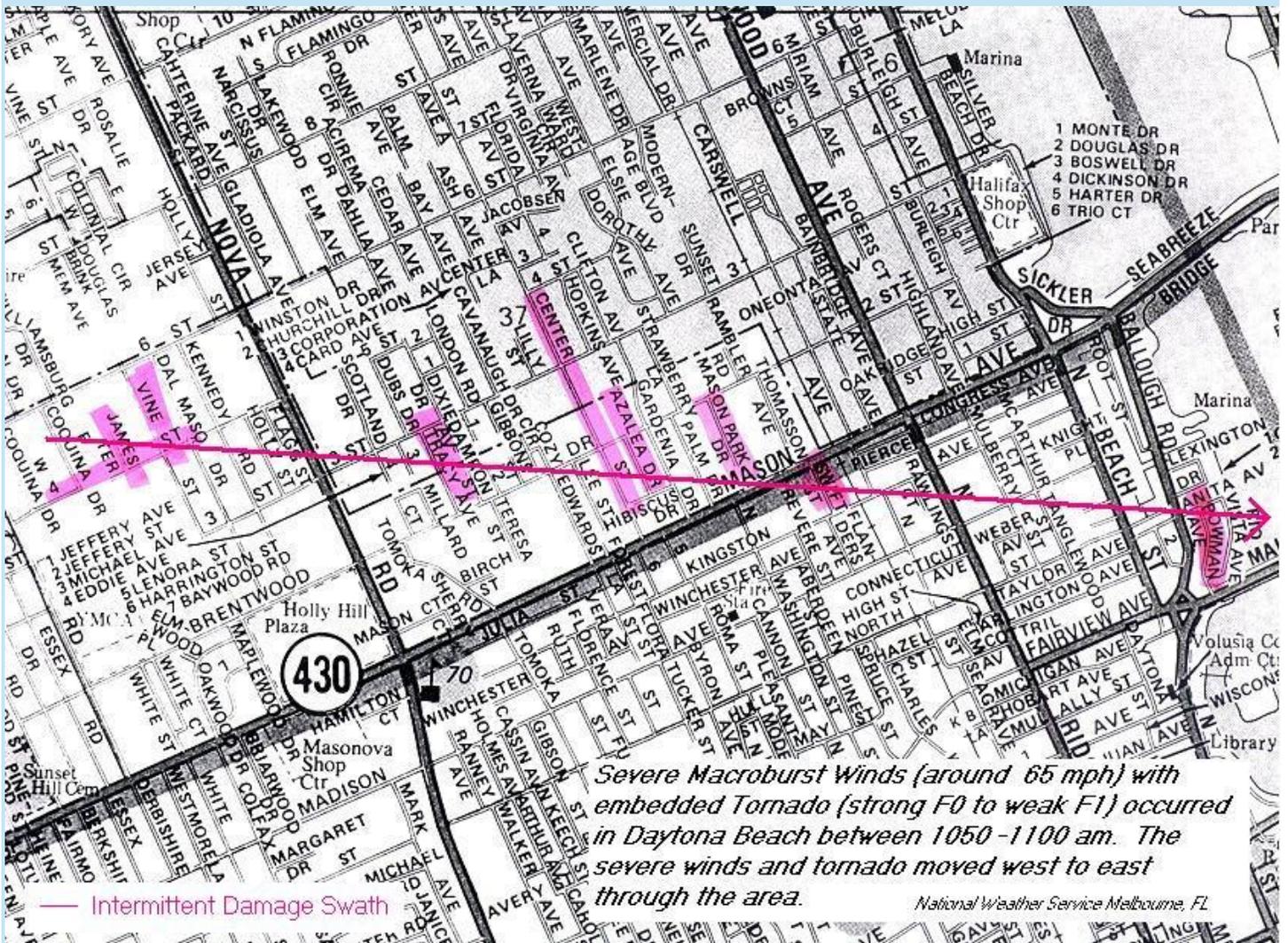


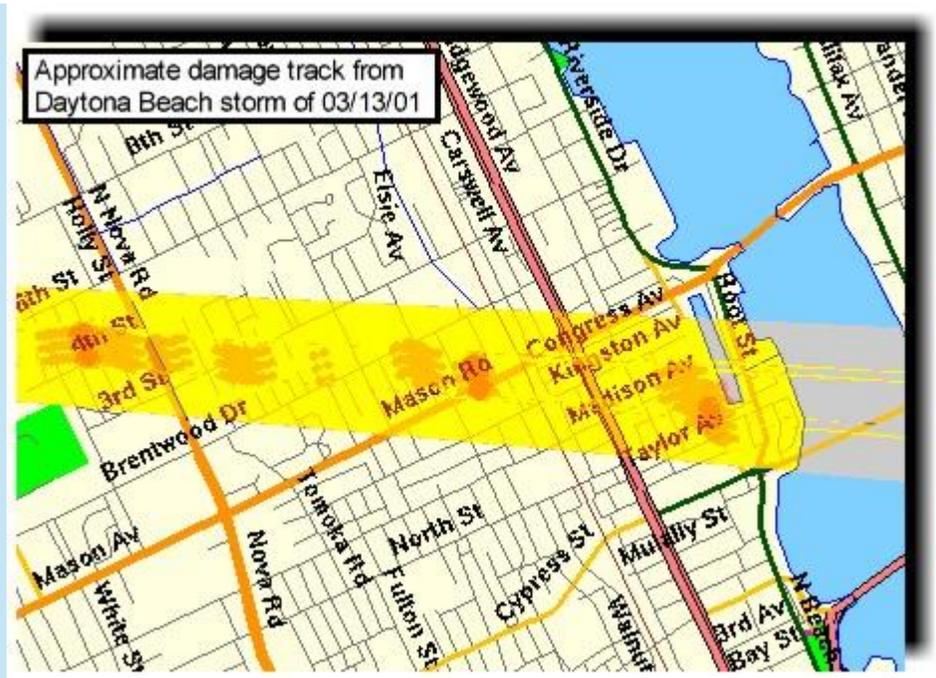
Daytona Beach Storm of March 13, 2001

Description

Damaging winds occurred in Volusia County during the late morning hours as severe thunderstorms moved east through the county. The severe storms were part of a line of storms associated with an advancing cold front which moved into the area. Several thunderstorms became severe over Volusia County, impacting areas from Pierson to Ormond Beach and Daytona Beach. Some large hail (about dime size) was reported in Pierson, along with a few downed trees in Ormond. However...the hardest hit area was in Daytona Beach where significant damage occurred. [Severe macroburst winds](#) (straight-line winds...estimated around 65 mph in this case) carved out a damage swath about 3 miles wide which toppled trees, blew out windows, bent signs, and ripped off metal awnings, porches, and overhangs. Within this swath was an area of damage consistent with that produced by an embedded strong F0 to weak F1 tornado (F0 = winds less than 73 mph; F1 = winds 73 - 112 mph) and was about