



Hail Yeah!

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Hail causes about \$1 billion in damages in the United States, including car damage & \$1 billion in damages to crops.



Photo credit Bridget Lassiter
<https://climate.ncsu.edu/edu/PrecipTypes>















Photos: NSSL, NOAA Photo Library

Hail is a threat to aircraft, wildlife, livestock and even human life.



<https://airlinegeeks.com/2015/08/11/a-pilot-explains-hail-and-how-it-can-effect-an-aircraft/>

Typical Damage from Hail

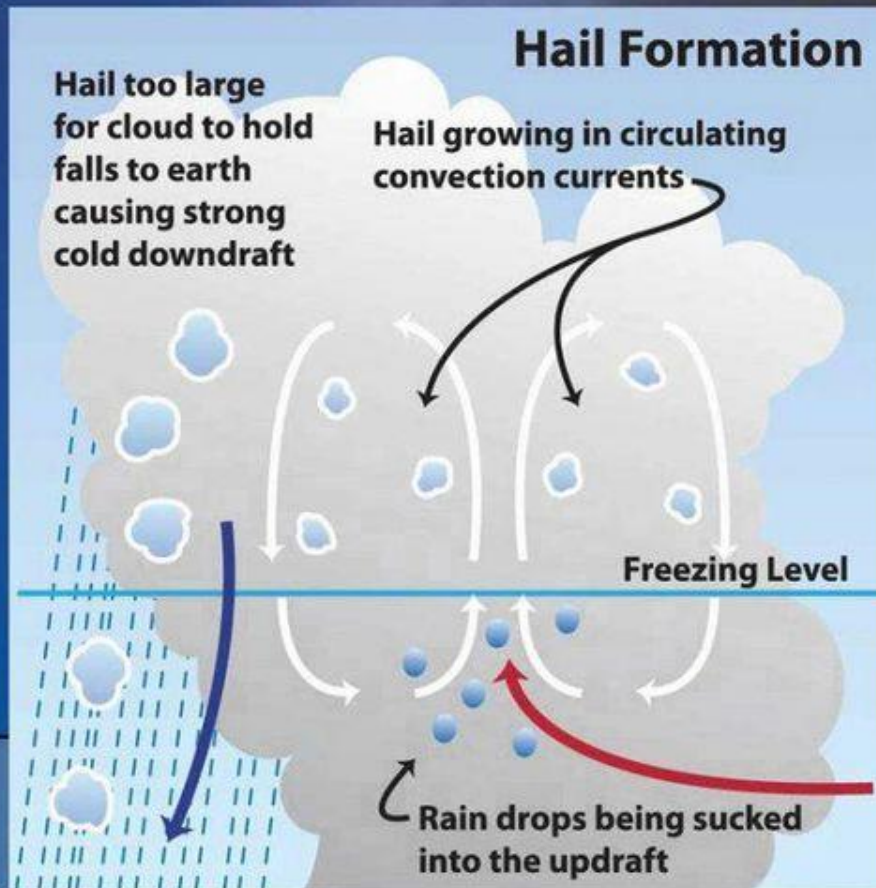
Size Comparison	Hail Size	Damage
 Quarter-size	 1 inch	 Damage to shingles
 Golf ball	 1.75 inches	 Major dents on cars
 Baseball	 2.75 inches	 Windshields smashed
 Softball	 4.5 inches	 Holes in home or car roofs

GEICO More

Source: NOAA

Hail Formation and Growth

- Thunderstorm with strong sustained updraft
- Small ice particle falls below freezing level, coated with water
- Caught in updraft, rises above freezing level
- Cycle repeated until hailstone grows too large
- Updraft unable to hold hailstone aloft, or it falls outside of updraft.



Burlington

How strong does the updraft need to be for the various sizes of hail?

The table provides the approximate speed for each size.

The stronger the updraft the larger the hailstone can grow.

Hailstone size	Measurement		Updraft Speed	
	in.	cm.	mph	km/h
bb	< 1/4	< 0.64	< 24	< 39
pea	1/4	0.64	24	39
marble	1/2	1.3	35	56
dime	7/10	1.8	38	61
penny	3/4	1.9	40	64
nickel	7/8	2.2	46	74
quarter	1	2.5	49	79
half dollar	1 1/4	3.2	54	87
walnut	1 1/2	3.8	60	97
golf ball	1 3/4	4.4	64	103
hen egg	2	5.1	69	111
tennis ball	2 1/2	6.4	77	124
baseball	2 3/4	7.0	81	130
tea cup	3	7.6	84	135
grapefruit	4	10.1	98	158
softball	4 1/2	11.4	103	166

Holy Hail!

