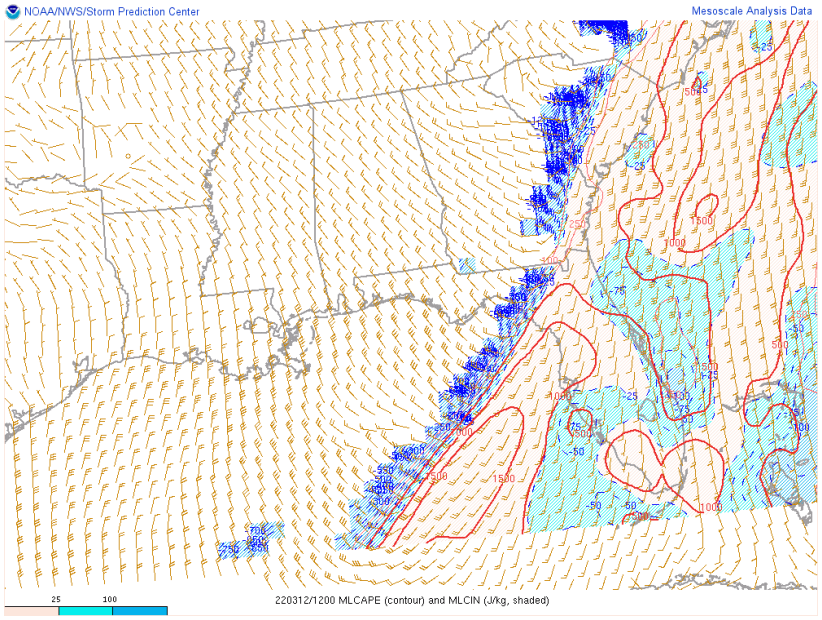
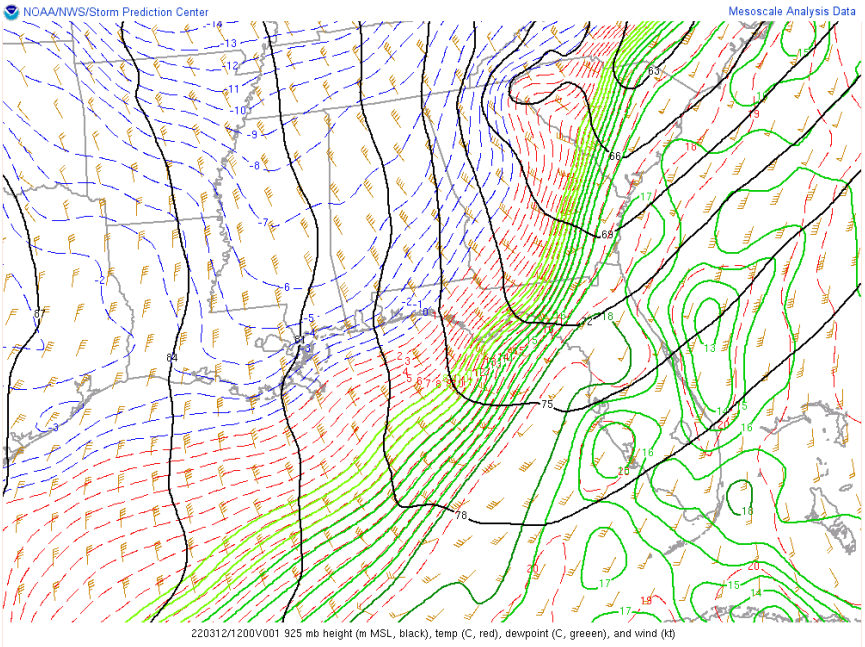
March 2022 Severe Weather Events

March 12th, 2022

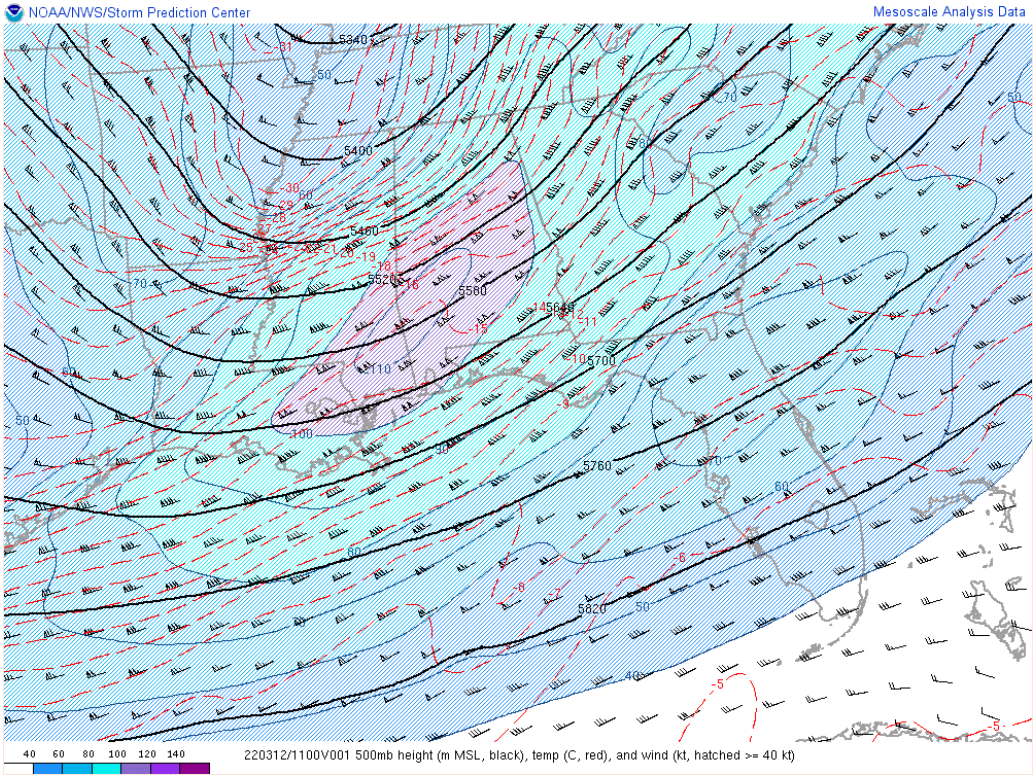
In the early hours of March 12, 2022, a line of storms approached the FL peninsula. A well-forecasted event, conditions were highly favorable for severe storms to develop.

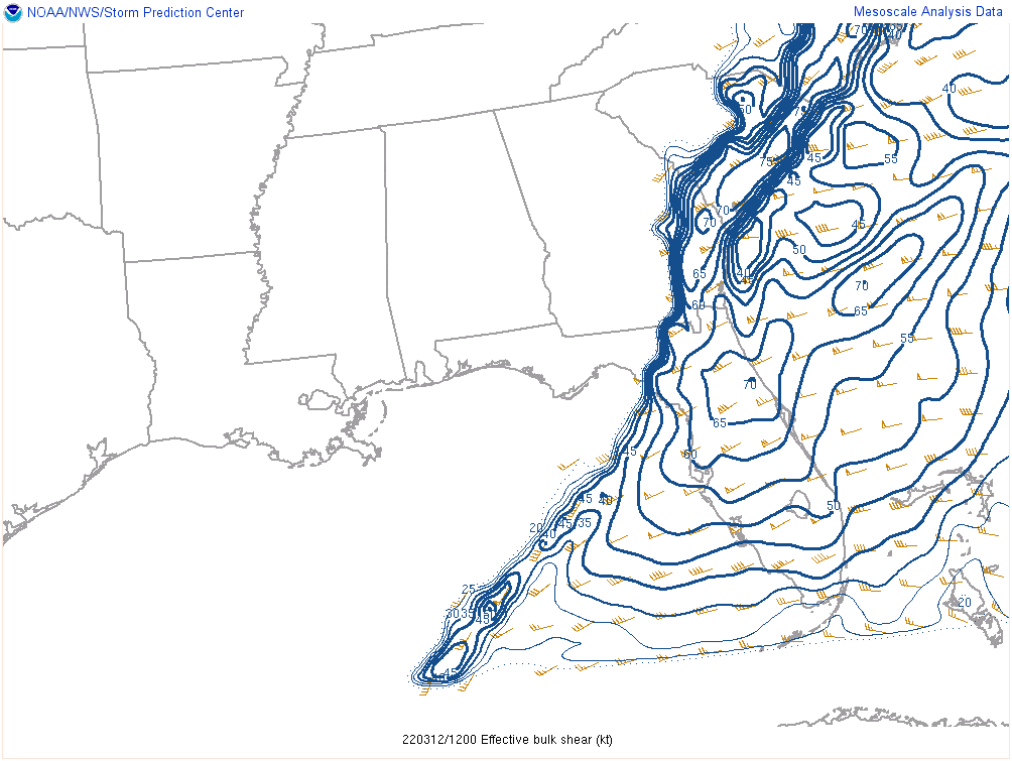


As the line of storms approached, what little convective inhibition remained quickly eroded as warm, moist air was pumped northeastward. Mixed-Layer Convective Available Potential Energy (MLCAPE) values quickly increased to over 1000 J/KG.



