



SKYWARN

SPOTTER NEWSLETTER

Fall 2023

Welcome to the fall edition of the
SKYWARN Spotter Newsletter!

Hello from all of us at the NWS
Detroit/Pontiac office! We thank you again
for all of your severe weather reports this
spring and summer.

October started off with well above normal
temperatures that reached into the 80s
before fall quickly made its presence felt,
which is a nice reminder that winter is just
around the corner! We will be holding both
in virtual and in person winter spotter
trainings this year.

As always, be sure to check out our website
for the latest information and forecasts.
Supplementary forecast information can
also be found at:



Upcoming Dates

- October 21, 2023 – In person Spotter Training at Detroit Public Library
- November 1, 2023– Winter Spotter Webinar
- November 5 – 11, 2023 – Michigan Winter Weather Awareness Week
- December 2, 2023– Skywarn Recognition Day

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- Notable Severe Weather Events
- Summer Climate Summary
- El Niño Pattern
- Winter Outlook 2023-2024
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- Winter Spotter Guidelines
- FEMA App
- CoCoRaHS

Dundee (April 1) and Detroit Beach (June 15) Tornadoes



Debris in Downtown Dundee
Credit: Leslie Hayes



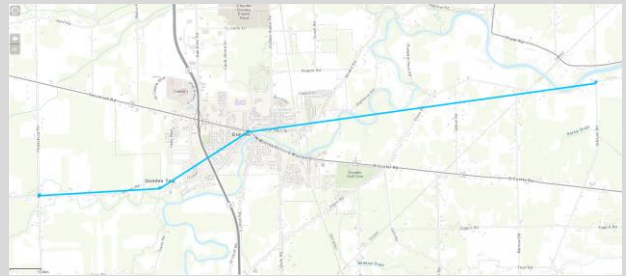
Roof Damage in Downtown Dundee
Credit: Leslie Hayes

A disorganized area of showers and some embedded thunderstorms tracked into southeast Michigan during the late morning hours of April 1st, 2023. While the overall environment was marginal owing to lack of instability, locally favorable conditions for severe weather developed south of I-94 as upper and low level features briefly interacted. The thunderstorm complex reinvigorated between 10 and 11 AM, eventually becoming severe for a brief period over Lenawee/Monroe/southern Wayne Counties. These storms produced damaging wind gusts, sub-severe hail (spotters reported up to M&M size), and a brief/weak EF-0 tornado in Dundee. The tornado was on the ground for 5 minutes, causing damage consistent with 80 MPH wind gusts as it tracked through the heart of downtown Dundee. By noon, storms had shifted into Canada and the severe weather threat was over.

April 1 Event Summary

Date	April 1, 2023
Time (Local)	11:03 AM - 11:08 AM EDT
EF Rating	EF-0
Est. Peak Winds	80 mph
Path Length	7.3 miles
Max Width	75 yards
Injuries/Deaths	0/0

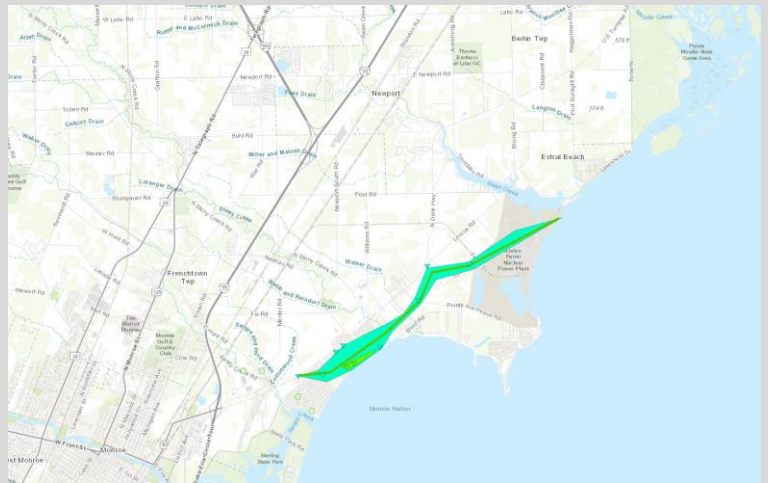
EF0 EF1 EF2 EF3 EF4 EF5 TSTM UKN



Date	June 15, 2023
Time (Local)	6:09 PM - 6:18 PM EDT
EF Rating	EF-1
Est. Peak Winds	90 mph
Path Length	4.7 miles
Max Width	400 yards
Injuries/Deaths	0/0

EF0 EF1 EF2 EF3 EF4 EF5 TSTM UKN

June 15 Event Summary



During the late afternoon of June 15th, a localized area of low pressure coupled with favorable upper-level dynamics produced numerous showers and thunderstorms mainly south of I-96. The prevailing atmospheric conditions accelerated the intensification of the storms, producing several strong to severe thunderstorms. Hail, measuring between 1-2 inches, emerged as the primary severe weather threat, with several instances of wind damage associated with gusts around 60 mph. Notably, an EF1 tornado developed just west of Lake Erie. This tornado, which remained on the ground for 9 minutes, exhibited a maximum wind gust of 90 mph. In its wake, damage was reported which included multiple large fallen limbs and trees, along with damage to several residential properties.



