Advanced SKYWARN Spotter Class

Klint Skelly - Warning Coordination Meteorologist
NWS - Pueblo, Colorado

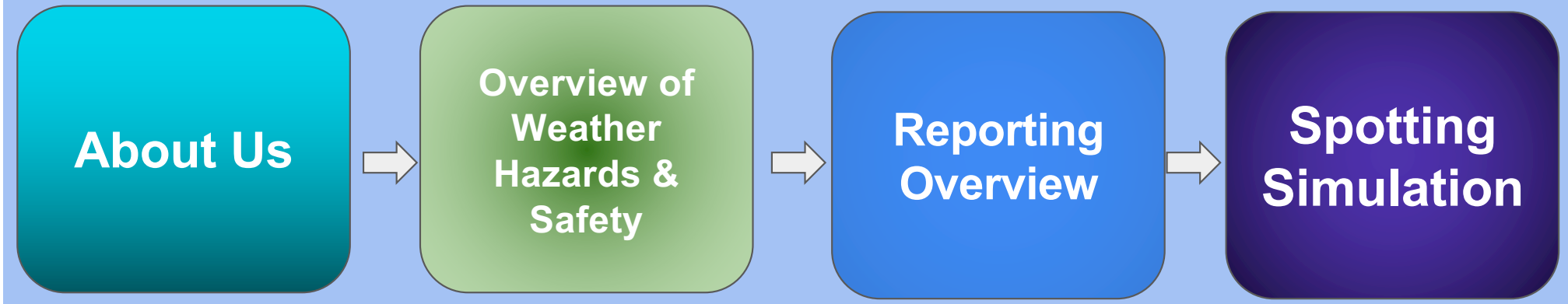
Why we need Spotters

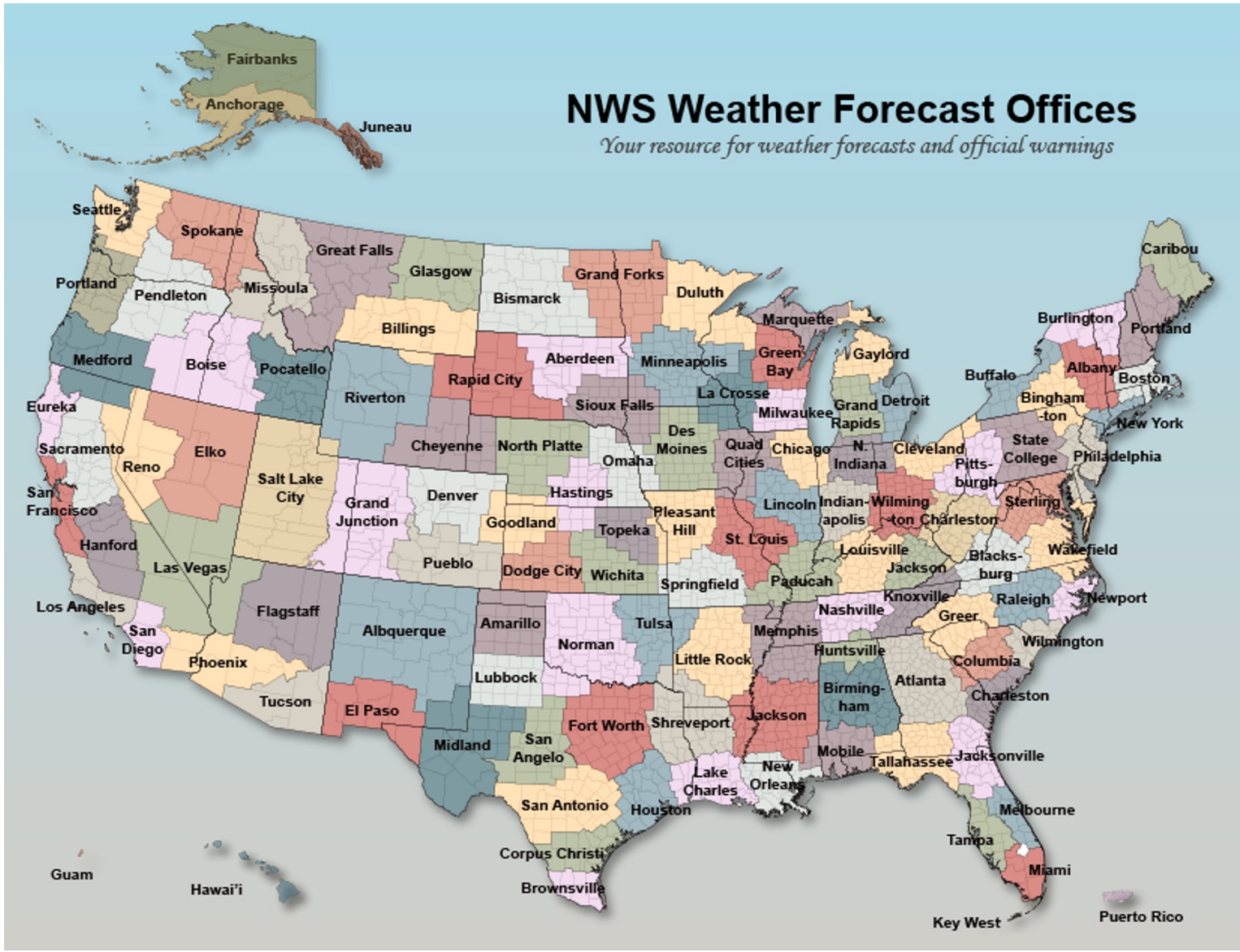
- Add credibility to hazards
- Enhance public response
- Improve warning accuracy
- Radar limitations – Spotters provide ground truth
- Weak tornadoes are very difficult to detect using radar