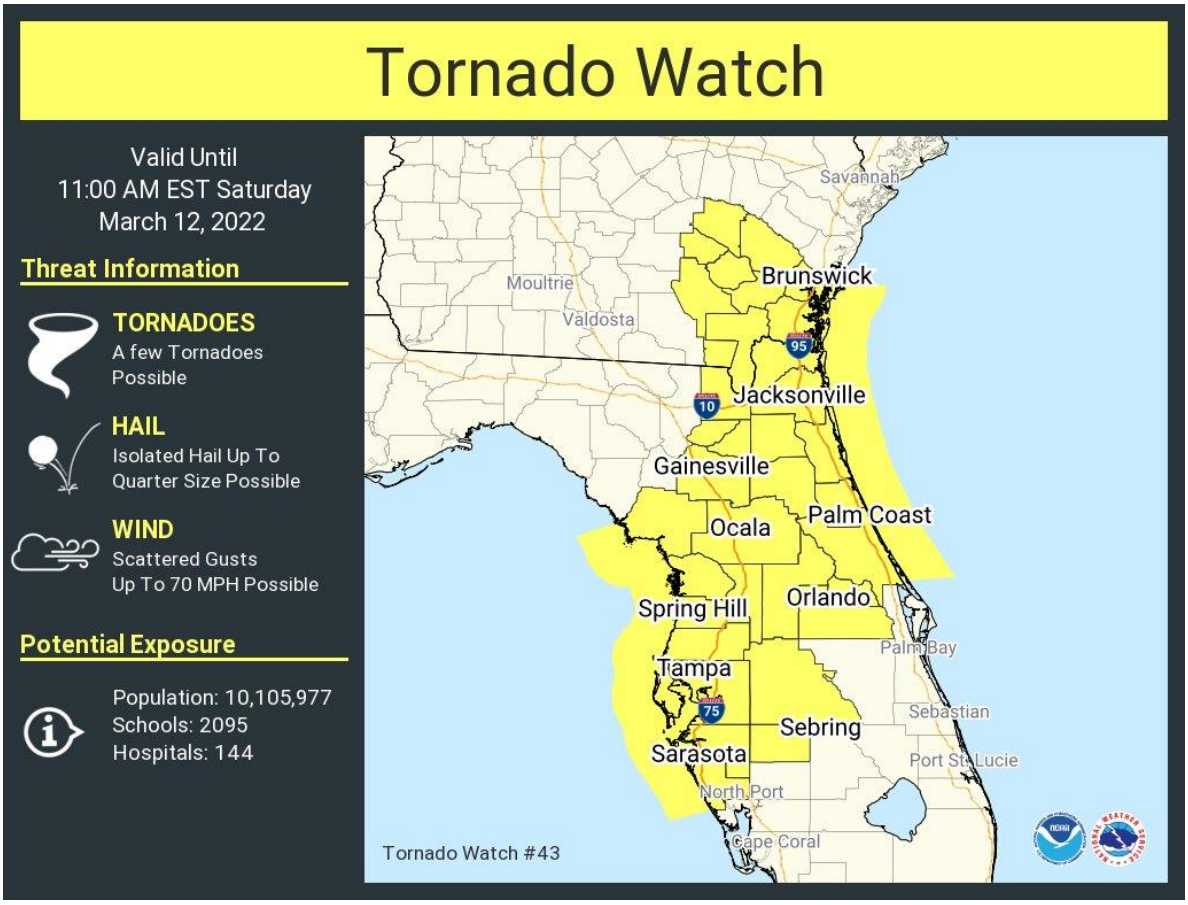
In contrast to many cool-season systems, the parent trough axis associated with the surface cold front remained in trail, and did not lift northward until later into the day. Thus, shear values remained high due to a very dynamic atmosphere above.





The atmosphere was both primed for supercells and tornadoes. Derived calculations for supercell potential (SCP) and tornado potential (STP) indicated a significant risk for rotating storms and tornadoes. The highly sheared environment also supported faster winds aloft being mixed to the surface as thunderstorms moved by.

Just after 3:30AM on the 12th, a tornado watch was issued for a large portion of central and northern Florida in the region where tornadoes were most likely to occur. Subsequent discussions and products highlighted the continued risk for storms across the area through the day.



Area Forecast Discussion
National Weather Service Tampa Bay Ruskin FL
412 AM EST Sat Mar 12 2022

...TORNADO WATCH IN EFFECT...
...SEVERE WEATHER POSSIBLE TODAY...
...FREEZING TEMPS, WIND CHILL ADVISORY FOR TONIGHT...

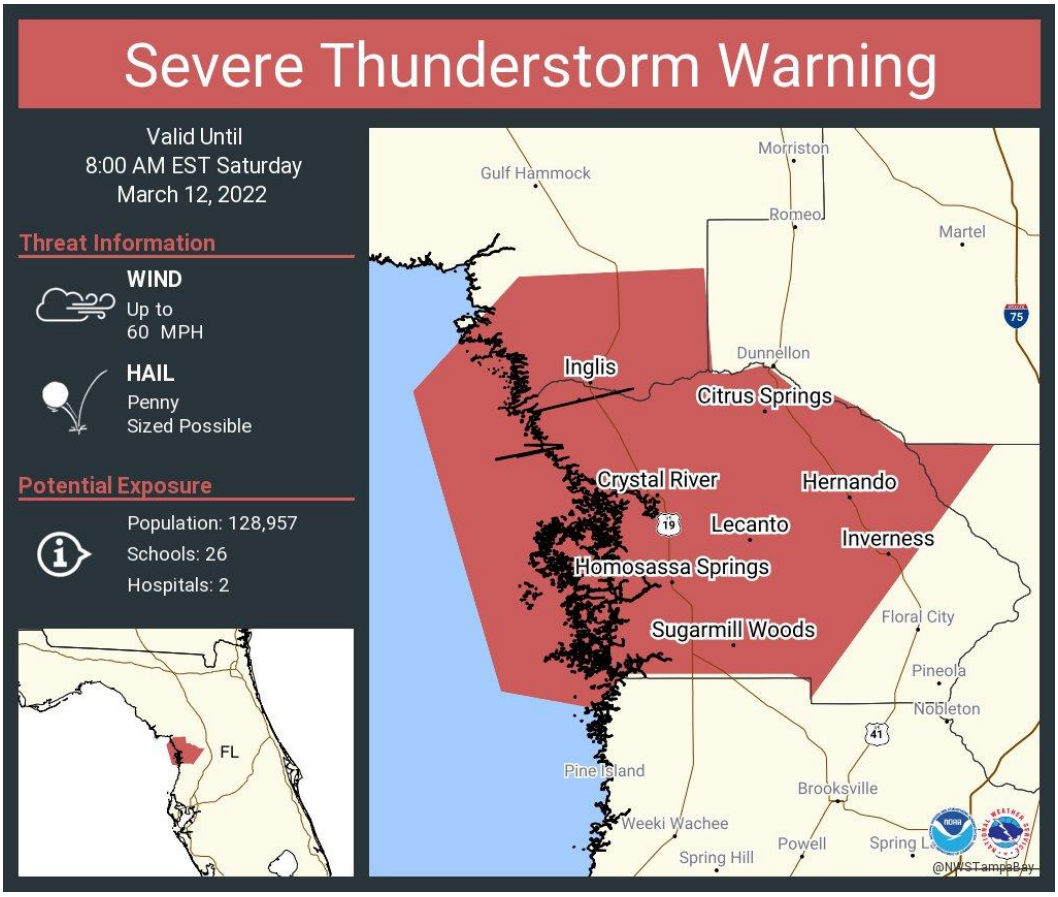
.NEAR TERM [Now Thru the Afternoon]...
A deepening trough axis continues to propagate eastward as an area of low pressure begins to take shape at the surface. In response, a cold front is being dragged southward as a cold air mass is pushed our way. This airmass is bringing a big, but brief change to our weather later today and into Sunday.

