



Photo courtesy of FEMA/Jocelyn Augustino Louisiana 2005

CATASTROPHE SERVICES

The Catastrophe Service Challenge

June 8, 2022

Did hail damage insured's property?

The Scenario

An insured in Laredo, Texas reported that roof shingles were damaged on May 24, 2022. Using *PLRB's* Hail Research Web App, how do you determine if the insured was affected by hail?

Answer

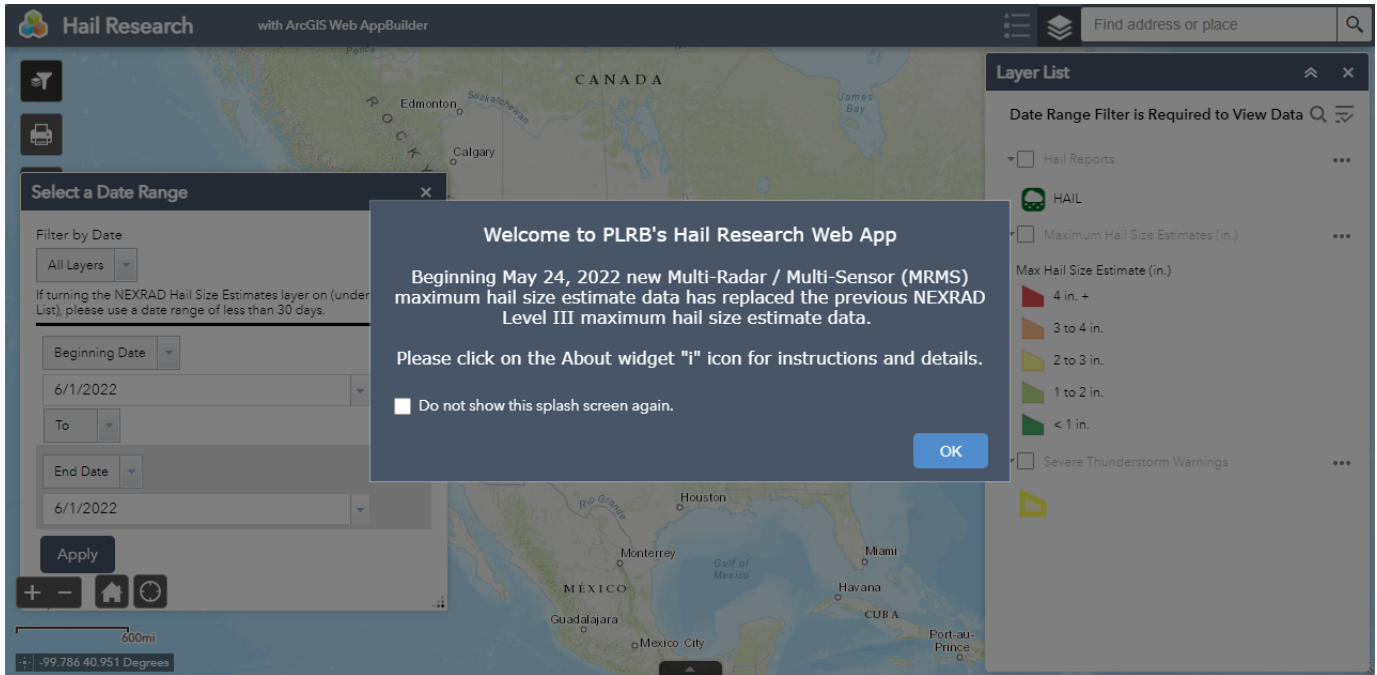
From the **PLRB Homepage**, at www.plrb.org, perform the following:

Hover your mouse over **Weather/Cats** on the top navigation bar.

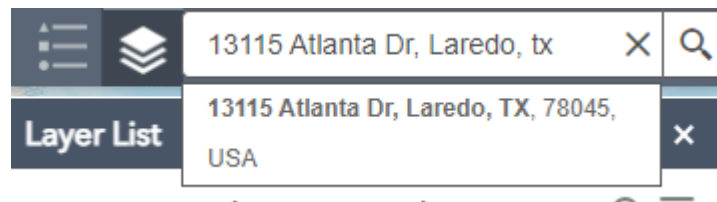
Under **Weather Research** click on **Hail Web App**.



