



METRO SKYWARN NEWSLETTER

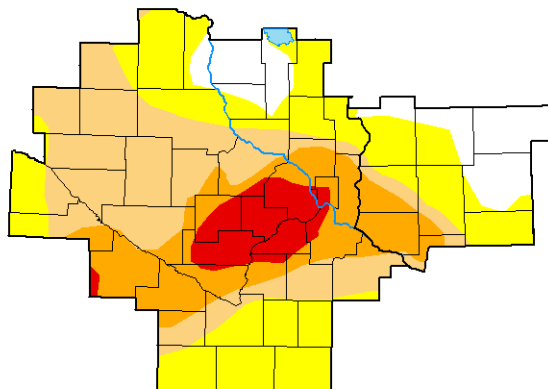
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2022 Year-in-review

By Todd Krause (K0MPX), Warning Coordination Meteorologist at NWS in Chanhassen

U.S. Drought Monitor Twin Cities/ Chanhassen, MN WFO



October 4, 2022

(Released Thursday, Oct. 6, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.92	88.08	54.84	25.30	7.33	0.00
Last Week 09-27-2022	20.14	79.86	33.95	11.27	0.00	0.00
3 Months Ago 07-05-2022	52.93	47.07	8.41	0.00	0.00	0.00
Start of Calendar Year 01-04-2022	48.18	51.82	25.73	0.00	0.00	0.00
Start of Water Year 09-27-2022	20.14	79.86	33.95	11.27	0.00	0.00
One Year Ago 10-05-2021	17.25	82.75	33.48	1.04	0.00	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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CPC/NOAA



droughtmonitor.unl.edu

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MetroSkywarn.org

General Information.....Help@MetroSkywarn.org

TrainingTraining@MetroSkywarn.org

Website IssuesWebmaster@MetroSkywarn.org

Mission and Objectives

Metro Skywarn, Inc., is an organization of amateur radio operators and severe weather enthusiasts with interests in the areas of severe weather spotting and amateur radio communications as a public service. This organization will operate in the metro area of the Twin Cities of St. Paul and Minneapolis, Minnesota, and surrounding counties in the state of Minnesota.

We are a 501(c)(3) registered non-profit.

Board of Directors

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 Vice Chair.....K0ZTW.....Zach Whitney*
 Treasurer.....KCOTSB.....Sandra Johnson
 Secretary.....KD0ZCL.....Jeffrey Kordiak
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 At Large.....KCOGWW.....Theresa Caspers
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Education & Training.....Theresa Caspers
 Technology & Website.....Mike Miller
 Social.....Jeffrey Kordiak
 Operations.....Benton Jackson
 Communications.....Jarrod Schoenecker
 Fundraising.....Jarrod Schoenecker

Created in Affinity Publisher 2 to Adobe PDF.
Published February 27, 2023.

Drought monitor from Oct. 4, 2022, over the Twin Cities.

<https://droughtmonitor.unl.edu/Maps/MapArchive.aspx>

The severe weather season in the Twin Cities started April 12, then it was very busy in May, and then drought finally took hold with no severe weather in June and July, which are historically our two busiest severe weather months. There were three days in August and September with severe weather, but the drought worsened. This put much of the Twin Cities in the "D3 Extreme Drought" category by October.

On April 12, storm reports consisted of penny to half dollar-sized hail. May 9-12 brought seemingly nonstop severe weather and was easily the busiest period for severe weather in the Twin Cities. May 19 and 30 were also very active severe weather days. Severe weather reports for the month of May are shown on [page nine](#).

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Message from Chair & Tech. Lead

Mike Miller (N0NY), Chair and Technology Lead

Welcome

From the new chair of Metro Skywarn, Inc. (MSW), hello spotters. You might not know me yet, but I've been on the MSW board since 2018. I am also the president and trustee for Twin City FM Club.

I rebuilt the website from scratch into what it is now. Does it work the same as the old one? No. Does it deliver the info the spotters and weather community needs? I think it does. I've been in the background, quietly and consistently finding new ways to keep our community informed, keep data protected, and communicate as efficiently as possible given constraints of web-hacks, data breaches, and false info.

Founding Member Passed

As I write this, a founder of Metro Skywarn recently passed away, David Earl Johnson, N0KBD. David a driving force in Metro Skywarn for many years, even before its founding in 1990. His vision has established the amateur radio nets, database, relationship with the National Weather Service in Chanhassen, and process for which we operate today. As I take on this role, I hope to fill the big shoes he and others left for me.

