

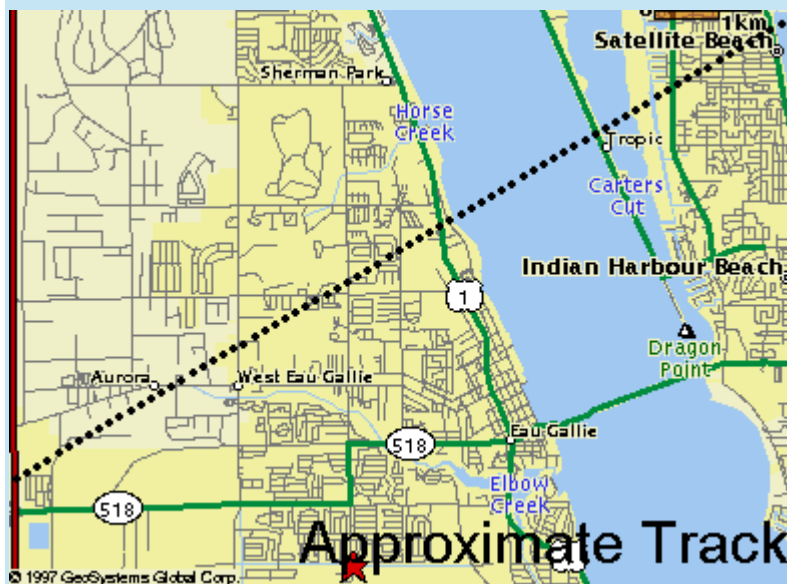
## The Lake Washington (Melbourne) Tornado - 11/13/97

THE F0 TORNADO FIRST TOUCHED DOWN NEAR INTERSTATE 95 JUST NORTH OF EAU GALLIE BLVD IN MELBOURNE AROUND 350 PM WHERE HIGHWAY SIGNS WERE KNOCKED DOWN AND DEBRIS WAS THROWN ONTO THE ROAD. NUMEROUS SHEDS AND FENCES WERE DAMAGED AS THE TORNADO CONTINUED NORTHEAST AT 40 MPH REACHING LAKE WASHINGTON BLVD AND WICKHAM ROAD AROUND 4 PM. THE TORNADO TORE A LARGE METAL AIR CONDITIONING SHELTER FROM THE ROOF OF A GROCERY STORE AND TOSSED THE STRUCTURE INTO THE PARKING LOT. A DAMAGE PATH OF TREE BRANCHES AND OTHER SMALL DEBRIS CONTINUED NORTHEASTWARD TO KENT DR. (WHERE A POWER POLE WAS ALSO DOWNED)...TO TROPICAL TRAIL ON MERRITT ISLAND...AND FINALLY TO THE BARRIER ISLAND AT SATELLITE BEACH. NO INJURIES WERE REPORTED.

TOTAL LENGTH OF DAMAGE: DISCONTINUOUS FOR NEARLY 6 MILES.

FUJITA DAMAGE SCALE ESTIMATE: F0.

MAXIMUM WIND SPEED ESTIMATE: NEAR 70 MPH.

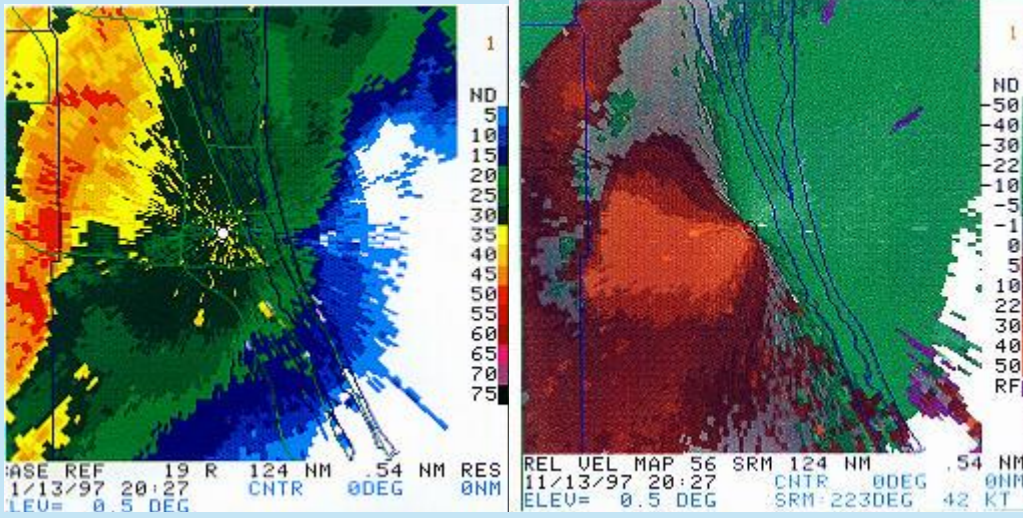


Lake Washington (Melbourne) Tornado damage path map (black dashed line).