one-quarter mile wide. In all, about 250 residential homes experienced varying degrees of damage, along with 60 commercial properties. There were no deaths or serious injuries (only two minor injuries). Nonetheless, preliminary dollar estimates were already several million.

Damage swath center-point locations include 4th St. & James/Vines, 3rd St. & Tracy, Center St., Azalea Dr., Mason & Swift, Ballough Rd, and Bowman.





Approximate damage path derived from ground survey. These locations are approximate and this does not include all damage in the area.

Products

WUUS52 KMLB 131449
 SVRMLB
 FLC127-131545-

BULLETIN - EAS ACTIVATION REQUESTED
 SEVERE THUNDERSTORM WARNING
 NATIONAL WEATHER SERVICE MELBOURNE FL
 945 AM EST TUE MAR 13 2001

THE NATIONAL WEATHER SERVICE IN MELBOURNE HAS ISSUED A

* SEVERE THUNDERSTORM WARNING FOR...
 NORTHERN VOLUSIA COUNTY
 IN EAST CENTRAL FLORIDA

* UNTIL 1045 AM EST.

* AT 940 AM EST...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A SEVERE THUNDERSTORM 10 MILES SOUTHWEST OF LAKE GEORGE...OR ABOUT 16 MILES WEST OF PIERSON...MOVING EAST AT 40 MPH.