A Few Housekeeping Items

- We no longer issue spotter ID's
- Use number on hail card to call in reports, which tells us you are a trained spotter
- Go to www.weather.gov/pub/spotters and enter password, given at end of class, to download and print your official training certificate

Outline

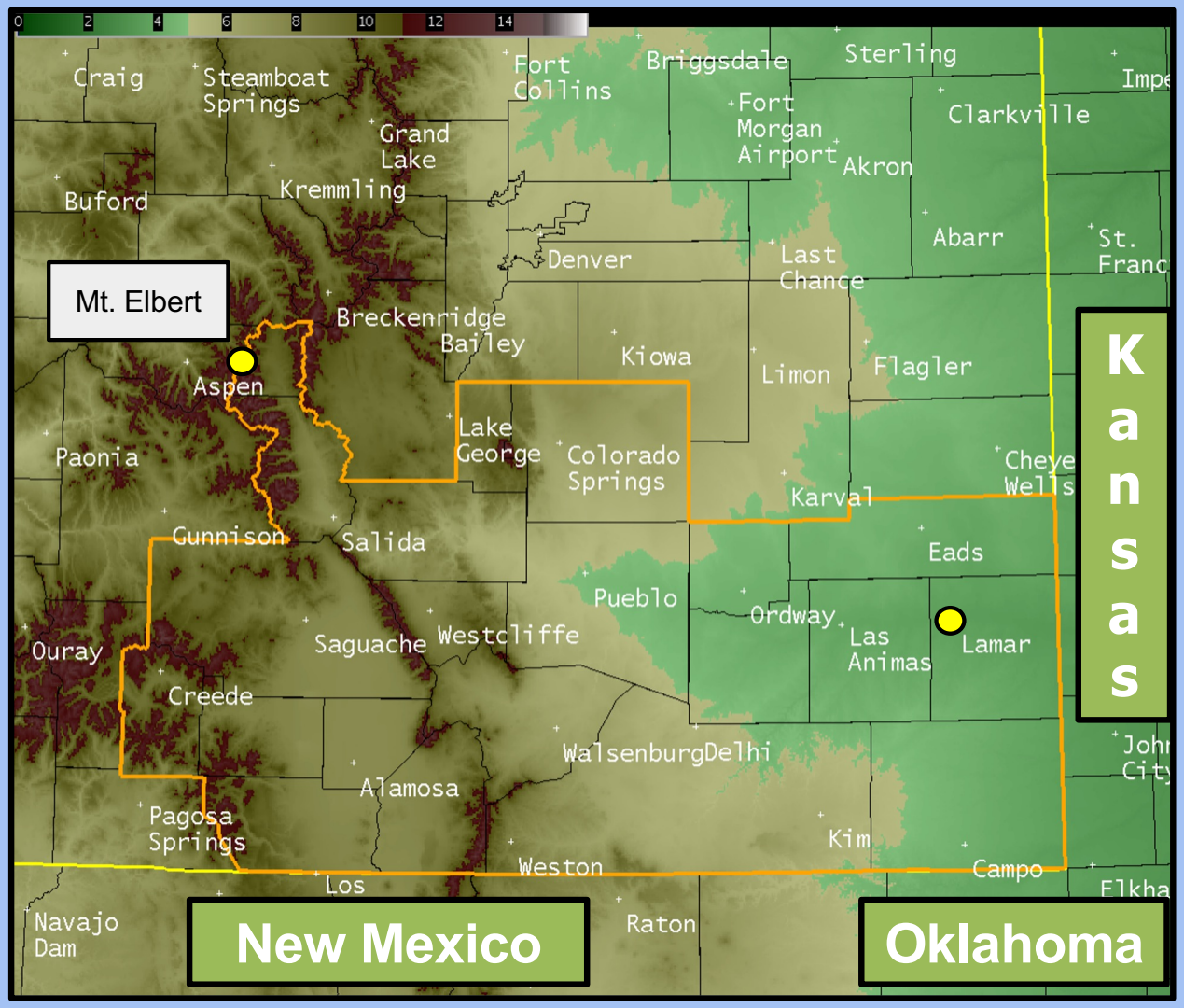

About Us
Overview of Weather Hazards & Safety
Reporting Overview
Spotting Simulation



122
Weather Forecast Offices (WFOs)

13 River Forecast Centers (RFCs)

6 Major Regions
Eastern, Southern, Central, Western, Alaska, and Pacific Regions



A Closer Look at Pueblo's Area of Responsibility

- **Lamar, Colorado**
  - 3,619′
  - Second lowest point in CO
- **Mount Elbert**
  - 14,439'
  - Highest point in CO
- We get all modes of weather… besides tropical