Davison, MI
Credit: Dave Bondy



Davison, MI
Credit: Ahmad Bajjey



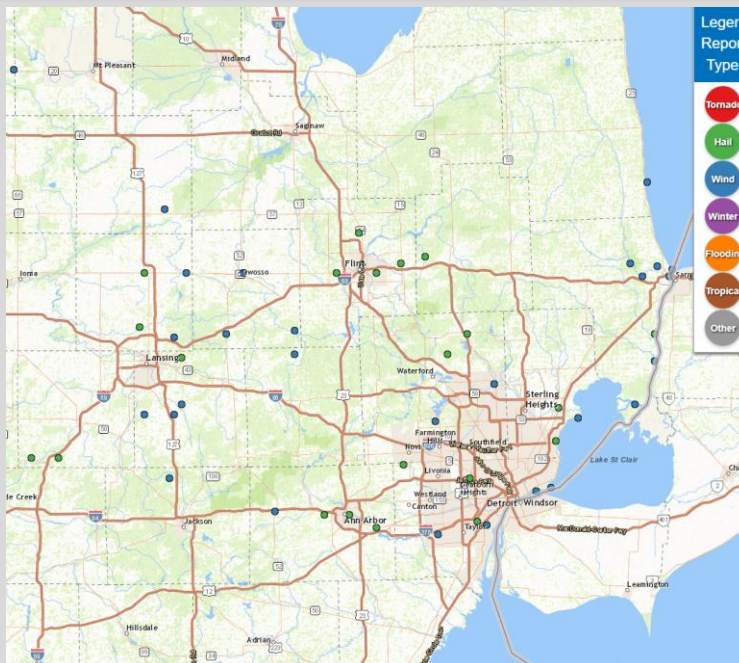
Davison, MI
Credit: Jeremiah Jacobs



Anchor Bay, MI
Credit: Nick LaRosa

A combination of squall line thunderstorms tied to a strong cold front and pre-frontal supercells brought severe weather to parts of Southeast Michigan during the afternoon and early evening of July 20, 2023. In total, 12 Severe Thunderstorm Warnings and 6 Special Marine Warnings were issued. One supercell that developed just before the arrival of the squall line produced 2.75 inch (Baseball size) hail over Davison, MI leading to widespread hail damage to vehicles, homes, and businesses. This was the largest hail reported since a supercell moved through Hudson, MI on June 20, 2021 producing 2.75 to 3 inch (Baseball to Large Apple size) hail. Several other locations also received severe hail, including Ypsilanti where 2 inch (Lime size) hail fell and Ann Arbor which experienced 1.5 inch (Ping Pong Ball size) hail, shutting down the Ann Arbor Art Fair for a couple hours. Additionally, there were numerous reports of downed trees (some of which fell on homes), several measured wind gusts in excess of 50 mph, and a waterspout over Anchor Bay.

July 20 Event Summary



Davison, MI
Credit: @TechBoyTroy



Lexington (July 14) & Perry (Aug 11) Tornadoes

An outbreak of multicell clusters and supercells developed across Southeast Michigan on the afternoon of July 14, 2023. These storms produced areas of wind damage, large hail to golf ball size, heavy rain, and an EF0 tornado in Sanilac County before moving eastward into Canada and the lakes during the evening. Numerous trees were downed across the region, and in the Thumb there were several reports of destroyed corn and wheat fields as well as several homes with damage to siding due to wind-blown hail.

July 14 Event Summary

Date	July 14, 2023
Time (Local)	3:24 PM - 3:35 PM EDT
EF Rating	EF-0
Est. Peak Winds	85 mph
Path Length	4.3 miles
Max Width	475 yards
Injuries/Deaths	0/0

EF0 EF1 EF2 EF3 EF4 EF5 TSTM UKN



NWS Survey Photos



Numerous showers and thunderstorms filtered in across portions of Southeast Michigan through the evening of August 11, 2023. The strongest storms were found within the vicinity of or along a warm front, which produced sporadic reports of hail up to an inch and some isolated damaging wind gusts. Prolonged heavy rainfall also led to flooding within Flint which led to multiple road closures. The most significant damage came from a supercell over Perry, MI, which produced an EF-1 tornado with maximum wind gusts up to 95 mph. This tornado was on the ground for 12 minutes and started just west of Perry, before moving into the city. Uprooted and sheared trees, damage to outbuildings, and some siding/shingle damage to residential builds were observed. Downed trees also landed on some residential houses and vehicles, resulting in further damage.