* OTHER LOCATIONS IN THE WARNING INCLUDE BARBERVILLE AND APPROACHING ORMOND BEACH LATER IN THE WARNING PERIOD AROUND 1045 AM.

SEVERE THUNDERSTORMS PRODUCE DAMAGING WINDS IN EXCESS OF 58 MILES AN HOUR...DESTRUCTIVE HAIL...DEADLY LIGHTNING AND VERY HEAVY RAIN. IF THE STORM APPROACHES YOU...MOVE TO AN INTERIOR ROOM ON THE LOWEST FLOOR.

REPORT LARGE HAIL...DIME SIZE OR LARGER...OR SIGNIFICANT WIND DAMAGE TO LOCAL LAW ENFORCEMENT FOR IMMEDIATE RELAY TO THE NATIONAL WEATHER SERVICE.

\$\$

DWS

WWUS52 KMLB 131518
SVSMLB
FLZ041-141-131545-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE MELBOURNE FL
1015 AM EST TUE MAR 13 2001

...A SEVERE THUNDERSTORM WARNING CONTINUES FOR NORTH VOLUSIA
COUNTY UNTIL 1045 AM EST...

AT 1015 AM EST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
SEVERE THUNDERSTORM 8 MILES EAST OF LAKE GEORGE...OR 3 MILES NORTH OF
PIERSON...MOVING EAST AT 40 MPH.

* SOME LOCATIONS NEAR THE PATH OF THIS STORM INCLUDE... TOMOKA
STATE PARK...SEVILLE...PIERSON...AND EVENTUALLY ORMOND BEACH.

LARGE HAIL...DAMAGING WINDS AND HEAVY RAINFALL ARE LIKELY WITH THE
STORM. TAKE COVER IN A STURDY BUILDING UNTIL THE STORM HAS PASSED.
ALSO...REMEMBER THAT LIGHTNING IS THE FIRST THUNDERSTORM HAZARD TO
ARRIVE AND THE LAST TO EXIT. SOMEONE HAS ALREADY BEEN STRUCK BY
LIGHTNING THIS MORNING IN PUTNAM COUNTY.

OTHER STRONG STORMS WERE DEVELOPING OVER SOUTHEAST MARION COUNTY AND
NORTH LAKE COUNTY AND WERE MOVING EAST.

STAY TUNED TO LOCAL MEDIA OUTLETS OR NOAA WEATHER RADIO FOR THE
LATEST SEVERE WEATHER INFORMATION.

\$\$

LAT...LON 2935 8154 2918 8150 2924 8100 2947 8105

DWS

WUUS52 KMLB 131547
SVRMLB
FLC127-131645-

BULLETIN - EAS ACTIVATION REQUESTED
SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE MELBOURNE FL
1045 AM EST TUE MAR 13 2001

THE NATIONAL WEATHER SERVICE IN MELBOURNE HAS ISSUED A

* SEVERE THUNDERSTORM WARNING FOR...
VOLUSIA COUNTY IN EAST CENTRAL FLORIDA

* UNTIL 1145 AM EST.

* AT 1043 AM EST...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED
SEVERE THUNDERSTORMS APPROACHING ORMOND BEACH...MOVING EAST
AT 40 MPH.

* OTHER STRONG STORMS WERE BECOMING SEVERE AND WILL AFFECT LOCATIONS
TO INCLUDE WILBUR BY THE SEA...ORMOND BY THE SEA AND DAYTONA
BEACH.

SEVERE THUNDERSTORMS PRODUCE DAMAGING WINDS IN EXCESS OF 58 MILES AN HOUR...DESTRUCTIVE HAIL...DEADLY LIGHTNING AND VERY HEAVY RAIN. IF THE STORM APPROACHES YOU...MOVE TO AN INTERIOR ROOM ON THE LOWEST FLOOR.

EXCESSIVE LIGHTNING IS OCCURRING WITH THIS STORM. IF OUTDOORS...STAY AWAY FROM ISOLATED HIGH OBJECTS SUCH AS TREES. MOVE INDOORS IF POSSIBLE. WHEN INDOORS...STAY AWAY FROM WINDOWS AND DOORS AND AVOID USING TELEPHONES UNLESS IT IS AN EMERGENCY.