Who We Are

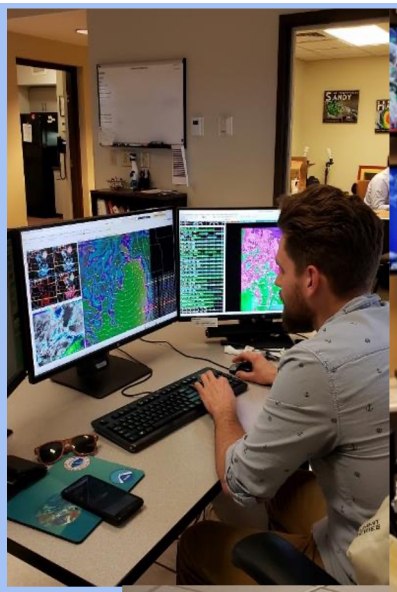
- 1 Meteorologist in Charge
- 1 Warning Coordination Meteorologist
- 1 Science Operations Officer
- 1 Administrative Support Assistant
- 1 Information Technology Officer
- 1 Electronic Systems Analyst
- 1 Observation Program Leader
- 1 Service Hydrologist
- 6 Lead Forecasters
- 6 General Forecasters
- 2 Electronic Technicians

What We Do

Keep a continuous weather watch 24 hours a day, 7 days a week.

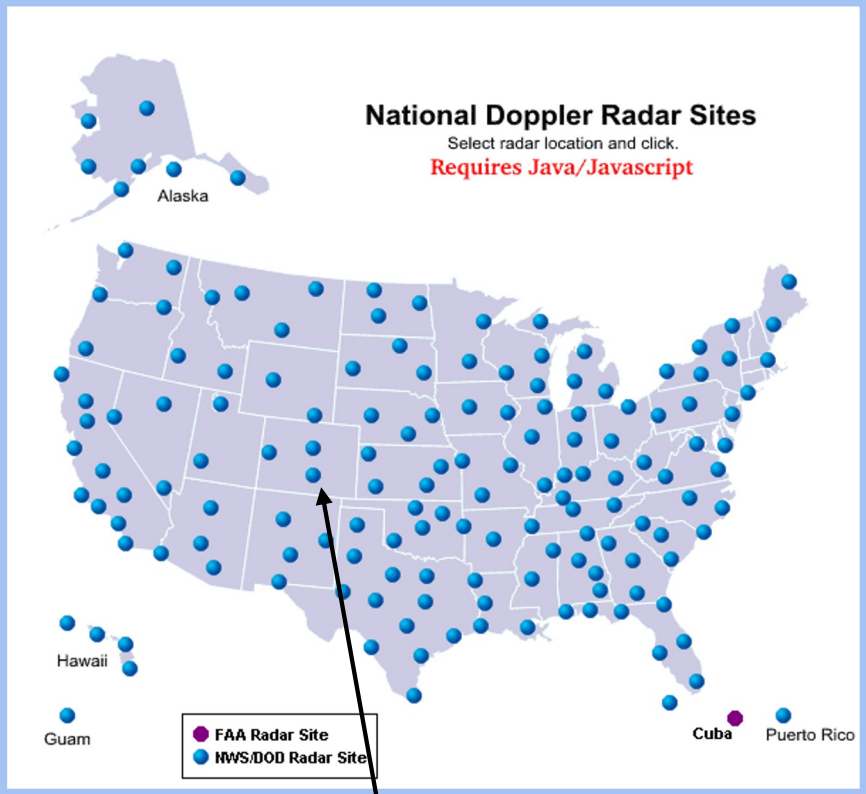
At least two meteorologists on each shift, 8AM-4PM, 4PM-12AM, and 12AM-8AM.

Issue warnings for Tornadoes, Severe Storms, Floods, Winter Storms & other hazards.

