

Basic Weather Spotting for the Inland Northwest

*Spring 2023
National Weather Service - Spokane*



SKYWARN

Distant thunderstorm near Omak on July 3, 2022



National Weather Service - Spokane, WA

www.weather.gov/spokane

This is a Live Virtual Class

- Voice in Computer - no phone needed - headphones helpful
- All are in listen mode until the end

New to GoToWebinar? Here's the basics



the Menu bar

- Audio – tests your volume
- Attendees – all in attendance
- **Poll** – answer poll questions
- **Questions** – type in a question for the speaker to answer
- **Handouts** – download & print
- Chat – speaker's comments
- Click on the **Hand** to raise
- Click orange arrow to collapse window



Objectives

- Understand the roles & importance of the Weather Spotter
- Provide accurate and timely reports of severe weather
- Describe your community's severe weather threats
- Properly define a severe thunderstorm and basic thunderstorm structure
- Learn how to prepare and be safe during severe weather

Concentration on Basic weather spotting and the Checklist

Now let's look back to last year.....



Wind & Tornado Damage - May 3, 2022

Spokane, WA



National Weather Service - Spokane, WA

www.weather.gov/spokane

Flooding - June 13-14, 2022

Palouse River, St. Joe River and the Pend Oreille River



National Weather Service - Spokane, WA

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Flash Flooding - July 4, 2022

Conconully, WA



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Large Hail - August 11, 2022

Otis Orchards, Rockford to Newman Lake



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To our current Weather Spotters....

THANK YOU!



SKYWARN



Eyes and Ears of the
National Weather Service
with a count of over 1200
across the Inland NW!



www.weather.gov/spokane

New to the program?

What is a Weather Spotter?

- Weather enthusiast who volunteers time to report severe or hazardous weather
 - As needed basis
 - No weather equipment necessary
 - Simply call, email or send a report online
 - Become the eyes and ears of the National Weather Service



National Weather Service (NWS)

- Part of the Federal Government – Dept of Commerce - NOAA
- Responsible for all weather/water Watches & Warnings
- Works with local agencies
- Observe & Forecast
- “Behind the Scenes”
- Decision Support
- Preparedness & Education



Staffed 24/7

Current office site since 1995

* 21 Employees

* Meteorologists

* Technicians

NWS Spokane

- Duties

- Observations - Weather Balloon
- Forecasts
 - Aviation, Public, Fire Weather
- Weather Watches & Warnings
- Public Service



National Weather Service Spokane, WA

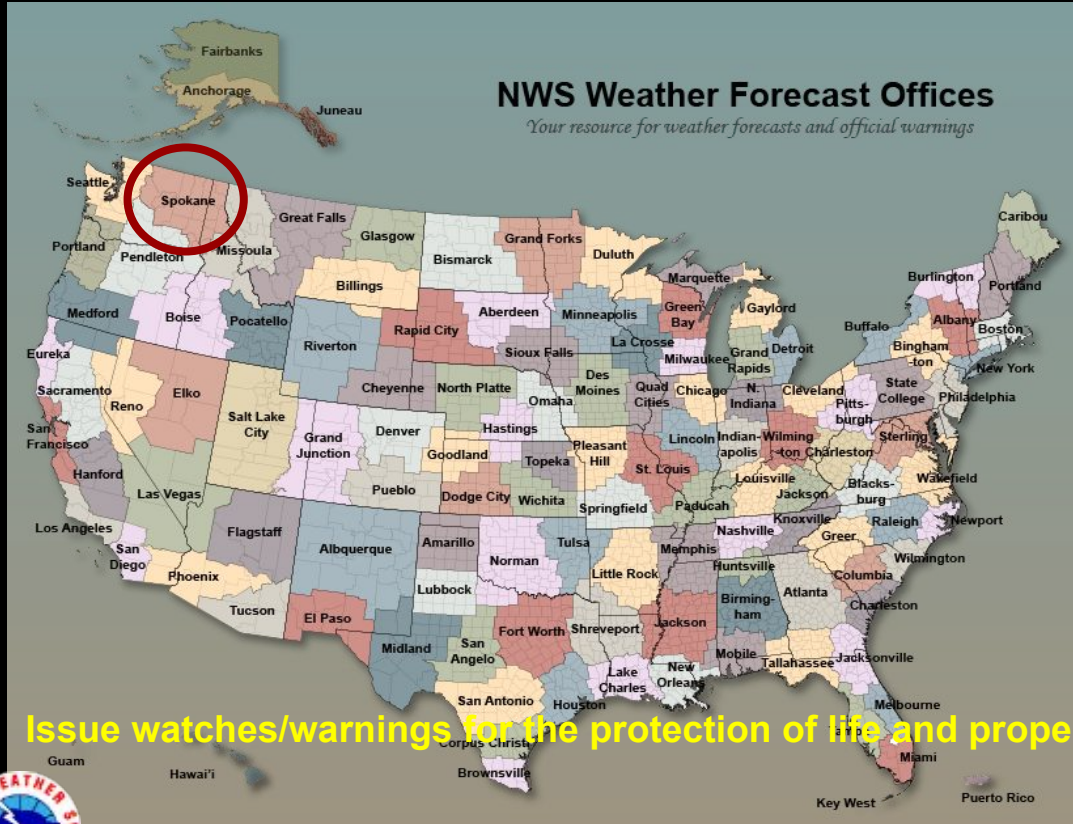
www.weather.gov/Spokane



National Weather Service - Spokane, WA

www.weather.gov/spokane

NWS Spokane Forecast & Warning Area

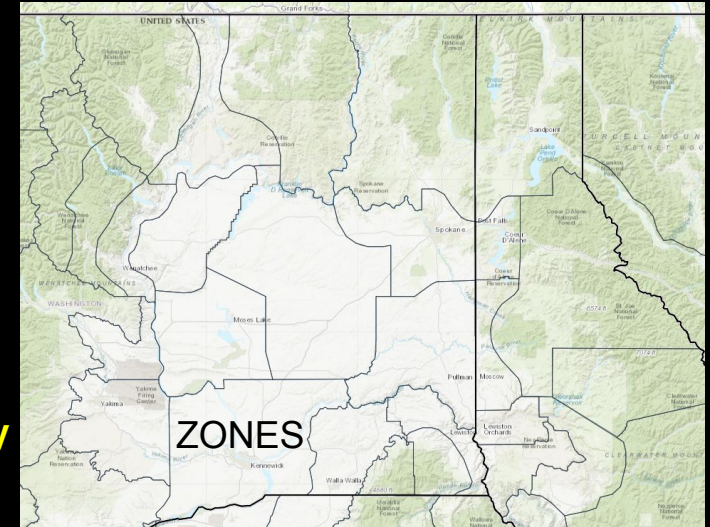


Includes 2 states

- 13 counties in eastern WA
- 8 counties in north Idaho

Elevations range

- 9500+ ft in the north Cascades
- 170 ft along the mid Columbia River



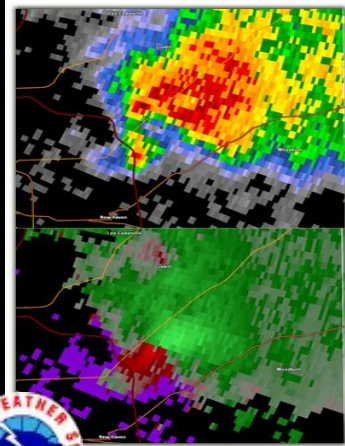
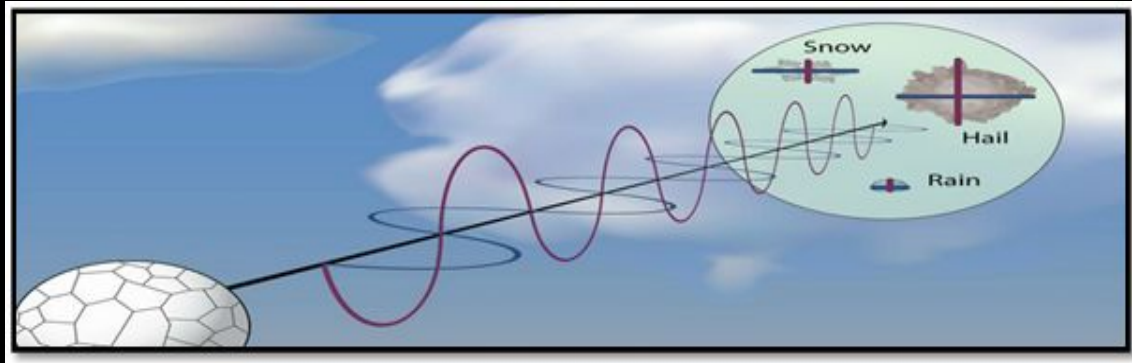
National Weather Service - Spokane, WA

www.weather.gov/spokane

NWS Observations & Tools



Doppler Weather Radar



Reflectivity (dBZ)



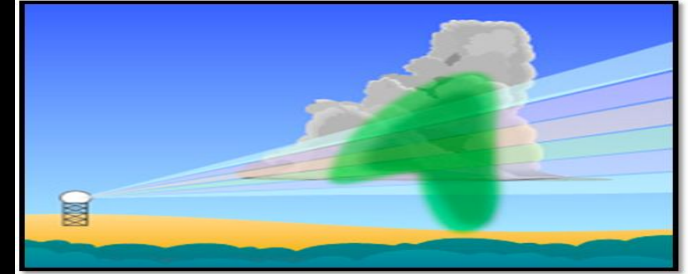
Small Particles
Light Rain, Dust, Bugs

Big Particles
Hail, Big Rain Drops

Velocity (kts)

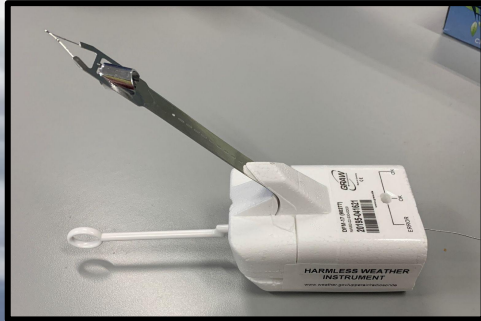
 Speed Moving Away from Radar

 Speed Moving Toward Radar



Weather Balloon - Radiosonde

Twice a day - every day
92 Upper Air sites across the U.S.
Flight time ~ 1 hour 45 min



Weather Satellites

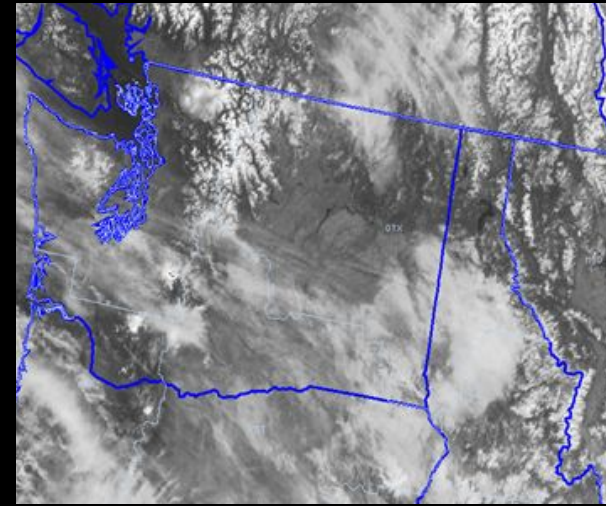
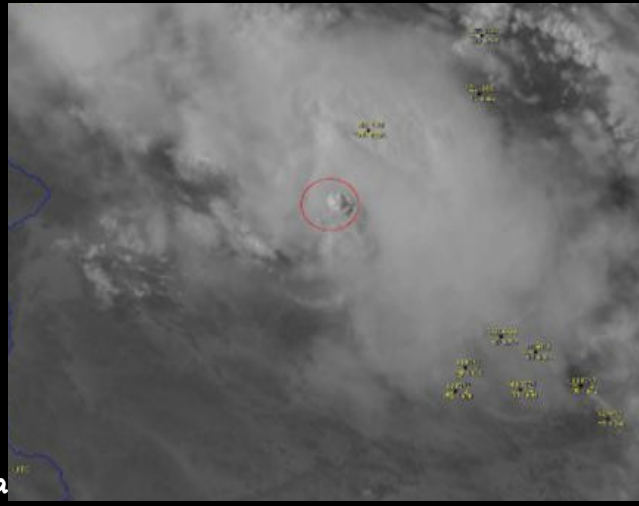
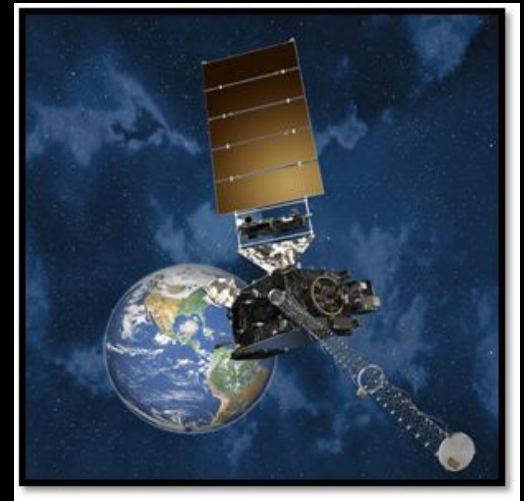
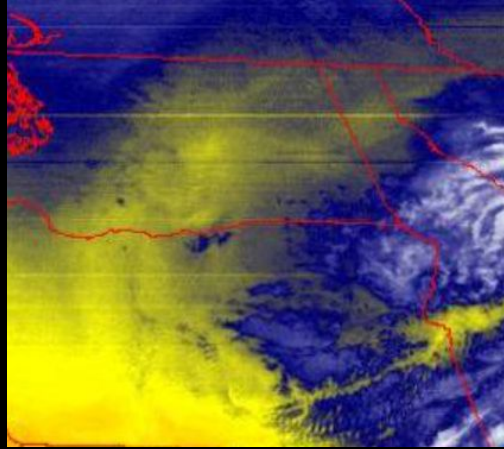
GOES 18 - 16 different channels