For the morning hours, though, West Central and Southwest Florida remains under the influence of the same airmass that has been in place for the last few days. This is adding fuel to an increasingly unstable atmosphere ahead of the approaching cold front. Radar analysis shows a line of storms draped over the Florida panhandle; this is expected to rather rapidly progress southward over the next few hours.

The potential for severe storms is also increasing as this occurs. The upper-level environment suggests stronger shear is working into the area. Winds are starting to veer more in the low-levels, with clockwise-turning hodographs observed in model soundings across the Nature Coast and down through the Tampa Bay Area. In response, SRH values are increasing as well, with nearly 500 m2/s2 showing for points across the Nature Coast. Thus the potential exists for tornadoes to occur. However, the highest risk is likely for damaging wind gusts. With 50kts of wind at 900mb (~2500ft) over the nature coast, and 30-40kts over central areas, it wouldn't take very much for a thunderstorm to mix these higher winds down to the surface, potentially causing severe wind gusts. If any storms develop ahead of this line, they would also likely be in this more favorable region and could become severe. The caveat to all this is whether or not this highly favorable environment remains in place as the line of storms moves through. There is also the potential for the line to become more outflow dominant quicker than expected, and this would also undercut updraft intensity and decrease the potential for severe weather. However, confidence in the materialization of the environment is such that a Tornado Watch has been issued for all of the Nature Coast, portions of the interior, and extending as far south as Sarasota County.

Residents and visitors should pay attention to weather conditions this morning and into the afternoon. It is important to have a plan in place in case severe weather occurs. Be sure to have multiple ways to receive weather alerts.

The first severe thunderstorm warning was issued shortly after 7AM for portions of the Nature Coast.



In association with these storms, straight-line wind damage occurred across Northern Citrus and Southern Levy County, near Inglis, FL.

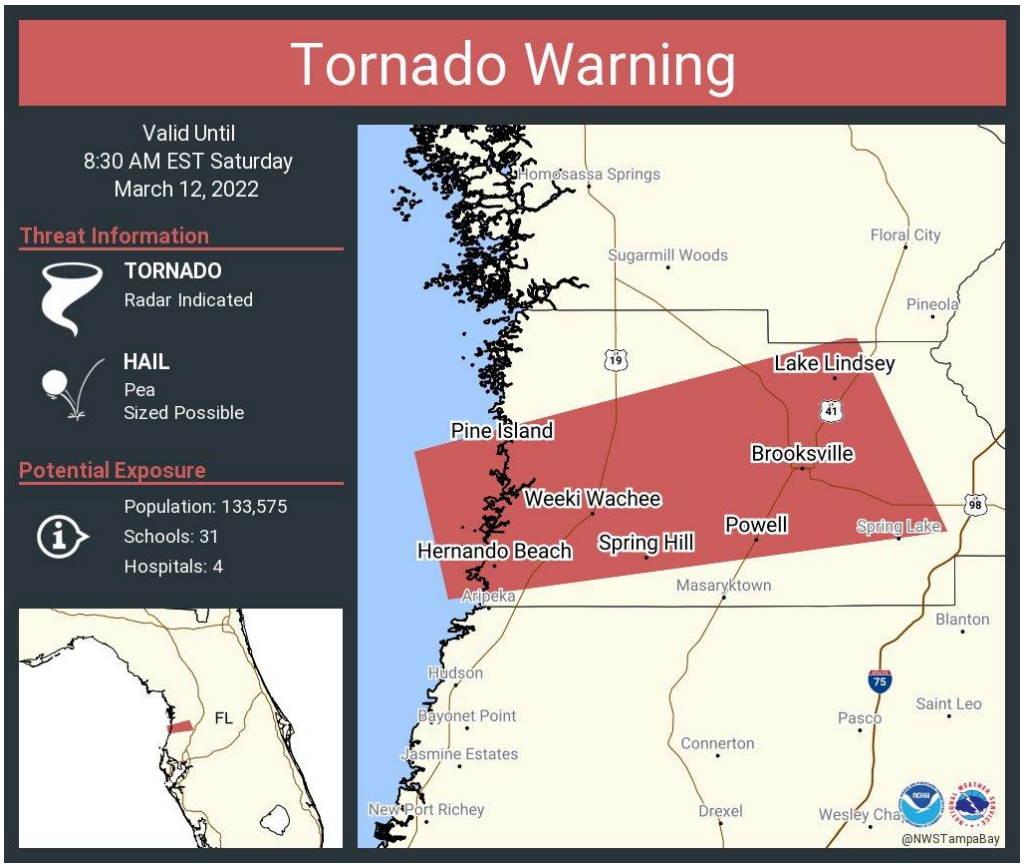
NATIONAL WEATHER SERIVCE TAMPA BAY
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Preliminary
Damage Survey Results

Levy/Citrus Co. Straight-Line Winds	
Date	3/12/2022
Time (Local)	7:35 AM
EF Rating	n/a
Est. Peak Wind	75 MPH
Path Length	6.06 miles
Max Width	800 yards
Deaths/Injuries	0 / 2

ISSUED: 8:00 PM, Saturday, March 12, 2022

Just over a half an hour later, the first tornado warning of the day was issued



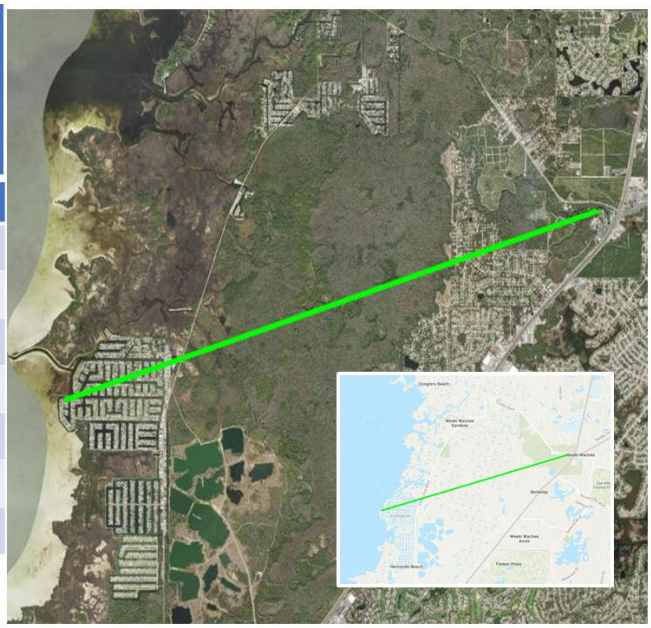
This storm produced an EF1 tornado as it passed through the Weeki Wachee area. Additional wind damage occurred with this storm as it continued to trek inland.

NATIONAL WEATHER SERIVCE TAMPA BAY
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Preliminary
Damage Survey Results

Weeki Wachee Tornado	
Date	3/12/2022
Time (Local)	8:06 AM
EF Rating	EF-1
Est. Peak Wind	90 MPH
Path Length	5.85 miles
Max Width	100 yards
Deaths/Injuries	0 /0

ISSUED: 8:00 PM, Saturday, March 12, 2022



As the line continued to propagate southward, additional severe weather occurred.

