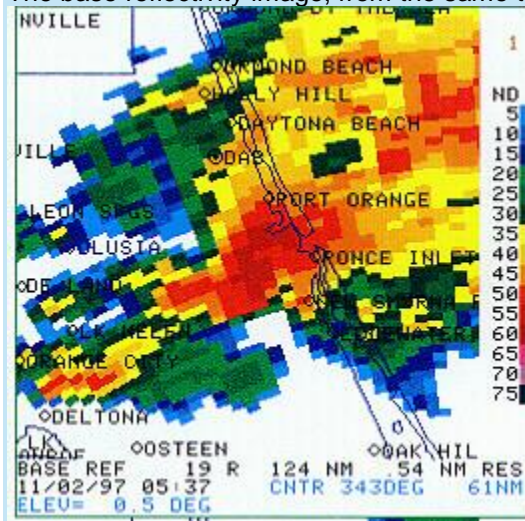
Because of the rarity and severity of this tornado it will be studied in detail by NWS Melbourne personnel. Information relating to the New Smyrna Beach Tornado will be updated from time to time in this section as our research continues.

WSR-88D Doppler Radar

Below is a doppler radar velocity image of the severe thunderstorm that produced the tornado at New Smyrna Beach. The depiction shows the intense low-level circulation (mesocyclone) associated with the storm. This circulation produced the tornado. In the image, red shades indicate outbound radial velocities, and green shades represent inbound radial velocities. The NWS Melbourne radar is located 58 miles southeast of the storm. The scale to the right of the image shows associated wind velocities in knots.



The base reflectivity image, from the same time.



Below is a infrared satellite picture at about the time of the storm.