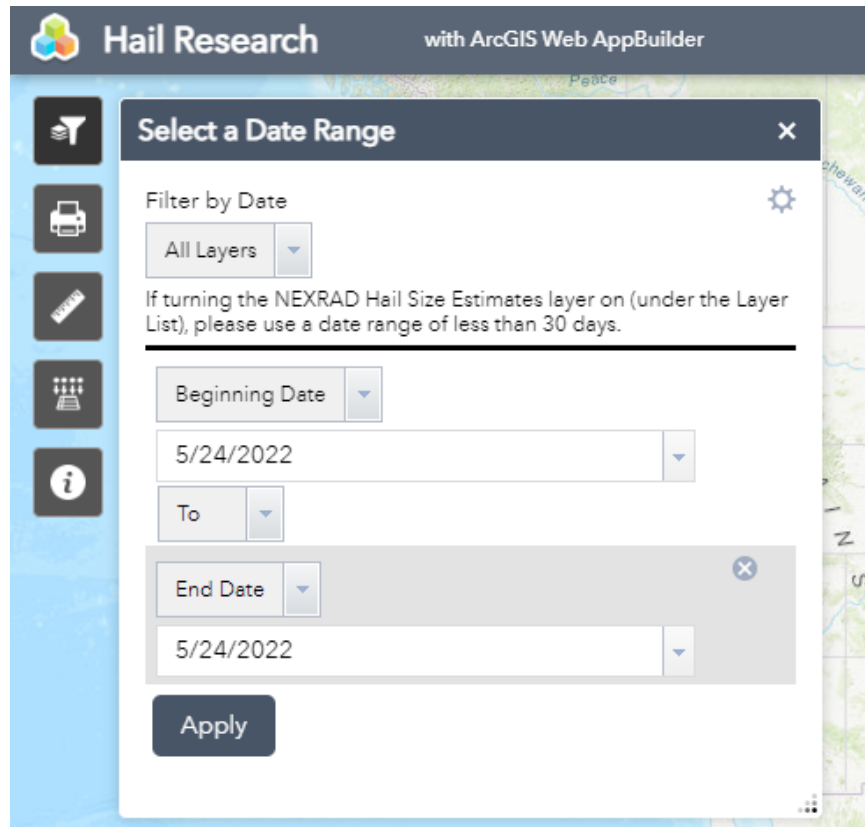
After the web app loads, please read the splash screen and click ok.



Next, enter the address **13115 Atlanta Dr, Laredo, TX** in the Enter Address text box and press Enter. The map will be re-centered and an address marker will be placed at the location.

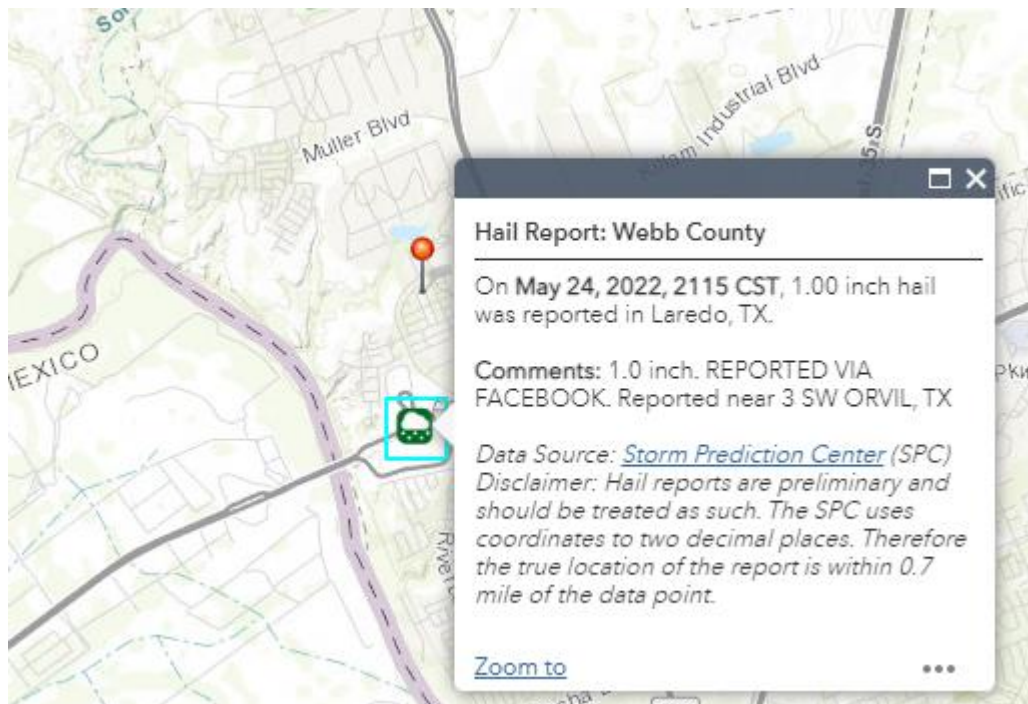


To filter the hail reports and NEXRAD hail size estimate data, select the date range using the **Select a Date Range** filter widget on the left hand side of the screen. Then click **Apply**. You may close the date filter widget.