Tornado near Perry
Credit: Bill Bouwman



Wall Cloud approaching
Byron Credit: Zachary Henn



Tornado damage in Perry
Credit: NWS



August 11 Event Summary



Date	Aug 11, 2023
Time (Local)	7:51 PM - 8:03 PM EDT
EF Rating	EF-1
Est. Peak Winds	95 mph
Path Length	3.0 miles
Max Width	430 yards
Injuries/Deaths	0/0

EF0 EF1 EF2 EF3 EF4 EF5 TSTM UKN



Flooding

Thunderstorms producing torrential rainfall led to flash flooding in the Detroit metro area early Thursday morning. Western Wayne county into Monroe county was hardest hit resulting in

widespread residential flooding, road closures, and stranded vehicles. Most notable was the closure of Dingell Drive at Detroit Metro Airport which cut off access to the McNamara terminal for several hours. A lengthy closure of I-94 at I-275 was also reported. Numerous rainfall totals in the 3 to 5 inch range were reported mostly in the 6 hour period from midnight to 6 AM. The highest total was 7.36 inches from a CoCoRaHS station in Belleville, a 24 hour total nearly all of which fell during this event.

I-275 Flooding
Credit MDOT

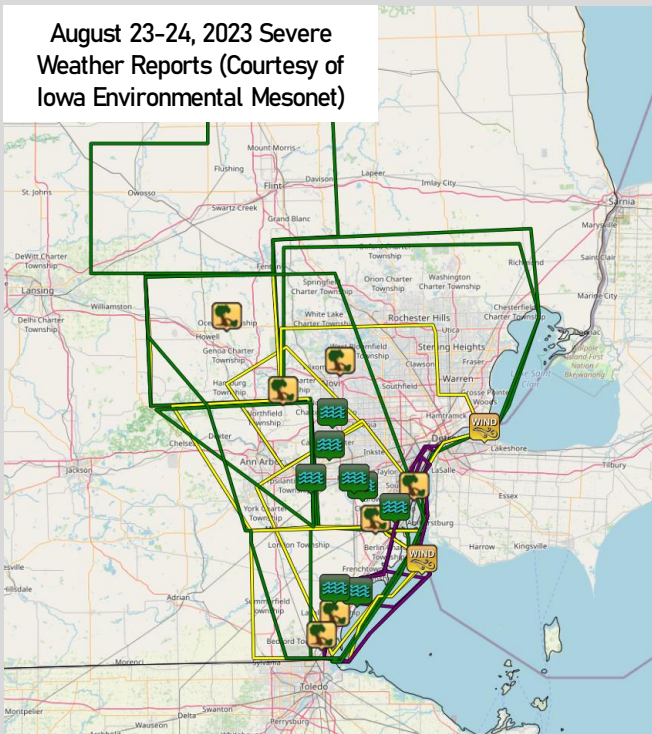


Canton, MI Credit: CBS Detroit

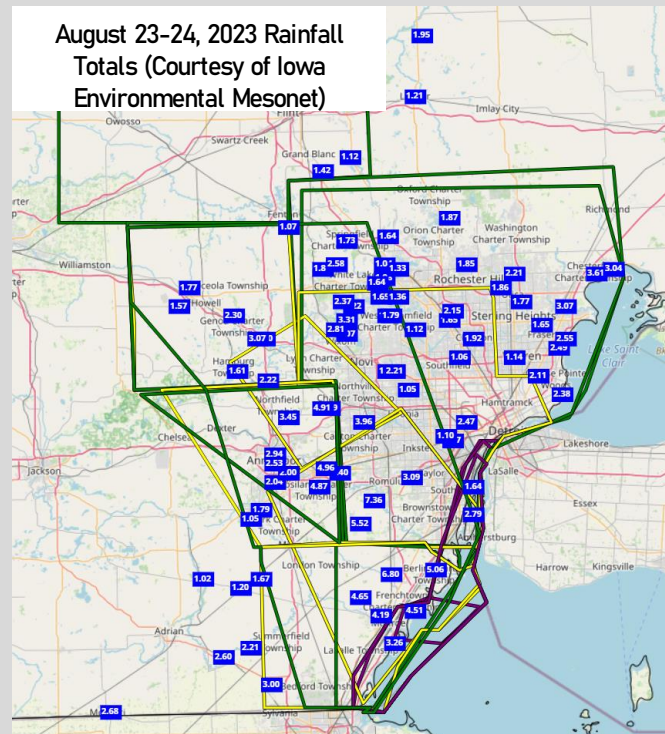


August 24 Event Summary

August 23-24, 2023 Severe
Weather Reports (Courtesy of
Iowa Environmental Mesonet)



August 23-24, 2023 Rainfall
Totals (Courtesy of Iowa
Environmental Mesonet)



...Most tornadoes in a single day during the month of August... ...6 tornadoes impacted Southeast Michigan, with 7 tornadoes statewide...