REPORT LARGE HAIL...DIME SIZE OR LARGER...OR SIGNIFICANT WIND DAMAGE TO LOCAL LAW ENFORCEMENT FOR IMMEDIATE RELAY TO THE NATIONAL WEATHER SERVICE.

\$\$

LAT...LON 2934 8129 2899 8131 2901 8086 2915 8082
2952 8099

DWS

WWUS52 KMLB 131613
SVSMLB
FLZ041-141-131630-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE MELBOURNE FL
1105 AM EST TUE MAR 13 2001

...A SEVERE THUNDERSTORM WARNING CONTINUES FOR VOLUSIA COUNTY UNTIL 1145 AM EST...

AT 1105 AM EST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A SEVERE THUNDERSTORM JUST SOUTH OF PORT ORANGE MOVING EAST AT 45 MPH.

OTHER STRONG STORMS WERE BECOMING SEVERE BETWEEN DELAND AND NEW SMYRNA BEACH. DAMAGING WIND GUSTS TO NEAR 60 MPH WILL BE POSSIBLE ALONG WITH COIN SIZED HAIL.

* SOME LOCATIONS POTENTIALLY AFFECTED BY THESE STORMS INCLUDE WILBUR BY THE SEA...PORT ORANGE...SOUTH DAYTONA...PONCE INLET...OSTEEN...NEW SMYRNA BEACH...AND EDGEWATER.

LARGE HAIL...DAMAGING WINDS AND HEAVY RAINFALL ARE LIKELY WITH THESE STORMS. TAKE COVER IN A STURDY BUILDING UNTIL THESE STORMS PASS. SOME WIND DAMAGE HAS ALREADY BEEN REPORTED IN THE ORMOND BEACH AREA.

STAY TUNED TO LOCAL MEDIA OUTLETS OR NOAA WEATHER RADIO FOR THE LATEST SEVERE WEATHER INFORMATION.

PLEASE RELAY ALL DAMAGE REPORTS TO THE NATIONAL WEATHER SERVICE IN MELBOURNE.

\$\$

LAT...LON 2926 8074 2925 8106 2885 8133 2876 8055

DWS

WWUS52 KMLB 131630
SVSMLB
FLZ141-131700-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE MELBOURNE FL
1125 AM EST TUE MAR 13 2001

...A SEVERE THUNDERSTORM WARNING CONTINUES FOR VOLUSIA COUNTY UNTIL
1145 AM...

AT 1125 AM EST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
SEVERE THUNDERSTORM NEAR THE COAST AT EDGEWATER MOVING EAST AT 45
MPH.

OTHER STORMS WERE DEVELOPING FROM DELTONA...TO LAKE ASHBY...TO
EDGEWATER. SEVERE WEATHER IS POSSIBLE FOR SOUTH VOLUSIA COUNTY
THROUGH 1145...AND PERHAPS UNTIL NOON. LISTEN FOR ADDITIONAL
WARNINGS.

DAMAGE HAS BEEN REPORTED IN SEVERAL LOCATIONS IN VOLUSIA
COUNTY...PARTICULARLY IN THE PIERSON...ORMOND BEACH...AND DAYTONA
BEACH AREAS. WIND DAMAGE INCLUDES DOWNED TREES...DOWNED POWER
LINES...AND AN OVERTURNED VEHICLE IN DAYTONA BEACH. THIS
INFORMATION WAS RELAYED TO THE WEATHER OFFICE BY THE POLICE
DEPARTMENT.

STAY TUNED TO LOCAL MEDIA OUTLETS OR NOAA WEATHER RADIO FOR THE
LATEST SEVERE WEATHER INFORMATION.

\$\$

LAT...LON 2914 8096 2886 8120 2879 8033 2915 8037

&

DWS

WWUS52 KMLB 131703
SVSMLB
FLZ045-141-147-131715-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE MELBOURNE FL
1155 AM EST TUE MAR 13 2001

...SEVERE THUNDERSTORM WARNING FOR VOLUSIA COUNTY EXPIRED
AT 1145 AM...