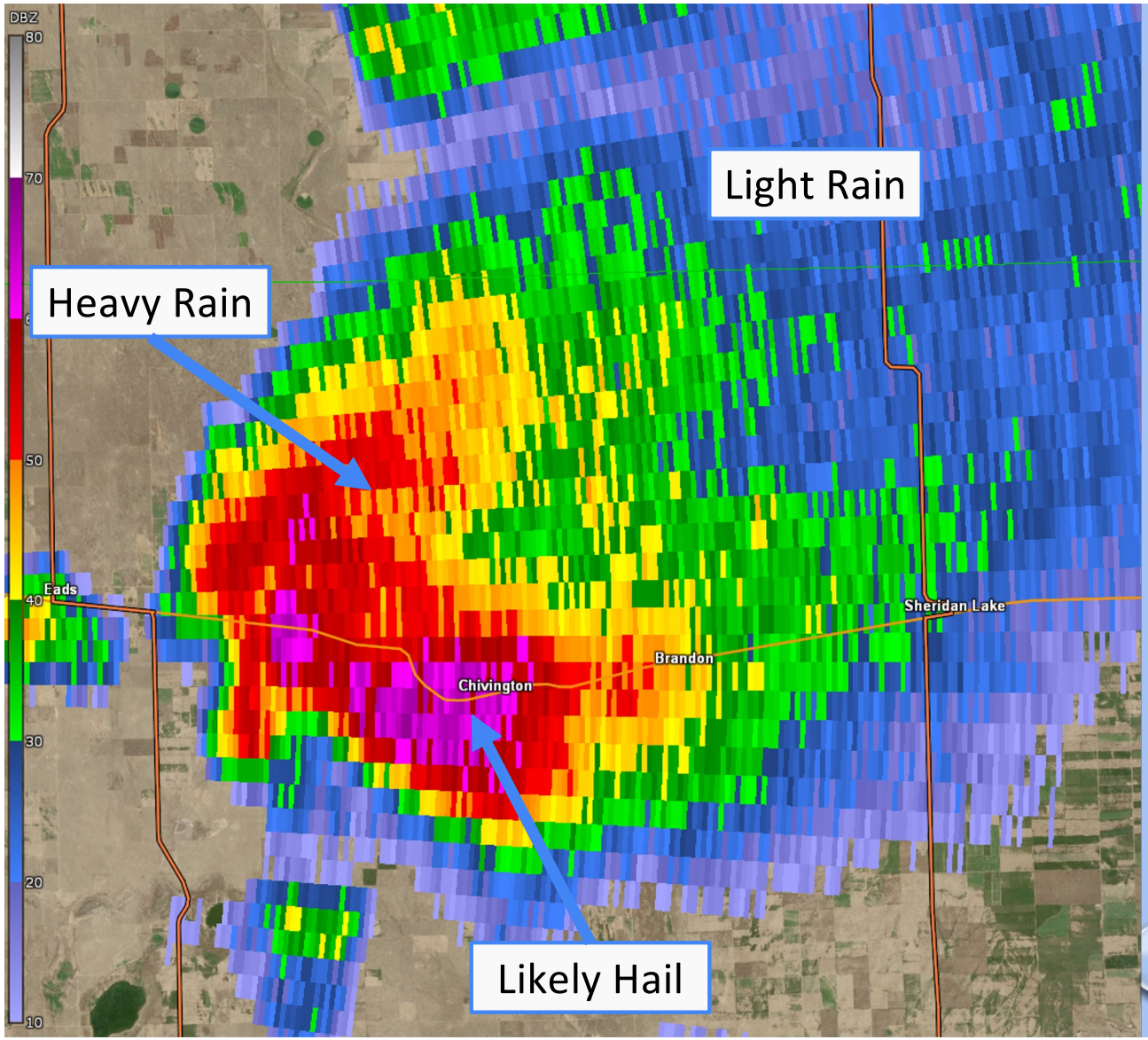


Doppler Weather Radar

- 155 NEXRAD Radars Nationwide
- Operate 24/7/365
- Only detect rain/aerosol particles in the atmosphere, not the ground.
- During severe weather, new scans update every 1-2 minutes.
- Amazing technology but still need ground truth.



