A strong upper level low pressure area moving into the Eastern U.S. led to the development of a surface low over the lower Mississippi Valley and Deep South early in the morning on March 29th.

The remnants of a Mesoscale Convective System (MCS) from the previous day moved across the Florida peninsula during the early morning hours, with partial clearing mid to late morning across most of East Central Florida. This allowed for a moist and unstable atmosphere to form over the region ahead of a cold front over the Northern Gulf of Mexico. Discrete supercells formed over the Eastern Gulf of Mexico during the morning, which then developed into a line of strong to severe storms that pushed across East Central Florida during the early to mid afternoon hours on March 29th.

The Storm Prediction Center (SPC) had placed much of East Central Florida under a Slight Risk for severe storms and the area was placed under a tornado watch that ran from Late Saturday morning through 5 pm EDT.

A National Weather Service survey conducted the following morning revealed a narrow corridor of EF-0 tornado confined within a broader swath of minor straight line wind damage southeast of Orlando in the Lake Mary Jane area.
Radar loops of base reflectivity (top) and Base velocity (bottom) from KMLB WSR-88D.

(hit ctrl+click on images to loop)
Base Velocity Images from Orlando Terminal Doppler Radar (TMCO) at 211 PM EDT and 217 PM EDT on March 29, 2014.

(hit ctrl+click on images to loop)
LAKE MARY JANE TORNADO...

RATING: EF-0
ESTIMATED PEAK WIND: 65-75 MPH
PATH LENGTH /STATUTE/: 2.43 MILES
PATH WIDTH /MAXIMUM/: 100 YARDS
FATALITIES: 0
INJURIES: 0

START DATE: MAR 29 2014
START TIME: 220 PM EDT
START LOCATION: 1 E LAKE MARY JANE ORANGE COUNTY FL
START LAT/LON: 28.3753 / -81.1770

END DATE: MAR 29 2014
END TIME: 223 PM EDT
END LOCATION: 3 ENE LAKE MARY JANE ORANGE COUNTY FL
END LAT/LON: 28.3892 / -81.1332
SOUTH ORANGE COUNTY THUNDERSTORM WIND...

PEAK WIND /E/: 45-60 MPH
PATH LENGTH /STATUTE/: 8 MILES
PATH WIDTH /MAXIMUM/: 1760 YARDS
FATALITIES: 0
INJURIES: 0

START DATE: MAR 29 2014
START TIME: 212 PM EDT
START LOCATION: 5 ENE BUENA VENTURA LAKES ORANGE COUNTY FL
START LAT/LON: 28.3652 / -81.2657

END DATE: MAR 29 2014
END TIME: 223 PM EDT
END LOCATION: 3 ENE LAKE MARY JANE ORANGE COUNTY FL
END LAT/LON: 28.3892 / -81.1332

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE MELBOURNE FL
1151 AM EDT SUN MAR 30 2014

0220 PM TORNADO 1 E LAKE MARY JANE 28.38N 81.16W
03/29/2014 ORANGE FL NWS STORM SURVEY

NWS SURVEY EXTENDED FROM NARCOOSEE ROAD NEAR EAGLE CREEK GOLF CLUB TO MOSS PARK AND EAST OF LAKE MARY JANE. TO THE WEST OF LAKE MARY JANE STRAIGHT LINE WIND DAMAGE EST.45-55 MPH AT GROUND LEVEL WITH MINOR DAMAGE TO FENCES, SMALL SIGNS AND SMALL TREES. TO THE EAST OF LAKE MARY JANE IN THE ISLE OF PINES SUBDIVISION THERE WAS A NARROW CORRIDOR OF EF-0 TORNADO DAMAGE. WINDS WERE ESTIMATED AT 65-70 MPH AT GROUND LEVEL...BUT WERE ESTIMATED TO BE 80-90 MPH AT TREETOP LEVEL...ABOVE 50 FEET.
Photos below courtesy of Dave Freeman, Orange County EM Director:
Some damage photos from the NWS survey below:
National Weather Service Warnings and Statements:

WUUS52 KMLB 291809
SVRMLB
FLC095-097-291900-
/O.NEW.KMLB.SV.W.0020.140329T1809Z-140329T1900Z/

BULLETIN - EAS ACTIVATION REQUESTED
SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE MELBOURNE FL
209 PM EDT SAT MAR 29 2014

THE NATIONAL WEATHER SERVICE IN MELBOURNE HAS ISSUED A

* SEVERE THUNDERSTORM WARNING FOR...
  SOUTHEASTERN ORANGE COUNTY IN FLORIDA
  NORTHERN OSCEOLA COUNTY IN FLORIDA

* UNTIL 300 PM EDT.

* AT 206 PM EDT...NATIONAL WEATHER SERVICE METEOROLOGISTS DETECTED
  SEVERE THUNDERSTORMS CAPABLE OF PRODUCING DAMAGING WINDS IN
  EXCESS OF 60 MPH. THESE STORMS WERE LOCATED NEAR BUENA VENTURA
  LAKES...AND KISSIMMEE MOVING EAST AT 35 TO 40 MPH.