The largest hailstone on record in the United states fell in Vivian, SD on July 23, 2010. It measured 8 inches in diameter and weighed nearly 2 pounds!



Measurement showing a diameter of 8"



The divot from the hail hitting the ground



NWSNewOrleans

weather.gov/NewOrleans

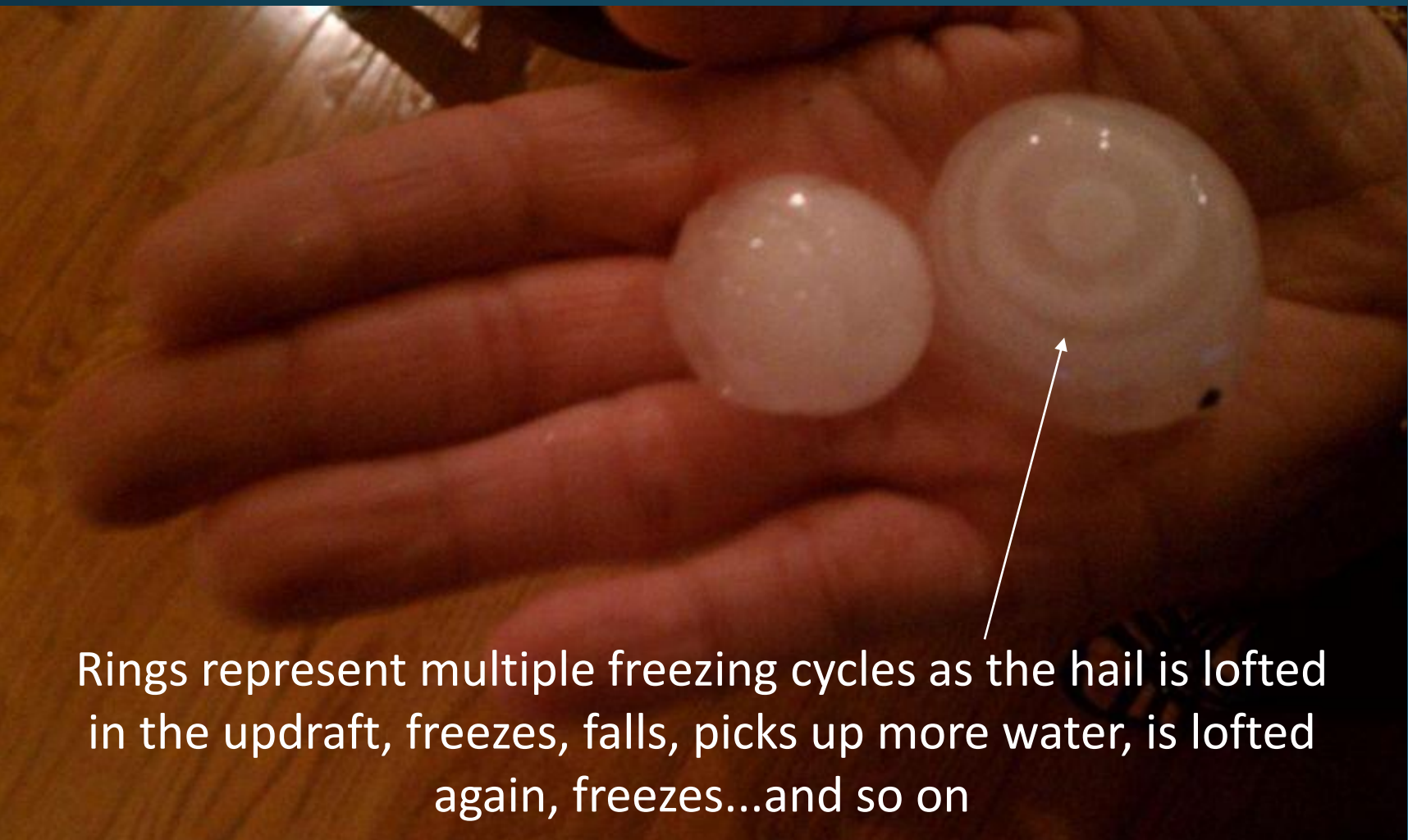


Hail: Formation

Hailstone from
Tega Cay, SC
(just S of
Charlotte)