2022 and Looking Forward

In 2022, we had a "slow year." There were only a few activations, but we were ready. An in-person spotter picnic was held for the first time in a few years. We added new faces to the board, and changed our trustee to Zach Whitney. Many new spotters were trained and all online.

What challenges will we face in 2023? Will this be a warm year, as climate change and strange weather has bloomed around us? When the rest of the country has weather events, such as cyclonic events on the west coast, massive storms to the East and South, are we next in line? We need to be vigilant and safe in our approach to weather events, be specific in our reporting, be aware of our surroundings, be smart, and be human too.

Net Control Stations

In addition to online and in-person training for spotters, net control station (NCS) operator training is happening this spring ahead of severe weather season.

This year, the NCS operators will also have a tool to post to MSWAlert e-mail list, Facebook, and Twitter simultaneously (pending server process time). This mimics what we used to be able to do. However, due to multi-factor ID processes, this wasn't able to be implemented until recently.

We continue to search for ways to get the info out as quickly as possible.

Stay safe and well in all of your endeavors.



The Faribault Municipal Airport the day after the September 20, 2018, QLCS Tornado Outbreak south of the Twin Cities.
Jarrod Schoenecker photo.

What's the best radar app?

Jarrod Schoenecker (KD0ZCI), Training, Communications, and Fundraising

It's often asked in every class, "What should I use for radar," or, "What's the best app to use?" I am here to address those questions and tell you that there isn't a clear answer for everything.

One resource you can use to find more information about storm spotting training and information specifically is our own website, <https://metroskywarn.org/spotter-resources/>. We have compiled basic necessary resources to help you out, including a copy of the slide deck we use with some copyrighted material left out.

Radar

When it comes to radar, it depends on the platform you are using. You need a reliable "real" radar app that actually lets you look at single-slice, 0.5 degree level radar sweeps. Some of the more popular consumer apps,

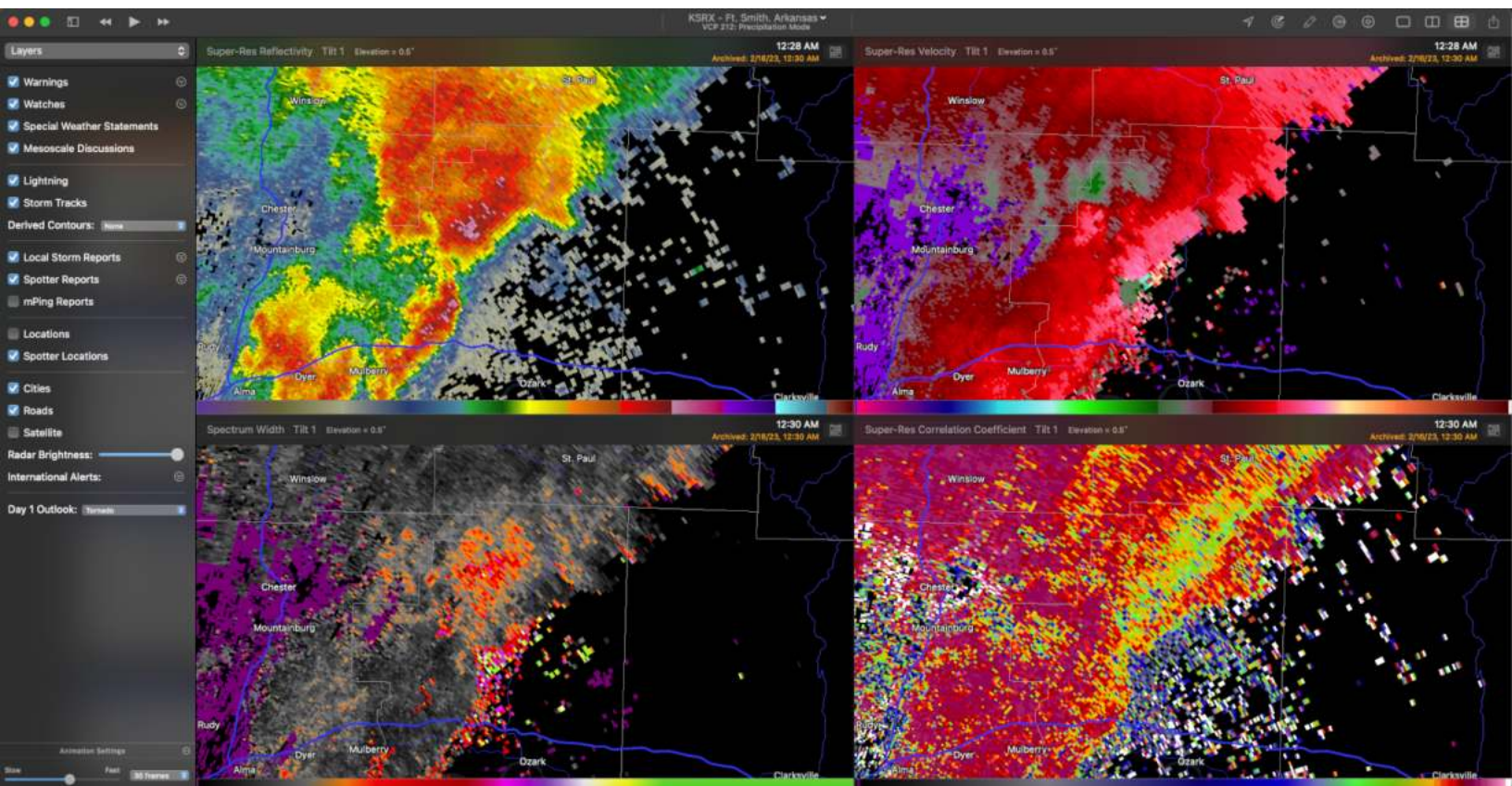
such as ones from news stations or common entities like WeatherBug, do not provide that. They provide composite imagery of all levels from the radar.