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NWUS52 KTBW 151748
LSRTBW

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE TAMPA BAY RUSKIN FL
148 PM EDT TUE MAR 15 2022

..TIME...   ...EVENT...      ...CITY LOCATION...     ...LAT.LON...
..DATE...   ....MAG....      ..COUNTY LOCATION..ST.. ...SOURCE....
            ..REMARKS..

1145 AM     TORNADO          1 NW LORIDA             27.46N 81.26W
03/12/2022                   HIGHLANDS          FL   EMERGENCY MNGR

            * DELAYED REPORT *  SEVERAL POWER POLES SNAPPED JUST
            NORTHWEST OF ARBUCKLE CREEK RD AND HIGHWAY 98. 1645Z.
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PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE TAMPA BAY RUSKIN FL
1137 AM EST TUE MAR 15 2022

..TIME...   ...EVENT...      ...CITY LOCATION...     ...LAT.LON...
..DATE...   ....MAG....      ..COUNTY LOCATION..ST.. ...SOURCE....
            ..REMARKS..

1209 PM     TORNADO          5 SE PUNTA RASSA        26.45N 81.95W
03/12/2022                   LEE                FL   BROADCAST MEDIA

            * DELAYED REPORT *  VIDEO ON SOCIAL MEDIA SHOWS A
            WATERSPOUT BRIEFLY MOVED ONSHORE AS A WEAK TORNADO
            AND MINOR DAMAGE WAS REPORTED AT LANI KAI.
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Public Information Statement

National Weather Service Tampa Bay Ruskin FL

505 PM EST Sat Mar 12 2022

...PEAK WIND GUSTS FOR MARCH 12 2022...

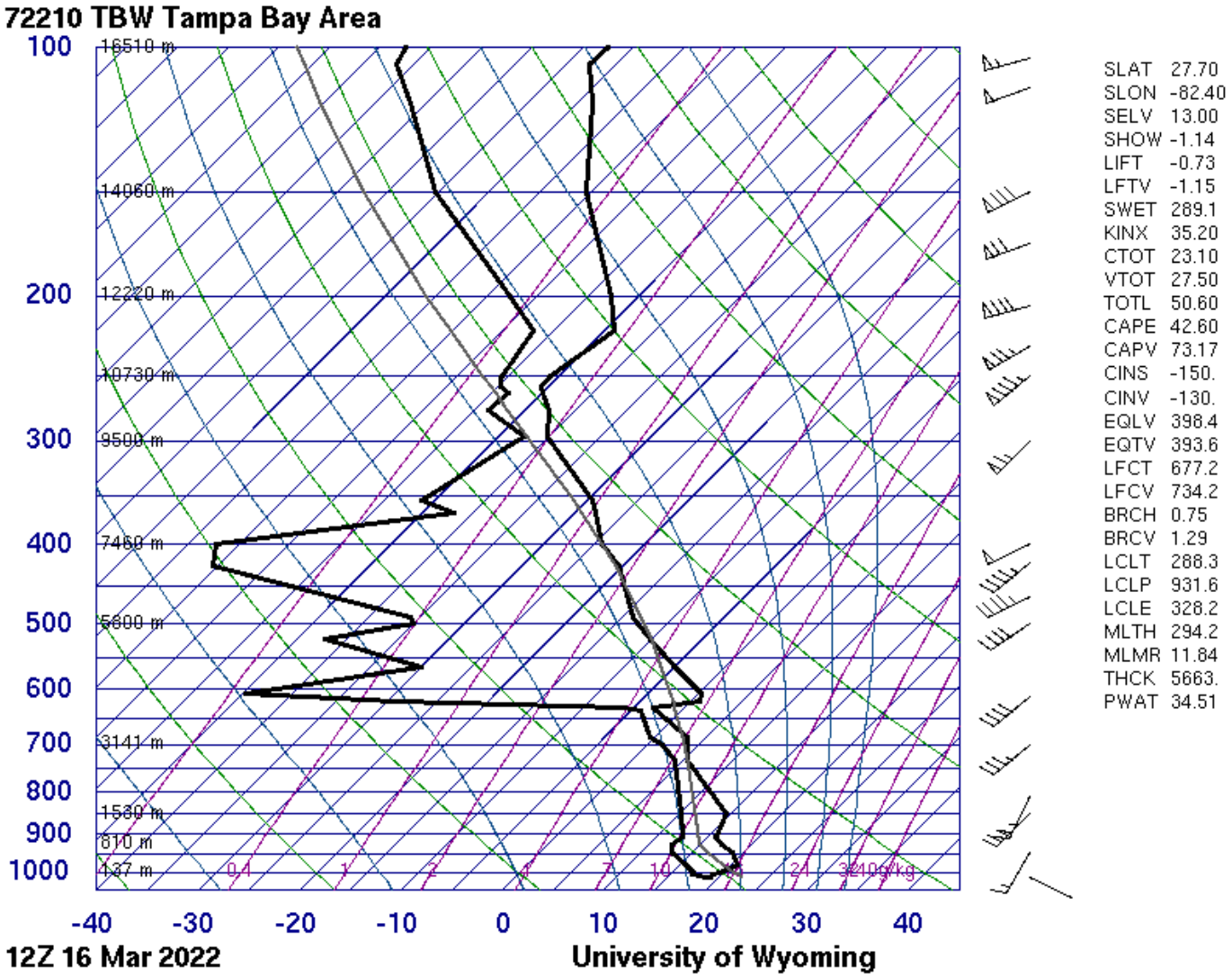
A line of strong to severe thunderstorms moved across West Central and Southwest Florida today ahead of cold front. Strong gusty winds accompanied these storms, but in many areas the strongest winds occurred after the storms moved through behind the cold front. Below is a list of some of the top wind gusts for today.

Station Name	County	ID	Provider	Max Wind Speed(mph)
Clam Bayou Nature Park	Pinellas	XCBN	WXFLOW	65
Weeki Wachee	Hernando	XWKI	WXFLOW	63
Tampa Bay Cut J	Tampa Bay	XTAM	WXFLOW	59
Sarasota Bay Marker 17	Gulf of Mexico	XSRB	WXFLOW	54
1.9 NE Belleair	Pinellas	0579W	WXSTEM	53
Belleair	Pinellas	EW6508	CWOP	52
Skyway Fishing Pier	Tampa Bay	XSKY	WXFLOW	52
Brooksville	Hernando	KBKV	ASOS	51
Clearwater Beach	Pinellas	FW1789	CWOP	50
2.9 W Crystal River	Citrus	0212W	WXSTEM	50
Sarasota-Bradenton Int'l	Manatee	KSRQ	ASOS	50
Cedar Key	Levy	CKYF1	NOS-NWLON	49
St Pete-Clearwater Int'l	Pinellas	KPIE	ASOS	49
Spring Hill	Hernando	EW8085	CWOP	48
Seminole	Pinellas	FW8592	CWOP	48
Venice	Sarasota	KVNC	AWOS	47
St. Petersburg	Pinellas	SAPF1	NOS-NWLON	47
Desoto-Orange	Lee	XDSO	WXFLOW	47
Charlotte Harbor Yacht	Charlotte	XCHY	WXFLOW	47
New Pass Shoal Light	Gulf of Mexico	XLID	WXFLOW	47
Fort Myers - Page Field	Lee	KFMY	ASOS	46
St. Petersburg	Pinellas	KSPG	ASOS	46
St Pete Beach	Pinellas	EW8104	CWOP	46
Avon Park Af Range 1	Highlands	APRF1	RAWS	46
Grove City	Charlotte	XGRV	WXFLOW	46
1 S Venice	Sarasota	VENF1	NDBC	45
4.9 NW Masaryktown	Hernando	0209W	WXSTEM	45
Fort Myers - SW Int'l	Lee	KRSW	ASOS	44
Clearwater Beach Pier 60	Gulf of Mexico	CWBF1	NOS-NWLON	44
0.8 SE Cedar Key	Levy	1057W	WXSTEM	44

