

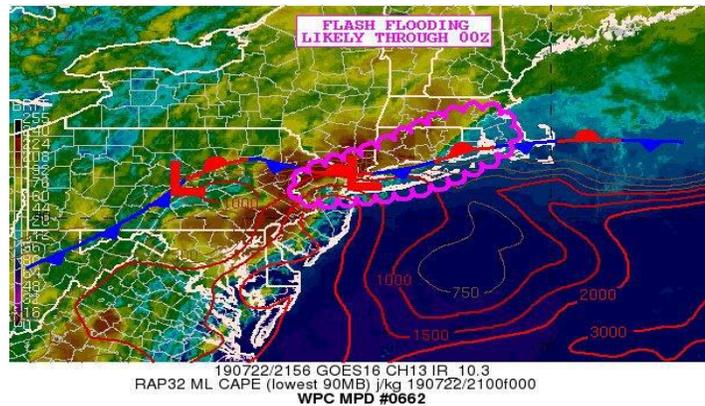
Tornadoes Hit Cape Cod? Really?

A Brief Synopsis of the Tornadoes that hit Cape Cod on July 23rd, 2019

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During the summer most Cape Codders keep a watchful eye on the tropics, but the last thing they worry about are tornadoes...until now!

On Monday evening, July 22nd, a line of dangerous thunderstorms traversing a stationary front, passed over Cape Cod prompting the NWS to issue a “Severe Thunderstorm Warning” at 8 p.m. followed by a “Tornado Warning” at 9:55. While no tornadoes touched down, lightning struck several homes, and torrential rain flooded streets, and powerful winds caused considerable tree damage.



Tuesday morning, July 23rd, a widespread area of heavy showers and thunderstorms associated with a well-defined low pressure system was, once again, racing toward Cape Cod and the islands. A “Flash Flood Watch” was issued by the NWS for all of Rhode Island and Southeast Massachusetts followed by a “Special Marine Warning” at 10:45 for possible waterspouts and a “Severe Thunderstorm Warning” at 11:30.



Special Marine Warning

Valid until
11:30 AM EDT Tuesday
July 23rd, 2019

Threat Information

- POSSIBLE WATERSPOUTS
- STRONG WINDS
Wind gusts up to 50 kts

Safety Information

Thunderstorms can produce a sudden waterspout. Waterspouts can easily overturn boats and create locally hazardous seas. Seek safe harbor immediately.

NATIONAL WEATHER SERVICE

Severe Thunderstorm Warning

Valid until
11:30 AM EDT Tuesday
July 23, 2019

Threat Information

- WIND
Gusts to 60 MPH
- HAIL
Frequent
Size Possible

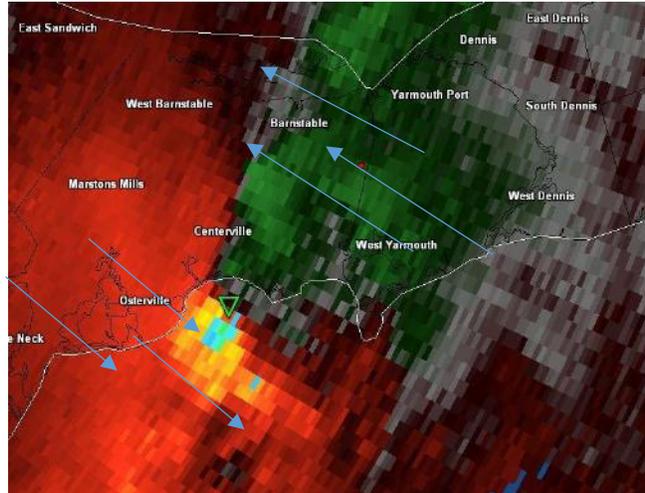
Potential Exposure

- Population: 14,891
- Schools: 7
- Hospitals: 1

NATIONAL WEATHER SERVICE

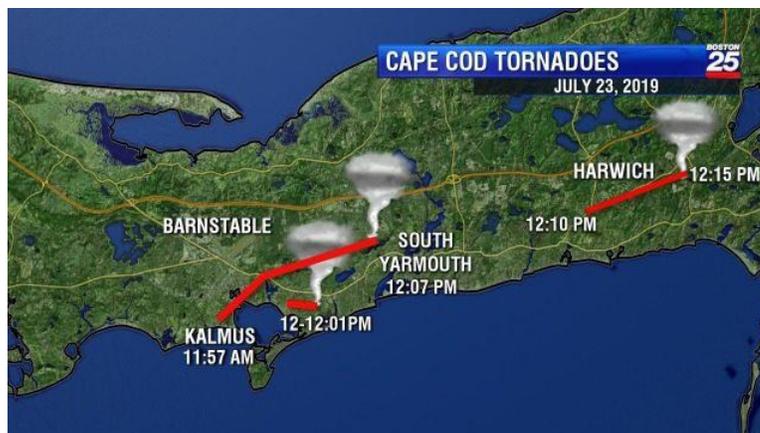
Fifteen minutes later, NWS radar confirmed that a “supercell thunderstorm had produced waterspouts on both Vineyard Sound and Nantucket Sound.” Instantly, every TV, radio and cell phone on Cape Cod was activated with a special announcement from the NWS- “Tornado Warning, take shelter immediately”. Multiple warnings were issued as the supercell moved east.