IR, Water Vapor & Visible

New images every 5 minutes

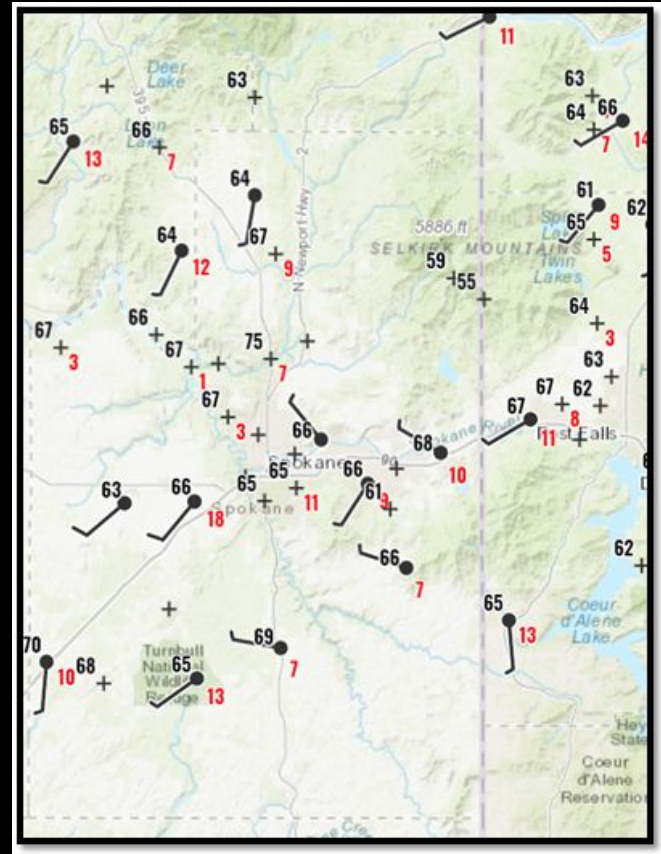
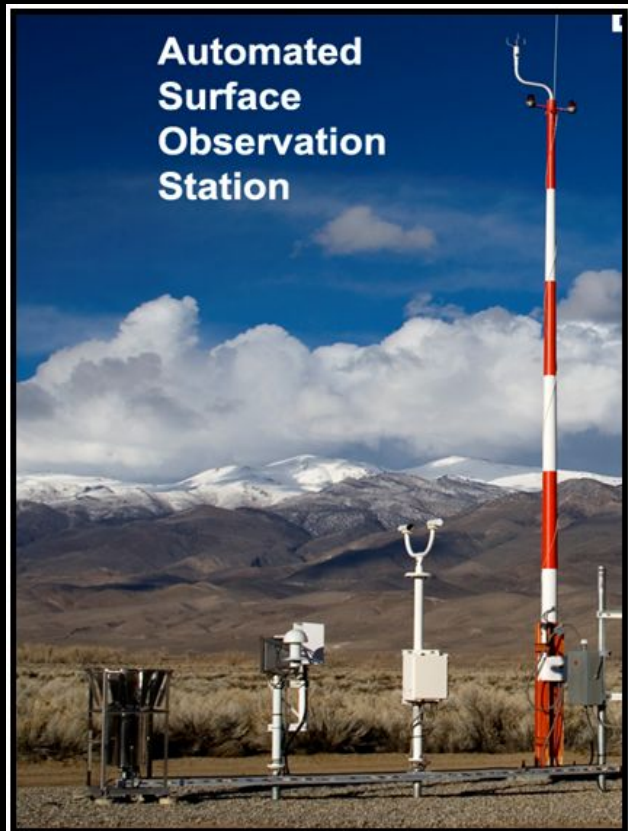
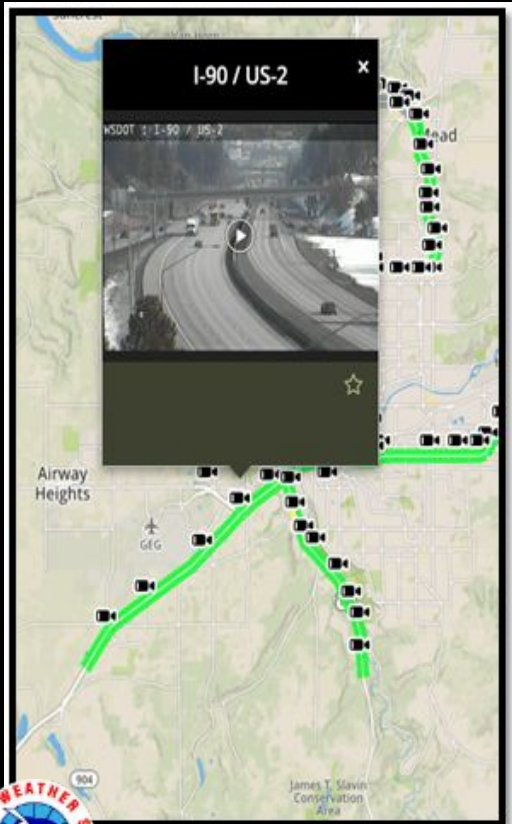
Aids in early detection

Thunderstorms & Wildfires



ka

Surface Observations & Web Cams

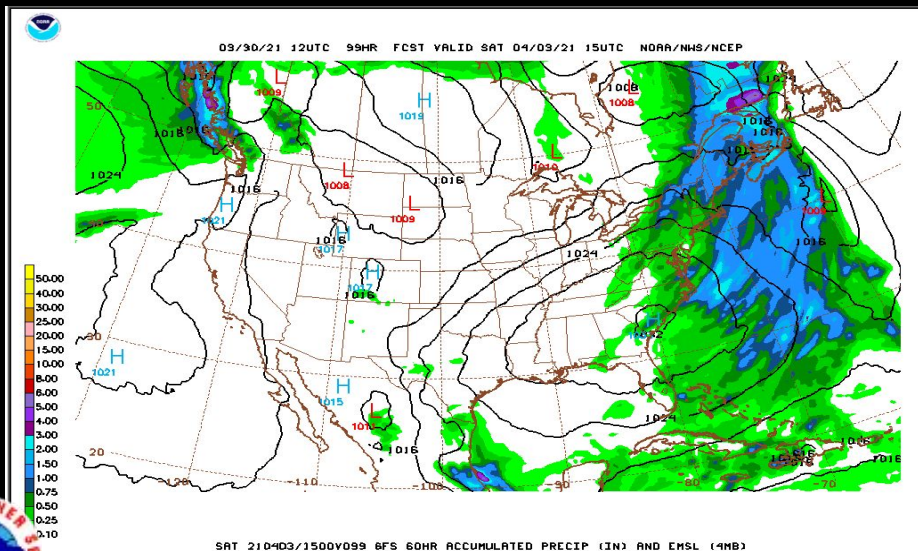
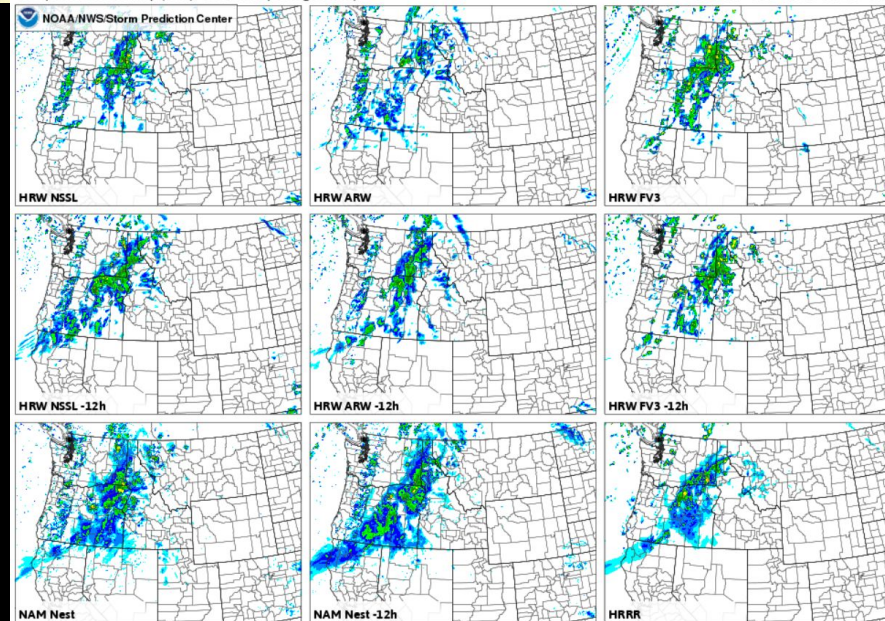


Supercomputers & High Resolution Models



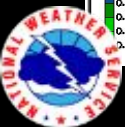
Composite reflectivity (dBZ), ensemble postage stamp

Valid: Tue 2022-04-26 03:00

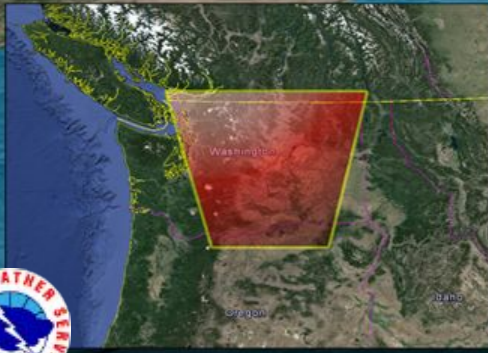


SAT 210403/1500V099 6FS 60HR ACCUMULATED PRECIP (IN) AND CHSL (4MB)

National Weather Service - Spokane, WA



We need weather spotters! Why?



- Limitations to radar, satellite, and surface observations
- Receive Ground Truth on events
- Fill in the “holes” not seen by observations
- Understand the many micro-climates in the region
- Maximize Warning effectiveness and Lead Times
- Add Credibility to NWS Warnings - Leads to Public Action!



#1 Poll Question

What is the role of a weather spotter?



What's in a Spotter Report?



The checklist is titled "Inland Northwest Weather Spotter Checklist" and features the National Weather Service logo on the left and the SKYWARM logo on the right. It lists various weather events with their reporting criteria:

- Tornado or Funnel Cloud:** ANY Kind
- Strong Winds:** +40 mph/Damage (58mph severe)
- Hail:** +3/4" in diameter (1" severe)
- Heavy Rain:** +1/2" in 1 hr or +1" in 12 hrs
- Flooding:** ANY Kind
- Mixed Precipitation:** freezing rain or sleet
- Snow:** +2" below 3K ft (valleys) or +6" abv 3K ft (mtns)
- Poor Visibility:** 1/2 mile or less
- Travel Problems:** due to weather
- Damage, Injury or Loss of life:** ANY
- Excessive Heat:** ANY
- Excessive Cold:** ANY

- Specifics...Tell us the story!

- Who...What...and Where

Spotter ID & Location

- When the event began and/or ended

- Estimate of wind speed and/or hail size

- Damage and injury reports

- If unsure - report your uncertainty

- Include reports while traveling & any delayed or second hand reports



How Spotters Report - Easiest Phone Call



Dial :
**1-800-
483-4532**
Spotter ID



What:
Event you
Witnessed



Where:
Location
of event



When:
Time of
the event



How Spotters Report – Just as easy Online Reports

www.weather.gov/Spokane



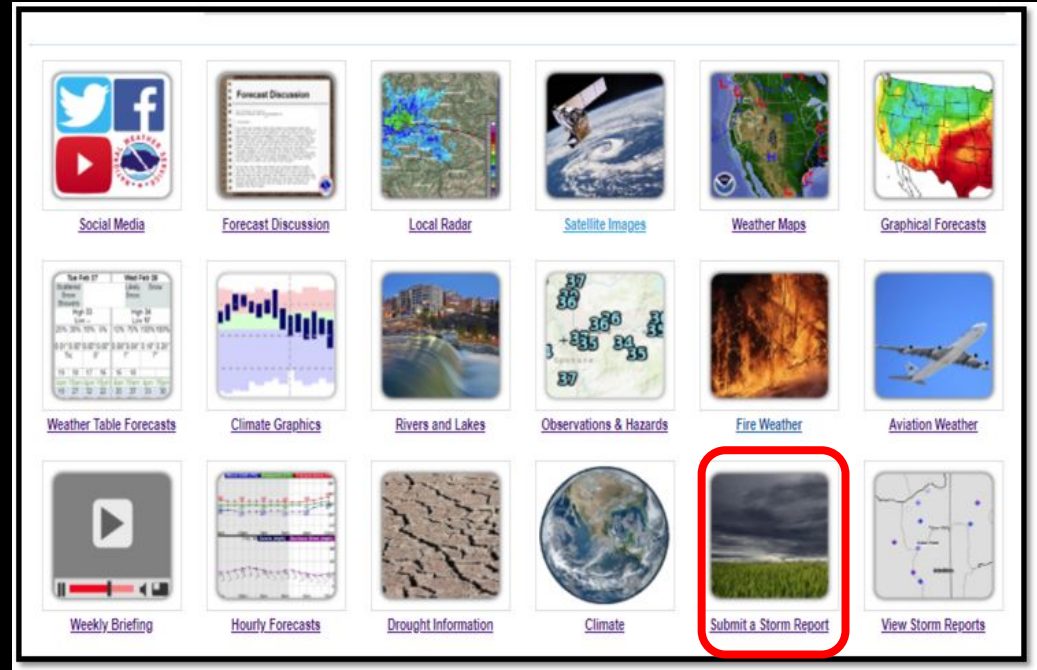
 **Storm Reports**
Alerting the NWS to local weather

Report Type -> Details -> Location -> Review and Send

Please select a report type ▼

[← Back](#) [Next →](#)

[Privacy policy for weather reports](#)



A grid of 24 weather-related links and images arranged in 4 rows and 6 columns:

- [Social Media](#) (Twitter, Facebook, YouTube, NOAA logo)
- [Forecast Discussion](#) (Document icon)
- [Local Radar](#) (Radar map)
- [Satellite Images](#) (Satellite view of Earth)
- [Weather Maps](#) (Map of the United States with weather data)
- [Graphical Forecasts](#) (Map of the United States with color-coded weather data)
- [Weather Table Forecasts](#) (Table with weather data)
- [Climate Graphics](#) (Bar chart)
- [Rivers and Lakes](#) (Image of a waterfall)
- [Observations & Hazards](#) (Map with numbers)
- [Fire Weather](#) (Image of a fire)
- [Aviation Weather](#) (Image of an airplane)
- [Weekly Briefing](#) (Video player icon)
- [Hourly Forecasts](#) (Line graph)
- [Drought Information](#) (Image of cracked earth)
- [Climate](#) (Image of Earth from space)
- [Submit a Storm Report](#) (Image of a storm cloud over a field, highlighted with a red box)
- [View Storm Reports](#) (Map with markers)