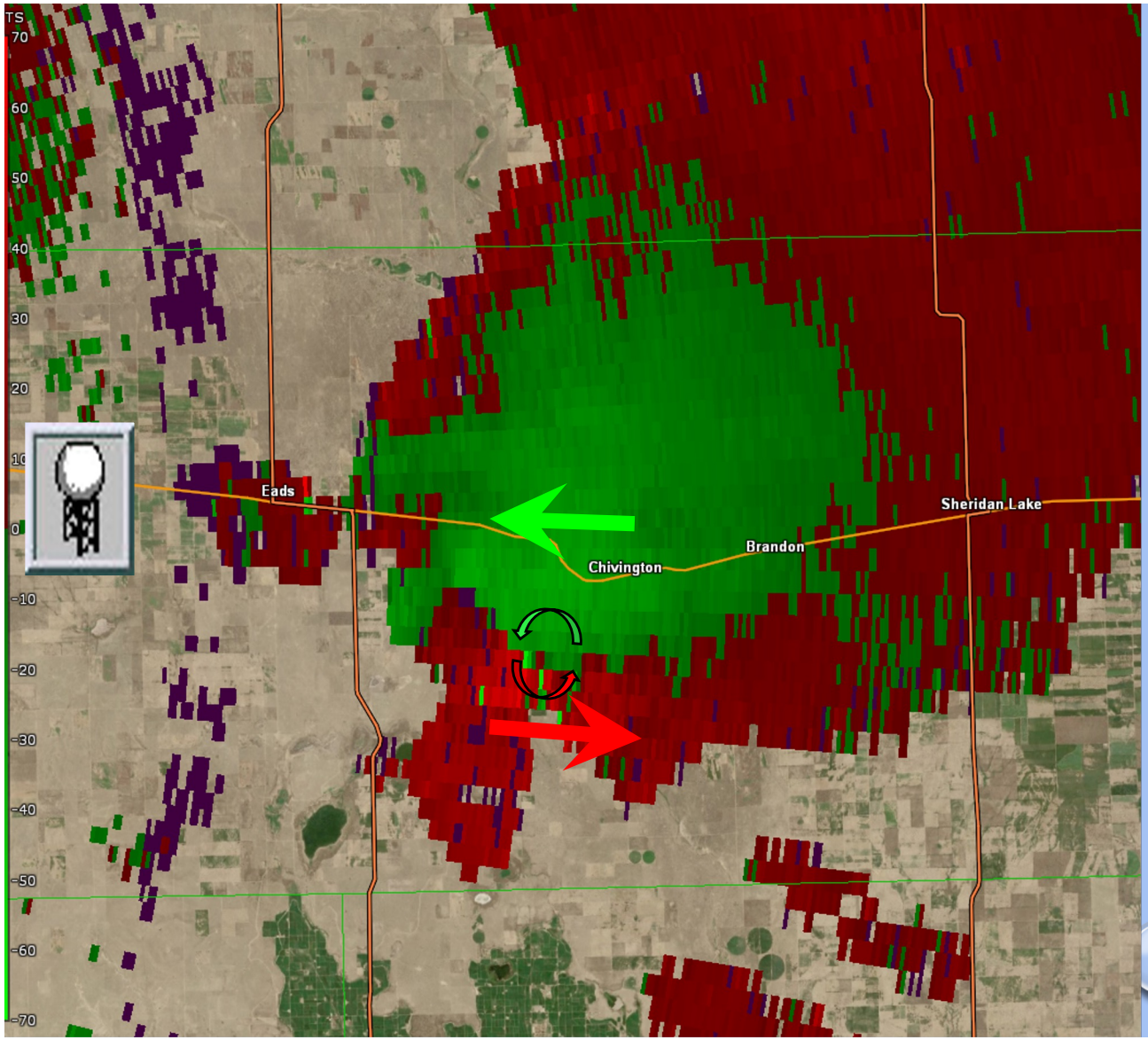
Our radar: kpux



Base Reflectivity

Shows energy returned to radar

Higher reflectivity from heavy rain/hail



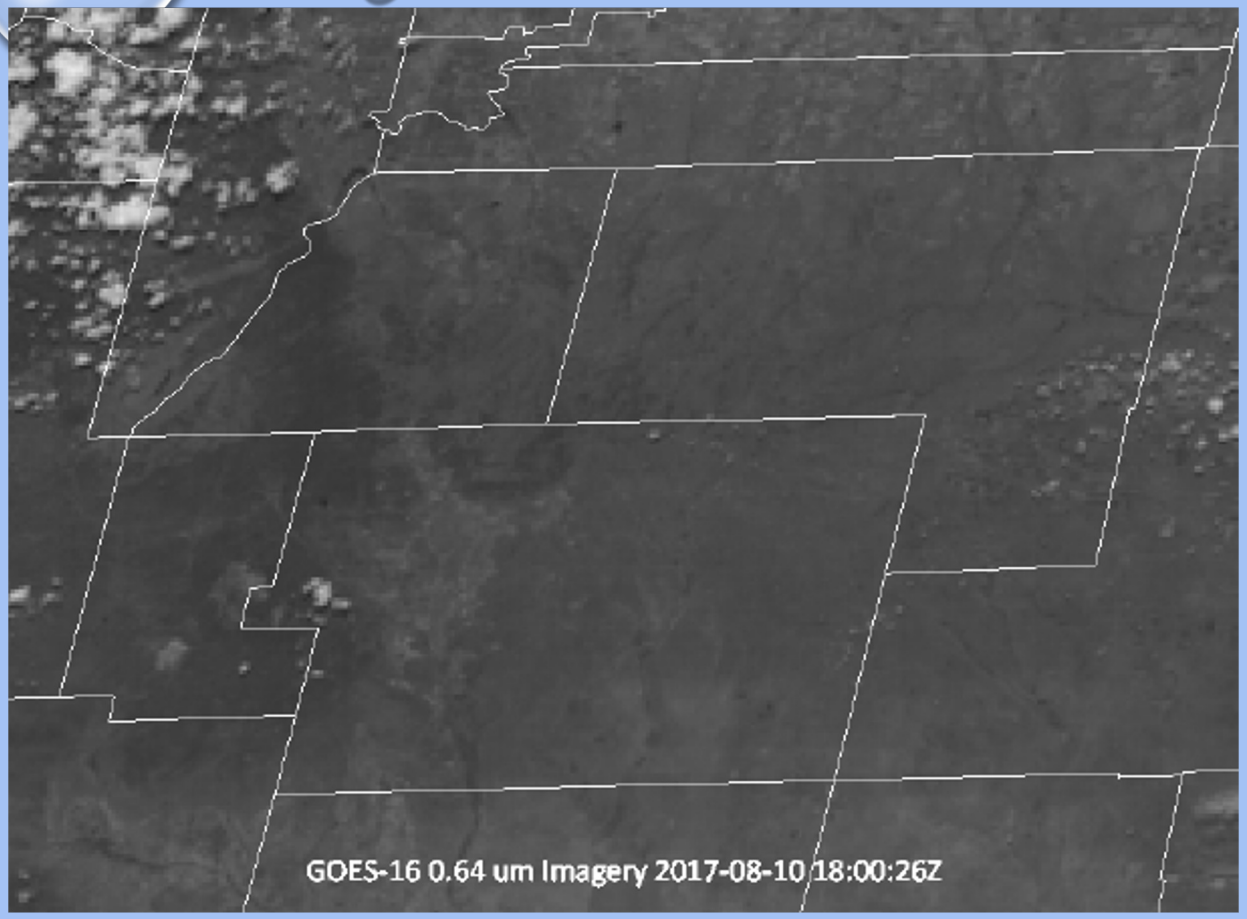
Base Velocity

Product that puts the "Doppler" in Doppler Radar

One dimensional velocity: Motion toward or away from radar

Motion away from the radar in **RED** and motion toward the radar in **GREEN**

Satellite Imagery



Use to monitor for thunderstorms, wildfires, smoke, fog, snow

Several products to aid in determining different hazards

Updated every 5 minutes, but can be as rapidly as 1-2 minutes

Weather Hazards Overview

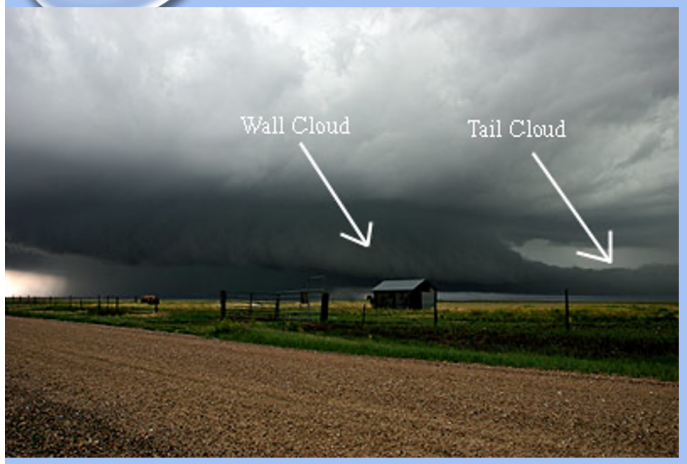
Southern CO Weather Hazards

- Severe Thunderstorms & Tornadoes
- Wildfires
- Flash Floods & River Floods
- Winter Storms

Hail

- Most common severe storm threat in CO
- Typically falls away from updraft, but not always