Rapidly developing thunderstorms began to pop up over central and southwest Lower Michigan by the early evening hours of August 24th, with exceptional moisture and instability in place over southern Lower Michigan. The storms quickly grew upscale and became severe, leading to a west-east line of severe thunderstorms which dropped south through southeast Michigan during the evening hours.

Strong winds in the mid levels allowed for damaging winds to be the primary hazard, with areas of southeast Michigan seeing 60-80 MPH wind gusts which led to extensive tree damage and power outages. At the peak, close to 500,000 customers lost power in southern lower Michigan. A surface low tracking through southern Lower Michigan was able to help spawn tornadoes, with an EF-2 developing over northeast Ingham County. This tornado weakened and tracked into Livingston county near Fowlerville before dissipating. This 12 mile track tornado was by far the strongest and longest duration one of the day, and also resulted in 1 fatality as cars were flipped on I-96 in Ingham County. Short lived-weak QLCS tornadoes spun up over Wayne and northeast Monroe counties as the intense thunderstorm complex exited the state around midnight. Winds with these tornadoes reached 80-105 mph, but even a few wet micro-burst/straight line winds produced wind gusts to 90 mph embedded in the line of storms.

Rainfall rates were intense (1-2" per hr), but due to the rapid movement of the complex/storms (45-60 MPH), rainfall amounts stayed under 3 inches just about everywhere. Highest rainfall amounts of 1.5-3 inches occurred along the M-59 corridor up to I-69 corridor. Due to heavy rainfall from the previous day (1-3 inches with isolated 5-7 inch totals in Wayne/Monroe counties), even locations which received amounts under 1.5 inches experienced some flooding, mostly low lying/flood prone locations.

The Lower River Rouge in Wayne county experienced major flooding and Clinton River in Macomb experienced moderate flooding.

Finally, prolific lightning was observed with the thunderstorm complex as it moved through southeast Michigan, producing thousands of cloud to ground strikes, with a good percentage of them being the stronger positive charged ones.