National Weather Service - Spokane, WA

www.weather.gov/spokane

Share weather data - Social Media

Twitter

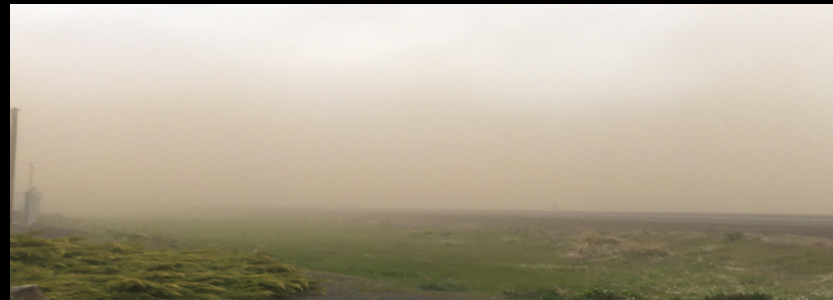


- @NWSSpokane
- #wawx & #idwx
- Share reports & pictures
- Monitored 24/7

Facebook

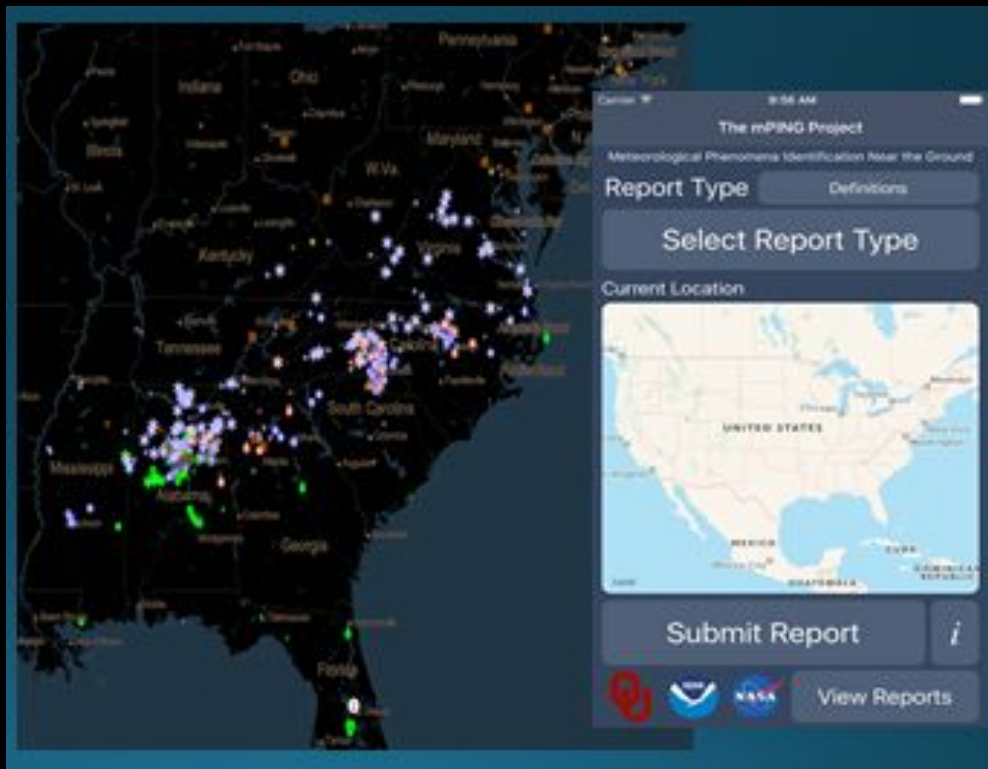


- NWS Spokane
- Send reports & pictures
- Monitored 24/7



Share weather data - mPING

- Smartphone App
- Available on IOS and Android
- Reports sent to NWS
- Reports are anonymous
- Crowdsourcing
- Very easy to use
- <https://mping.nssl.noaa.gov>



Share your weather photos

nws.spokane@noaa.gov



If ARES/RACES Hams, relay report to your central collection point.



National Weather Service - Spokane, WA

www.weather.gov/Spokane

National Weather Service - Spokane, WA

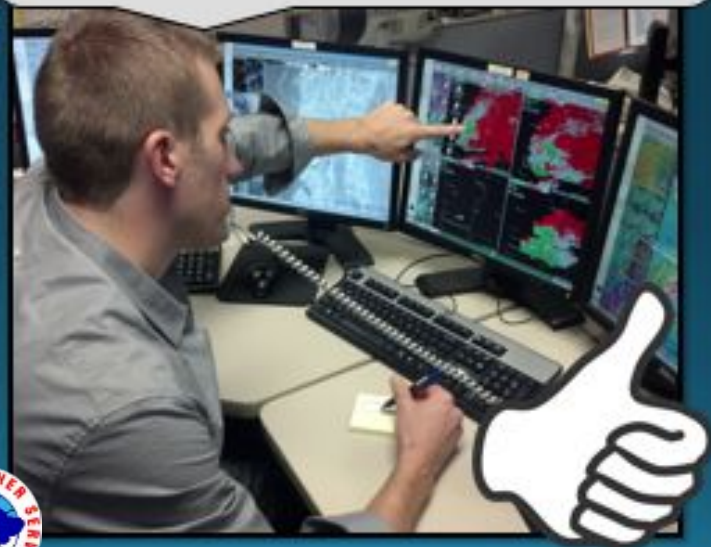


www.weather.gov/spokane

Examples of Spotter Reports

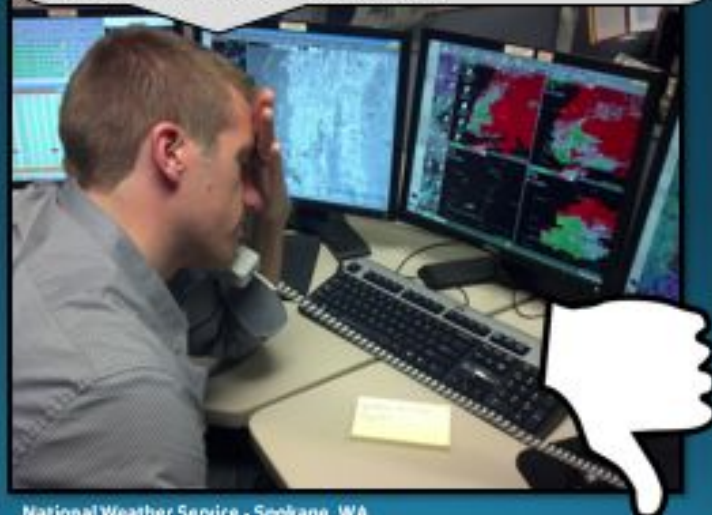
Good Spotter Report

This is Tom Smith, Spotter Spokane #25 calling from my home on the South Hill. There is currently large hail falling. I measured one stone and it's about the size of a quarter. It began about 30 minutes ago.



Needs Improvement

Hi there, how are you doing? Who is this? Well hi Steve! I'm a spotter in Okanogan County. I see lightning to the north and it rained here a little bit ago. The news is saying it's much worse to the south. Are we going to get another thunderstorm? How long is it supposed to last? How's your evening going?



National Weather Service - Spokane, WA

NWS may Contact You!

As a registered weather spotter, you'll share your phone number with the NWS.

If we see severe or hazardous weather near your location....

We will likely try to call and get information on what you are experiencing (ground truth) based on what is seen on radar



National Weather Service - Spokane, WA



www.weather.gov/Spokane



www.weather.gov/Spokane

Emails are Important

Besides a phone number, it's important to keep emails current.

You will likely be notified the day before/day of by email when there is a WIDESPREAD Severe Weather Risk/Thunderstorm Outbreak

We send periodic emails to alert you of the quarterly newsletter and upcoming training opportunities.



National Weather Service Spokane, WA

www.weather.gov/Spokane



www.weather.gov/spokane

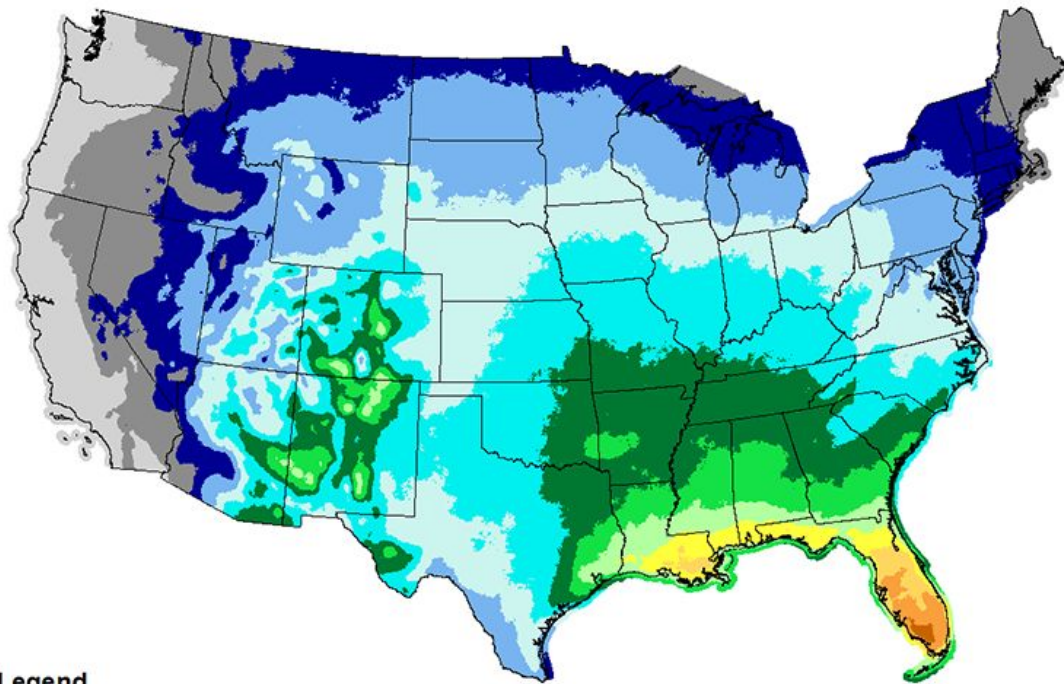
#2 Poll Question

What is necessary to give in a spotter report?



U.S. Thunderstorm Distribution

Annual Mean Thunderstorm Days (1993-2018)



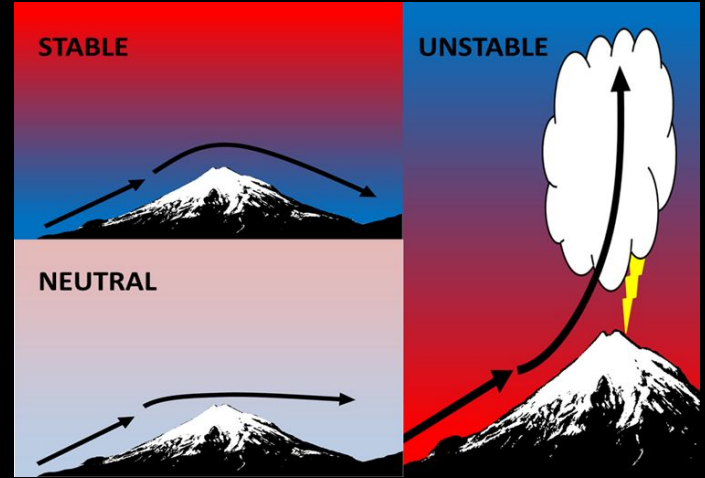
Legend



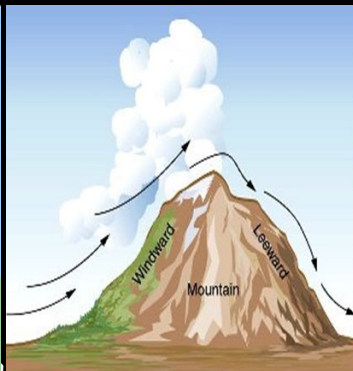
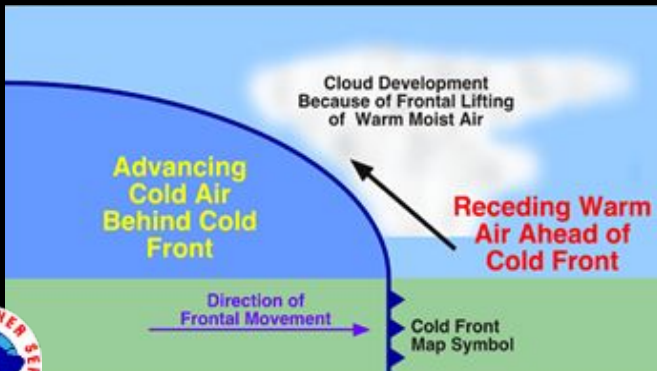
Thunderstorm Ingredients