**METEOROLOGICAL OBSERVATIONS** This tornado is one of two to occur in very close proximity of the Melbourne WSR-88D. The first tornado (also F0) occurred approximately 1 mile northeast of the radar site on 01 January 1996, while the Lake Washington tornado reached it's closest point of approach at 2-3 miles north of the site. At a range of 3 miles, the tornado's circulation was sampled at an elevation of 300 feet above ground level. **WSR-88D Doppler Radar** Below are a series of reflectivity and storm-relative velocity images beginning nearly 10 minutes prior to the touchdown and ending shortly after the tornadic cell reached the Atlantic Ocean. The scale to the right of each image reveals the associated radar return in dBZ (reflectivity; brighter colors equate to heavier rainfall) and wind speed in knots (storm relative velocity; green colors indicate motion toward the radar site, while red colors indicate motion away from the radar site). Note the "tightening" of the red/green "couplet" as time evolves...this is the signature associated with the tornado.

300 ft Base Reflectivity

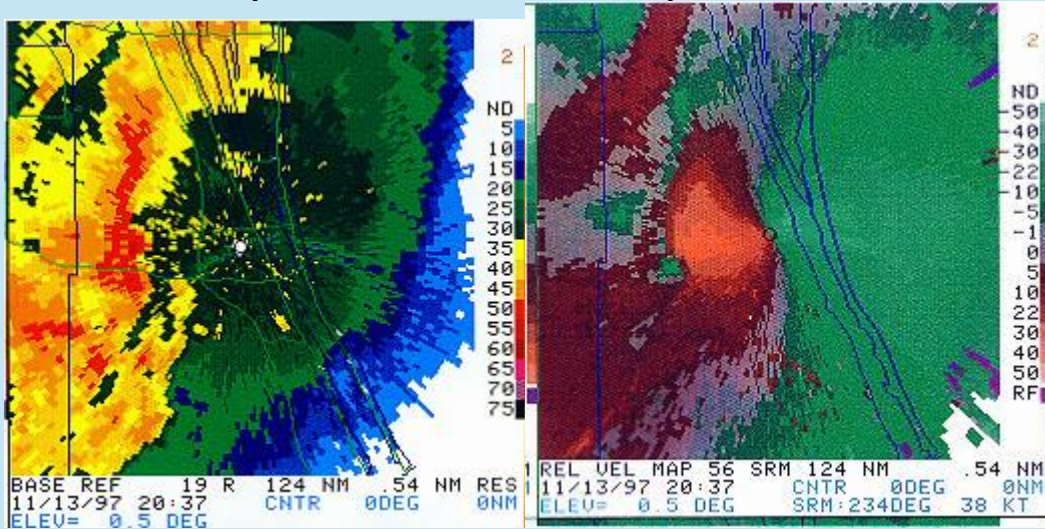
300 ft Storm Relative Velocity



327 PM EST

300 ft Base Reflectivity

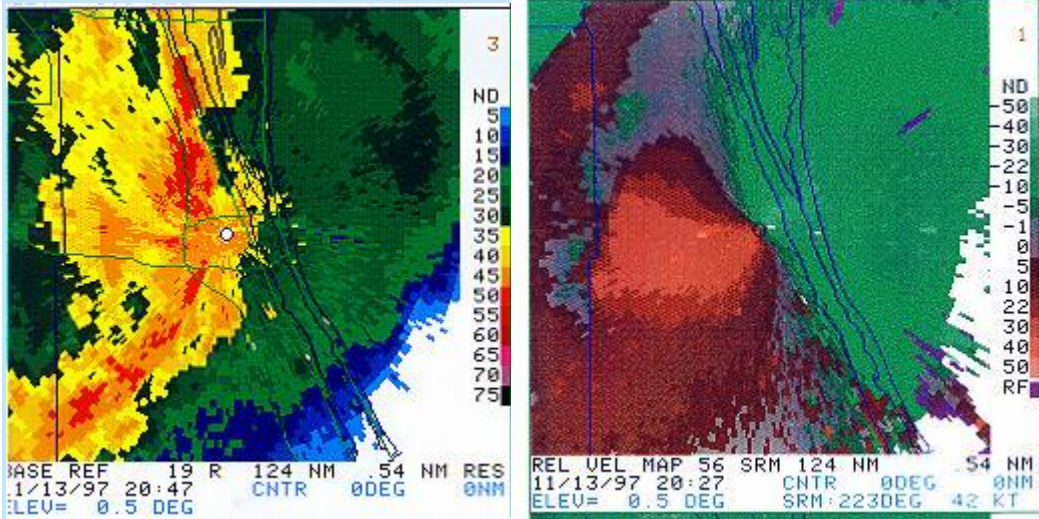
300 ft Storm Relative Velocity



337 PM EST

300 ft Base Reflectivity

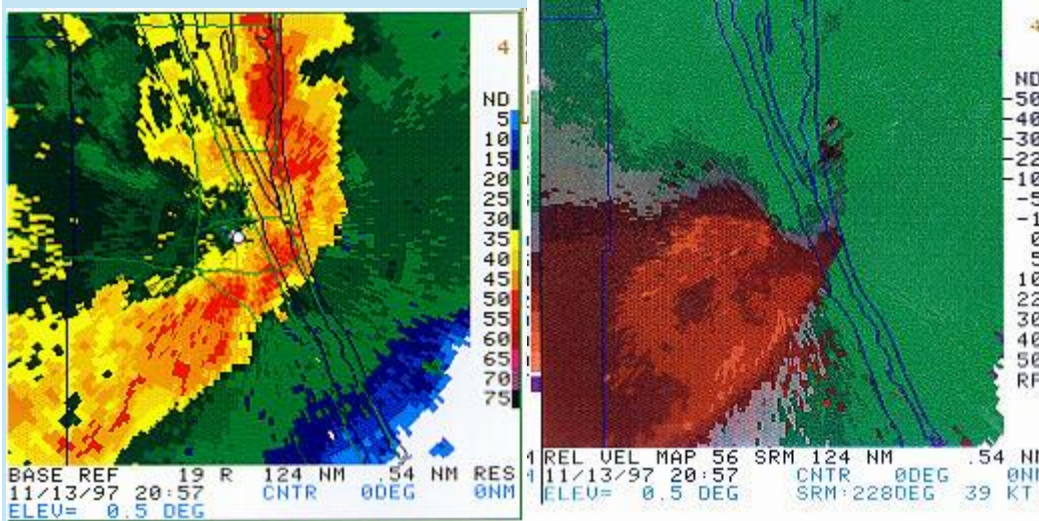
300 ft Storm Relative Velocity



347 PM EST

300 ft Base Reflectivity

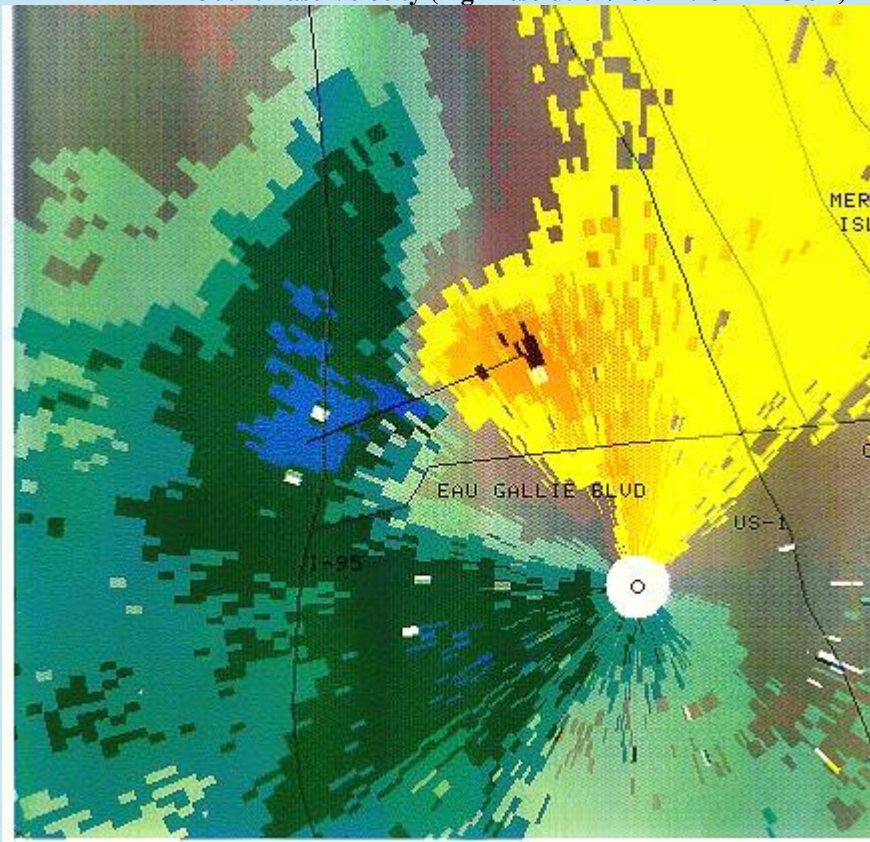
300 ft Storm Relative Velocity



357 PM EST

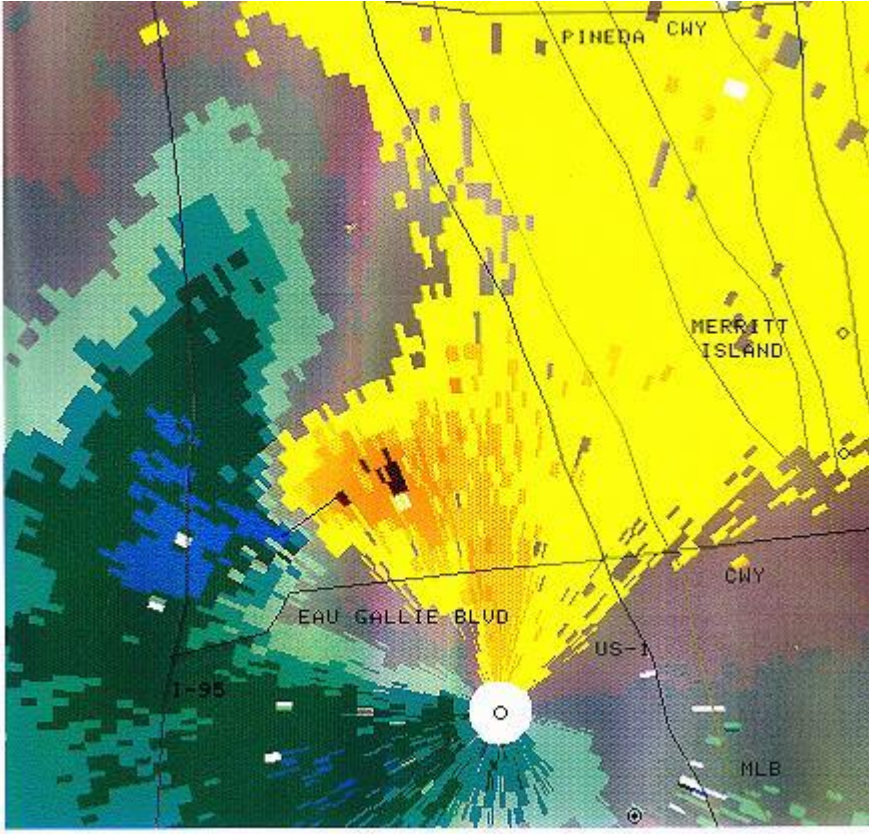
The two identical images below illustrate the different scales of motion associated with the circulation. In the top image, the parent mesocyclone (or large scale thunderstorm circulation) is illustrated by the black line connecting the maximum inbound (brightest green colors) and maximum outbound (brightest red colors) velocities. This rotational circulation was measured at 37 knots, with a diameter of 2 nautical miles, and a shear of .011 per second. In the bottom figure, the black line connects the maximum inbound and outbound velocities associated with the tornado vortex (small scale circulation). This rotational circulation was measured at 43 knots, with a diameter slightly greater than 0.5 nautical miles, and a very high shear of .040 per second, *four times* larger than the parent circulation.

300 ft Base Velocity (high resolution/zoom .13 nm @ 8X)



347 PM EST

300 ft Base Velocity (high resolution/zoom .13 nm @ 8X)



347 PM EST