4/8/11

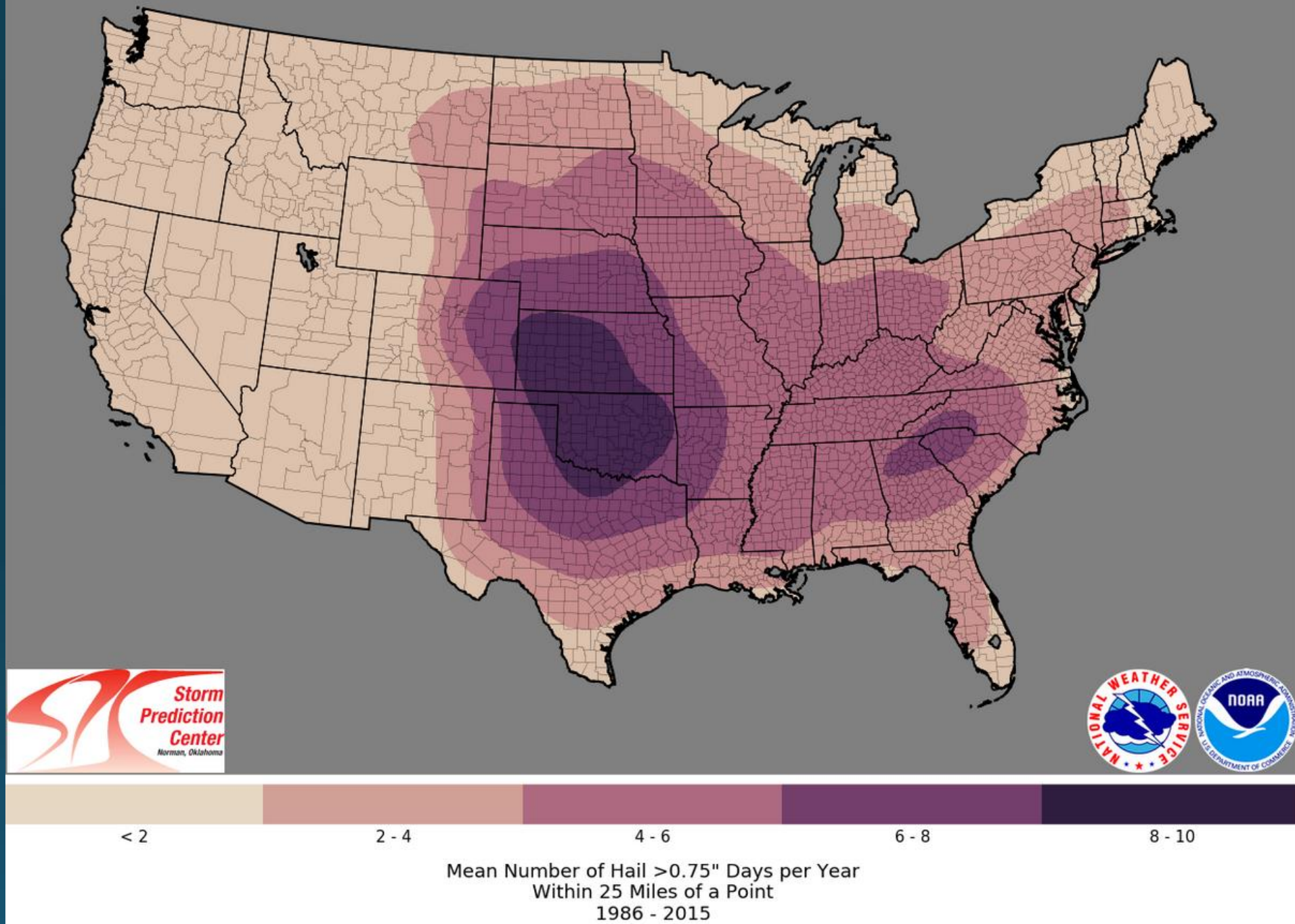
Image courtesy
USRA.edu, taken by S.
Rardin