Moisture



Instability



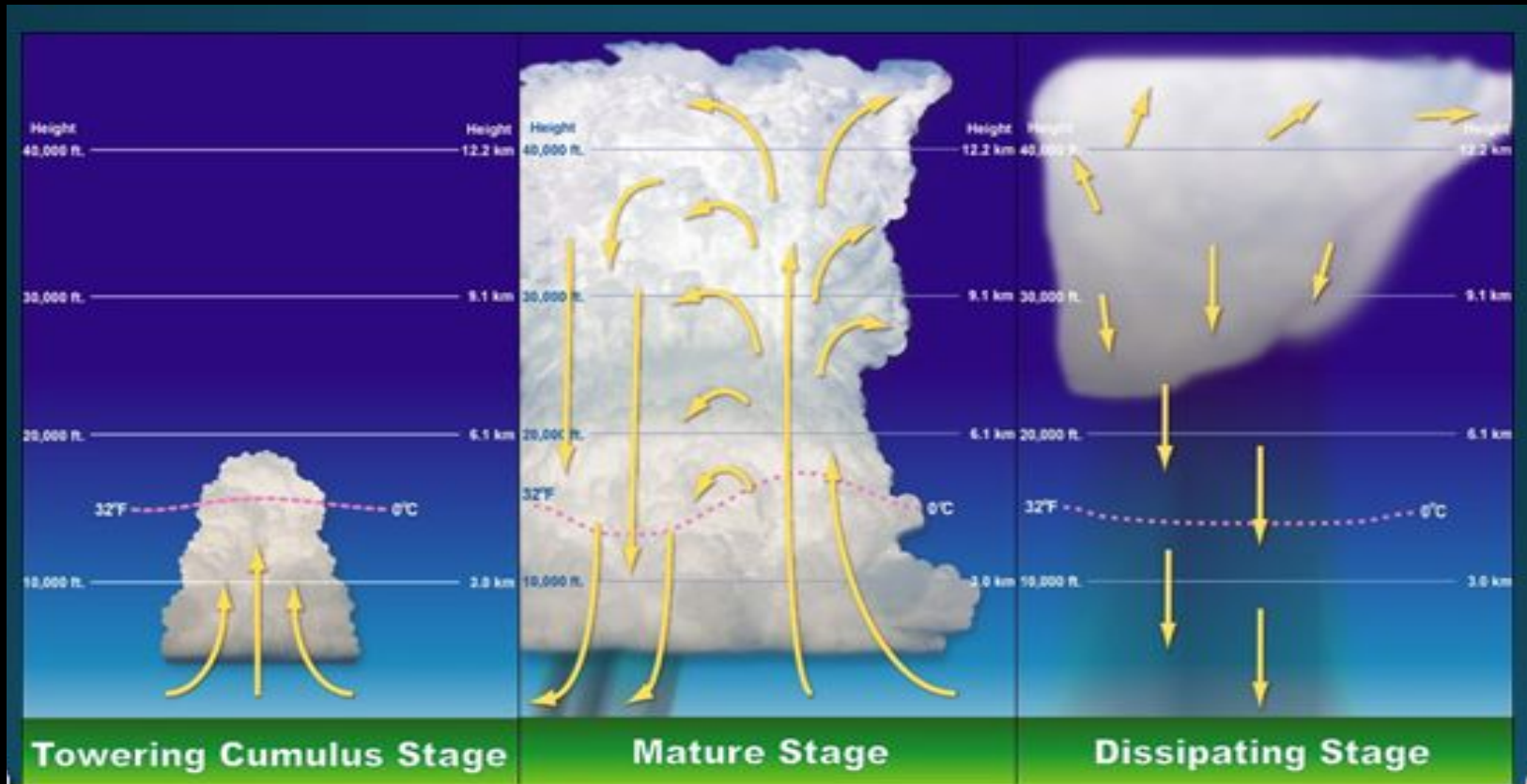
Lift



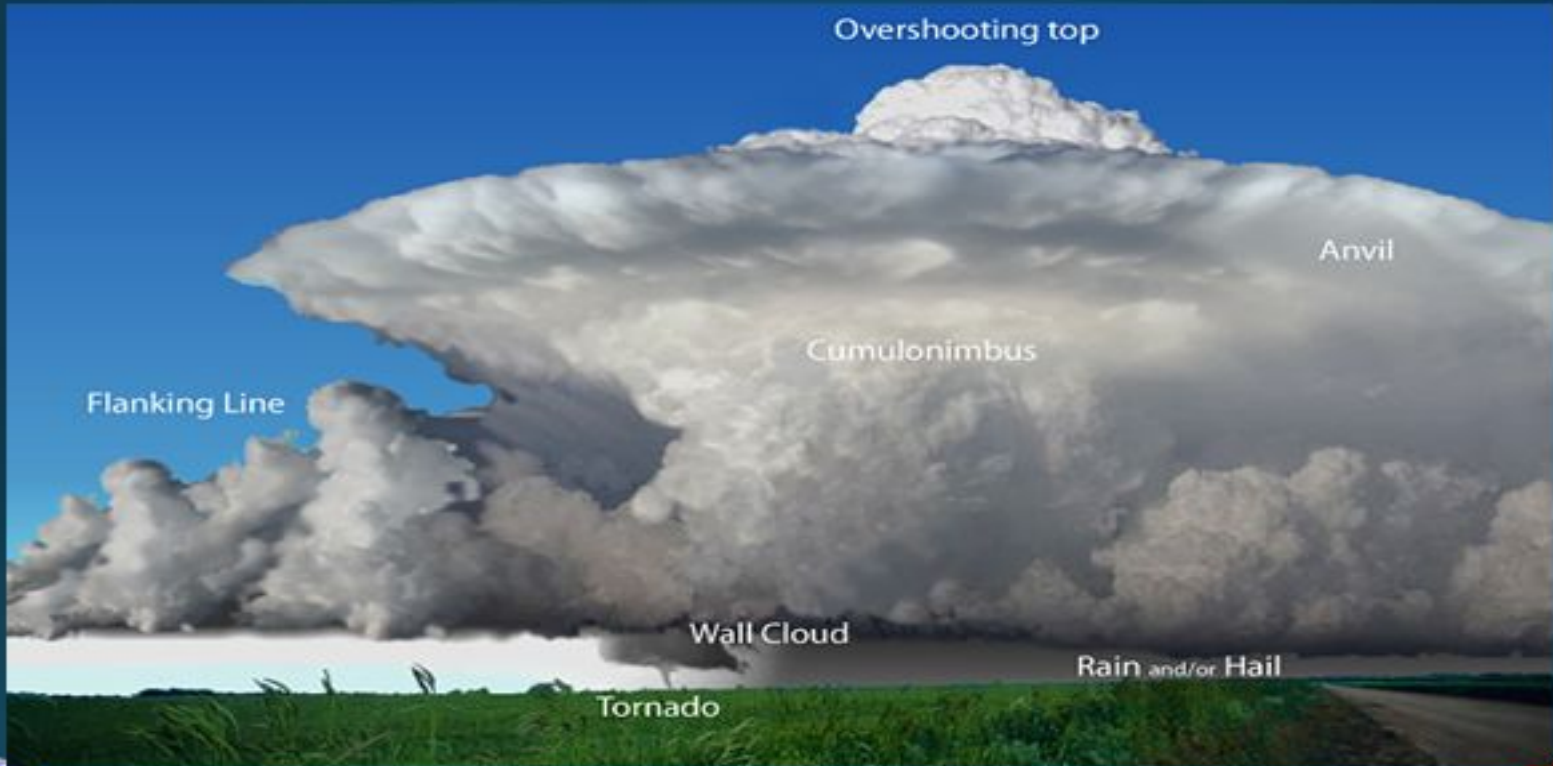
Vertical Wind Shear



Stages of a Thunderstorm



Anatomy of Thunderstorm



What is a Severe Thunderstorm?

Winds \geq 58 mph



Hail \geq 1" in diameter



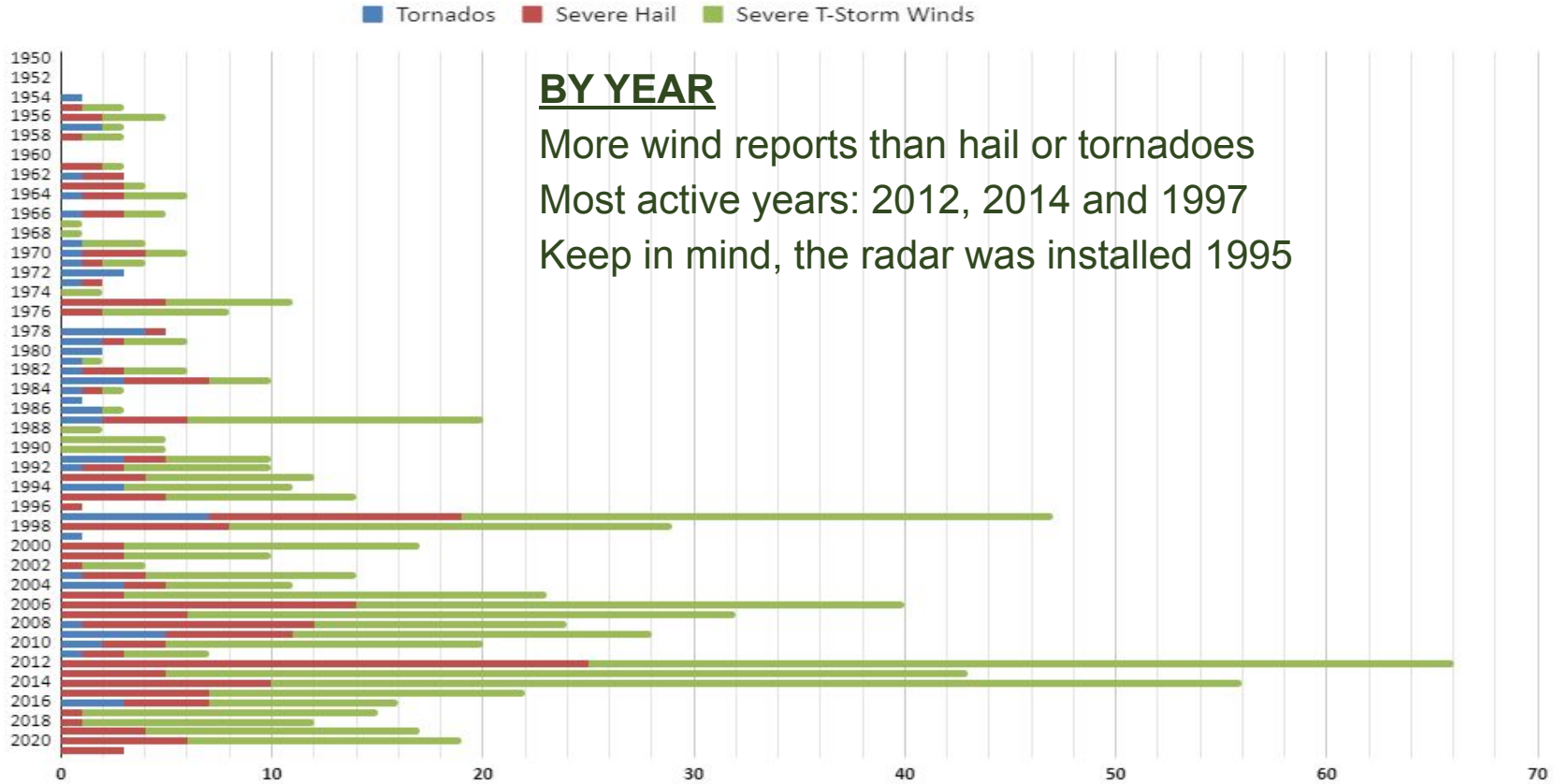
Tornado



- Less than 10% of all thunderstorms are Severe
- Though Lightning is ALWAYS extremely dangerous, the amount of lightning does not make a storm SEVERE.



Local Severe Weather Climatology



BY YEAR

More wind reports than hail or tornadoes

Most active years: 2012, 2014 and 1997

Keep in mind, the radar was installed 1995



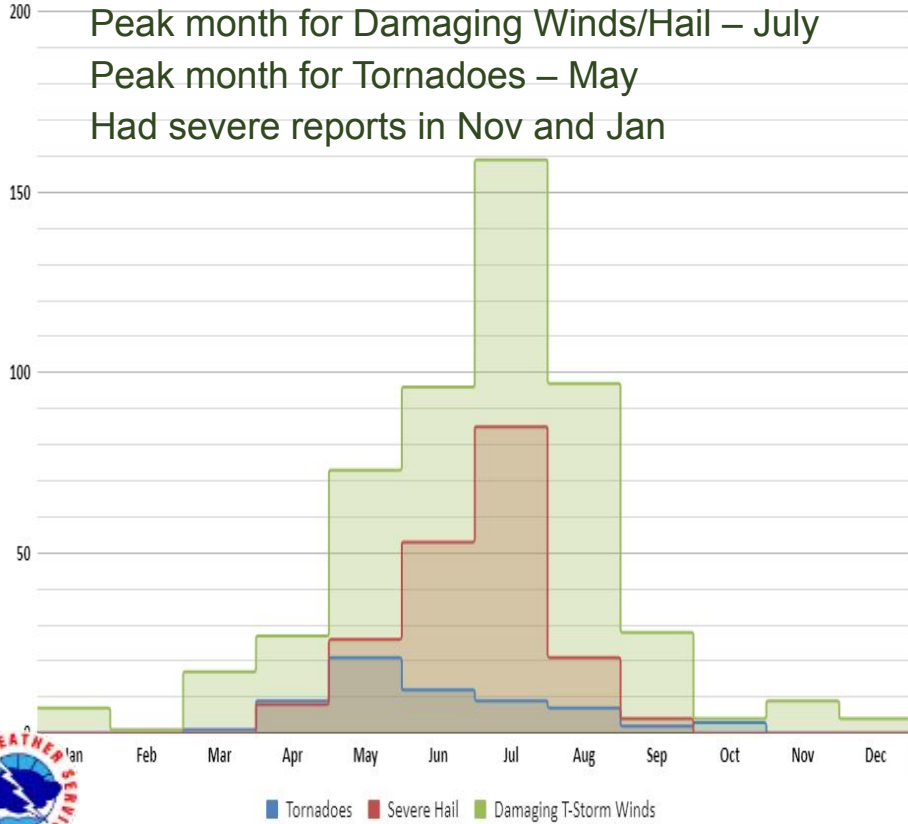
More Local Severe Weather Climatology

BY MONTH

Peak month for Damaging Winds/Hail – July

Peak month for Tornadoes – May

Had severe reports in Nov and Jan

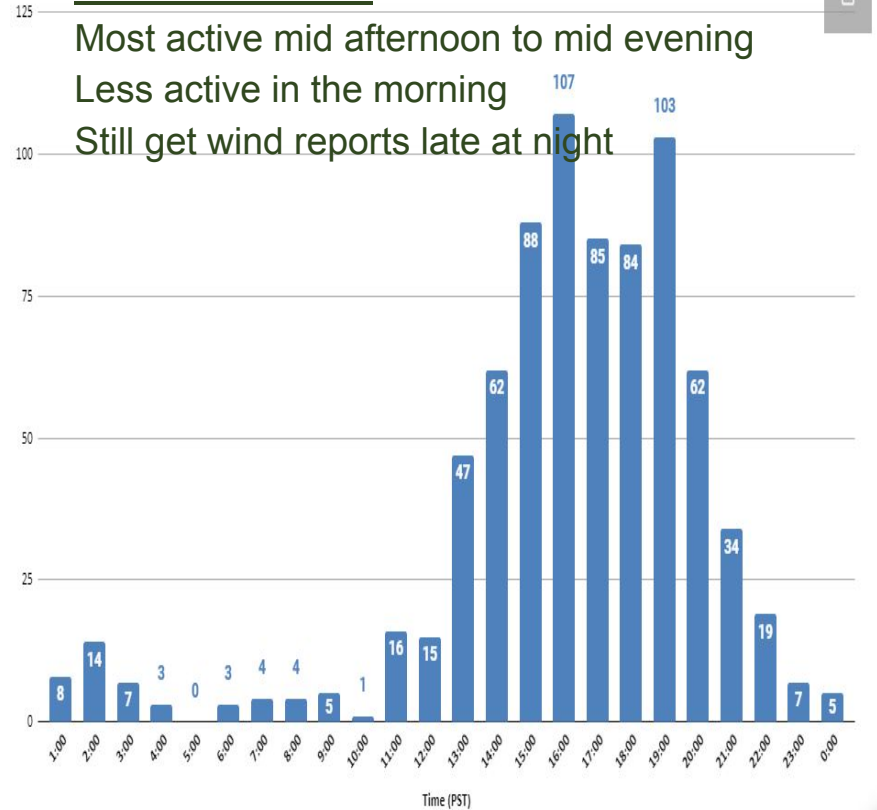


BY TIME OF DAY

Most active mid afternoon to mid evening

Less active in the morning

Still get wind reports late at night



#3 Poll Question

What makes a thunderstorm severe?



Tornado

A violently rotating column of air, attached to a thunderstorm and touching the ground.