The apps I am recommending on the next page provide real-time weather data in its raw form sent out. Some may have options for smoothing or other things but these are reliable consumer applications that will provide what you need as a spotter.

All of the applications below also provide Spotter Network integration and the ability to ingest outside data sources, such as Allision House. I will talk about that later.

Here are my recommendations and information when it comes to radar applications.

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A screenshot of RadarScope for Mac with Tier II subscription showing the four-panel display of archived data. Jarrod Schoenecker graphic.

What's the best radar app? Continued...

Jarrold Schoenecker (KD0ZCI), Training, Communications, and Fundraising

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Windows Desktop, Laptop, or Tablet

Gibson Ridge GRLevel3

\$79.95 one-time fee

Gibson Ridge GR2Analyst

\$250.00 one-time fee

3D storm analysis

Cross sections

Visit <http://www.grlevelx.com/> for more information. Trial period downloads are available for both Gibson Ridge apps.

RadarOmega

Requires one of their subscription levels to have access. Download from their site.

Linux platform also supported

RadarScope

\$29.99 one time fee

Apple Desktop, Laptop, or Tablet

RadarOmega

Requires one of their subscription levels to have access. Download from their site.

RadarScope

\$29.99 one time fee in the app store

Android Tablet or Phone

RadarScope

\$9.99 one time fee

Radar Omega

\$8.99 one time fee

iOS Tablet and Phone

RadarScope

\$9.99 one time fee

Apple Watch integration

iMessage integration

Also available on Apple TV

Radar Omega

\$8.99 one time fee

Advanced Radar App Features

RadarScope Advanced Features

(All platforms)

Tier I

\$9.99 annual fee

Dual-pane capability on phones & tablets

Quad-pane capability on computers

Animated lighting

Extends playback to 30 frames

Tier II

\$14.99 monthly fee or \$99.99 annual fee

All of Tier I plus below

30 days of full radar archive

5 device license use across all platforms

Local storm reports from NWS

Day 1 Convective Outlooks from SPC

Hail and shear contouring

RadarOmega Advanced Features

(All platforms)

Gamma

\$4.99 monthly or \$49.00 yearly fee

75 frames of animation

Hi-resolution satellite data

Dual pane capability

Tropical spaghetti models

Hurricane Center info with data viewer

Live Hurricane Hunter data overlay

Beta

\$8.99 monthly or \$89.00 yearly fee

All the features of Gamma plus below

150 frames of animation

Multi-Region - Multi-Sensor Data (MRMS)

(Hail, rotation tracks, national reflectivity)

Alpha

\$11.99 montly or \$119.00 yearly fee

All features of Beta and Gamma plus:

250 frames of animation

Model data (HRRR,NAM3KM+12KM,RAP)

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What's the best radar app? Continued...

Jarrod Schoenecker (KD0ZCI), Training, Communications, and Fundraising



Screenshots of RadarOmega (left) and RadarScope (Right) on iPhone for comparison. You can see that RadarOmega, even in the base version, offers simple METAR ground observation data, something that RadarScope does not currently offer. This could be helpful to spotters on occasion. I find the RadarOmega platform less user-friendly though. Jarrod Schoenecker graphic on left and RadarScope graphic on right..