The National Weather Service
 has issued A TORNADO WARNING
 for the following counties
 or areas:
 Barnstable, MA;
 at 11:39 AM
 on JUL 23, 2019
 Effective until 12:24 PM.
 Message from KBOX/NWS.



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At 11:57 a.m., one of these waterspouts then moved on shore as a tornado just west of Kalmus Beach in Hyannis where a wind gust of 91 mph was recorded. It then continued at 35 mph on a “discontinuous path” northeastward across Lewis Bay touching down in West Yarmouth, MA as a high-end EF1 tornado with wind gusts estimated at 110 mph.



The tornado then continued east northeast for 5.5 miles uprooting and snapping off dozens of trees, ripping shingles from many homes, downing power lines, and tearing the roof off the Cape Sands Inn in South Yarmouth. It then lifted up over Bass River at 12:07 heading directly toward West Harwich. Although West Dennis was not directly hit by the tornado, it experienced severe straight-line wind damage “consistent with 90 mph gusts or greater”.



Photo left shows a decimated street in West Dennis.

Photo below was taken by Mario Jay as the EF1 Tornado crossed Parkers River in West Yarmouth.



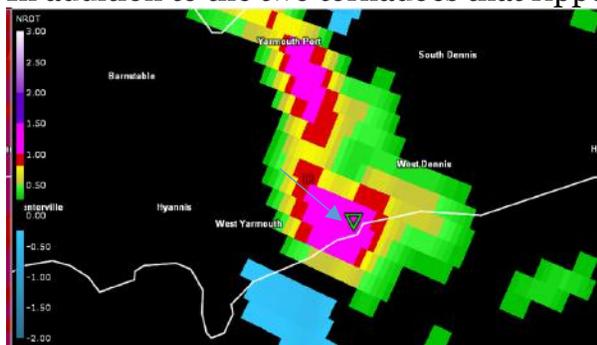


At exactly 12:10 p.m., the supercell that had produced the tornado in Yarmouth also produced a second tornado that touched down near the center of Harwich. It then traveled 2.77 miles northeast through Harwich Center, just south of the golf course before lifting in East Harwich at 12:15. Damage was extensive with over 150 hardwood trees uprooted or snapped and many homes stripped of their shingles. This tornado was also classified as a high-end F1 with wind gusts estimated at 110 mph.

Still packing a punch, the supercell now moved over Chatham with severe straight-line wind damage that uprooted numerous large trees and blasted Chatham harbor with 90 mph wind gusts that pounded yachts with giant waves and broiling seas.



In addition to the two tornadoes that ripped across Yarmouth and Harwich, the National Weather Service determined that there was a third tornado south of Rte 28 in Yarmouth, and that it was on the ground at the same time as the other tornado. This brief and narrow tornado (approximately 50 yards wide) touched down in West Yarmouth and traveled east before lifting and dissipating. It was only on the ground for one minute between noon and 12:01, but it left a path of snapped off and ripped up pine trees for one-quarter of a mile.





While most of the severe damage occurred from the tornadoes in Yarmouth and especially Harwich, localized serious damage from straightline wind gusts was reported from Falmouth to Chatham. In a two block area at the end of Wianno Avenue in Osterville, scores of trees were uprooted and some were snapped off half way up the trunk.

By the time the last supercell had moved off shore, close to 50,000 homes and businesses were without power. Within minutes, Town Public Works crews were clearing streets and Eversource crews were working to restore power. By Wednesday morning 900 utility crews from all over New England, New York and New Jersey were working on Cape and by Thursday evening almost all power was restored, a good 24 hours ahead of schedule.



Note: Quotes were taken from NWS Watches, Warnings, and discussions.

Analysis and Summary

The two powerful weather events that lashed Cape Cod Monday evening, July 22nd, and midday Tuesday, July 23rd both formed on a warm front that was almost stationary over the south coast of Southern New England. The main difference was that the midday storm “had a more defined low pressure with a stronger circulation and better inflow,” and “was probably a key component in the high impact tornado/straight line wind damage that impacted Cape Cod.” In addition, the very warm water just south of the Cape may have contributed to the instability of the atmosphere. Add to that a brief period of sunshine that occurred across the Cape a few hours before the tornadoes that caused increased temperatures (73-75) and higher dewpoints (70+), and you had the perfect recipe for supercell/tornado formation.

Note:

Many thanks to Hayden Frank, Meteorologist, NWS Norton, for his assistance with this summary.