Winter Haven	Polk	KGIF	ASOS	43
Crystal Beach	Pinellas	EW2528	CWOP	43
22 SW Longboat Key	Gulf of Mexico	42013	NDBC	43
Old Port Tampa	Hillsborough	OPTF1	NOS-PORTS	43
Fort Myers	Lee	FMRF1	NOS-NWLON	42
1.9 W Bayshore Gardens	Manatee	0400W	WXSTEM	42
Dunedin Causeway	Pinellas	XDUN	WXFLOW	42
Griffin	Polk	XGRF	WXFLOW	42
Punta Gorda	Charlotte	KPGD	ASOS	42
Clearwater	Pinellas	KCLW	AWOS	41
8 SE Saint Petersburg	Tampa Bay	MTBF1	NDBC	41
3.0 SE Cape Coral	Lee	0492W	WXSTEM	41
Polk City	Polk	AS291	CWOP	41
Tampa	Hillsborough	KTPA	ASOS	40
Sebring Air Terminal	Highlands	KSEF	AWOS	40
1 W Fort Myers	Lee	FRTPC	AWS	40
Center Hill	Sumter	FW2402	CWOP	40
Chiefland	Levy	FW9298	CWOP	40
2 W Tarpon Springs	Gulf of Mexico	FHPF1	NDBC	40
1.2 SW Largo	Pinellas	0503W	WXSTEM	40
2.9 S Archbold	Highlands	1158W	WXSTEM	40
Belleair	Pinellas	XBLA	WXFLOW	40

March 16th, 2022

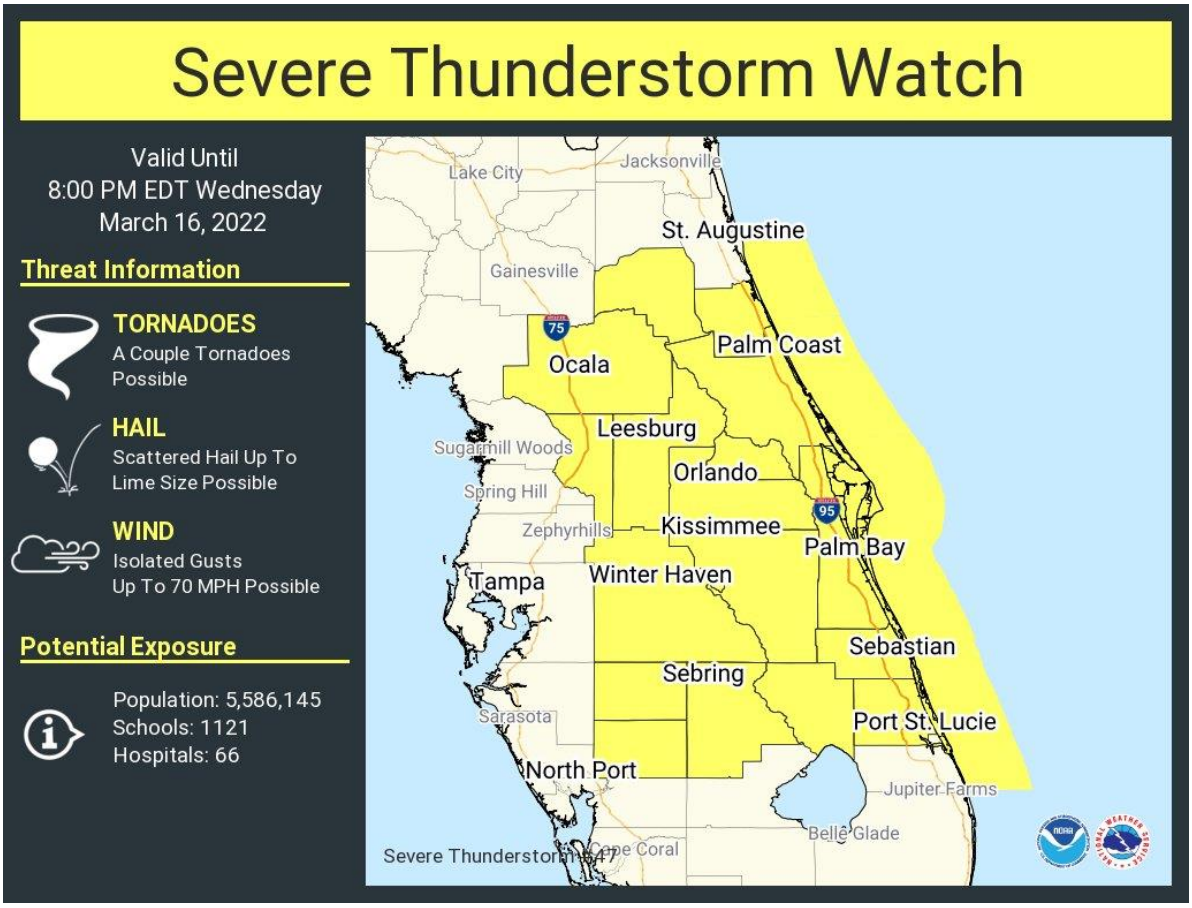
Unlike the 12th, conditions on the 16th were much more conditional. The 12Z sounding launched by NWS Tampa Bay captures this well:



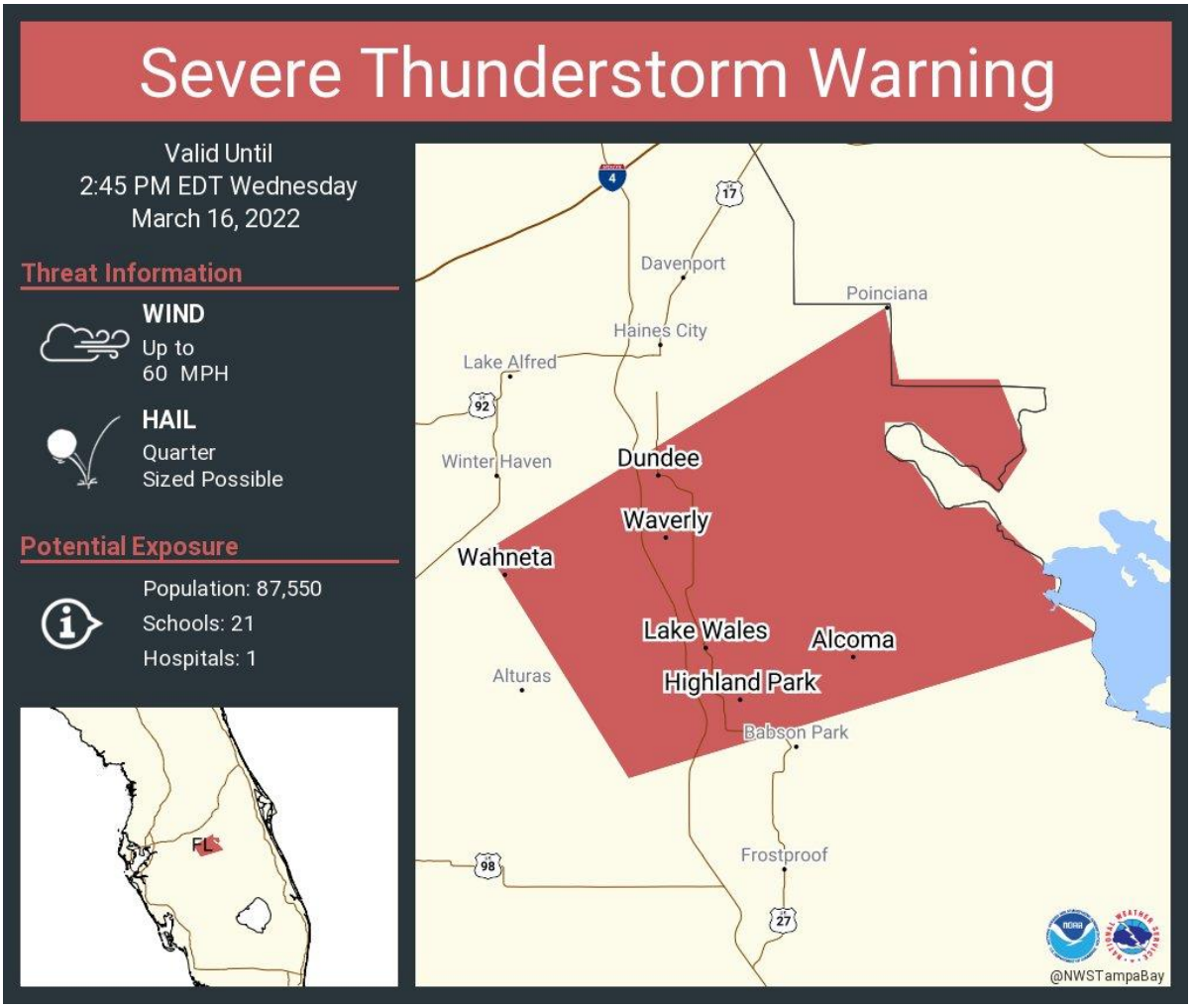
A capping inversion was in place at 650mb, with dry air above. The main question was whether the cap would erode in time, and if dry air would potentially limit convective growth. Temperatures at 500mb were extremely cold (-13°C), meaning large hail was a very real possibility. However, it was conditional. Storms would have to grow tall enough to be able to take advantage of this.

