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Thunder is an immediate warning of dangerous conditions outside. Lightning safety info p. 2

SPOTTER REFRESHER!

Did you miss spotter training this spring? Check out our training video! more info p. 2

FLOOD INFORMATION

Summer rainfall can lead to flooding! Find safety resources on p 3. Rainy River Flood info p. 4

DON'T FORGET THE SUNSCREEN!

Spending time in the sun on vacation? Be sure to protect the skin you're in, and apply plenty of sunscreen! Also, keep in mind that heat-related illness are a possibility if you don't take certain precautions. Seek shade, wear protective clothing, and use a sunscreen with a Sun Protection Factor (SPF) of 30 or higher for best protection. Always follow the label directions and apply sunscreen generously. Find out more about heat-related illnesses and how to prevent them at [weather.gov/heat](https://www.weather.gov/heat)





Visit

<https://www.weather.gov/wrn/summer-safety>
for useful summer safety information you can share!



Visit

<https://www.weather.gov/safety/lightning-safety>
for useful lightning safety information!

DID YOU MISS SPOTTER TRAINING?

If you missed the live classes during the spring, it's okay! We recorded the presentation and it's available for you to watch anytime. If you're from the Northland and want to register to be a spotter, or you just want to get a bit of refresher training, please check out the recorded version at [weather.gov/dlh/skywarn](https://www.weather.gov/dlh/skywarn) Here's a refresher on how and what to report:

Reporting Severe Weather to the NWS

HOW TO REPORT

- Facebook (Comment or Message)
- Twitter (Mention @NWSduluth)
- Email:
 - nws.duluth@noaa.gov
- Online Report form:
 - <https://inws.ncep.noaa.gov/report/>

WHAT TO REPORT

- Possible Tornado Signs:
 - ✓ Funnel Cloud
 - ✓ Rotating Wall Cloud
 - ✓ Tornado (including waterspouts)

- Please include:
 - Time
 - Location
 - What happened?
 - Source – Who are you?
- Severe Thunderstorms
 - ✓ Hail (the LARGEST stone size)
 - ✓ Wind Damage Impacts (trees down, other damage)
 - ✓ Measured Wind Gusts (please don't estimate)
- Precipitation
 - ✓ Any unusual flooding (especially if water is fast-moving)
 - ✓ Rainfall measurements (especially 1"+)
 - ✓ Winter Precipitation Measurements (mainly 1"+)

WHEN THUNDER ROARS, GO INDOORS!

Lightning strikes the United States about 25 million times a year. Although most lightning occurs in the summer, people can be struck at any time of year. Lightning kills about 20 people in the United States each year, and hundreds more are severely injured. If thunder is heard, anyone outside is in danger of being struck by lightning. Too many people wait far too long to get to a safe place when thunderstorms approach. These delayed actions lead to many of the lightning deaths and injuries.

If you are caught outside and can't get to a safe place:

- Avoid open areas. Don't be the tallest object in the area.
- Stay away from isolated tall trees, towers or utility poles. Lightning tends to strike taller objects in the area.
- Stay away from metal conductors such as wires or fences. Lightning can travel through it.
- If you are with a group of people, spread out. While this may increase the chance that someone might get struck, it tends to prevent multiple casualties. This increases the chances that someone could help if a person is struck.

WHEN THUNDER ROARS GO INDOORS

Lightning Fatalities For Outdoor Sports

40% SOCCER	27% GOLF
17% RUNNING	10% BASEBALL
3% FOOTBALL	3% OTHER

[weather.gov/lightning](https://www.weather.gov/lightning)

step 1 Leave the field immediately

step 2 Seek shelter in an enclosed building or car

Wait 30 minutes after the last rumble of thunder to return outside



Visit

<https://www.weather.gov/safety/flood>

for useful flood safety information you can share!

FLASH FLOOD WARNING VS. FLOOD WARNING

Throughout the summer, you may see two different type of flood warnings issued by our office in Duluth; The Flash Flood Warning and a Flood Warning. What's the difference between the two?

- **Flash Flood Warning:** Issued when there is a rapid rise of water within 6 hours that will pose a threat to life and/or property
- **Flood Warning:** Issued for events that are slow (>6 hours) to produce flooding on creeks/rivers. In addition, flood warnings are issued when rivers reach or exceed flood stage.



FLASH FLOOD INFO & SAFETY

Flash floods are a threat in the Northland that typically occur each year. Flash floods are rapidly occurring floods that normally develop after a prolonged period of heavy rainfall. In contrast to the Rainy River Basin flooding, flash floods generally develop within 6 hours after the initiating event (such as a thunderstorm with very heavy rain).

Flash floods can be dangerous due to their rapid onset, which can overwhelm infrastructure and create sudden rises in creeks, streams, and rivers. These sudden rises in waterways can turn what is normally a small stream into a raging river. Urban areas, including cities in the Northland like Duluth, are especially prone to flash flooding, since large amounts of concrete and asphalt prevent water from infiltrating into the soil.

During a flash flood, one of the best ways to remain safe is to **get to higher ground**. If camping, ensure that your campsite isn't in a low-lying area that would be prone to flash flooding, such as next to a stream in a hilly, rocky area. Make sure to avoid flood waters, since **it only takes 6 inches of moving water** to knock you off your feet.

Both during and after a flash flood, another key way to stay safe is to avoid driving over flooded roadways, since most of the flood fatalities occur in vehicles. Flooded roadways may be deeper than they appear, the roadway underneath may be washed out, and other hazards such as sharp objects may be hidden by the flood waters. A car, SUV, or truck can be swept away in seconds since it only takes **12 inches** to sweep away a car or small SUV and only **18 inches** to carry away larger vehicles. Make sure to follow and road closures and remember the phrase, **Turn Around, Don't Drown**.