* OTHER LOCATIONS IN THE WARNING INCLUDE...BUT ARE NOT LIMITED
  TO...SAINT CLOUD...EAST LAKE TOHO...NARCOOSSEE...HARMONY AND
  HOLOPAW.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

SEVERE THUNDERSTORMS PRODUCE DAMAGING WINDS IN EXCESS OF 58 MILES AN
HOUR AND OR LARGE DESTRUCTIVE HAIL. FREQUENT TO EXCESSIVE LIGHTNING
AND VERY HEAVY RAIN WILL ALSO BE POSSIBLE. IF THE STORM APPOACHES
YOU...SEEK SHELTER IN AN ENCLOSED BUILDING ON THE LOWEST FLOOR. KEEP
AWAY FROM WINDOWS.

A TORNADO WATCH REMAINS IN EFFECT UNTIL 500 PM EDT SATURDAY AFTERNOON
FOR EASTERN FLORIDA.

&&

LAT...LON 2844 8146 2841 8089 2808 8089 2809 8146
       2814 8145 2815 8148
TIME...MOT...LOC 1807Z 262DEG 35KT 2839 8134

$$

DWS
BULLETIN - EAS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE MELBOURNE FL
212 PM EDT SAT MAR 29 2014

THE NATIONAL WEATHER SERVICE IN MELBOURNE HAS ISSUED A

* TORNADO WARNING FOR...
  CENTRAL BREVARD COUNTY IN FLORIDA...
  THIS INCLUDES THE CITIES OF...TITUSVILLE AIRPORT...SHARFES...
  ROCKLEDGE...PORT SAINT JOHN...PORT CANAVERAL...PATRICK AIR FORCE
  BASE...MERRITT ISLAND...LONE CABBAGE FISH CAMP...COCOA BEACH...
  COCOA...CAPE CANAVERAL...
  SOUTHEASTERN ORANGE COUNTY IN FLORIDA...
  THIS INCLUDES THE CITIES OF...WEDGEFIELD...ORLANDO INTERNATIONAL
  AIRPORT...
  NORTHEASTERN OSCEOLA COUNTY IN FLORIDA...
  THIS INCLUDES THE CITIES OF...NARCOOSSEE...EAST LAKE TOHO...BUENA
  VENTURA LAKES...

* UNTIL 315 PM EDT.

* AT 210 PM EDT...NATIONAL WEATHER SERVICE METEOROLOGISTS DETECTED A
  SEVERE THUNDERSTORM CAPABLE OF PRODUCING A TORNADO NEAR AUSTIN
  TINDALL PARK...OR NEAR EAST LAKE TOHO...MOVING EAST AT 40 MPH.

* OTHER LOCATIONS IN THE WARNING INCLUDE BUT ARE NOT LIMITED TO LAKE
  NONA...CANAVERAL GROVES...VIERA AND JETTY PARK

PRECAUTIONARY/PREPAREDNESS ACTIONS...

THE SAFEST PLACE TO BE DURING A TORNADO IS IN A STRONG BUILDING ON
THE LOWEST FLOOR...IN AN INTERIOR ROOM SUCH AS A BATHROOM OR CLOSET.
KEEP AWAY FROM WINDOWS. GET UNDER A WORKBENCH OR OTHER PIECE OF
STURDY FURNITURE. USE BLANKETS OR PILLOWS TO COVER YOUR BODY.

EVACUATE MOBILE HOMES OR VEHICLES FOR MORE SUBSTANTIAL SHELTER.

& &
LAT...LON 2843 8056 2840 8059 2823 8060 2823 8062
  2826 8061 2831 8065 2829 8066 2823 8065
  2827 8136 2845 8137 2857 8079 2854 8077
  2854 8074 2859 8073 2861 8059 2859 8057
  2845 8052
TIME...MOT...LOC 1812Z 266DEG 37KT 2837 8126

$$

MOSES
A TORNADO WARNING REMAINS IN EFFECT UNTIL 315 PM EDT FOR CENTRAL BREVARD...SOUTHEASTERN ORANGE AND NORTHEASTERN OSCEOLA COUNTIES...

AT 218 PM EDT...NATIONAL WEATHER SERVICE METEOROLOGISTS CONTINUED TO DETECT A TORNADO. THIS TORNADO WAS LOCATED NEAR LAKE MARY JANE...OR 6 MILES NORTHEAST OF NARCOOSSEE...MOVING EAST AT 45 MPH.

ADDITIONAL STORMS CAPABLE OF PRODUCING TORNADOES ARE EVIDENT NEAR STATE ROAD 528 AND INNOVATION WAY. ALSO MOVING EAST AT 45 MPH.

OTHER LOCATIONS IN THE WARNING INCLUDE BUT ARE NOT LIMITED TO STATE ROAD 528...WEDGEFIELD...STATE ROAD 520...NOVA ROAD...CANAVERAL GROVES...TITUSVILLE AIRPORT...PORT SAINT JOHN...COCOA...ROCKLEDGE...VIERA...MERRITT ISLAND...PATRICK AIR FORCE BASE...COCOA BEACH...CAPE CANAVERAL...JETTY PARK AND PORT CANAVERAL.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

IF IN MOBILE HOMES OR VEHICLES...EVACUATE THEM AND GET INSIDE A STURDY SHELTER.

HEAVY RAINFALL MAY OBSCURE THIS TORNADO. TAKE COVER NOW! IF YOU WAIT TO SEE OR HEAR IT COMING...IT MAY BE TOO LATE TO GET TO A SAFE PLACE.

A TORNADO WATCH REMAINS IN EFFECT UNTIL 500 PM EDT SATURDAY AFTERNOON FOR EASTERN FLORIDA.

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