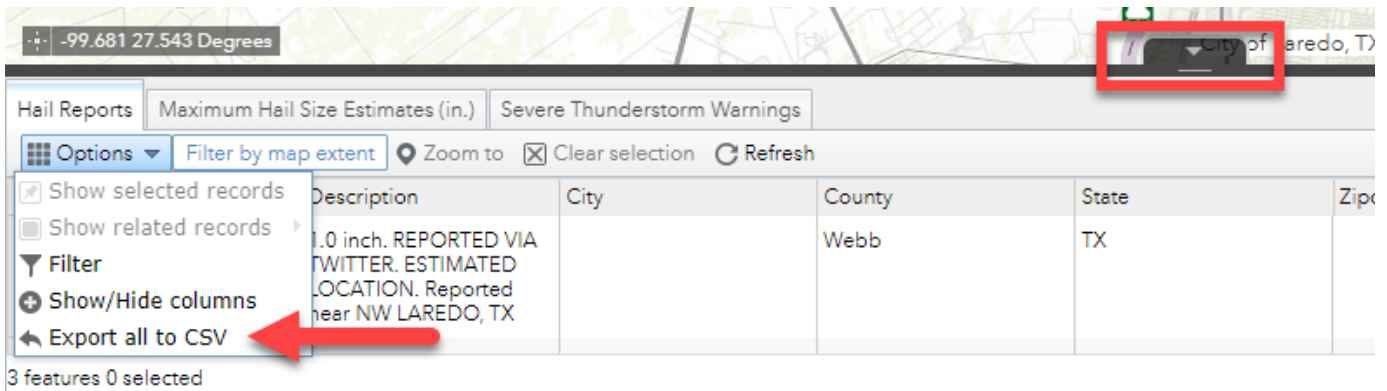


After you click **Apply**, the Hail Reports layer will become visible, and any available hail reports for the date range will be displayed on the map. Zoom out and/or pan the map using your mouse wheel or the map navigation tools to view hail reports in surrounding areas.

Click on the hail report icons to view more information regarding the hail reports.