- Can range in size from <¼” to several inches in diameter

Wall Clouds



- The “action” area of the storm
- Area of strongest updraft or lift
- Rain-free base
- Where tornadoes normally develop
- May be accompanied by a tail cloud in very moist environments
- May not be visible in HP storms
- Not ALL wall clouds rotate

Tornadoes

Rapidly rotating column of air extending from a cloud that IN CONTACT with the ground.

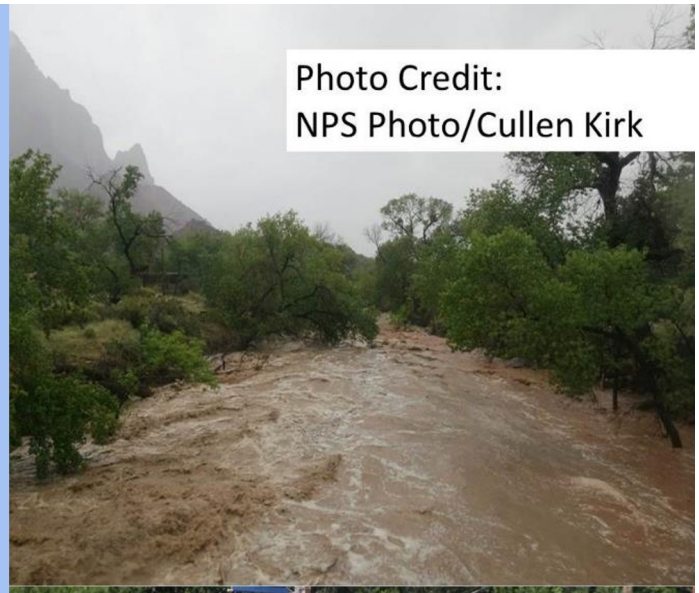
The air is the tornado, not the condensation funnel.

Damaging Winds

- Sometimes referred to as “straight-line winds”
- Winds not associated with a tornado
- Can exceed 100 mph
- Can cause extensive damage
- Shelf cloud usually a good indicator of strong winds

Flash Flooding

- Rapid rise in water in a manner of a few hours or less
- Burn scars are especially susceptible
- Can cause extensive damage
- Just 12” of water can cause vehicles to float