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With all of that information, highlights of what these applications are capable of, it may seem overwhelming for some of you. I will break it down to my recommendations for new users versus experienced users.

Recommendations

If you are a **new spotter who will only spot from home**, I recommend getting RadarScope for your desktop and phone/tablet.

If you are an **experienced spotter who will only spot from home**, I recommend getting GRLevel3 for your PC (or RadarScope for your Mac) and RadarScope for your phone/tablet.

If you are a **new spotter who will be going out mobile spotting**, I recommend getting RadarScope for your phone/tablet and going along with an experienced spotter the first few times.

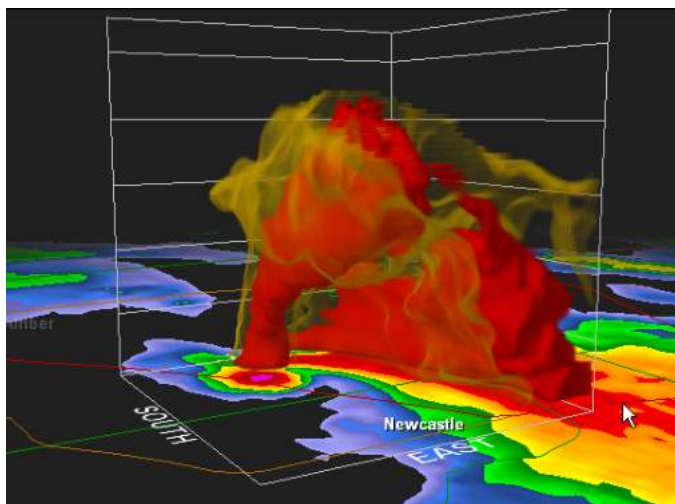
If you are an **experienced spotter who will be mobile spotting**, then the world is your oyster. There is a bit of a self-preference in which applications you want.

Personally, I find RadarScope the most user-friendly, straightforward to use app that is out there. I feel like RadarOmega has stepped up their game and have offered additional products and information that are attractive too. RadarScope's 30-day archive on Tier II has come in very handy so many times for me...

Continued to 6 ...

What's the best radar app? Continued...

Jarrold Schoenecker (KD0ZCI), Training, Communications, and Fundraising



GR2Analyst screenshot of a volumetric display, a three-dimensional look at radar. These are not practical when spotting but can be interesting to dive into archived radar data to look at later for advanced users. Gibson Ridge graphic.

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...when I go back and look at weather events.

If you want the real king of data customization and looking at archive data further back than 30 days, you need to get GRLevel3 or GR2Analyst. Both Gibson Ridge products are great for really customizing your experience and for re-visiting past events. It is only available for Windows computers though.

The price of Gibson Ridge products may seem high but it's actually very reasonable since the license is a one-time fee. Download the trial and familiarize yourself with it.

Explore each application and make a decision that fits your personal desires and needs best.

Advanced Data

These applications are capable of ingesting additional data sources.

Spotter Network is one of them. You can make reports through most of the apps and it will read your GPS location so you don't have to think about it. They will also display spotter reports and spotter positions from Spotter Network, as well as reports that come in from the National Weather Service.