Low-level conditions were not particularly impressive at 12Z, but continued warm air advection at the surface provided increased veering through the day and enhancements to low-level hodographs, such that a weak and brief tornado was not out of the question in rotating supercells.

Eastern sections of West Central Florida were identified as the region of greatest risk. By afternoon, increasingly favorable conditions had indeed materialized, and a Severe Thunderstorm Watch was issued.



This was issued just as storms were beginning to develop. It wouldn't take very long before cells intensified, and hail became an issue, particularly in East Central Florida. However, one cell was able to intensify over West Central Florida in Polk County.



Large, severe hail is likely to have occurred in the area to the east of Lake Wales. Thankfully, this fell to the east of the city, with the largest hail reported was only dime size. In the even more conditional environment along the west coast, there was also a brief tornado touchdown in Sarasota, FL.

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PRELIMINARY LOCAL STORM REPORT...CORRECTED
NATIONAL WEATHER SERVICE TAMPA BAY RUSKIN FL
350 PM EDT WED MAR 16 2022

..TIME...   ...EVENT...      ...CITY LOCATION...     ...LAT.LON...
..DATE...   ....MAG....      ..COUNTY LOCATION..ST.. ...SOURCE....
            ..REMARKS..

0215 PM     TORNADO          1 ENE SARASOTA          27.34N 82.53W
03/16/2022                   SARASOTA           FL   LAW ENFORCEMENT

            VIDEO OF TORNADO FROM SARASOTA PD. DAMAGE TO
            ROOF AT INDUSTRIAL BUILDING ON 2100 BLOCK OF
            10TH STREET. BRIEF TOUCHDOWN. PRELIMINARY
            DAMAGE ASSESSMENT IS EF-1 WITH 90 MPH WINDS.
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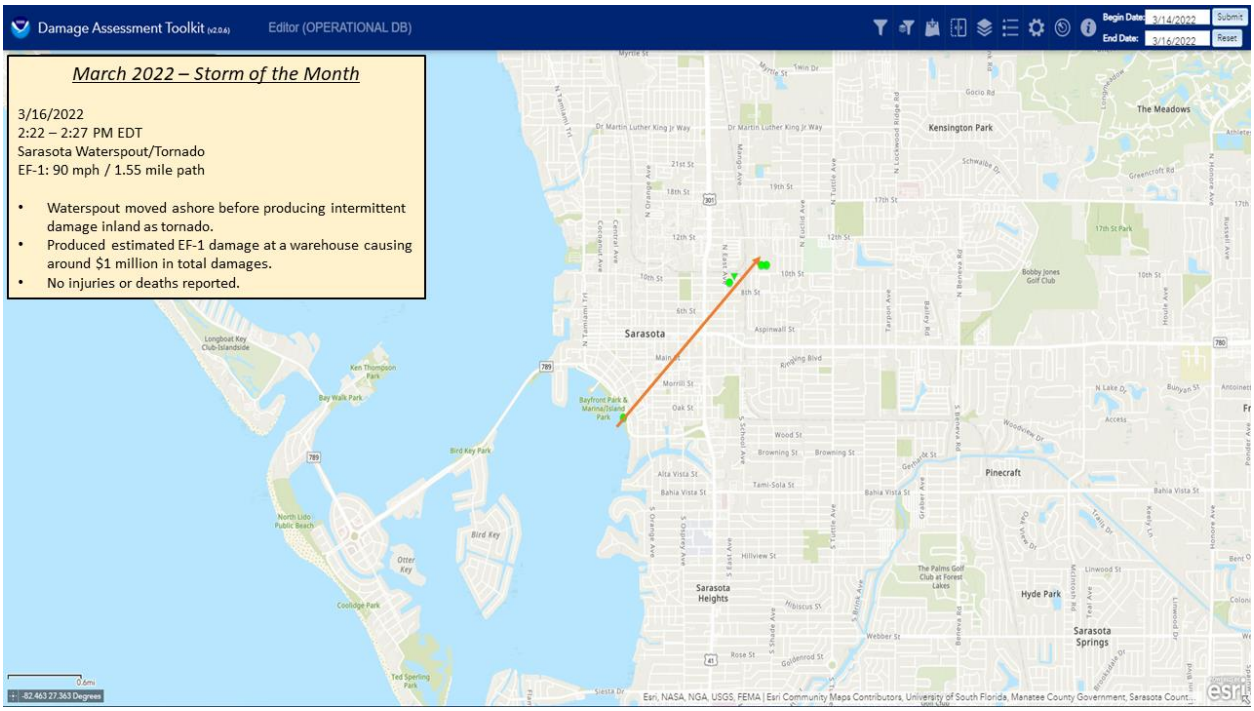
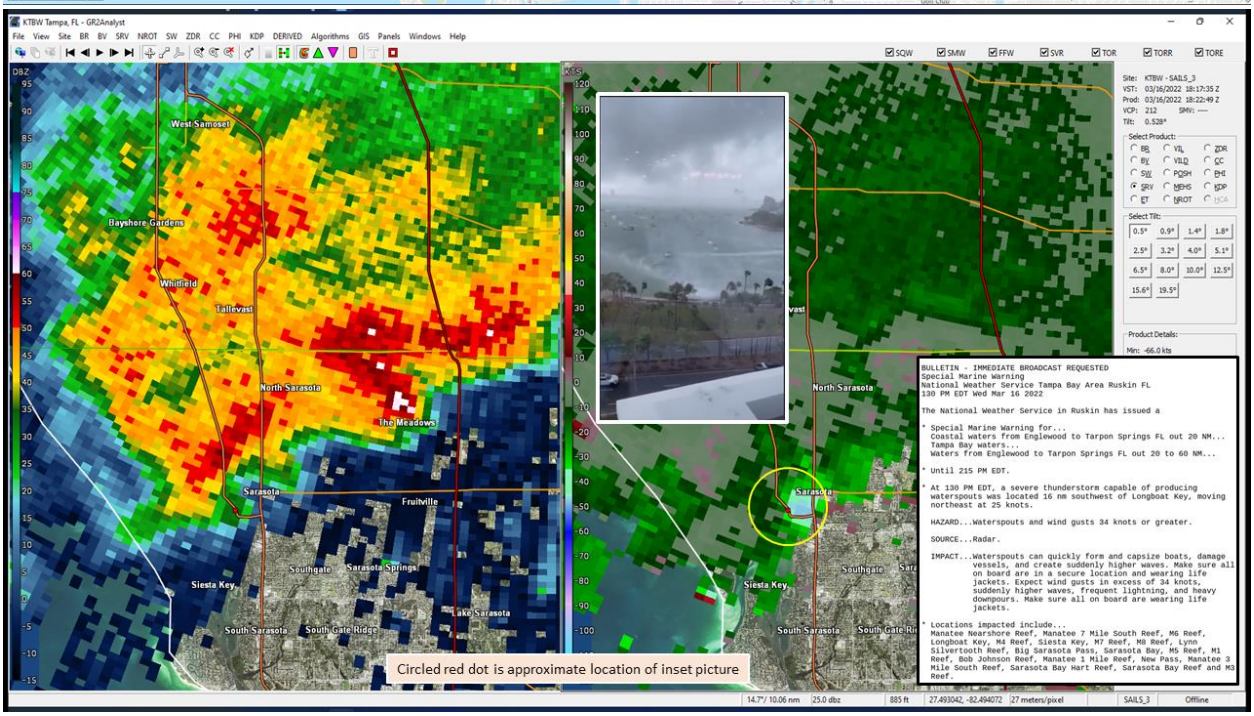
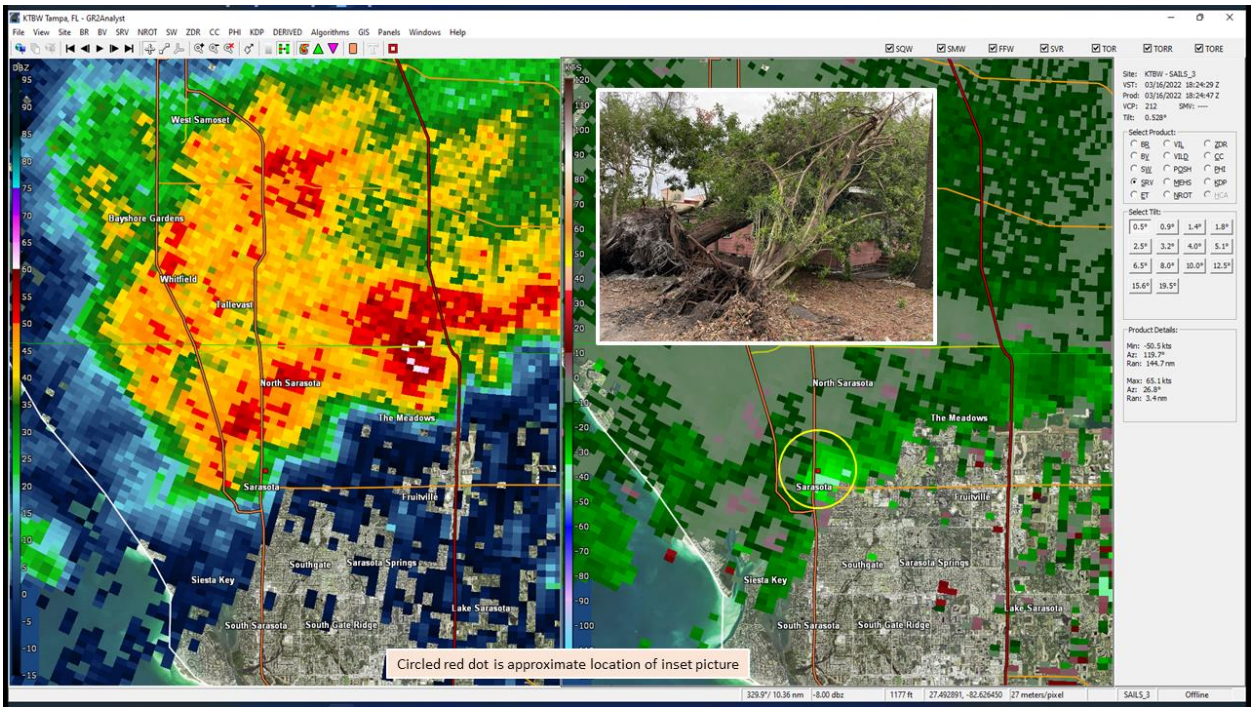