To keep up to date on any potential Flash Flood Warnings, visit <https://www.weather.gov/dlh/>, listen to NOAA Weather Radio, or follow our office on social media for updates (Facebook: US National Weather Service Duluth; Twitter: @NWSduluth)

NEVER DRIVE AROUND BARRICADES

Most flood fatalities occur in vehicles

12 inches of fast-moving water can sweep a car off the road

NOAA weather.gov/flood

HISTORIC FLOODING ALONG THE RAINY RIVER!

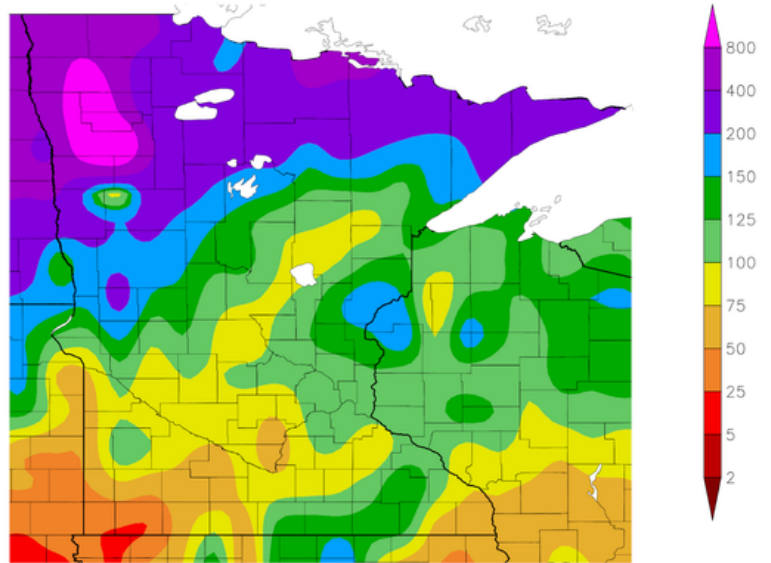
Heavy rainfall combined with a rapid spring snowmelt led to significant, widespread flooding across the Rainy River Basin of far northern Minnesota this spring and early summer.

Across most of northern Minnesota, the 2021-2022 winter seasonal snowfall totals were 125% to 150% of normal. Northern Minnesota has also experienced rainfall amounts between 150% and 200% of normal since October 1, 2021. In fact, this has been the wettest October through May period in 127 years of record.



Near the Kettle Falls Dam,
Voyageurs National Park
June 2, 2022

Percent of Normal Precipitation (%)
4/1/2022 – 4/30/2022



5/2/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

Well-below normal temperatures in late winter and early spring delayed the snowmelt and ground thaw across Northern Minnesota. This resulted in large amounts of water being retained in the snowpack, increasing the threat for a rapid late season melt with rainfall. That threat was realized with well-above normal precipitation across much of northern Minnesota during the later half of April.

Significantly, one rain event on the 22-23 April, 2022, led to two new daily precipitation records and a new monthly precipitation record for International Falls for April. Nearly 4 inches of rain fell over those two days, and the monthly precipitation record was broken by over 3 inches with a total of 7.61" - nearly 500% of normal April monthly precipitation.

At the same time, a snowpack with a near maximum record snow water equivalent of 6-10" was in place. Over the course of only 2 weeks, with the help of many days with above freezing overnight temperatures and several days reaching into the upper 60s and lower 70s, the majority of the snow melted, leading to rapid rises on tributaries and lakes alike. This jumpstarted widespread flooding and quick rises in river and lake levels. The end result was rises on area lakes and rivers that resulted in historical flooding. Namakan and Kabetogama Lake exceeded the most recent impactful flood levels of 2014 in mid May before rising another 2 feet and cresting on May 31, 2022. Rainy Lake (downstream of Namakan) rose around 5 feet through the month of May only cresting now in mid June, breaking the all time high water level set in 1950 on June 3, 2022. These lakes, whose shores house private property, business, resorts and a National Park, both rose around 8 feet since mid April and frequently at a rate of a foot or more per week. Levels are now on the decline but not expected to reach normal summer-time levels until late July to mid August.

Find the latest information and forecast updates at: [weather.gov/dlh/RainyRiverBasin](https://www.weather.gov/dlh/RainyRiverBasin).



WEATHER READY NATION AMBASSADORS

The National Weather Service office in Duluth, Minnesota is calling on community organizations and agencies to become Weather-Ready Nation (WRN) Ambassadors. WRN Ambassadors help in spreading WRN messages and building community resilience to extreme weather. Building a Weather-Ready Nation requires more than just the National Weather Service. It requires the entire community, its government, organizations and businesses to provide information for better decision making, and innovative partnerships across all segments of society. We must involve everyone in an effort to move people - and society - toward heeding warnings, taking action, and influencing their circles of family, friends, and social network to act appropriately.

As a WRN Ambassador, you will serve as a leader in your community. You will inspire others to be better informed and prepared, helping to minimize or even avoid the impacts of these natural disasters.

To officially be recognized as a WRN Ambassador, an organization must commit to:

- Promoting Weather-Ready Nation messages and themes to their stakeholders;
- Engaging with National Weather Service Duluth personnel on potential collaboration opportunities;
- Sharing their success stories of preparedness and resiliency;
- Serving as an example by educating employees on workplace preparedness.

Together, we will inform and empower communities, businesses, and people to make pre-event decisions that can be life-saving and prevent or limit devastating economic losses. We are a nation of many communities, and it is only through connected communities that we will achieve this goal.

To apply to become a WRN Ambassador, visit <https://www.weather.gov/wrn/amb-tou>