Companies like Allison House provide enhanced data services that give you a more

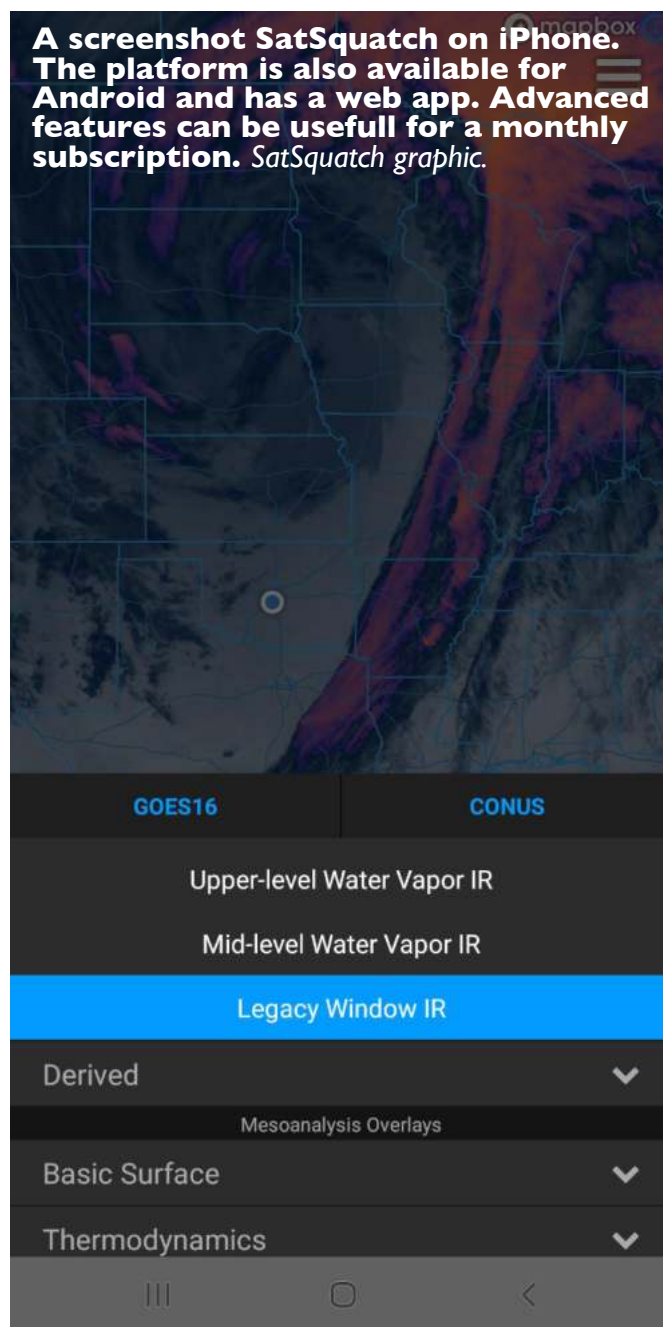
reliable feed of data and additional options.

When the National Weather Service radar data feeds get bogged down and data slows from the National Weather Service during a larger severe weather outbreak, Allison House has a direct feed and the data stays faster and more reliable than the public feed.

There is also a set of maps, lightning, and other data that Allison House provides, depending on the package you choose.

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A screenshot SatSquatch on iPhone. The platform is also available for Android and has a web app. Advanced features can be useful for a monthly subscription. SatSquatch graphic.



What's the best radar app? Continued...

Jarrod Schoenecker (KD0ZCI), Training, Communications, and Fundraising

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The information from Allison House comes with a cost though. They have two packages that range from \$14.99 a month or \$164.89 annually or \$29.99 a month or \$329.89 annually. Most spotters do not need to spend money on such a service though.

Satellite Data

Satellite data can tell a spotter a lot about what the environment is doing, was doing, or what might be happening soon. It is more of an advanced skill but can be very helpful.

I feel like there is only one option for an application that is portable, SatSquatch.

SatSquatch is available on the web, iOS, and Android. It runs \$4.99 for the basic application as a one-time fee.

If you want to take SatSquatch a step further, you can subscribe at \$4.99 a month. This will gain you access to derived products and SPC mesoanalysis overlays. For the advanced spotter, this may be a worthwhile investment during the severe weather months

If you are a penny pincher but still want the data, the College of DuPage NEXLAB will give you the satellite data you want (with some overlays) and you can go to the Storm

Prediction Center mesoanalysis page for the rest of the data. Both of these work fine on a desktop or laptop but are very cumbersome on a mobile device or tablet, which is why the subscription service may be nice to have.