Damage Assessment Toolkit (v2.0.6)
Editor (OPERATIONAL DB)
Begin Date: 3/14/2022
End Date: 3/16/2022
Submit
Reset
March 2022 – Storm of the Month
3/16/2022
2:22 – 2:27 PM EDT
Sarasota Waterspout/Tornado
EF-1: 90 mph / 1.55 mile path
• Waterspout moved ashore before producing intermittent damage inland as tornado.
• Produced estimated EF-1 damage at a warehouse causing around $1 million in total damages.
• No injuries or deaths reported.
Sarasota
Kensington Park
The Meadows
Pinecraft
Hyde Park
Sarasota Heights
Sarasota Springs
Bird Key
Longboat Key Club-Islandside
Ken Thompson Park
Bay Walk Park
Bayfront Park & Marine/Island Park
Bird Key Park
North Lido Public Beach
Otter Key
Coolidge Park
Ted Sperling Park
Bobby Jones Golf Club
17th St Park
The Palms Golf Club at Forest Lakes
Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, University of South Florida, Manatee County Government, Sarasota Count...


KTBW Tampa, FL - GR2Analyst
West Samoset
Bayshore Gardens
Whitfield
Tallevast
North Sarasota
The Meadows
Sarasota
Fruitville
Southgate
Sarasota Springs
Siesta Key
South Sarasota
South Gate Ridge
Lake Sarasota
Circled red dot is approximate location of inset picture
BULLETIN - IMMEDIATE BROADCAST REQUESTED
Special Marine Warning
National Weather Service Tampa Bay Area Ruskin FL
130 PM EDT Wed Mar 16 2022
The National Weather Service in Ruskin has issued a
* Special Marine Warning for...
Coastal waters from Englewood to Tarpon Springs FL out 20 NM...
Tampa Bay waters...
Waters from Englewood to Tarpon Springs FL out 20 to 60 NM...
* Until 215 PM EDT.
* At 130 PM EDT, a severe thunderstorm capable of producing waterspouts was located 16 nm southwest of Longboat Key, moving northeast at 25 knots.
HAZARD...Waterspouts and wind gusts 34 knots or greater.
SOURCE...Radar.
IMPACT...Waterspouts can quickly form and capsize boats, damage vessels, and create suddenly higher waves. Make sure all on board are in a secure location and wearing life jackets. Expect wind gusts in excess of 34 knots, suddenly higher waves, frequent lightning, and heavy downpours. Make sure all on board are wearing life jackets.
* Locations impacted include...
Manatee Nearshore Reef, Manatee 7 Mile South Reef, M6 Reef, Longboat Key, M4 Reef, Siesta Key, M7 Reef, M8 Reef, Lynn Silvertooth Reef, Big Sarasota Pass, Sarasota Bay, M5 Reef, M1 Reef, Bob Johnson Reef, Manatee 1 Mile Reef, New Pass, Manatee 3 Mile South Reef, Sarasota Bay Hart Reef, Sarasota Bay Reef and M3 Reef.