Typical Inland NW Tornado

- Less than 5 minutes on the ground
- ¼ mile track
- Max wind speeds of 80-110 mph
- Mostly EF0 to EF1

Mold - July 2016



kxly 4 News VIEWER PICTURES
MARK IN AIRWAY HEIGHTS

Airway Heights - July 2016



Spokane - May 2022

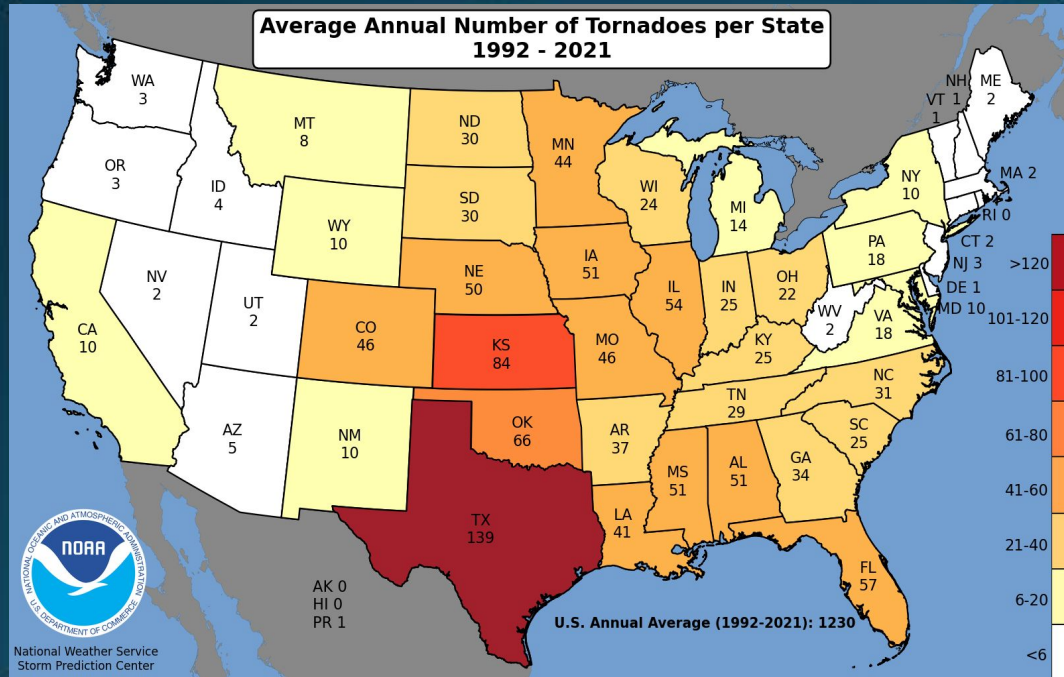


Spokane - July 2016



How are tornadoes measured?

The Enhanced Fujita Scale



EF-Scale	Speed
EF0	65-85 mph
EF1	86-110 mph
EF2	111-135 mph
EF3	136-165 mph
EF4	166-200 mph
EF5	>200 mph

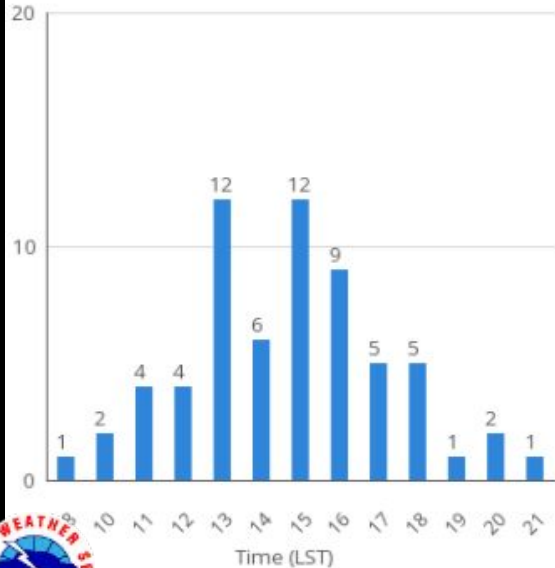
Inland NW Tornado Stats ~ 64 reports

(1936-2016)

*In Spokane metro area: last time tornado spotted was 2022
There have been 15 tornadoes in the metro area.*

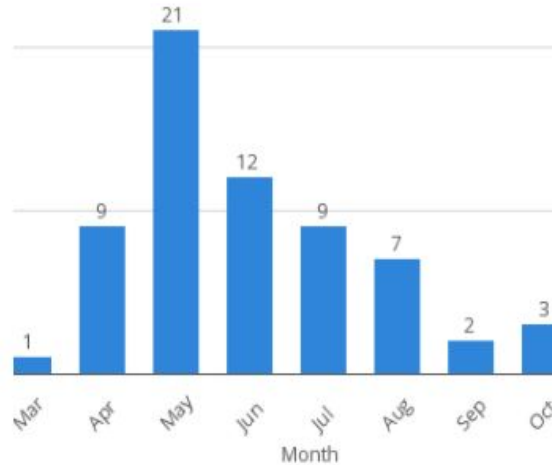
Tornadoes by time of day

Total number of tornadoes by time of day



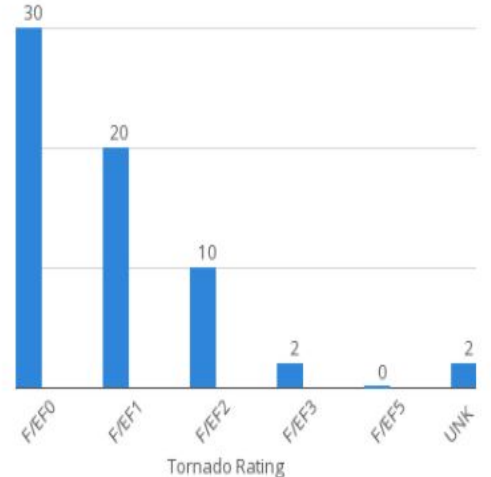
Tornadoes by month

Total number of tornadoes by month



Tornadoes by rating

Total number of tornadoes by RATING from 1936 to 2016



What about Funnel Clouds & Dust Devils?

- Funnel clouds stay aloft attached to storm cloud
- Dust devils start at the ground and extend upward
- Tornadoes extend from storm cloud to the ground
- In doubt, check for cloud cover and debris on ground
- Take a picture and share!



#1 Tornado - May 6, 2022 - West Plains



National Weather Service - Spokane, WA

www.weather.gov/spokane

#2 Tornado - May 6, 2022 - Spokane



National Weather Service - Spokane, WA

www.weather.gov/spokane

Cloud Types

Scud clouds - ragged



Cumulus



Towering Cumulus



Wall cloud - lowering cloud base/ rotation



Stratus - stable clouds, hugs mountains



#4 Poll Question

Identify this image.



National Weather Service - Spokane, WA

Strong or Damaging Winds

- Strong downburst winds or straight line winds
- Can be convective or sustained strong winds
- Report any winds estimated to be over 40 mph
- Winds that produce any damage
 - Downed trees, power lines, structure damage
- Remember, severe/high winds \geq 58 mph

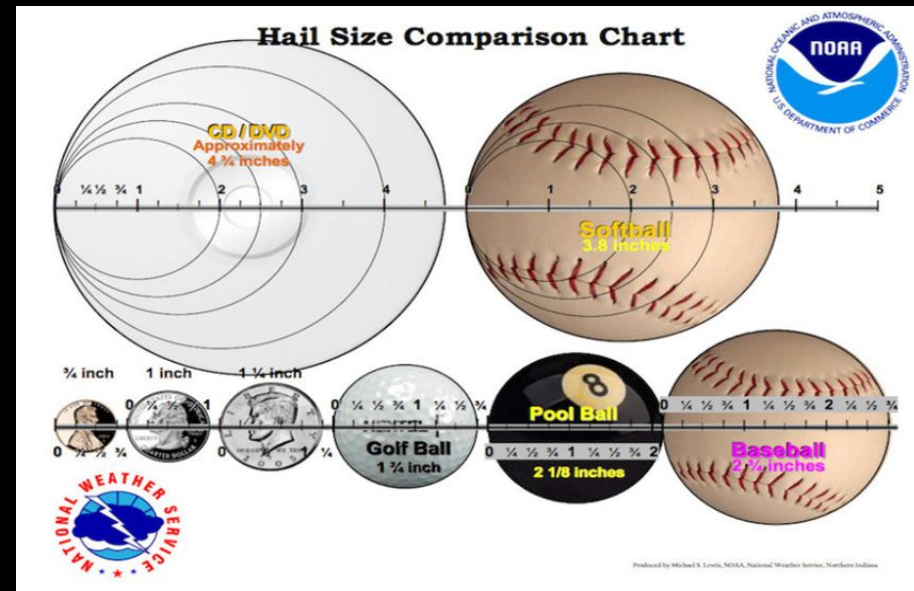


Beaufort Wind Chart – Estimating Winds Speeds

Beaufort Number	MPH		Terminology	Description
	Range	Average		
0	0	0	Calm	Calm. Smoke rises vertically.
1	1-3	2	Light air	Wind motion visible in smoke.
2	4-7	6	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	11	Gentle breeze	Leaves and smaller twigs in constant motion.
4	13-18	15	Moderate breeze	Dust and loose paper is raised. Small branches begin to move.
5	19-24	22	Fresh breeze	Smaller trees sway.
6	25-31	27	Strong breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult.
7	32-38	35	Near gale	Whole trees in motion. Some difficulty when walking into the wind.
8	39-46	42	Gale	Twigs broken from trees. Cars veer on road.
9	47-54	50	Severe gale	Light structure damage.
10	55-63	60	Storm	Trees uprooted. Considerable structural damage.
11	64-73	70	Violent storm	Widespread structural damage.

Hail

- Strong updraft keeps chunks of ice aloft
- Circulated within a storm and collects layers of water and freezes
- Can fall to the ground at > 100 mph
- Severe hail ≥ 1 " diameter
- Always report the largest Hailstone you see in the pile.



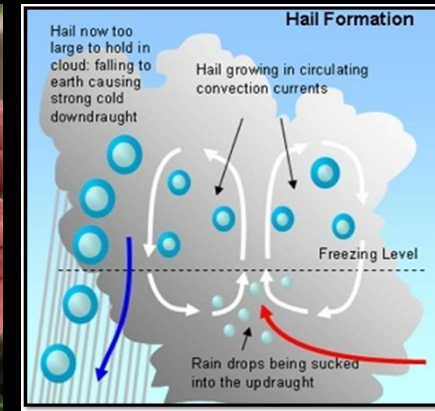
Naples, ID - May 2020



July 2019 - Metaline, WA



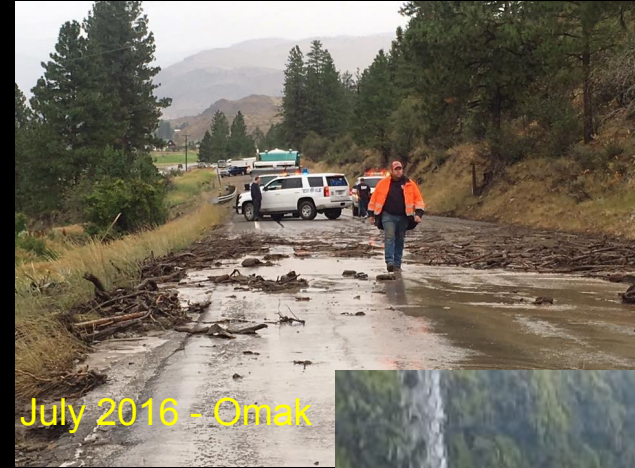
Hauser - August 2022



Heavy Rain

Report heavy downpours or long periods of steady rain
Give specific locations - streets and creeks

- 0.50"+ in 1 hour - convective
- 1.0" in 12 hours or 1.5"+ in 24 hours - stratiform



Flooding & Flash Flooding

Rising water on rivers, streams & low spots
Give specific locations of streams & streets



Mud & Debris Flows

Water-saturated rock, mud and debris moving down a slope

Give specific locations, roadways or intersections

Post-fire Floods



Dust Storms

- Prolonged dry spell + strong winds + plowed fields
- Sudden reduction in visibility
- Give locations of roads and intersections
- Also called Haboobs
- If widespread, can lead to air quality issues
- Keep in mind - Smoke can limit visibilities as well.



Harrington - Aug 2014



April 11, 2020 - Ritzville



Odessa - Aug 2014



Lightning

Close Enough to Hear Thunder,-
Close Enough to be Struck!

- Lightning can strike as far as 10 miles from the thunderstorm.
- More than 50% of lightning deaths occur AFTER the storm has passed

When Thunder Roars, Go Indoors

Seek Safe Shelter indoors - or vehicle if needed
Stay away from windows & doors
Don't use a corded phone or take a bath/shower



WA April 2017



National Weather Service - Spokane



June 2019 - Spokane



Ritzville - May 2020

#5 Poll question

Identify this image.



Spotter Safety

- Personal Safety is the Primary Objective of every spotter
- Protect You and Your Family First
- Do NOT put yourself in harm's way
 - Don't walk or drive over obstructions as flooded roads or downed power lines
 - Don't put yourself under objects that have the potential to fall or be blown over
- **ACES - Awareness, Communication, Escape Route and Safe Zones**



Lightning Safety

1. Be Aware
of your
Surroundings!



National Weather Service - Spokane, WA

www.weather.gov/spokane

Lightning Safety Tips

When Thunder Roars



Go Indoors!

**STOP
All Activities.**

Seek shelter in a substantial building or hard-topped vehicle.

Wait 30 minutes after the storm to resume activities.



Tornado Safety Tips

East Wenatchee - May 2004



OUTSIDE

- People in open rural areas may be able to drive away from a distant approaching tornado
- If tornado is unavoidable, seek shelter in strong building or ditch
- Do not ride out tornado in auto!

Treat Severe Thunderstorm or High Wind Warnings Seriously! Straight line winds can be as Destructive as a Tornado

INSIDE

- Seek shelter in a strong building
- *Underground shelter & “safe room” is the best*
- Otherwise small interior room on lowest floor (bathroom or closet, cover yourself)
- Stay away from windows!!!
- Abandon mobile homes!



Flash Flood Safety Tips



- Do not cross a flooded roadway!!!
- Do not walk/hike/stand near flood waters!
- Be patient, wait for water to recede, or find an alternate route.
- Are you in a low-lying area that is flood prone? Seek higher ground.
- 2 Feet of Flowing water will carry away most vehicles
- Keep in mind, flooding may occur many miles away from the thunderstorm/source

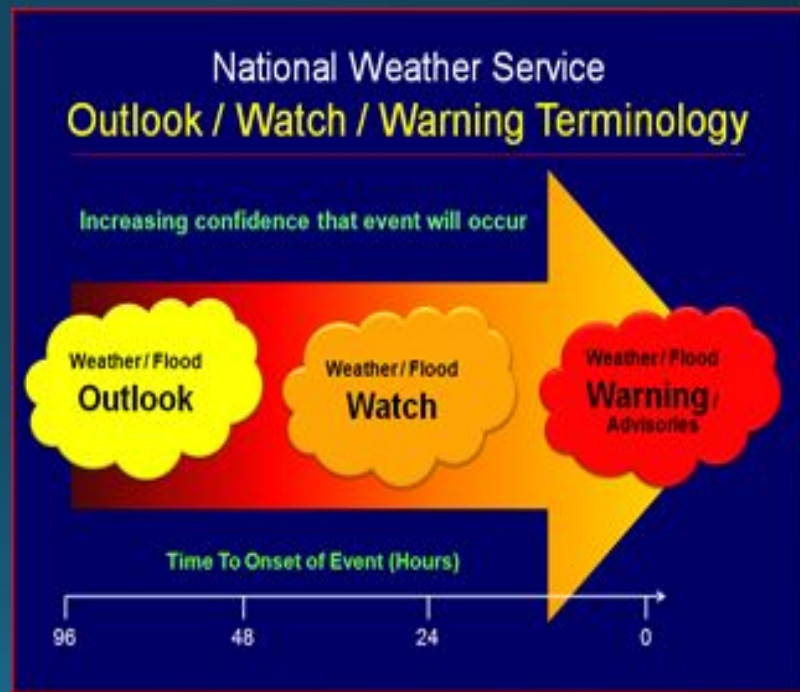
#6 Poll question

Where is a safe place to go during a thunderstorm?