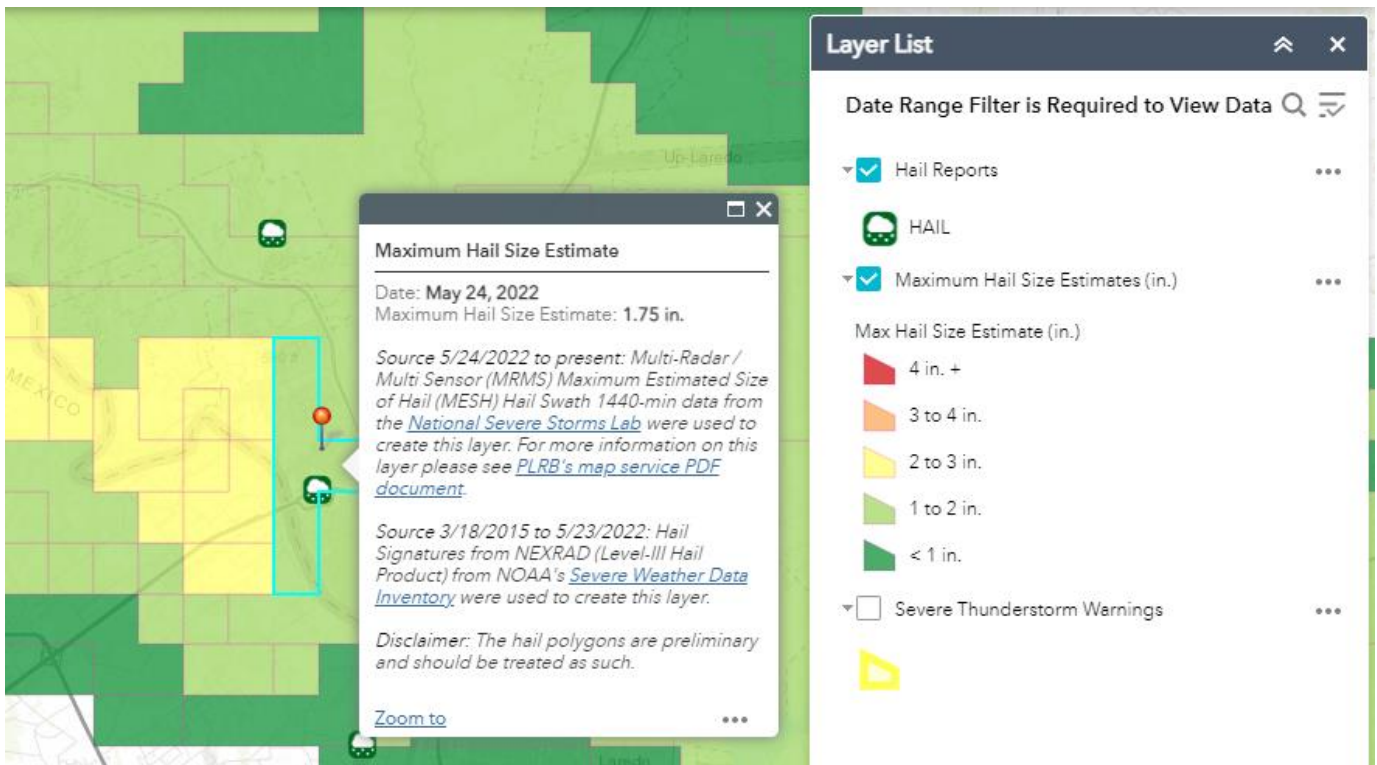


To download the hail report data to a CSV file, click on the down arrow near the bottom of the window and select *Export to CSV* under *Options*.



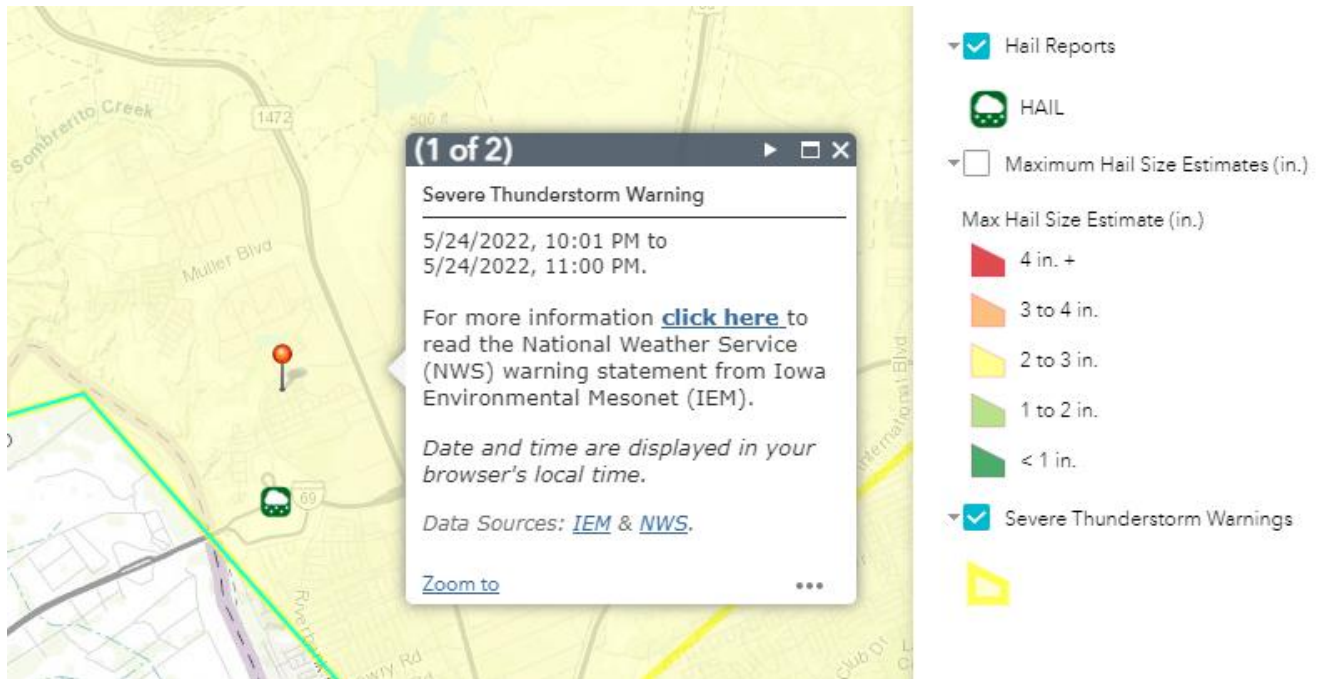
The hail reports are fairly close to the address in question, but we can also check the web app for available Maximum Estimated Size of Hail (MESH) data that would indicate hail in the area of the address. The filter date widget has already filtered the Maximum Hail Size Estimates layer, so a simple click on the checkbox will make the data visible on the map. This data is based on radar data available from NOAA.