Tornado Damage in
Gibraltar, MI
Credit: Nicole Hansen



Tornado Damage in Rockwood, MI
Credit: Nicole Hansen



Tornado Damage in
Gibraltar, MI
Credit: Brittany Cogar



Tornado Damage in
Gibraltar, MI
Credit: Brittany Cogar

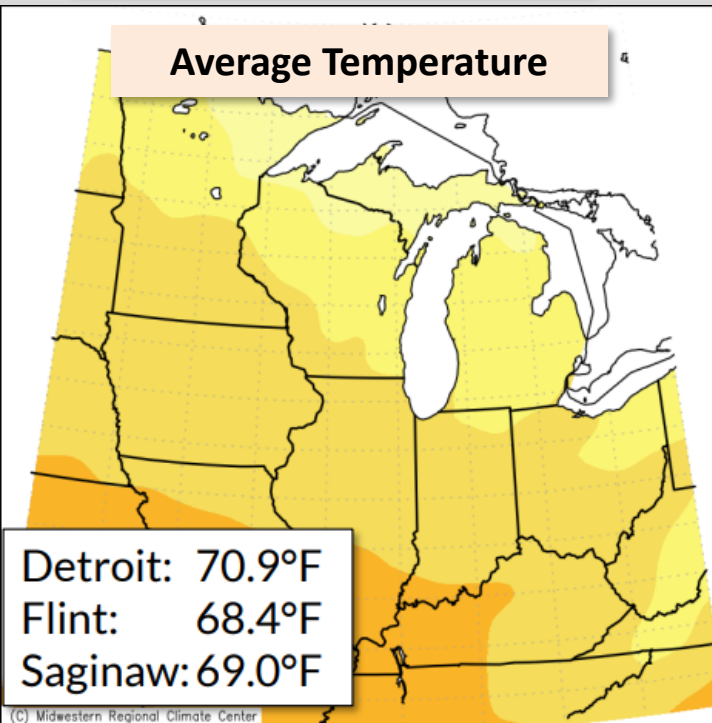


Tornado Damage in
Brownstown Charter
Township, MI
Credit: Nicole Hansen

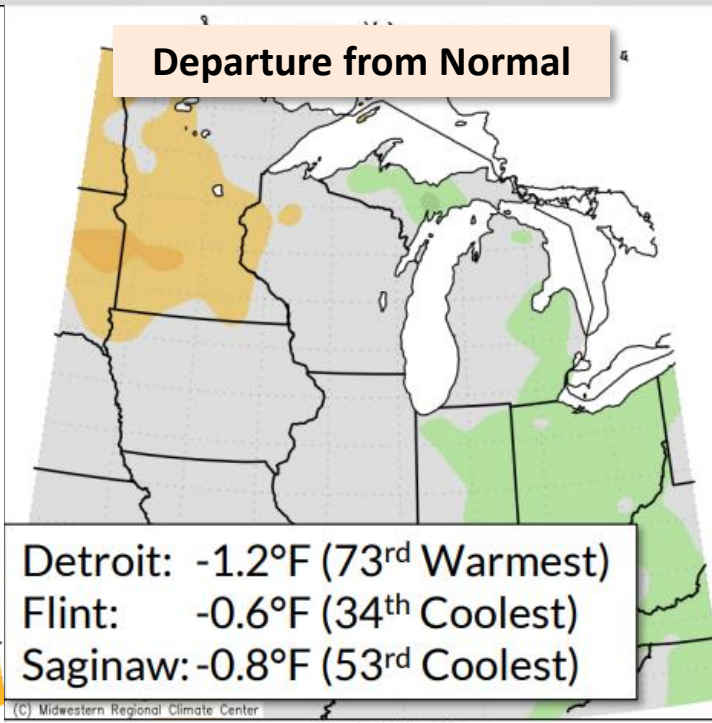
August 24 Event Summary



Average Temperature



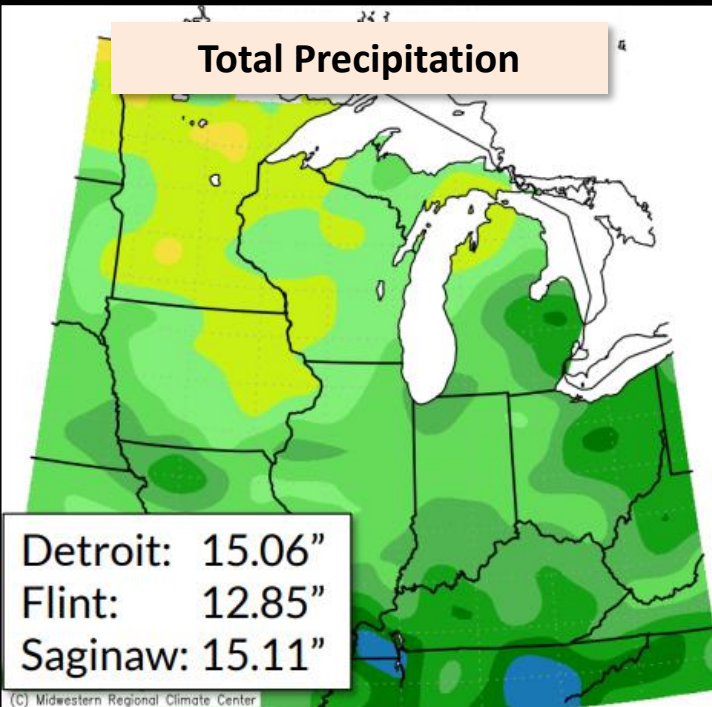
Departure from Normal



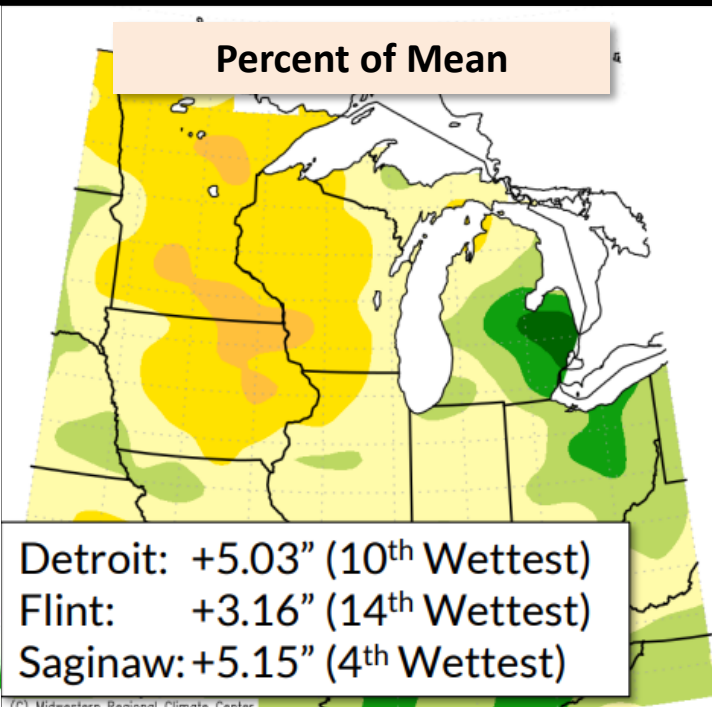
Mean period is 1991–2020.