Stay Informed - NWS Terminology

- **Watch:** Conditions are favorable, but not imminent, for severe weather or flooding
- **Warning:** Severe weather or flooding is imminent or already occurring
- **Advisory:** Minor nuisance or inconvenient weather or flooding is expected, but in most cases not anticipated to adversely affect plans.



Short fused

Tornado
Flash Flood
Severe Thunderstorm

Long fused

High Wind
Flood
Winter Storm
Red Flag








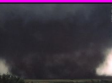
Stay Informed

National Storm Prediction Center

www.spc.noaa.gov

Thursday, 4/22/2021







Understanding Severe Thunderstorm Risk Categories

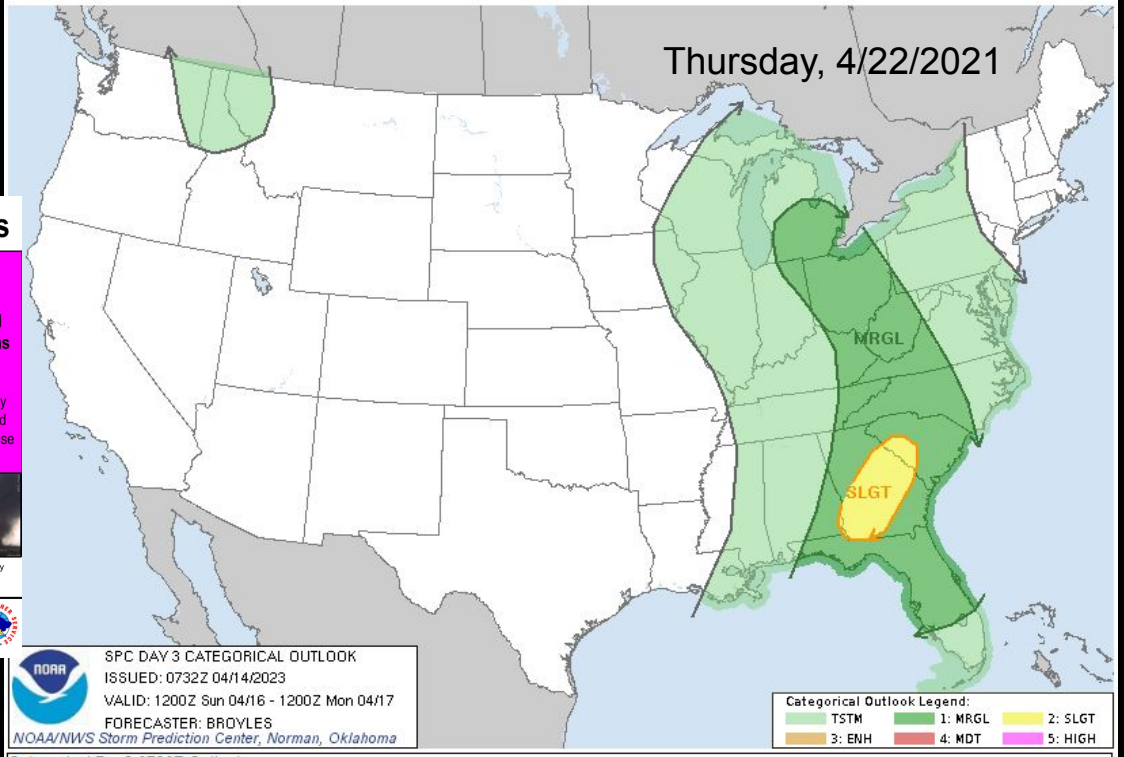
THUNDERSTORMS (no label)	1 - MARGINAL (MRGL)	2 - SLIGHT (SLGT)	3 - ENHANCED (ENH)	4 - MODERATE (MDT)	5 - HIGH (HIGH)
No severe* thunderstorms expected	Isolated severe thunderstorms possible	Scattered severe storms possible	Numerous severe storms possible	Widespread severe storms likely	Widespread severe storms expected
Lightning/flooding threats exist with all thunderstorms	Limited in duration and/or coverage and/or intensity	Short-lived and/or not widespread, isolated intense storms possible	More persistent and/or widespread, a few intense	Long-lived, widespread and intense	Long-lived, very widespread and particularly intense
					

* NWS defines a severe thunderstorm as measured wind gusts to at least 58 mph, and/or hail to at least one inch in diameter, and/or a tornado. All thunderstorm categories imply lightning and the potential for flooding. Categories are also tied to the probability of a severe weather event within 25 miles of your location.

National Weather Service
www.spc.noaa.gov

NOAA
SPC DAY 3 CATEGORICAL OUTLOOK
ISSUED: 0732Z 04/14/2023
VALID: 1200Z Sun 04/16 - 1200Z Mon 04/17
FORECASTER: BROYLES
NOAA/NWS Storm Prediction Center, Norman, Oklahoma

Categorical Outlook Legend:
 TSTM  1: MRGL  2: SLGT
 3: ENH  4: MDT  5: HIGH



National Weather Service - Spokane, WA

www.weather.gov/spokane

Stay Informed

Watch, Warning, Advisory

TYPE	DEFINITION	THREAT	ACTION
WARNING	Hazard is occurring, imminent, or very likely	Threat to life & property	Take protective action
WATCH	Conditions are <u>favorable</u> for hazard to occur	Threat to life & property	Have a plan of action
ADVISORY	Hazard is occurring, imminent, or very likely	Threat of significant inconvenience	Use caution



Stay Informed

NWS Spokane Web Page

www.weather.gov/Spokane

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, St" or ZIP code
Enter location ...

[Location Help](#)

MY FORECAST
Spokane WA

NWS Forecast Office Spokane, WA
[Weather.gov](#) > Spokane, WA

Spokane, WA
Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

Weekend Weather | Weather Spotter Training

Increasing clouds Saturday → **Cloudy and Wet Sunday**

Saturday: Increasing clouds. Spotty light showers near the Cascade Crest, Northeast Washington and North Idaho. Highs mostly in the 50s to low 60s.

Sunday: Valley rain and high mountain snow showers likely. Highs mainly in the 60s. Breezy with southwest wind 15 to 25 mph with gusts to 30 mph in the afternoon and evening.

Partly Cloudy
49°F
9°C [Get Detailed info](#)

Tonight
30% Chance Showers then Partly Cloudy
Low: 34°F

Saturday
Clouds

NATIONAL WEATHER SERVICE SPOKANE, WA
ISSUED: 9:40 AM - Friday, April 14, 2023

Click a location below for detailed forecast.

Watches, Warnings & Advisories
There are no watches, warnings, or advisories at this time.

Last Map Update: Mon, Apr. 5, 2021 at 10:44:15 am PDT

Text Product Selector (Selected product opens in current window)
Latest Text Products Issued by OTX

Social Media | **Forecast Discussion** | **Local Radar** | **Satellite Images** | **Weather Maps** | **Graphical Forecasts**

Weather Table Forecasts | **Climate Graphics** | **Rivers and Lakes** | **Observations & Hazards** | **Fire Weather** | **Aviation Weather**

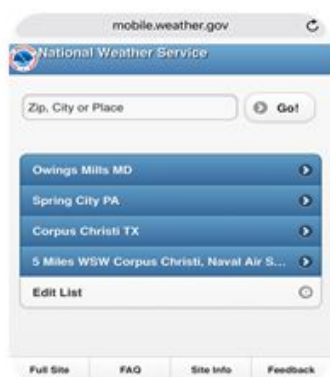
Weekly Briefing | **Hourly Forecasts** | **Drought Information** | **Climate** | **Submit a Storm Report** | **View Storm Reports**



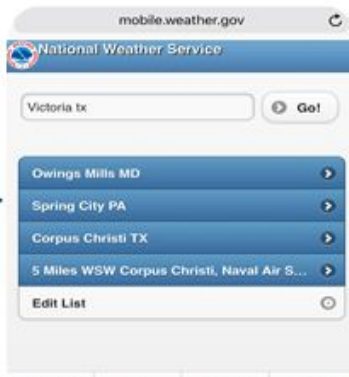
Stay Informed

On your Smartphone

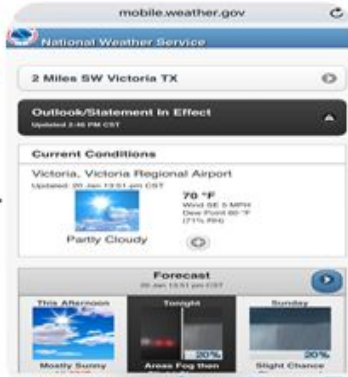
mobile.weather.gov



Mobile.Weather.gov
Smart Phone Enabled



Type in desired location
Hit 'Go'



Up pops current
conditions, hazards, and
forecast



Can add this website to
your 'Home' screen for
quick access



Home Screen

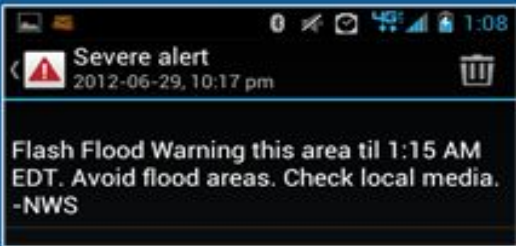


National Weather Service - Spokane, WA

www.weather.gov/spokane

Stay Informed

Wireless Emergency Alerts (WEA)



Alert Categories

- Presidential
- Imminent threat to life and property (e.g., severe weather, HazMat, earthquake)
- AMBER Alert/child abduction

Alert Message Content (90 characters)

- What is happening
- Area affected
- Til time
- Recommended action
- Alert originator

Warning Type
Tsunami Warning*
Tornado Warning
Extreme Wind Warning
Hurricane Warning
Typhoon Warning
Flash Flood Warning
Dust Storm Warning



Stay Informed

Smartphone Apps

- **FEMA**
 - ALL NWS alerts for up to 5 locations
 - Android, Apple, and BlackBerry
- **Red Cross Apps**
 - Two apps with alerts and safety information (Android and Apple)
 - **Emergency App:** 35 different severe weather and emergency alerts
 - **Tornado App:** Tornado Watch and Warning Alerts
 - Audible siren for Tornado Warnings



Stay Informed

NOAA Weather Radio

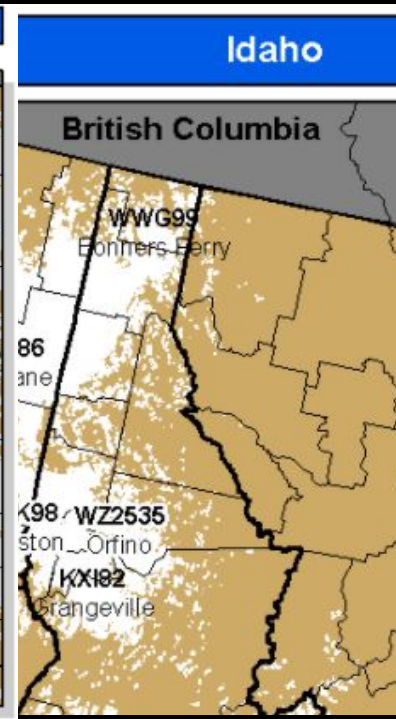
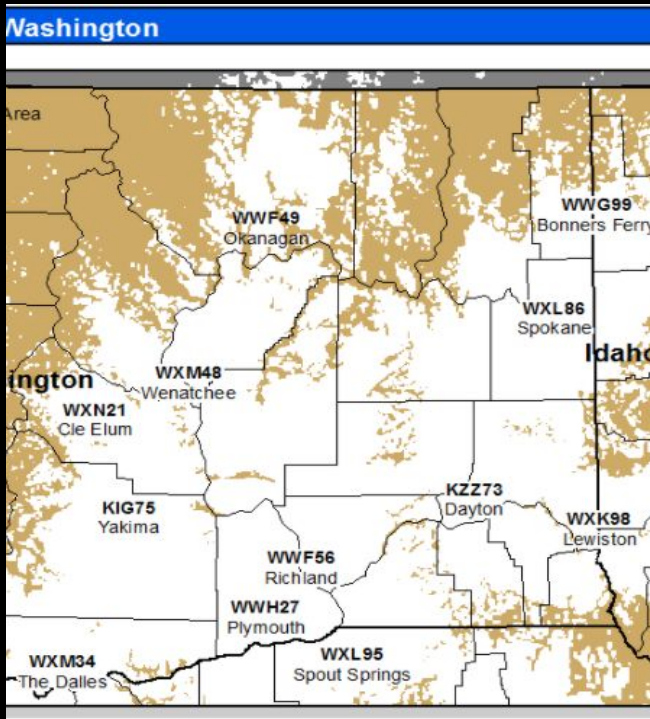


Continuous operation.

Battery backup capable.

Handheld device great for outdoor activities.

Can drive across the country and get info anywhere along path.



National Weather Service - Spokane, WA

www.weather.gov/spokane

Stay Informed

Be Prepared - Disaster Kits and Disaster Plans

- **Water**, one gallon of water per person per day for at least three days
- **Food & medicine/prescriptions**, at least a three-day supply
- **Radio**, battery-powered or hand crank radio and a NOAA Weather Radio with tone alert and extra batteries for both
- **Flashlight and extra batteries**
- **First aid kit**
- **Whistle** to signal for help
- **Dust mask** to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place
- **Moist towelettes, garbage bags and plastic ties** for personal sanitation
- **Wrench or pliers** to turn off utilities
- **Manual can opener** for food
- **Local maps**
- **Cell phone with chargers, inverter or solar charger**



<http://www.ready.gov/kit>



Other Ways to Get Involved

- Weather Spotter
- Join the Community Collaborative Rain, Hail, and Snow Network
- Join the Citizens Weather Observers Program



Community Collaborative Rain, Hail and Snow Network - CoCoRaHS

Help Observe Precipitation in your Community

www.cocorahs.org

Volunteer take readings once a day - transmit on mobile device

The screenshot shows the CoCoRaHS website homepage. At the top, it says "COMMUNITY COLLABORATIVE RAIN, HAIL & SNOW NETWORK" with the tagline "Because every drop counts". Below this is a navigation bar with links for Home, Countries, States, View Data, Maps, My Data, My Account, Admin, and Logout. A welcome message reads: "Welcome to CoCoRaHS! 'Volunteers working together to measure precipitation across the nations.'" The main content area features a section titled "Who uses CoCoRaHS Observations?" with a sub-header "Reports received today 4/22/2020 as of 6:26 PM EDT". Below this is a table showing the number of reports received today for various categories: Daily (10,433), Multi-day (63), SigWx (5), Hail (7), Condition (9), and ET (51). To the right of the table is a "Daily Precipitation (inches x.xx) USA 4/22/2020" color-coded map of the United States. Further right are links for "JOIN COCORAHS", "TRAINING SLIDE-SHOW", and "Training Animations". At the bottom right of the main content area are icons for "Rain", "Hail", and "Snow" under the heading "Things to know about...".