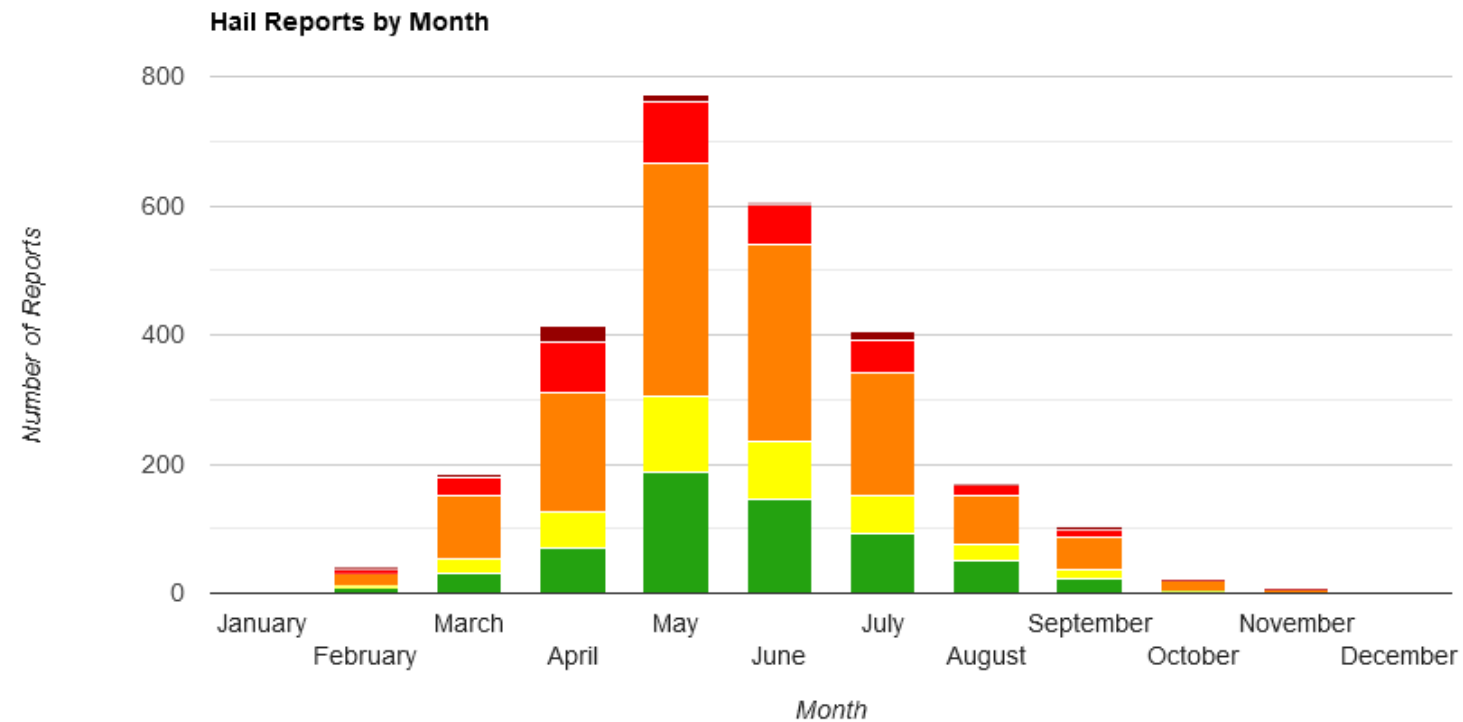
Rings represent multiple freezing cycles as the hail is lofted
in the updraft, freezes, falls, picks up more water, is lofted
again, freezes...and so on

So, what is the difference between hail and sleet?





Charts

[Reports by Month](#)[Reports by Category](#)[Report Summary](#)

NC Hail reports
from 2009-2018

Legend

Hail Reports

- 0.75 in. (611)
- 0.76 to 0.99 in. (388)
- 1 to 1.4 in. (1301)
- 1.5 to 1.9 in. (355)
- ≥ 2 in. (60)

Hail Safety

Seek shelter indoors. Stay away from skylights & windows.

If you're driving, pull over as soon as possible, preferably near a place with shelter, like a garage or under a gas station awning. Make sure you're completely off of the highway.

<https://weather.com/storms/severe/news/hail-dangers-costs-20130403>



Nearly all of the windows in this Wylie, Texas, home were knocked out by a hailstorm on April 11, 2016.

(Twitter/WylieBear1)



Large hail pelts a runner in Iowa

Courtesy: Pat Crawford

(Courtesy: Pat Crawford)

Reporting Hail to SKYWARN & the NWS

At first, report any size hail.


At the end of the event, report the size of the largest hail stone and any damage.

To estimate size, compare the hail to known objects such as coins or balls (but not marbles), or measure the hail with a ruler.



REPORTING HAIL SIZE



Pea	.25 inch		Lime/ Hen Egg	2 inch		
Small Marble	.50 inch		Tennis Ball	2.50 inch		
Penny	.75 inch		Baseball	2.75 inch		
Nickel	.88 inch		Large Apple	3 inch		
Quarter	1 inch		Softball	4 inch		
Half Dollar	1.25 inch		Grapefruit	4.50 inch		
Ping Pong	1.50 inch		CD/DVD	4.75 – 5 inch		
Golf Ball	1.75 inch					

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Questions?

Personal hail story to share?