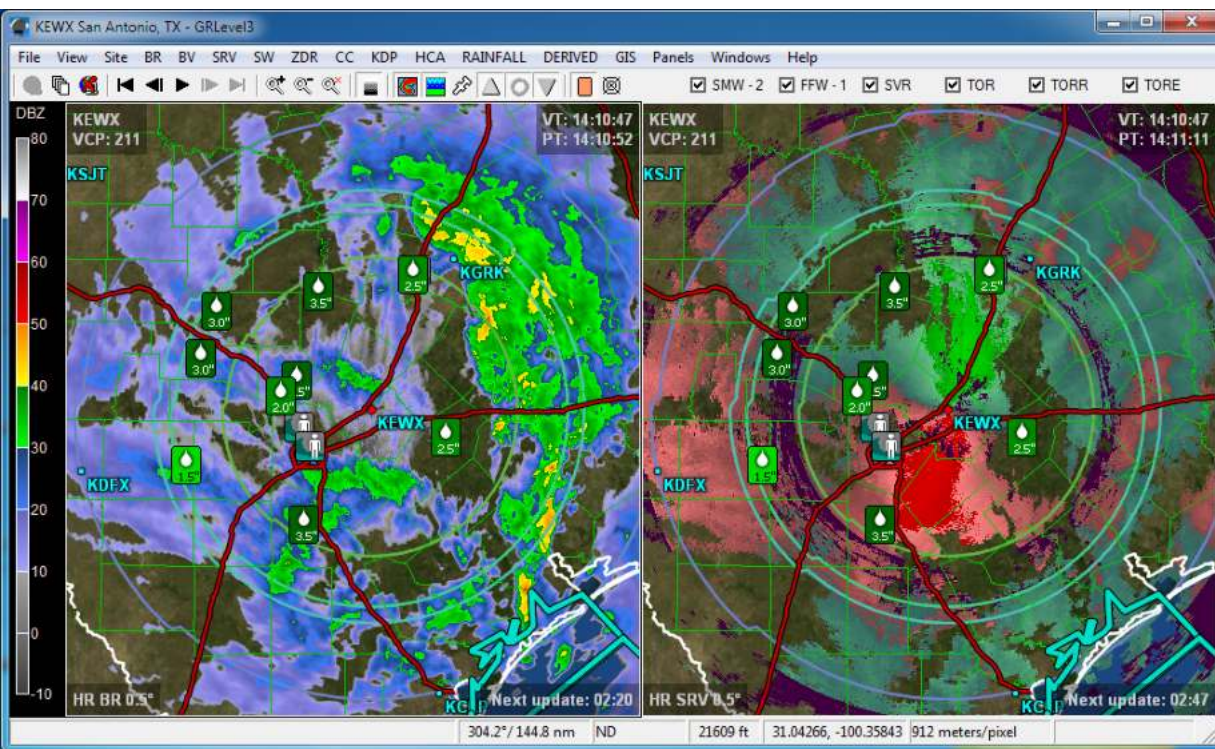
Final Thoughts

A spotter doesn't have to spend a lot of money on weather applications and data if they don't want to. If you want to be all-out-nerdy and you love ingesting weather information, you could spend a lot to have it at your fingertips in a nice format.

As a base, every spotter needs at least one reliable "real" radar application on their phone and/or computer. RadarScope I think is probably the most obvious choice on all platforms for the beginner and is affordable at \$9.99 for mobile phones and tablets and \$29.99 for computers as a one time fee.

Radar (and satellite) data cannot tell you everything alone and should always be used in conjunction with things like a weather radio, National Weather Service forecast information, watches, warnings, and your own eyes and ears (head on a swivel). It is a good idea to have back-up sources too.

Stay safe out there and happy spotting!



GRLevel3 screenshot of the base screen with two-panel display. It can be viewed in single, dual, or quad-panel with different radar products. For serious spotters who have some knowledge, this can be a powerhouse and is only available on Windows platform. Gibson Ridge graphic.

Training Update

Theresa Caspers (KC0GWW), Education Coordinator

Spotters Trained

We held 10 classes and trained 692 SKYWARN spotters in 2022. A total of 235 of those spotters were amateur radio operators who were renewing their certification. We issued 101 new Metro Skywarn Spotter ID's to people who were planning to become amateur radio operators in the very near future or to those who were already licensed operators. The remaining 356 spotters trained were non-amateur radio spotters.

Class Feedback and 2023 Classes

- 49% preferred online training
- 41% no preference
- 10% preferred in-person training

Due to these statistics, we have decided to continue to offer online training!

For 2023, we will be holding half of our classes in person and the other half online. Classes will remain about three hours in length. Training season will run from Mar. 11 – May 20. Check out the class schedule below and sign-up for training at <https://metroskywarn.org/calendar/>.

Pre-registration online will be required for both in-person and online classes. Masks are welcome, but not required. If you are ill, please stay at home. Anyone visibly ill will be required to go home.

Walk-ins will be allowed if there is capacity at the start time of the class. If you arrive late, your seat may have been given to someone else. Anyone arriving over 15 minutes after the start of class will be asked to reschedule.

We are happy to announce that, for all trainings this year, the National Weather Service (NWS) will be issuing Skywatcher ID's to spotters who do not have an amateur radio license and request one.

Our trainers recently went through train-the-trainer training with the NWS where we received new materials. We are excited to show you the new presentation, videos, and sections on QLCS tornadoes and landspouts. The material will be the same for both in-person and online training.

If you have any questions, please email Training@MetroSkywarn.org.

Net Control Operator Training

March 30 at 12:00 p.m. at the Hennepin County EOC, which coincides with regular SKYWARN training on this date and location. Don't forget to also sign up for SKYWARN training as well. Contact Benton at Benton@MetroSkywarn.org for info and to sign-up for NCO Training ONLY.

