



# LakeErieWX

Marine Weather Education and Forecasting Resources

## Courtesy of National Weather Service / Storm Prediction Center

### Severe Thunderstorms



A severe thunderstorm refers to a thunderstorm producing hail that is at least 1 inch in diameter or larger, and/or wind gusts of 58 mph or greater, and/or a tornado. Although lightning can be deadly, the NWS doesn't use it to define a severe thunderstorm. If it did, every thunderstorm would be severe, by definition. Also, excessive rainfall may lead to deadly flash flooding, but heavy rain is not a severe criterion either.

### Organized Severe Weather


To some degree, all thunderstorms are organized. We refer to organized severe storms as those which persist for several hours, are capable of multiple and/or significant severe weather events, and which we are able to forecast consistently. Organized severe storms tend to form in areas where the vertical wind shear is relatively strong and has particular characteristics, while non-organized severe storms are most common when vertical wind shear is weak. The most long-lived, intense tornadoes and largest hail are usually produced by supercell thunderstorms, while the most serious convective wind storms are produced by bow echoes.

## What is a "severe thunderstorm?"

**Severe thunderstorms** produce wind gusts of at least 58 mph and/or quarter sized hail (1.00 inch diameter)...and sometimes can produce tornadoes

Wareham/Onset Microburst 2012




Unofficially at just over 4 inches East Windsor, MA June 1, 2011

**But even non-severe thunderstorms carry threats of:**

**Lightning:**

- #2 weather-related killer
- Can strike 10 miles or more both ahead of the rain...and after the rain has ended!


*If you can hear thunder, you're close enough to get struck by lightning!*



Boston, MA

**Flash Flooding:**

- #1 cause of death associated with thunderstorms
- Turn Around Don't Drown: 6 inches of moving water can knock a person down; 2 feet of moving water can sweep cars away!




Southboro, MA  
Rob Macedo

**Watch vs Warning:**


**Watch:** Issued when potential for severe thunderstorms exists

**Warning:** Issued when severe thunderstorms are imminent or already occurring



Website: [www.weather.gov/boston](http://www.weather.gov/boston)

Twitter: [@NWSBoston](https://twitter.com/NWSBoston)



Facebook: <http://www.facebook.com/US.NationalWeatherService.Boston.gov>

# Understanding Severe Thunderstorm Risk Categories

THUNDERSTORMS (no label)	1 - MARGINAL (MRGL)	2 - SLIGHT (SLGT)	3 - ENHANCED (ENH)	4 - MODERATE (MDT)	5 - HIGH (HIGH)
<b>No severe* thunderstorms expected</b>	<b>Isolated severe thunderstorms possible</b>	<b>Scattered severe storms possible</b>	<b>Numerous severe storms possible</b>	<b>Widespread severe storms likely</b>	<b>Widespread severe storms expected</b>
Lightning/flooding threats exist with <u>all</u> thunderstorms	Limited in duration and/or coverage and/or intensity	Short-lived and/or not widespread, isolated intense storms possible	More persistent and/or widespread, a few intense	Long-lived, widespread and intense	Long-lived, very widespread and particularly intense
					
<ul style="list-style-type: none"> <li>• Winds to 40 mph</li> <li>• Small hail</li> </ul>	<ul style="list-style-type: none"> <li>• Winds 40-60 mph</li> <li>• Hail up to 1"</li> <li>• Low tornado risk</li> </ul>	<ul style="list-style-type: none"> <li>• One or two tornadoes</li> <li>• Reports of strong winds/wind damage</li> <li>• Hail ~1", isolated 2"</li> </ul>	<ul style="list-style-type: none"> <li>• A few tornadoes</li> <li>• Several reports of wind damage</li> <li>• Damaging hail, 1 - 2"</li> </ul>	<ul style="list-style-type: none"> <li>• Strong tornadoes</li> <li>• Widespread wind damage</li> <li>• Destructive hail, 2" +</li> </ul>	<ul style="list-style-type: none"> <li>• Tornado outbreak</li> <li>• Derecho</li> </ul>

\* NWS defines a severe thunderstorm as measured wind gusts to at least 58 mph, and/or hail to at least one inch in diameter, and/or a tornado. All thunderstorm categories imply lightning and the potential for flooding. Categories are also tied to the probability of a severe weather event within 25 miles of your location.



National Weather Service

[www.spc.noaa.gov](http://www.spc.noaa.gov)