Polygons now appear on the map. Click on the area near the address.



The Hail Research Web App shows there was a significant hail storm in the area of the address, on May 24, 2022. A left click opens a popup indicating a maximum hail size estimate of 1.75 inch for May 24, 2022, near the location.

Finally, we can also use the web app to check for available historical severe thunderstorm warnings in the area of the address. The filter date widget has already filtered the Severe Thunderstorm Warning layer, so a simple click on the checkbox will make the data visible on the map.



There were two severe thunderstorm warnings in the area. By clicking on the link in the popup, we can read the original text of the severe thunderstorm warning from the National Weather Service.

Severe Thunderstorm Warning
National Weather Service Corpus Christi TX
1001 PM CDT Tue May 24 2022

The National Weather Service in Corpus Christi has issued a

- * Severe Thunderstorm Warning for...
Southeastern Webb County in south central Texas...
- * Until 1100 PM CDT.
- * At 1001 PM CDT, a severe thunderstorm was located near Ranchos Penitas West, or 8 miles northwest of Laredo, moving southeast at 30 mph.

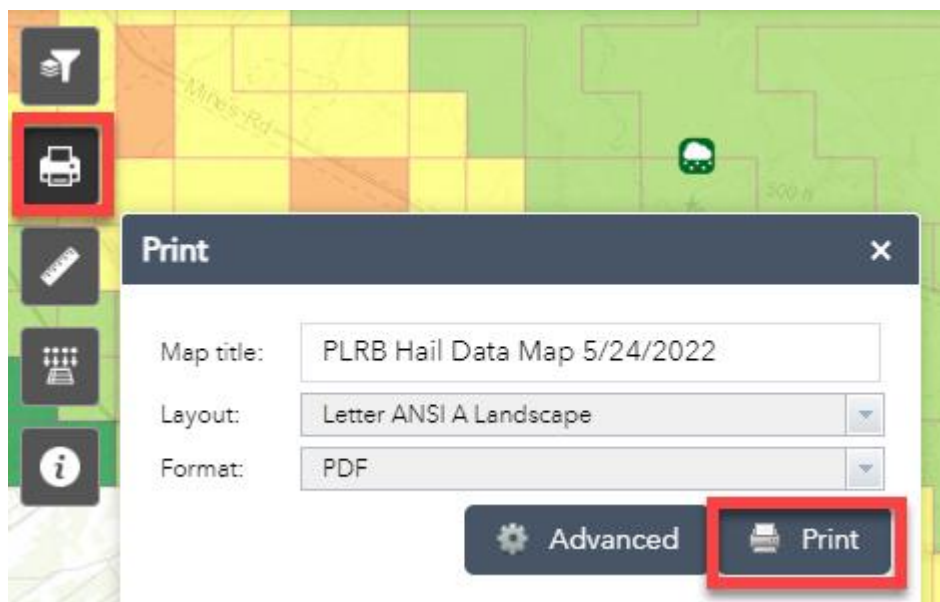
HAZARD...Tennis ball size hail and 70 mph wind gusts.

SOURCE...Radar indicated.

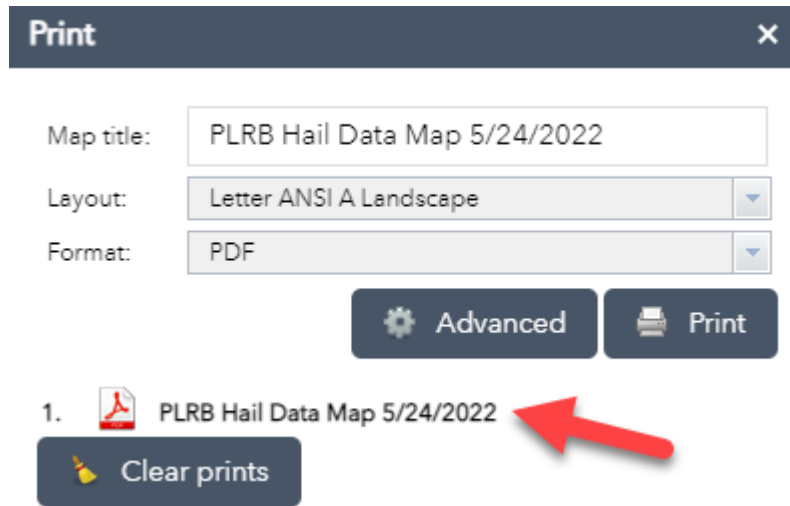
IMPACT...People and animals outdoors will be injured. Expect hail damage to roofs, siding, windows, and vehicles. Expect considerable tree damage. Wind damage is also likely to mobile homes, roofs, and outbuildings.