2023 Metro Skywarn Training Schedule

- | | |
|--|--|
| • March 11 @ 1:00 p.m. - Blaine City Hall | • April 12 @ 6:00 p.m. - ONLINE |
| • March 15 @ 6:00 p.m. - ONLINE | • April 15 @ 1:00 p.m. - ONLINE |
| • March 25 @ 9:30 a.m. - Ridgedale Library | • April 29 @ 9:30 a.m. - Cottage Grove Zion Church |
| • March 30 @ 6:00 p.m. - Hennepin County EOC | • May 6 @ 10:30 a.m. - Stillwater Library |
| • April 4 @ 6:00 p.m. - ONLINE | • May 11 @ 6:00 p.m. - ONLINE |
| | • May 20 @ 9:30 a.m. - Bloomington Fire #1 |

Sign-up for SKYWARN training at <https://metroskywarn.org/calendar/>.

2022 Year-in-review continued...

Todd Krause (K0MPX), Warning Coordination Meteorologist at National Weather Service in Chanhassen

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Four tornadoes in the month of May hit the Twin Cities area, marked with a "T" on the graphic to the right.

- South of Hastings on May 9 was rated EF0.
- West of Belle Plaine on May 11 was rated EF0.
- Coon Rapids, Blaine, and Ham Lake on May 11 was rated EF0.

- Near Lester Prairie in McLeod, Carver, and Wright County on May 30 was rated EF1. It had winds estimated at 90 mph and was on the ground for 18.5 miles.

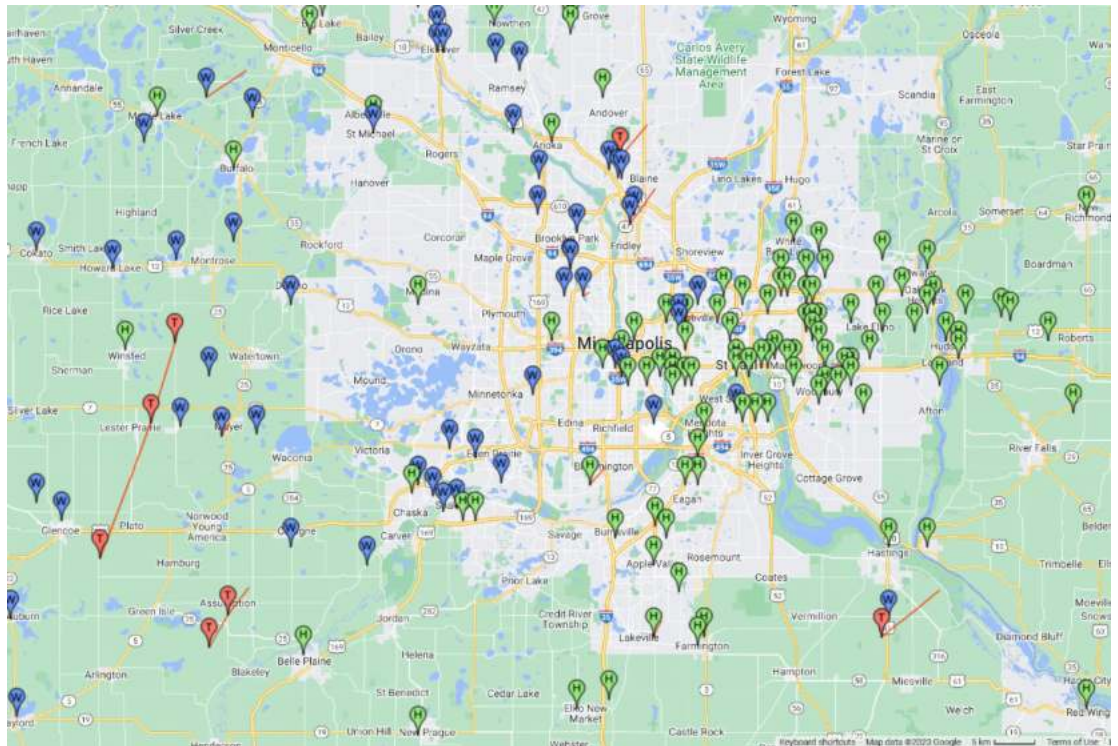
The hail reported in May was between one and two inches in diameter. The strongest wind speed in May was measured at 77 mph.

The rest of 2022 was relatively quiet, as shown in the graphic to the right.

Severe weather in the metro only occurred on August 2, August 27, and September 20.