Total Precipitation



Percent of Mean



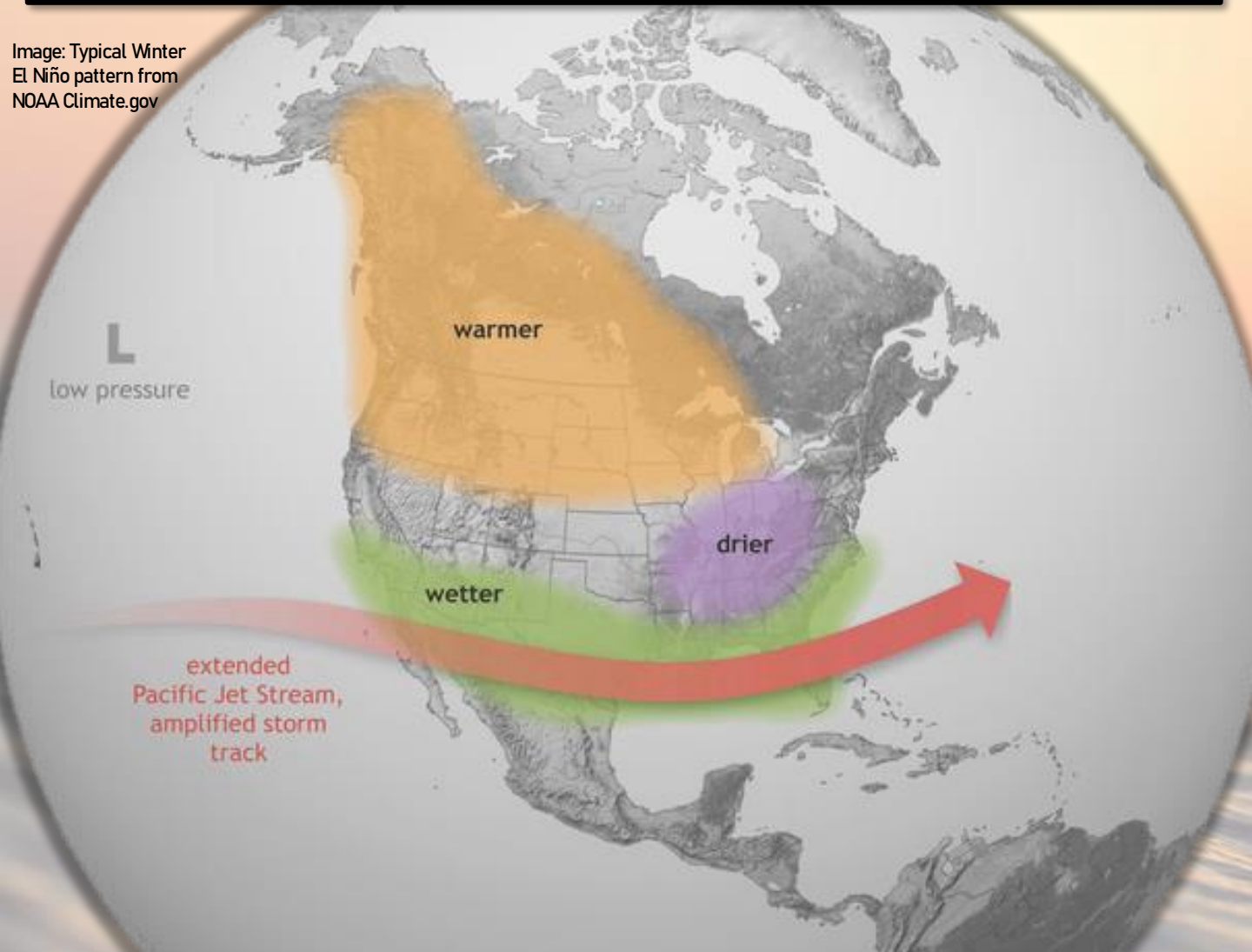
Mean period is 1991–2020.



El Niño!

El Niño developed over the summer and is expected to continue through the winter. The odds of it becoming a strong event at its peak are very good, at 71%. Previous strong El Niño winters include 2015-16, 2009-10, and 1997-98.