KTBW Tampa, FL - GR2Analyst
West Samoset
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Fruitville
Siesta Key
Southgate
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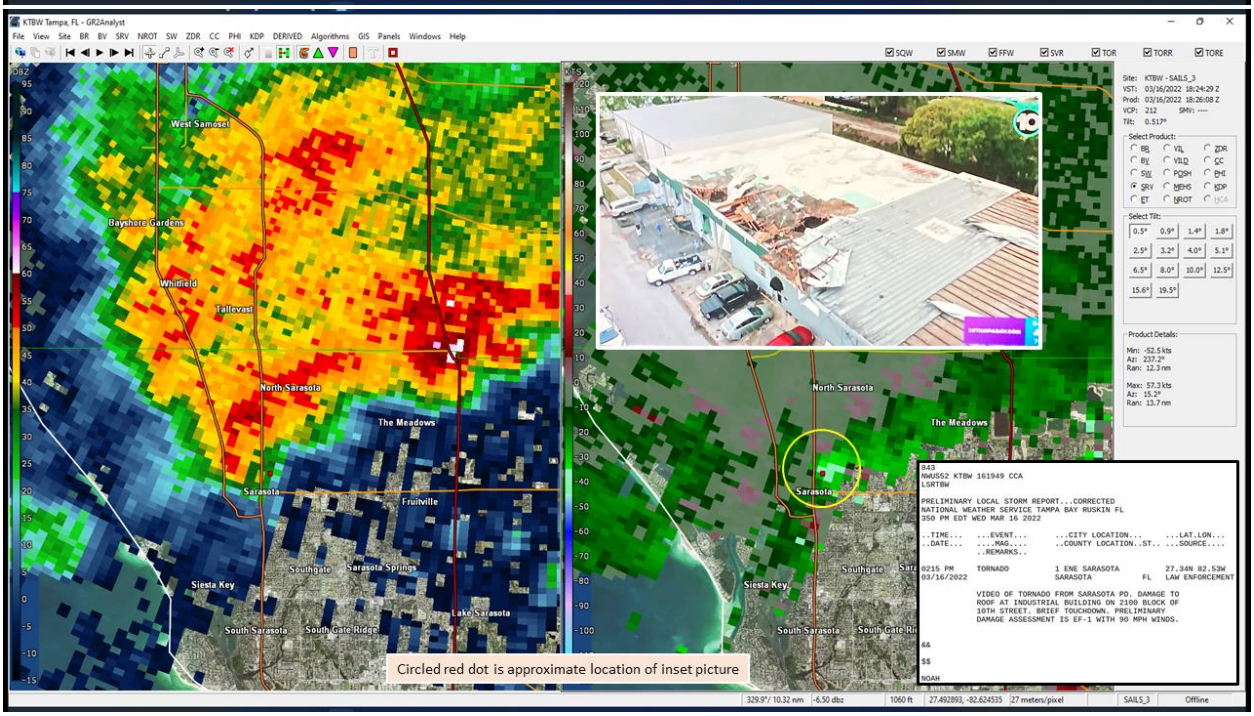
Lake Sarasota
South Sarasota
South Gate Ridge
Circled red dot is approximate location of inset picture


KTBW Tampa, FL - GR2Analyst
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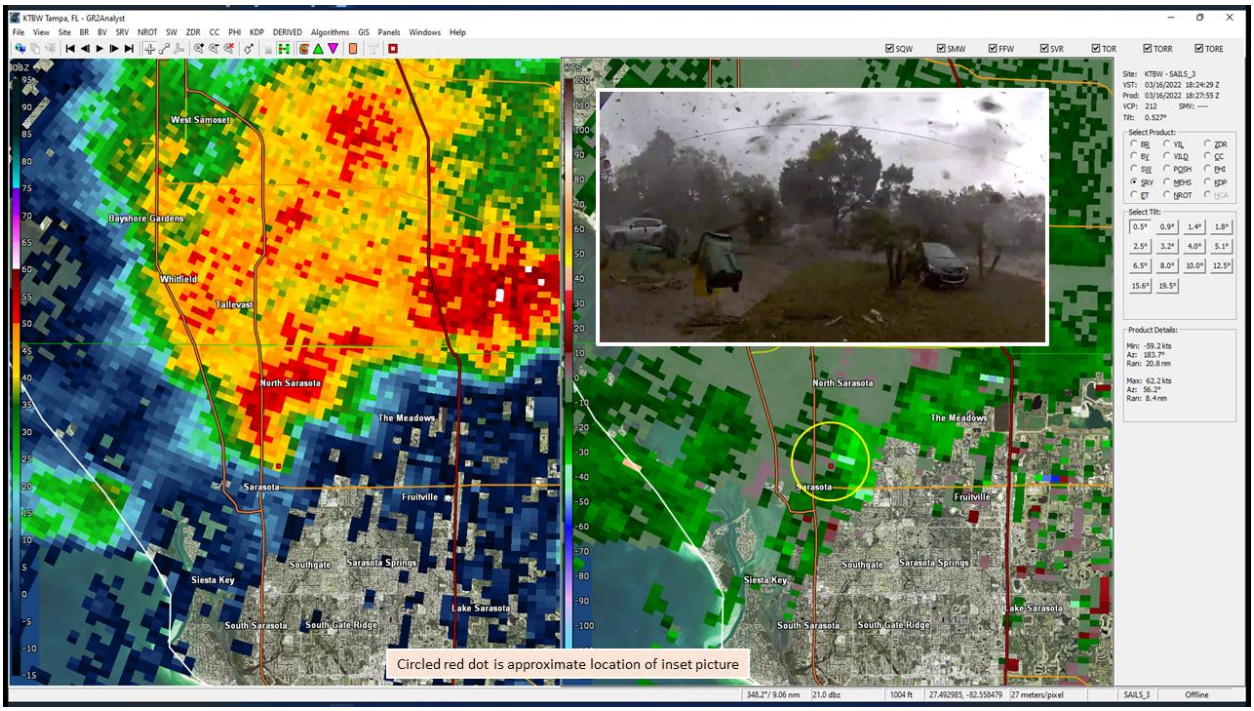
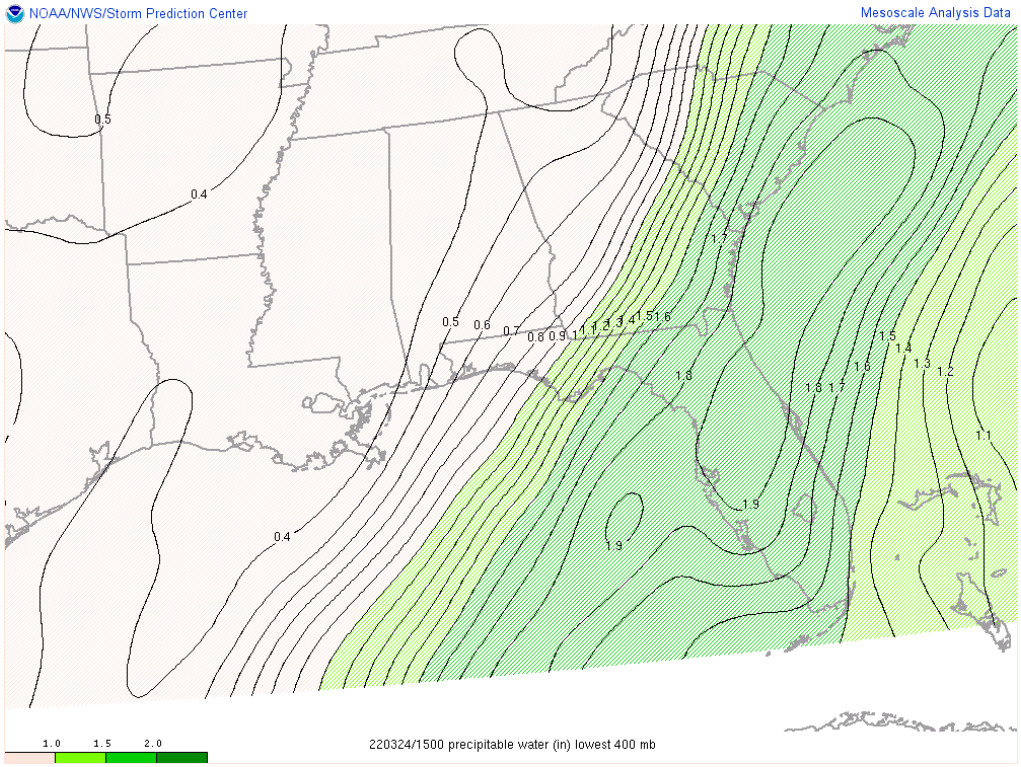


March 24th, 2022

March 24th was largely a null event. Several competing factors were at play that ultimately tipped in the direction of unfavorable. The factor that most likely contributed most greatly was moisture.



This analysis of Precipitable Water (PW) from 15Z on the 24th would suggest that more than sufficient moisture was present. However, too much of a good thing can be a bad thing. The PW value recorded in the 12Z sounding was a record, meaning more moisture was present in the atmosphere on this day than had ever been recorded. This created a scenario where two things ended up occurring that limited storms ability to grow severe: 1.) cloud cover was prevalent over much of the peninsula; this limited CAPE and weakened lapse rates, which created a scenario where depth was limited in most storms 2.) convection infrequently remained discrete; the multicellular modes were much more prevalent, which prevented convection from taking full advantage of an otherwise favorable environment