Daily	Multi-day	SigWx	Hail	Condition	ET
10,433	63	5	7	9	51

Things to know about...
Rain
Hail
Snow



The screenshot shows the CoCoRaHS mobile app interface. At the top, it says "Logout", "Precip Report", and "Details". Below this is the CoCoRaHS logo and the text "CO-LR-610 Fort Collins 3.5 SW". The main section is titled "Precipitation Report" and includes fields for "Observation Date" (2015-05-13), "Observation Time" (07:00), and "Rain/Melted Snow" (0.00). There are also toggle switches for "Trace Precip" and "Metric Units (mm/cm)". A "Submit" button is at the bottom.

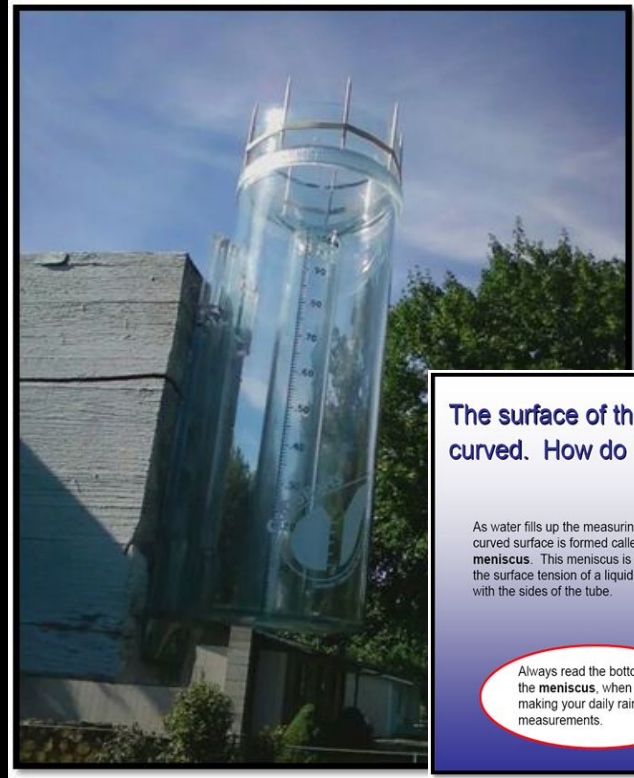


National Weather Service - Spokane, WA

Community Collaborative Rain, Hail and Snow Network - CoCoRaHS

Five easy steps

1. Sign-up at on the CoCoRaHS web site www.cocorahs.org
2. Obtain a 4" plastic rain gauge
3. View the online "training slide show"
4. Set up the gauge in a "good" location in your yard - away from trees
5. Start observing precipitation and report online daily



The surface of the water in the gauge looks curved. How do I know where to read?

As water fills up the measuring tube, a curved surface is formed called a **meniscus**. This meniscus is formed by the surface tension of a liquid in contact with the sides of the tube.



Always read the bottom of the **meniscus**, when the making your daily rain measurements.



National Weather Service - Spokane, WA

Citizen Weather Observer Program - CWOP



www.wxqa.com

- Have a weather station and want to share data online
- Has a PC and Internet access
- Register Online & Receive a weather station ID
- Transmits data every 15 mins



National Weather Service - Spokane, WA

www.weather.gov/spokane

Different programs - All useful to the NWS

Spotter

Severe Weather

No instruments required

Event driven

Weather.gov

CoCoRaHS

Precipitation only

Rain gauge required

Daily commitment

Cocorahs.org

CWOP

Weather data

Weather station

Daily commitment

Wxqa.com



Weather Spotter Resources Online

www.weather.gov/spokane

- Latest radar & satellite images
- Current watches, warnings & forecasts
- Latest NWS Storm Reports
- Maps of NOAA Weather Radio frequencies
- Current & Past Newsletters
- Spotter Guide
- Additional training resources -

MetEd



What about Weather Spotter Training?

Spotter training sessions are important and needed to stay current on severe weather spotting. The sessions are conducted by the National Weather Service in the spring and fall. It's an opportunity for spotters to review basic spotter techniques and weather safety concerns.

- [Spotter Training Schedule](#) will be posted when and where classes are offered.
- Recorded Spotter training is available locally and nationally

Locally Recorded Spotter Training

Fall Spotter Training 2022 Notes	Snow Measurement Training 2022 Notes
Basic Spotter Training 2022 Notes	Advanced Spotter Training 2022 Notes
Fall Spotter Training 2021 Notes	Snow Measurement Training 2021 Notes
Basic Spotter Training 2021 Notes	Advanced Spotter Training 2021 Notes

National Spotter and Observer Training

COMET MetEd	CoCoRaHS
SKYWARN Spotter Training - Basic	CoCoRaHS slide shows
Role of the SKYWARN Spotter	CoCoRaHS videos
SKYWARN Spotter Convective Basics	Wx Talks Webinars



National Weather Service - Spokane, WA

www.weather.gov/spokane

#7 Poll question

What is a good way to stay informed about severe weather?



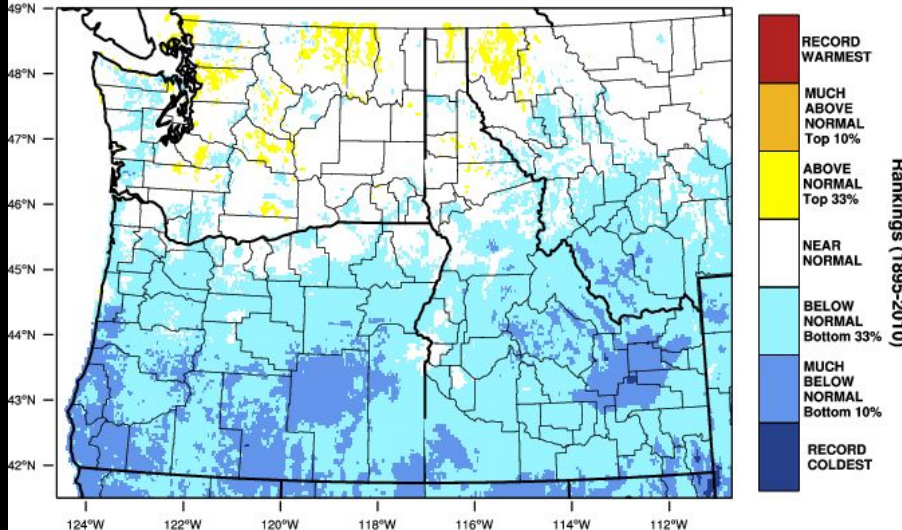
Seasonal Outlook 2023

So far this year...

wrcc.dri.edu/

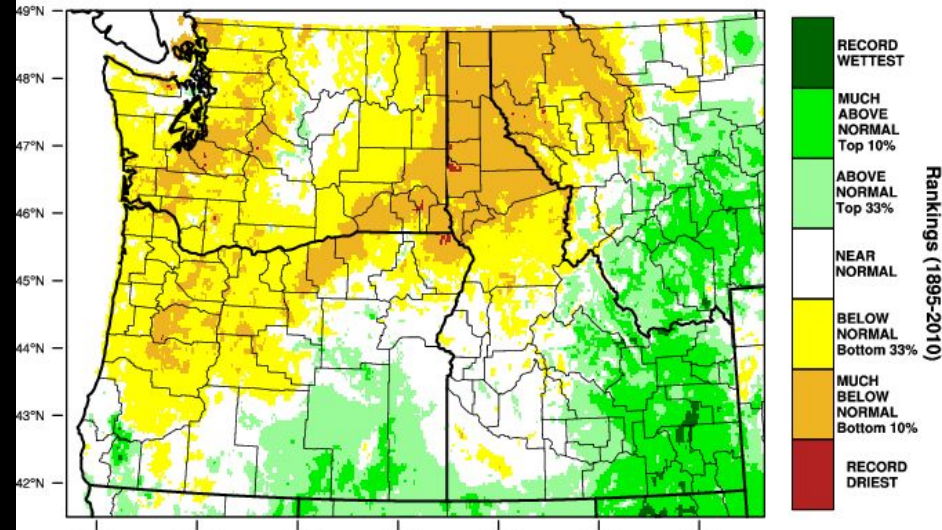
January -Mild & Unsettled
February - Cool & dry
March - Cool & Dry
April so far - Cool & Wet

Pacific Northwest - Mean Temperature
January-March 2023 Percentile



WestWide Drought Tracker - U Idaho/WRCC Data Source - PRISM (Prelim), created 11 APR 2023

Pacific Northwest - Precipitation
January-March 2023 Percentile



WestWide Drought Tracker - U Idaho/WRCC Data Source - PRISM (Prelim), created 11 APR 2023