Image: Typical Winter
El Niño pattern from
NOAA Climate.gov

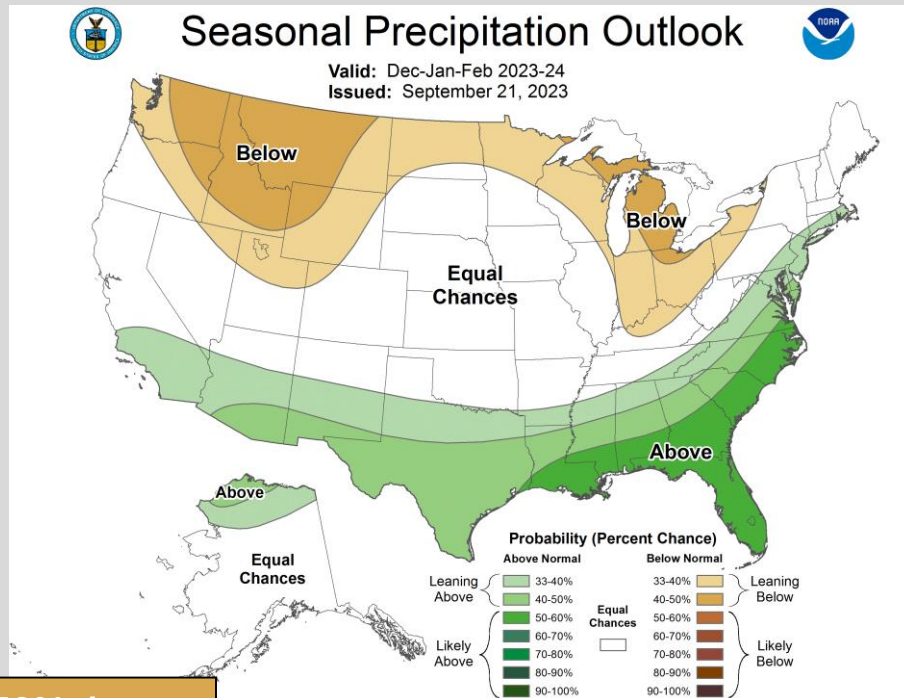


After facing 3 La Niña winters in a row, we are now strongly favored for an El Niño winter. In these conditions, an extended North Pacific jet stream tends to bring more storms across the southern tier of the U.S. and warmer air to the northern half of North America. This tends to favor a warmer and drier winter across the Great Lakes Region.

[Read more in the ENSO Blog on Climate.gov](#)

Precipitation Outlook

- Wetter-than-average conditions are most likely from the desert southwest to the southern Plains to the southeast United States and Mid-Atlantic.
- Drier-than-average conditions are favored in the Great Lakes and parts of the Ohio Valley, northern Plains, and northern Rockies.
- The remainder of the U.S. falls into the category of equal chances for below-, near-, or above-average seasonal total precipitation.



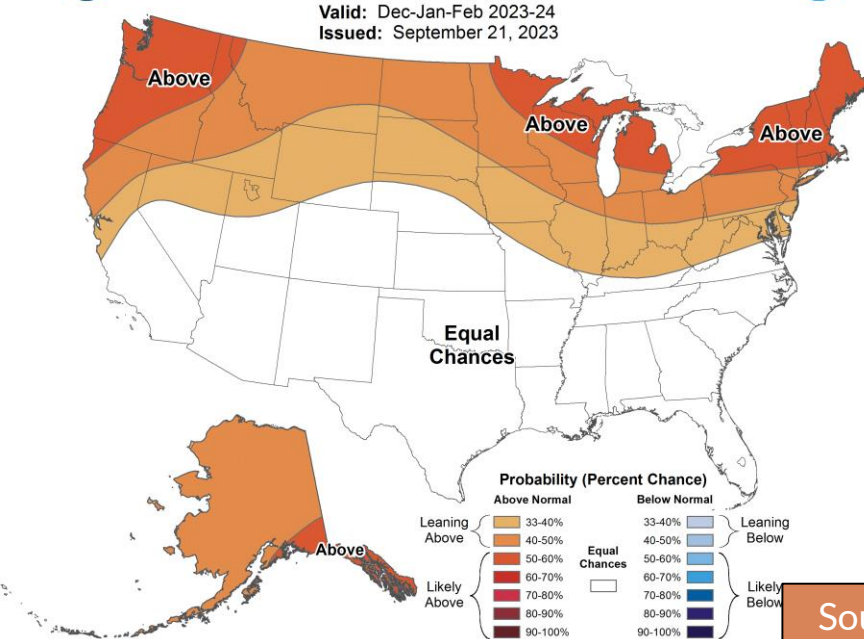
Southeast Michigan has a 40-50% chance of below normal precipitation this winter.

Note: this is not a snowfall outlook.



Seasonal Temperature Outlook

Valid: Dec-Jan-Feb 2023-24
Issued: September 21, 2023



Temperature Outlook

- The greatest chances for warmer-than-average conditions are across the Pacific Northwest, Great Lakes, and Northeast.
- Warmer-than-average conditions are also favored across Alaska.
- The remainder of the U.S. has equal chances for below-, near-, or above-average temperatures.

Southeast Michigan has a 40-60% chance of above normal temperatures this winter.