AT 1150 AM...STRONG THUNDERSTORMS WERE OVER EAST CENTRAL FLORIDA
GENERALLY NORTH OF A LINE FROM KISSIMMEE TO TITUSVILLE. DURING THE
PAST HOUR SOME OF THESE STORMS BECAME SEVERE OVER VOLUSIA COUNTY
WHERE SIGNIFICANT DAMAGE HAS OCCURRED. DAMAGING WINDS HAVE CAUSED
DOWNED TREES...DOWNED SIGNS AND POWER LINES...AND SOME WINDOWS BLOWN
OUT OF CARS...ESPECIALLY NEAR THE HALIFAX RIVER ALONG BALLOUGH ROAD
IN DAYTONA BEACH. THIS OCCURRED AROUND 11 AM. THE STORMS WERE NO
LONGER SEVERE BUT THE LOCAL ATMOSPHERE IS STILL CAPABLE OF
SUPPORTING SEVERE WEATHER. REMAIN INFORMED AND LISTEN FOR POSSIBLE
WARNINGS.

THROUGH 1 PM...STRONG STORMS WILL DEVELOP OVER EAST CENTRAL FLORIDA
FROM LEESBURG...KISSIMMEE...AND SEBRING TOWARD THE COAST AT
EDGEWATER...TO TITUSVILLE...TO MELBOURNE. ISOLATED SEVERE
THUNDERSTORMS WILL BE POSSIBLE.

\$\$

DWS

NWUS52 KMLB 132148
LSRMLB

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE MELBOURNE, FL
447 PM EST TUE MAR 13 2001

TIME(EST)CITY LOCATION.....	STATE	...EVENT/REMARKS...
COUNTY LOCATION.....		
1010 AM	PIERSON VOLUSIA	FL	HAIL DIME SIZE HAIL REPORTED BY COUNTY EM
1050 AM	DAYTONA BEACH VOLUSIA	FL	WIND DAMAGE NWS SURVEY FOUND SEVERAL LOCATIONS WITH STRAIGHT LINE WIND DAMAGE. SOME LOCAL DAMAGE POSSIBLY RELATED TO A BRIEF TORNADO SPINUP ESTIMATED TO BE F0 OR WEAK F1.