- * Locations impacted include...
Laredo, Rio Bravo, El Cenizo, Texas A&M, Laredo International Airport, Unitec Industrial Park, Ranchos Penitas West, United South High School, St Augustine High School South Laredo, Doctors Hospital Of Laredo, Laredo Country Club, Laredo Community College, Orvil, Botines and Ranchitos Las Lomas.

A Print widget is available to print the map to PDF. Click on the Print widget icon to open the settings. Altering the title of the map is optional. Then select the Print button.



Click on the PDF link and the PDF will open in a new browser tab where the user can download the PDF or print to paper.



National Weather Service Hail Reports

Hail reports are generated from storm spotters who witness the event and contact the National Weather Service with their report. Reports could be submitted by police and fire personnel, dispatchers, EMS workers, public utility workers, NWS employees, private citizens, mPING (crowdsourcing weather reports app), and CoCoRaHS (grassroots volunteer network of backyard weather observers all working together to measure and map precipitation (rain, hail and snow) in their local communities). The reports are preliminary and should be treated as such. Unfortunately, there is not a storm spotter available in every city to call in every weather report. The reports are intended to give the adjuster an idea of what severe weather was occurring in and around the insured. The NWS uses coordinates to two decimal places. Therefore, the true location of the report is within 0.7 mile of the data point.

About Maximum Hail Size Estimates (Hail Swaths)

May 24, 2022 to Present:

Multi-Radar / Multi Sensor (MRMS) Maximum Estimated Size of Hail (MESH) Hail Swath 1440-min data from the National Severe Storms Laboratory. The MRMS system was developed to produce severe weather, transportation, and precipitation products for improved decision-making capability to improve hazardous weather forecasts and warnings, along with hydrology, aviation, and numerical weather prediction. MRMS is a system with fully automated algorithms that quickly and intelligently integrate data streams from multiple radars, surface and upper air observations, lightning detection systems, satellite observations, and forecast models.

PLRB archives the 1440-min (24 hour) MESH data which equates to maximum hail size estimate for the day. Central Standard Time is used to determine the day. For example, if searching for 5/24/2022 data, this represents MRMS maximum estimated size of hail data for the 24 hour period beginning 12am CST to 11:59pm CST (5/24/2022 0600 UTC to 5/25/2022 0559 UTC). Hail size estimate data may be missing if a RADAR station experiences an outage.

March 18, 2015 to May 23, 2022:

The NEXRAD (Next-Generation Radar) Level III hail signatures point data are used to create this layer. Point values of maximum hail size estimates of 0.50 in. to greater than 4 in. (values > 4 in. are not specified) are used as the raw data. The point locations are the mass weighted centroids of the storms, not necessarily where it is actively hailing. This data is downloaded every 6 minutes.

According to the National Severe Storm Laboratory (NSSL), a division of NOAA, hail swaths can range in size from a few acres to an area 10 miles wide and 100 miles long. For this reason, PLRB Cats Services utilizes ArcGIS software to create a grid over a 2 mile buffer radius around hail signature points to create an "average" maximum hail size estimate region for that day. The hail swaths are only considered approximate. The polygons do not represent exact data; it is possible hail may have fallen outside of the polygon areas. NEXRAD hail size estimate data may be missing if a RADAR station experiences an outage. The field MAXSIZEGRID should be used for hail estimate data beginning 3/18/2015.

National Weather Service Severe Thunderstorm Warnings:

Data is available 1-2 days after the event has expired. Short term warnings (severe thunderstorm warning, tornado warning, and flash flood warning) are typically displayed as irregular polygons. This data is obtained as shapefiles from Iowa Environmental Mesonet (IEM). Warnings data is dependent upon data available from IEM. Data available 1/1/2017 to present.

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