A virtual winter spotter training course will be held on
Wednesday November 1, 2023
7:00 – 8:30 pm

Pre-registration is required

Topics Covered:

- Review of last year's winter weather
- Outlook for the coming winter
- Severe winter weather such as:
 - Snow,
 - Freezing rain
 - Snow squalls
 - High winds
 - Flooding
 - And more!
- Winter spotter reporting guidelines
- Winter weather safety information.

Webinar Registration Steps:

1. Register for the webinar via the link listed below.
2. You will receive a confirmation email. Use the link in this email to join the webinar a few minutes before 7pm on November 1st.

[Click For The Winter Skywarn Registration Link](#)

In-Person Winter Spotter Training

Topics covered will be the same as the virtual presentation

Date / Time	Location	Address
Saturday, Oct. 21 st @ 1 PM	Detroit Public Library	Main Branch, 5201 Woodward Avenue



Reporting Methods:



1-800-808-0006

Reports ONLY – answered 24/7



NWSDetroit



@NWSDetroit
#miwx



nwslidtx@noaa.gov

There are many forecast challenges involved with winter storms. Snowfall amounts and precipitation types can vary drastically over short distances! Timely and accurate reports from our spotters are vital to our operations and help ensure that our forecast is on track.

Send photos via social media!

Snow – nearest tenth of an inch (e.g. 3.4")

- When the first inch has fallen, then each additional two inches
- Storm total snowfall
- 12-hour snowfall amounts around 8am and 8pm



Rain – nearest hundredth of an inch (e.g. 1.78")

- Amounts of one inch or greater over 24 hours



Flooding

- Any flooding that covers roads, impedes traffic, or threatens property
- Ice jams/blockages



Dense Fog

- Visibility of a quarter mile or less
- When fog is impacting travel



Ice – nearest tenth of an inch (e.g. 0.2")

- Any freezing rain or sleet
- Ice that is having impacts on travel, damaging trees, and/or downing power lines



High Winds

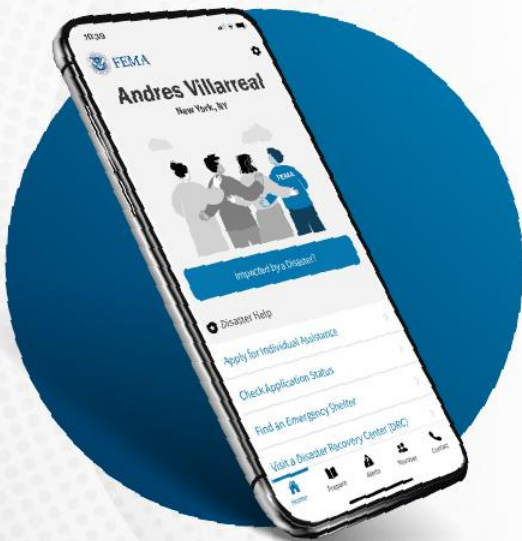
- Wind gusts of 40 mph or greater
- Any damage caused by strong winds (trees, roofs, siding, etc.)



In late June, FEMA released a BIG update to their app, which is highly personalized for you and your family.

- ✓ Receive real-time weather alerts
- ✓ Find nearby resources
- ✓ Locate emergency shelters
- ✓and more!

<https://www.fema.gov/about/news-multimedia/mobile-products>



Download the FEMA App Today

Get Access to:

- Weather Alerts
- Disaster Resources
- Preparedness Tips



[Link to the NWS Winter Safety Campaign Page](#)



Link to the
website

www.cocorahs.org

CoCoRaHS stands for the Community Collaborative Rain, Hail and Snow Network. This program is separate from the National Weather Service spotter network. The program is a national program and the precipitation reports are shared among the National Weather Service and other government agencies, the media, and educational institutions. Participants in this program report their 24-hour rain and/or snow reports every morning around 7 am on a website.

The CoCoRaHS website has several resources for training on how get started a measure winter precipitation.

Training Materials

"In Depth" Snow Measuring

<https://cocorahs.org/media/docs/measuringSnow2.1.pdf>

Measuring Ice Accretion

https://www.cocorahs.org/media/docs/Training_IceAccretion.pdf

Animated Training Video Shorts

<https://www.youtube.com/playlist?list=PL86DC4C330F518387>

More [online training](#) slide shows.

CoCoRaHS



Who Uses CoCoRaHS data?

Weather Forecasters	Climatologists
Hydrologists	Engineering
Water Management	Recreation
Researchers	Insurance Industries
Agriculture	...and many others!





National Weather Service Detroit/Pontiac

Website

weather.gov/detroit

Address

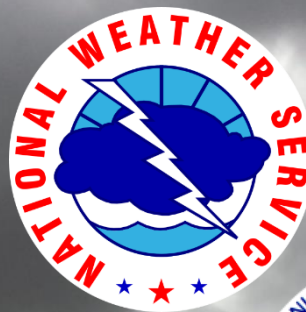
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