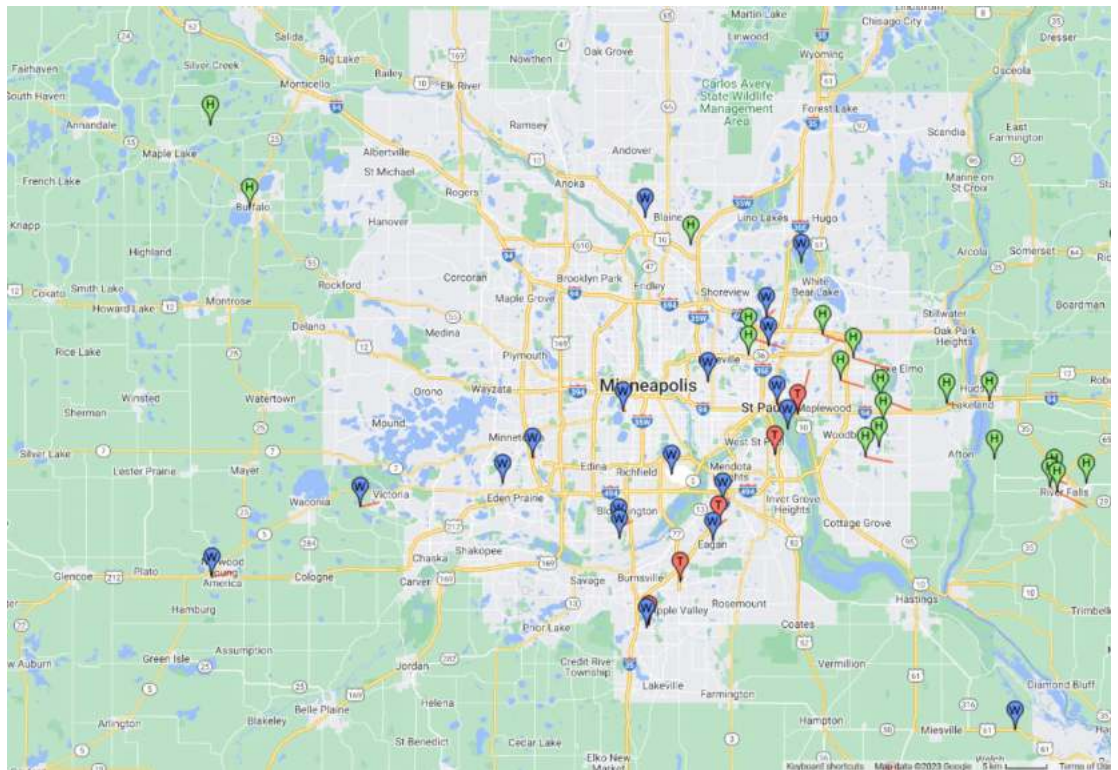
The four tornadoes on August 27, from Apple Valley to St Paul, were virtually impossible for spotters to see. All of them were after sunset and associated with fast moving QLCS (quasi-linear convective system) storms. Each were rated EF0 with winds estimated at 75 to 85 mph.

Continued to 10 ...



Storm reports over the Twin Cities area during the month of May 2022. Red indicates tornadoes, green indicates hail, and blue indicates wind.

Todd Krause/National Weather Service graphic.



Storm reports over the Twin Cities area from June through September 2022. Red indicates tornadoes, green indicates hail, and blue indicates wind.

Todd Krause/National Weather Service graphic.

2022 Year-in-review continued...

Todd Krause (K0MPX), Warning Coordination Meteorologist at National Weather Service in Chanhassen

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The season ended September 20, with multiple reports of one to two inch hail in the east metro. The hail increased to three inches in diameter by the time the storm reached River Falls, Wisconsin.

Thanks to all spotters for their wonderful help in 2022 and in previous years. A great deal of time and effort is spent by so many volunteers with Metro Skywarn. We are deeply grateful for your service and dedication in helping others, and we know that will continue in 2023 and for many years to come.



The leading edge of a severe thunderstorm approaches Windom, Minnesota, on May 12, 2022. The haboob it creates at the front shadows the shelf cloud behind it, making the shelf cloud not visible.

Mitch Boeck photo on Twitter. <https://twitter.com/mitchboeck/status/1524895516533968902/photo/1>

Radar & Satellite Interpretation Webinars

**Meteorologist Matt Taraldsen
will teach the basics of radar
& satellite interpretation**

**Register on EventBrite for this virtual event
by clicking on the event date at the right.
These will be recorded and added to YouTube.**

TWO SESSIONS!

April 18 or April 25

7-9 p.m.

(Register for only one session please.)