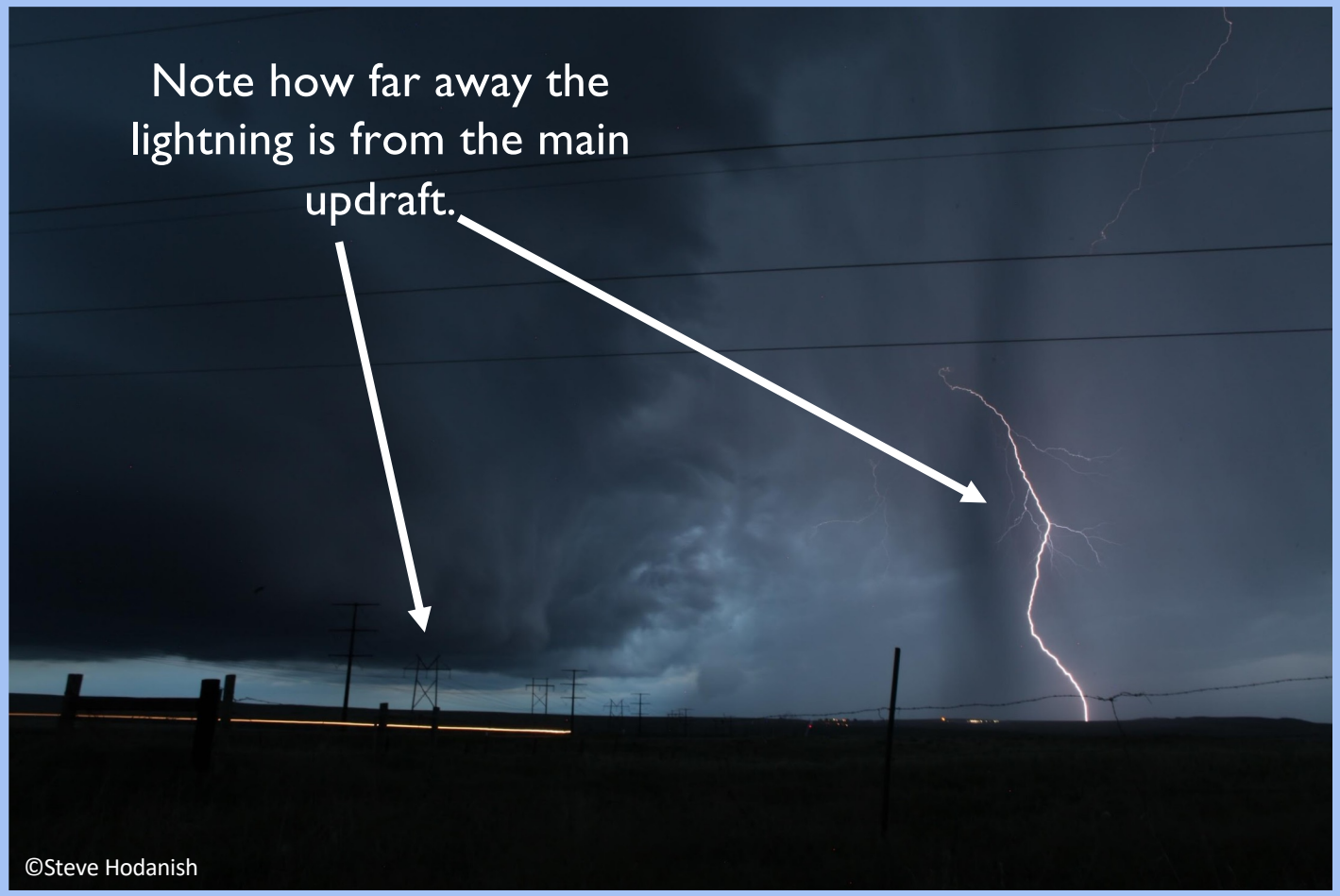


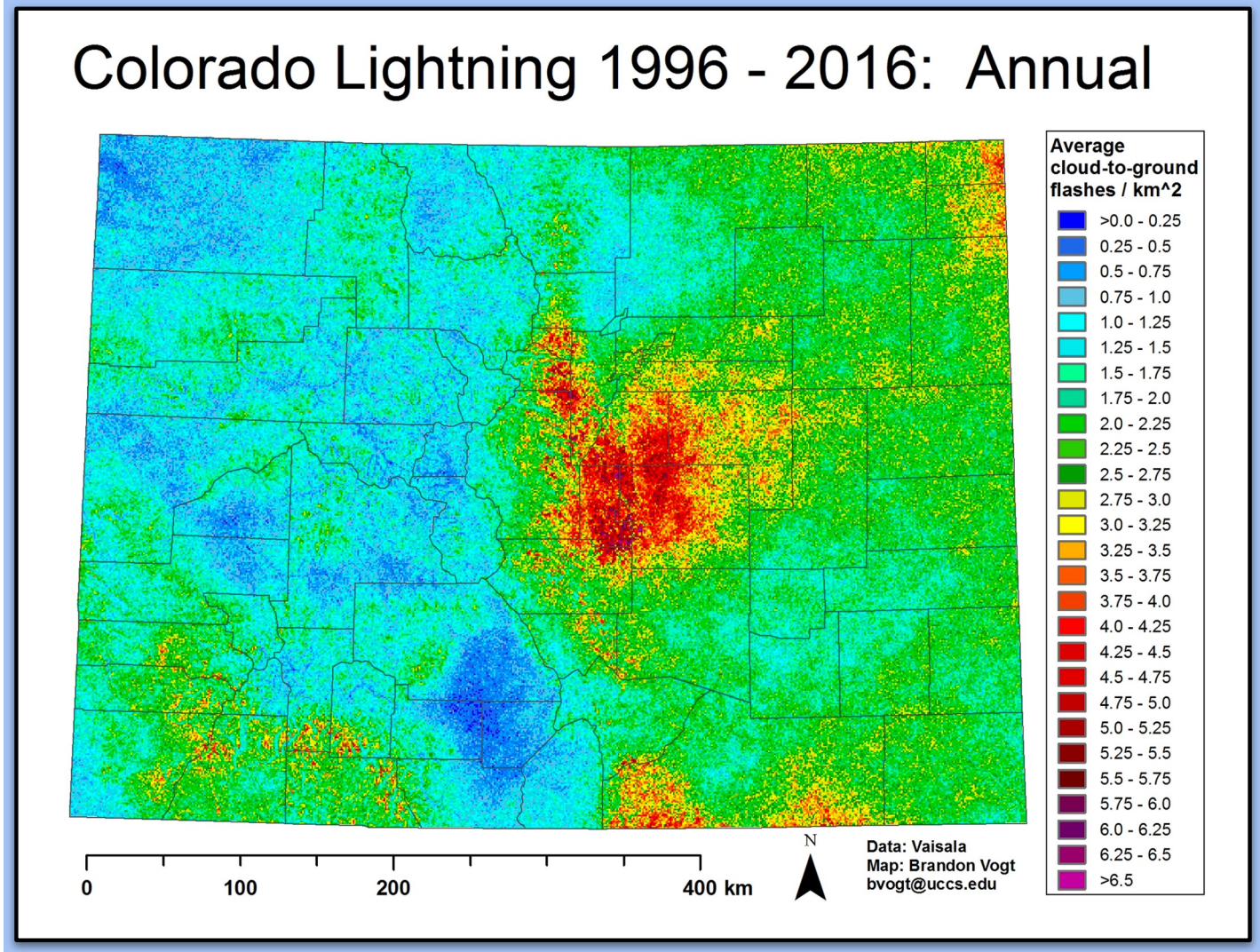

Safety Overview

Lightning Safety

- One bolt measures 50,000° F
- Usually strikes the tallest object