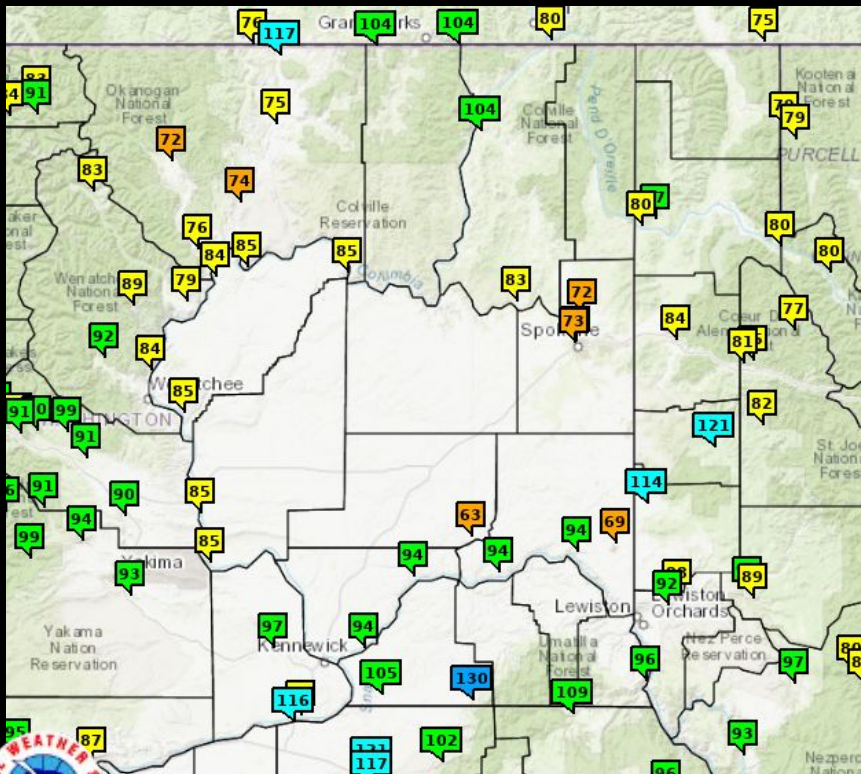


National Weather Service - Spokane, WA

www.weather.gov/spokane

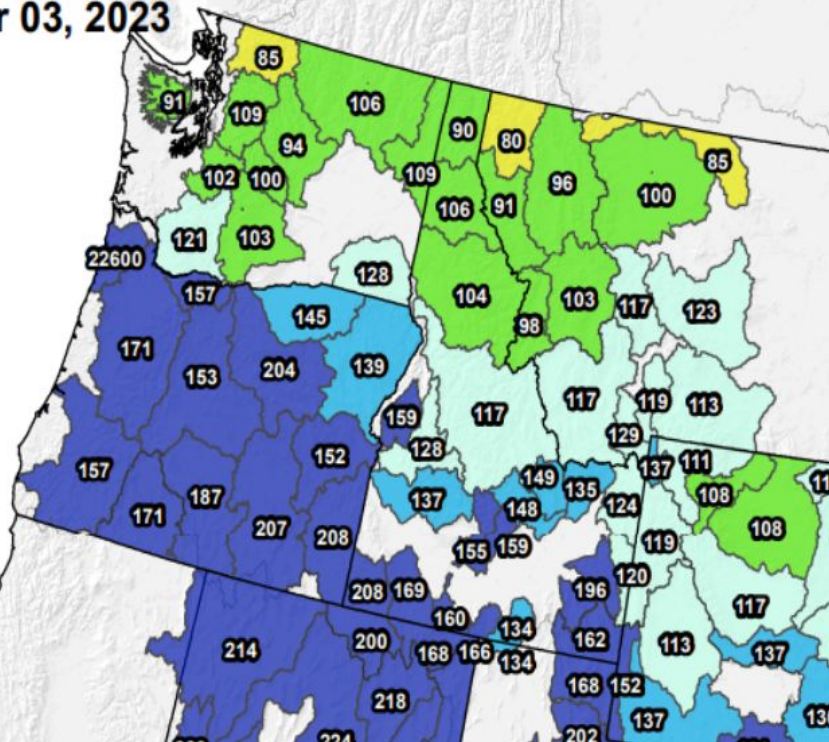
Seasonal Outlook 2023

Water Supply Outlook



Mountain Snowpack

Apr 03, 2023

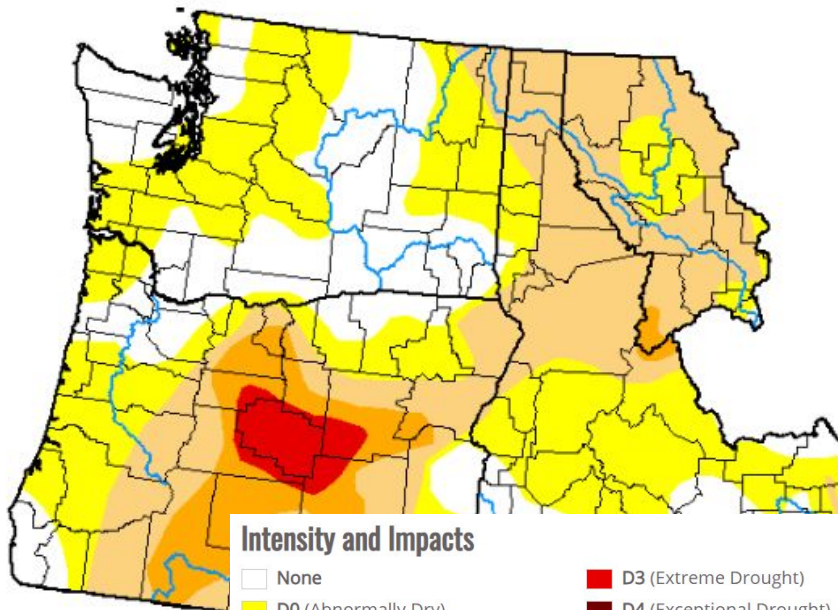


Seasonal Outlook 2023

US Drought Monitor & Seasonal Outlook

www.cpc.noaa.gov

Released April 11th

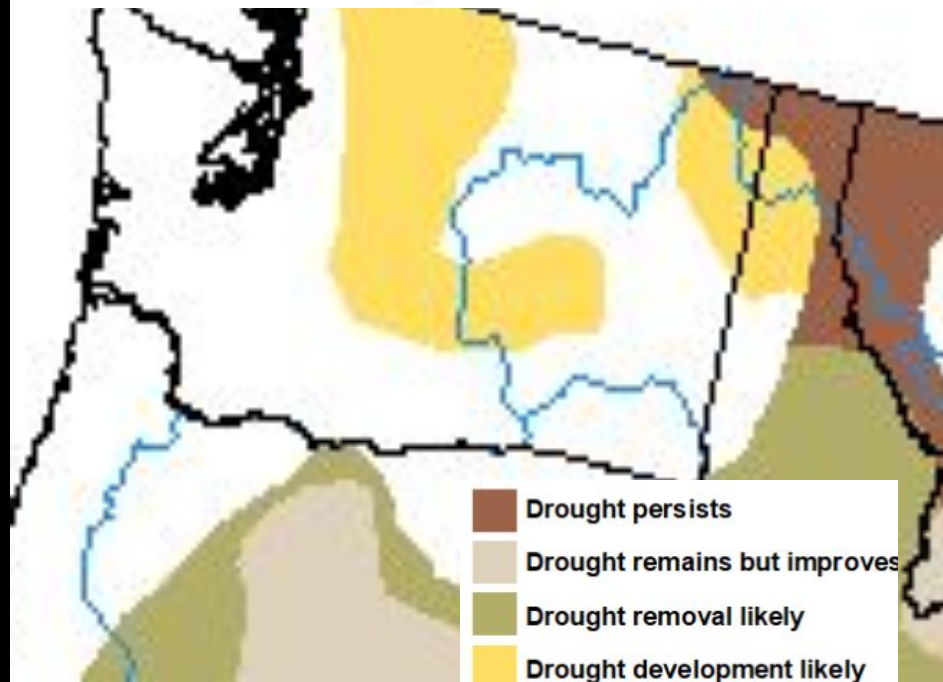


Intensity and Impacts

- | | |
|-----------------------|--------------------------|
| None | D3 (Extreme Drought) |
| D0 (Abnormally Dry) | D4 (Exceptional Drought) |
| D1 (Moderate Drought) | No Data |
| D2 (Severe Drought) | |

Valid for April 1 - June 30, 2023

Released March 31, 2023



- | |
|------------------------------|
| Drought persists |
| Drought remains but improves |
| Drought removal likely |
| Drought development likely |



National Weather Service - Spokane, WA

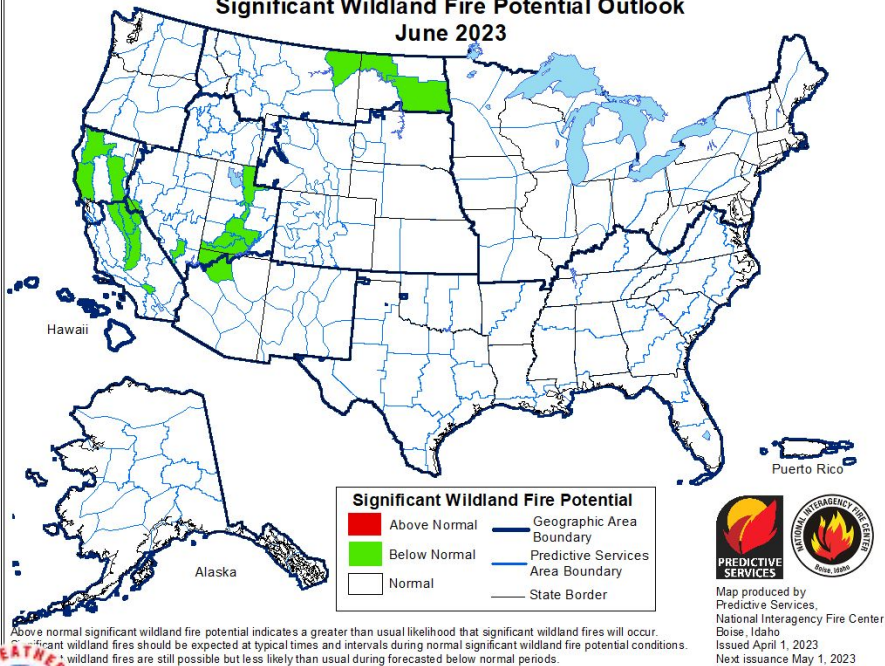
www.weather.gov/spokane

Seasonal Outlook 2023

Wildland Fire Potential

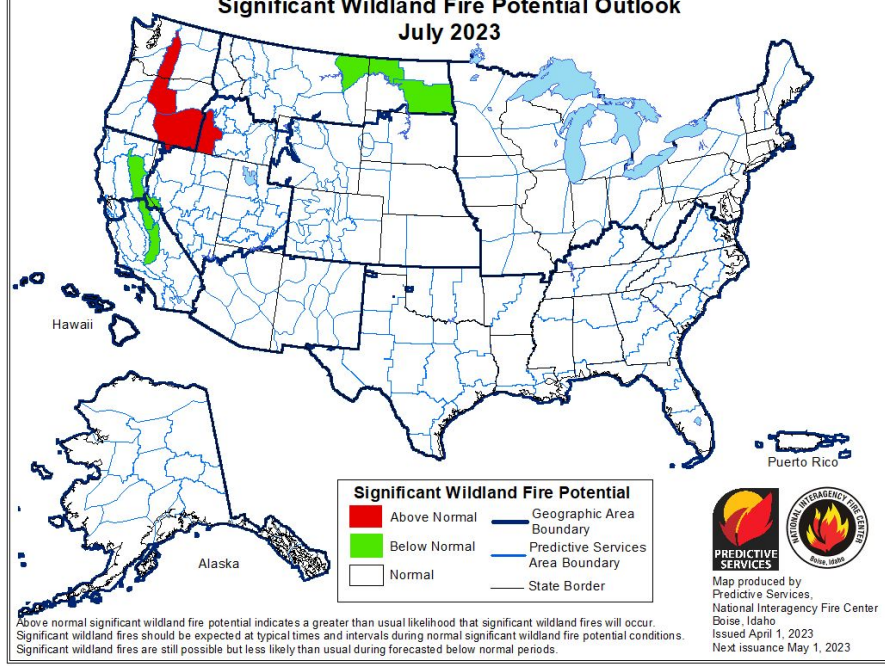
www.nifc.gov

Significant Wildland Fire Potential Outlook June 2023



Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur. Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.

Significant Wildland Fire Potential Outlook July 2023



Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur. Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.



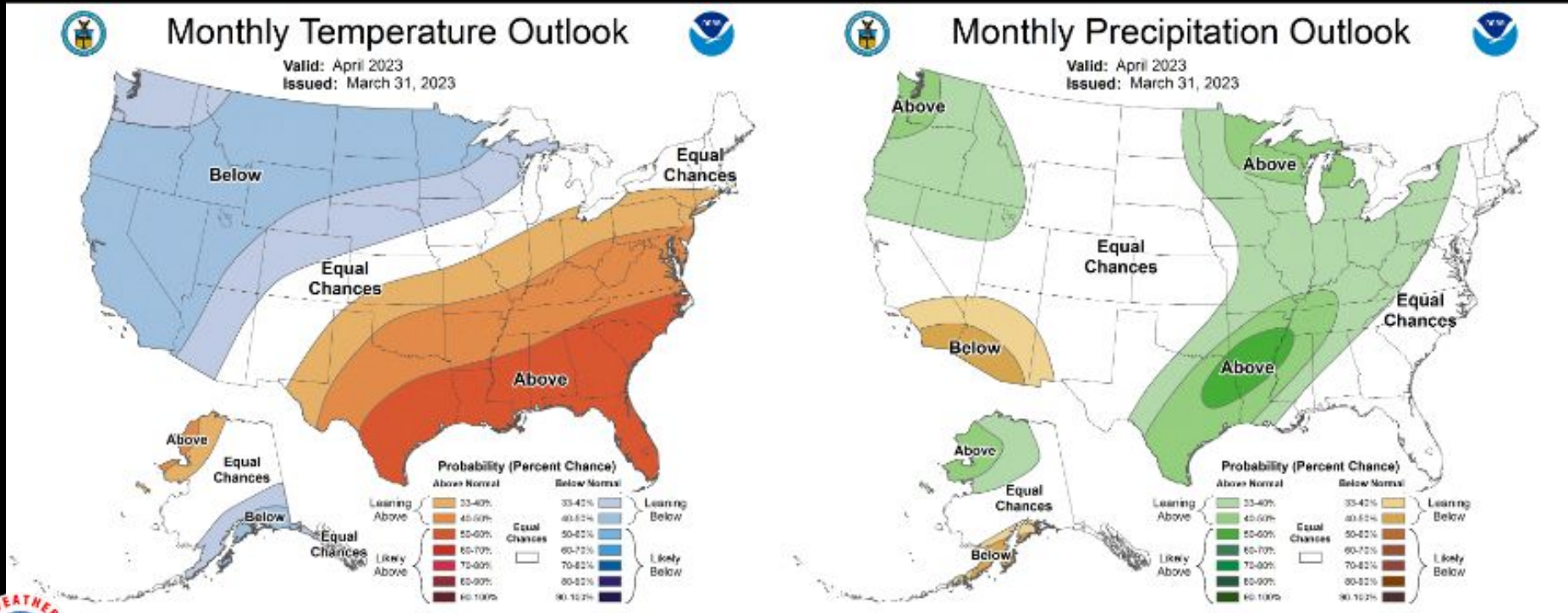
National Weather Service - Spokane, WA

www.weather.gov/spokane

Seasonal Outlook 2023 - April

One Month Outlook

www.cpc.noaa.gov



National Weather Service - Spokane, WA

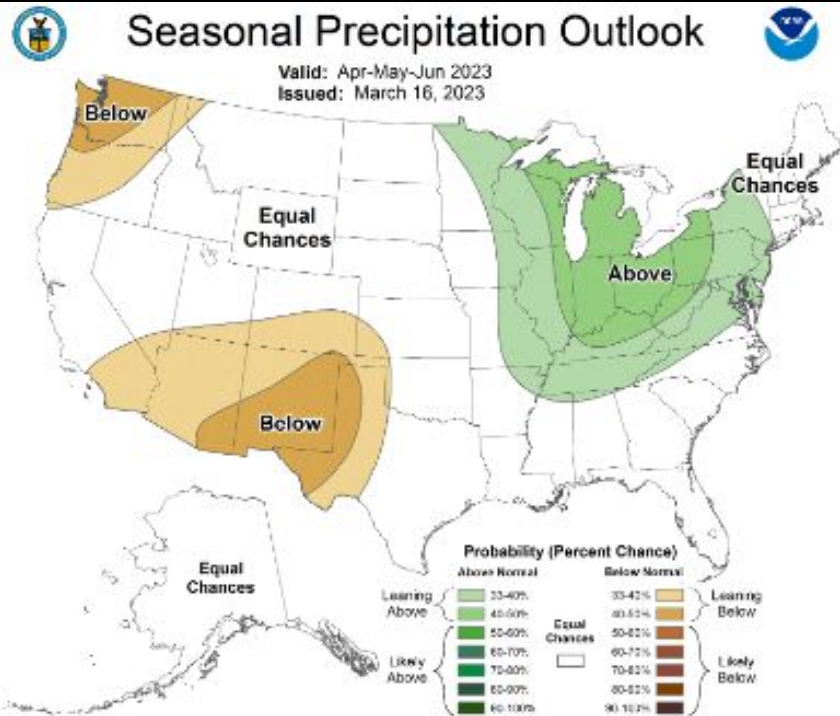
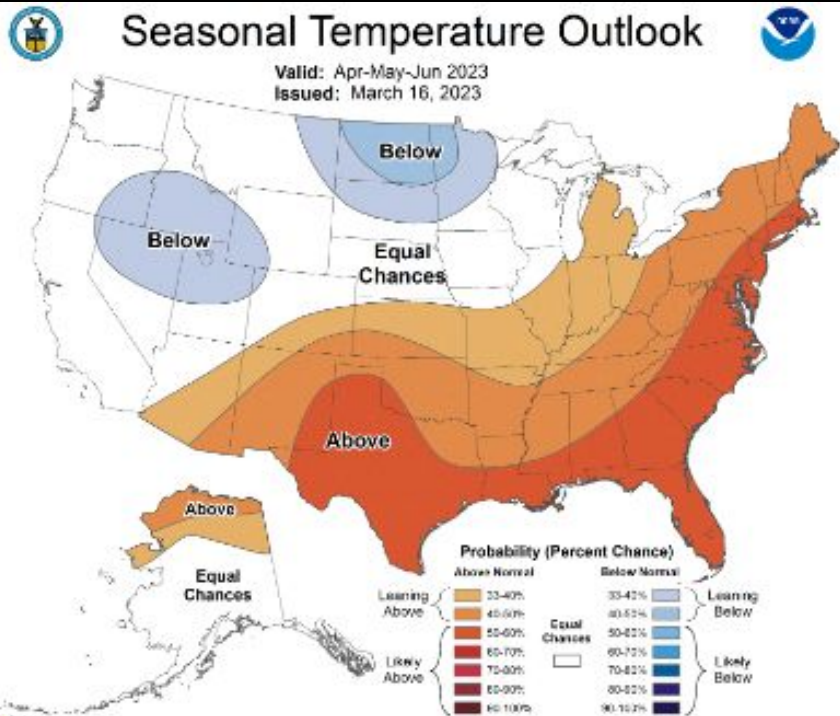
www.weather.gov/spokane

Seasonal Outlook 2022 - April thru June

**El Nino
coming!**

3 Month Outlook

www.cpc.noaa.gov



National Weather Service - Spokane, WA

www.weather.gov/spokane

NWS + Weather Spotters = Saved Lives

nws.spokane@noaa.gov

What's Next?

THANK YOU!

You will receive a follow-up email

- register as a weather spotter
- Spotter ID
- Spotter training certificate

Any Questions?

I will unmute you - then you unmute yourself to talk.

View from Steptoe Butte, May 2018



National Weather Service - Spokane, WA

www.weather.gov/spokane