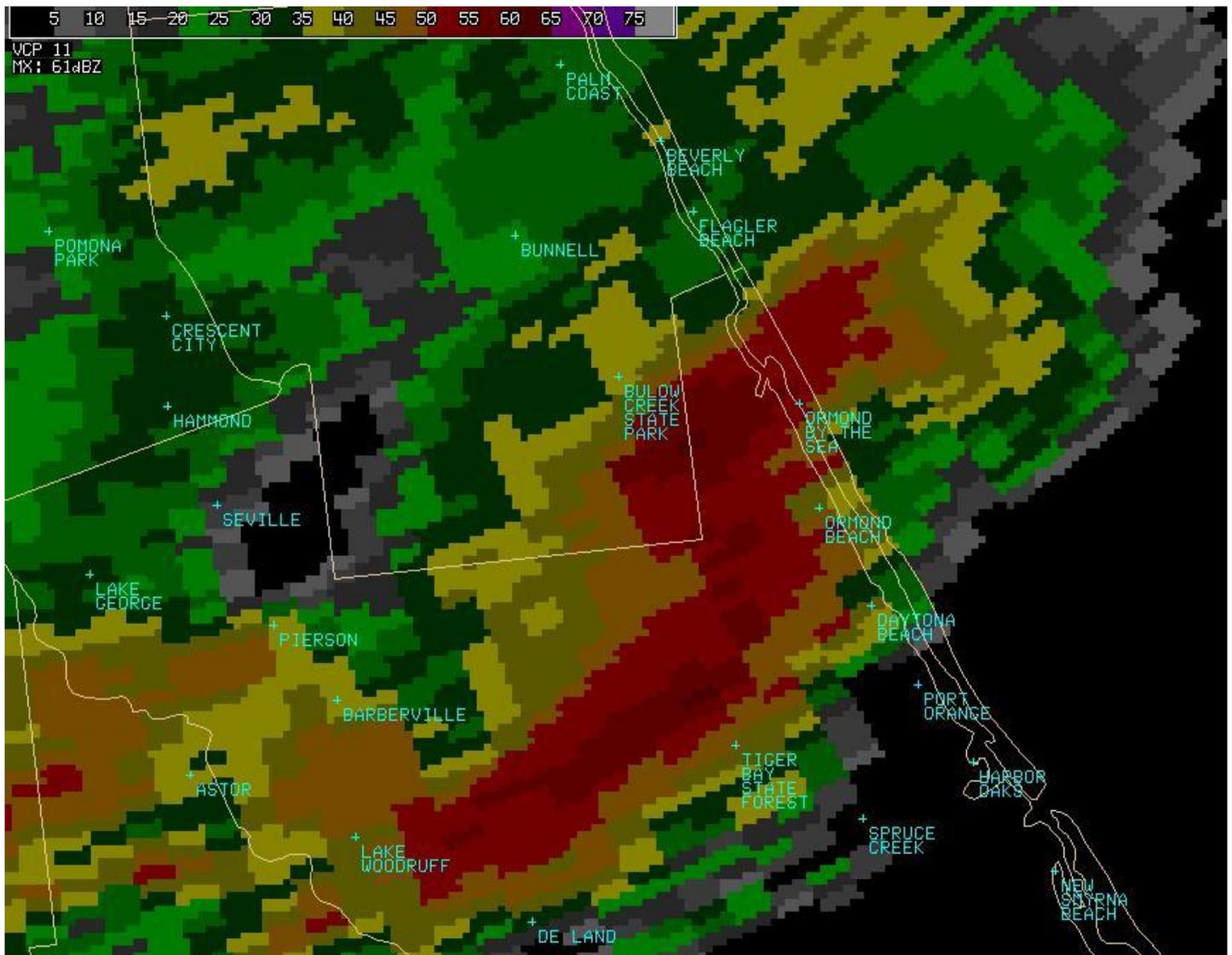
PENDERGRAST

(Sent via Xnow at 731 PM EST TUE MAR 13 2001)

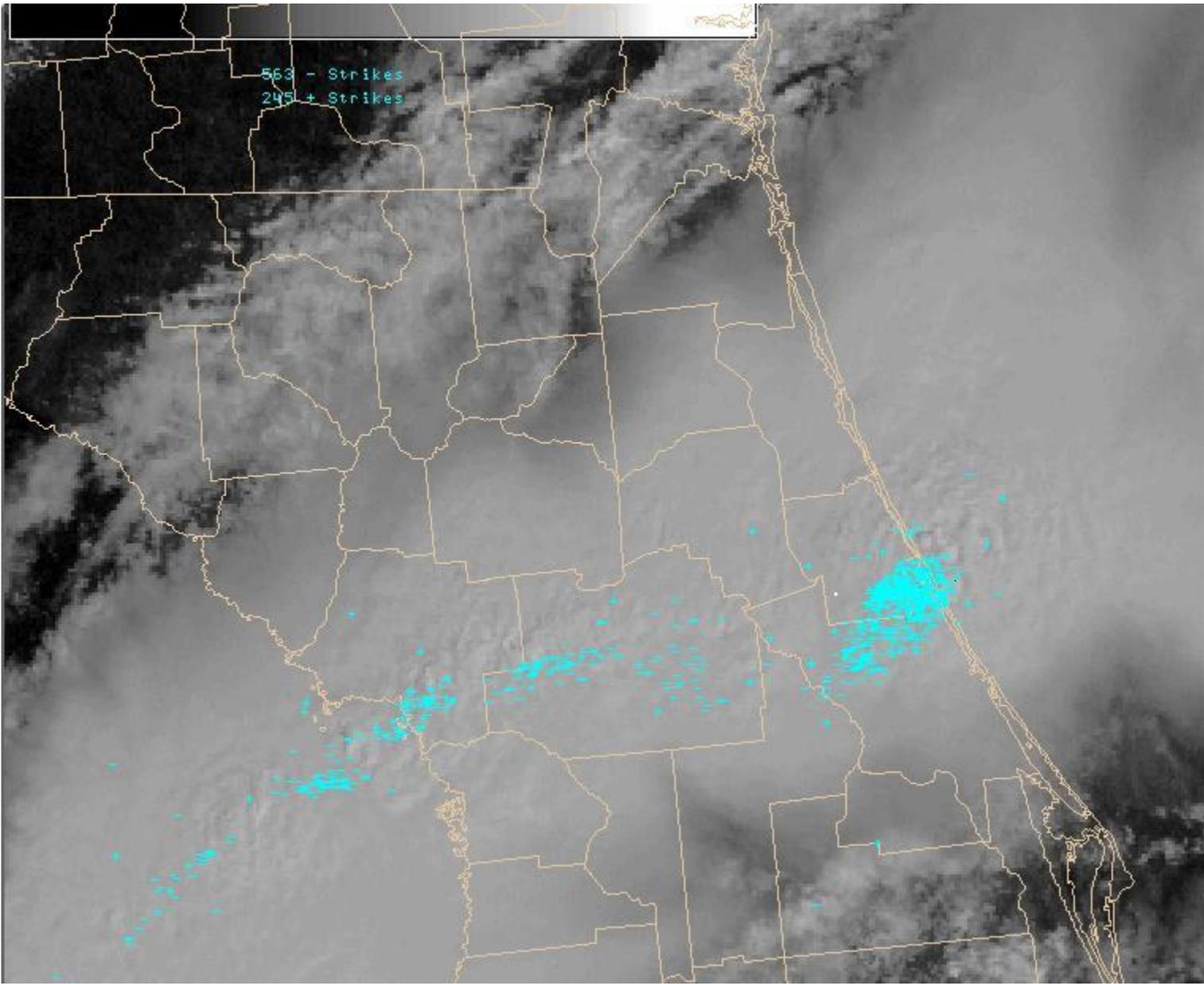
PRELIMINARY LOCAL STORM REPORT...CORRECTED DAMAGE SWATH
NATIONAL WEATHER SERVICE MELBOURNE FL
730 PM EST TUE MAR 13 2001

TIME(EDT)CITY LOCATION.....	STATE	...EVENT/REMARKS...
COUNTY LOCATION.....		
1050 AM 03/13/01	DAYTONA BEACH VOLUSIA	FL	TORNADO *** 2 INJ *** WIND DAMAGE SWATH 2 1/2 MILES LONG AND 1/4 MILE WIDE WITH STRONG F0 TO WEAK/MODERATE F1 TORNADO DAMAGE OCCURRING NEAR THE DAYTONA BEACH/HOLLY HILL LINE FROM THE 4TH ST AND JAMES ST INTERSECTION...TO THE INTERSECTION OF 3RD ST AND TRACY AVE...AND CONTINUING TO CENTER ST AND AZALEA DR. DAMAGE TO 250 RESIDENCES AND 60 COMMERCIAL PROPERTIES. PRELIMINARY DAMAGE ESTIMATES ARE NEAR FIVE MILLION DOLLARS.

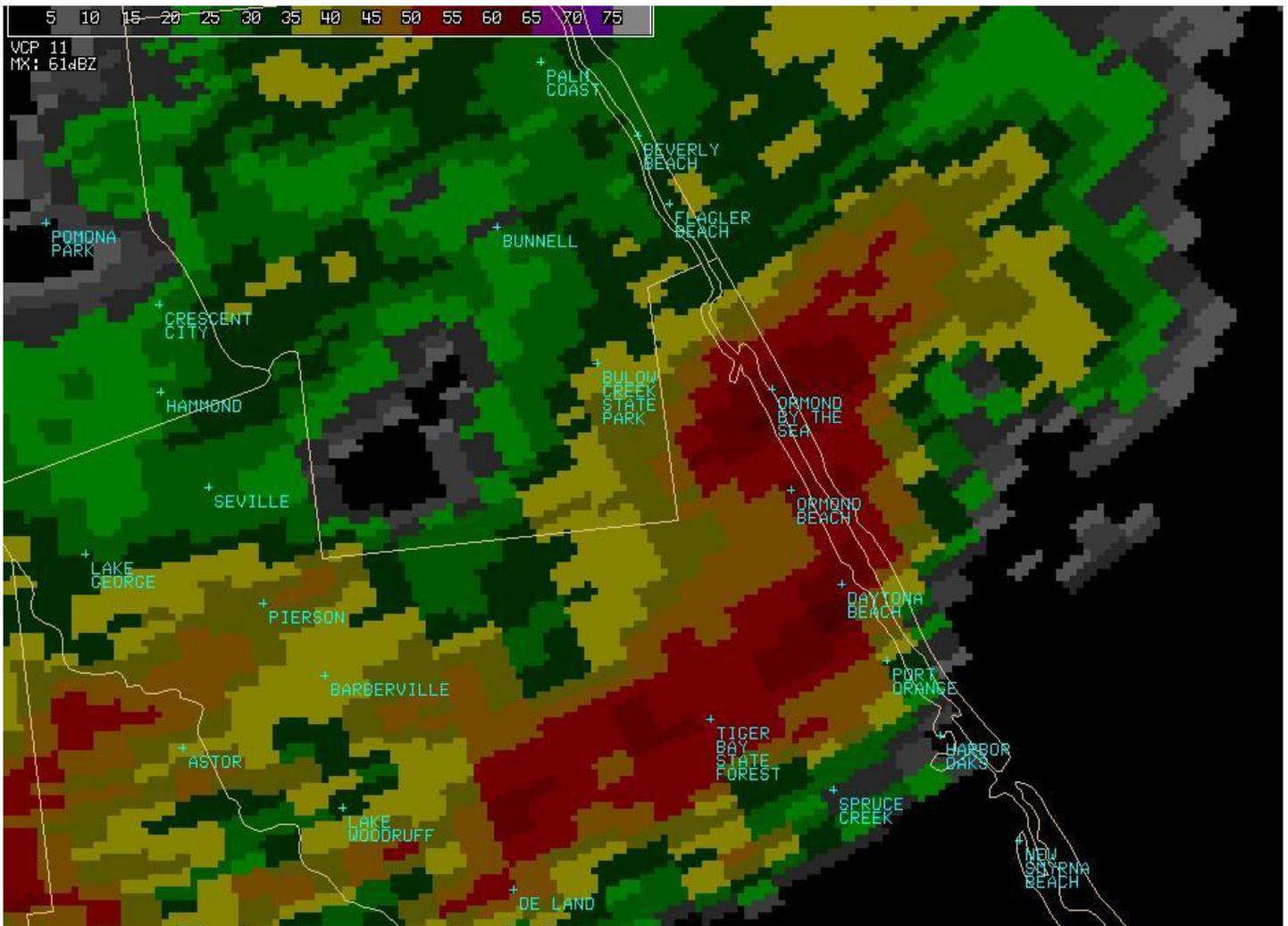
GLITTO/CRISTALDI



Radar Reflectivity Image at 1043 am.



Visible satellite & Lightning at 1045 am.



Radar Reflectivity Image at 1048 am.











Type "B", Bow Echo

A bow echo is an inducer of strong macrobursts and microbursts. Usually, high winds push out from the position of an arrow attached to a bow. During the mature stage of a bow echo, both tornadoes and microbursts could occur simultaneously. During the dissipation stage of outburst winds, hydrometeors are blown outward very rapidly, drying out the echoes in the source region.

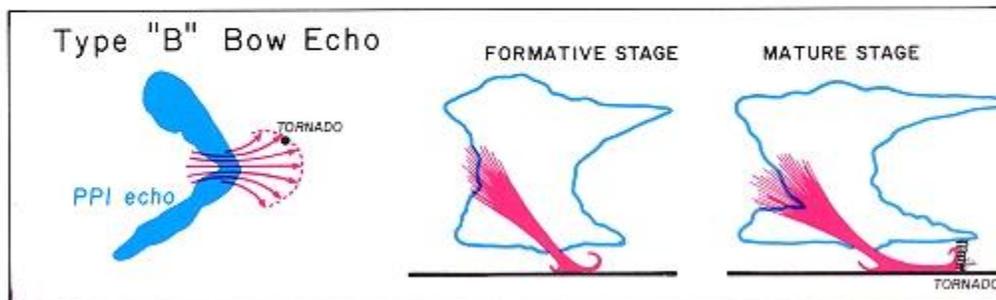


Fig. 5.9 Schematic diagram showing the shape of the bow echo and microbursts in formative and mature stages.