- Can strike the same place over and over
- Can strike several miles away from storm

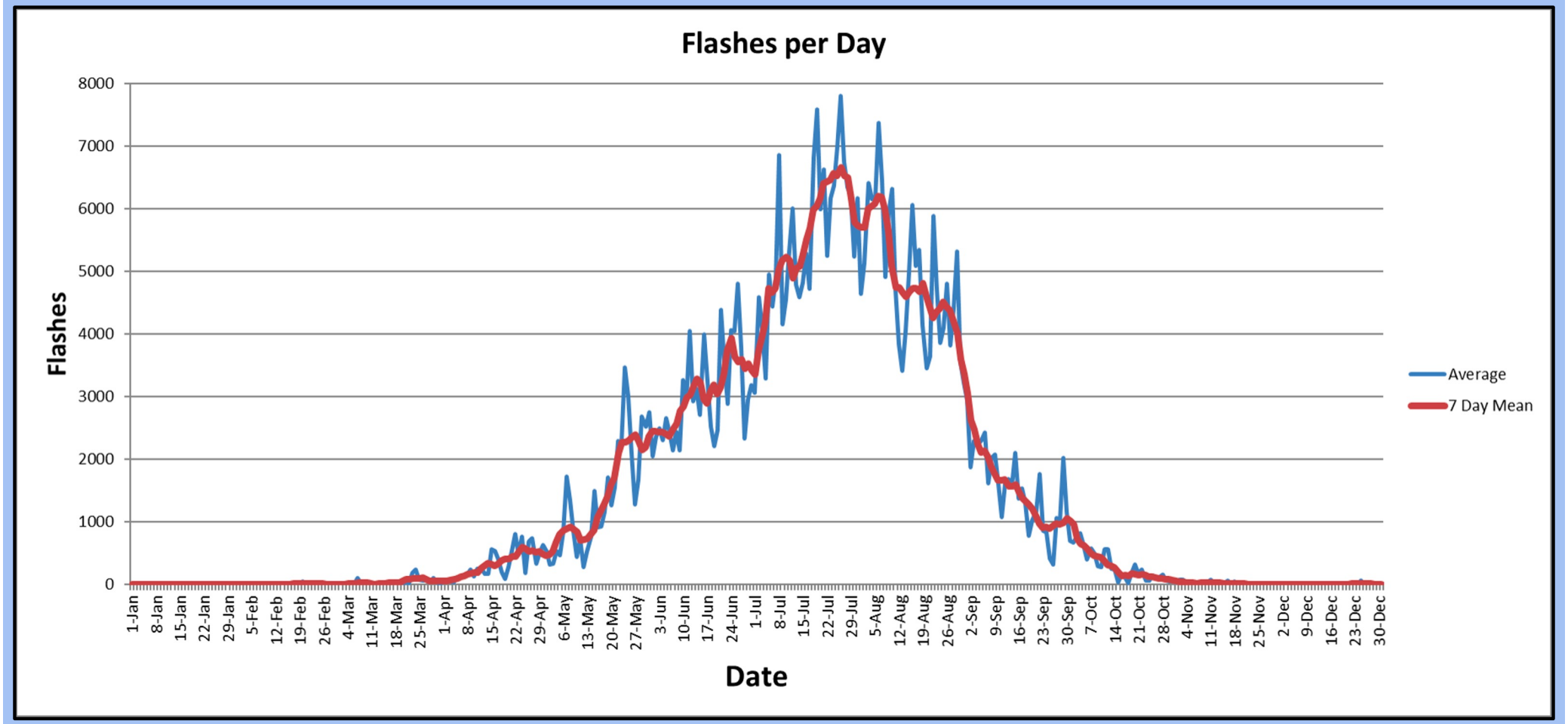
Lightning Safety





What Areas Stand Out?

Lightning Flashes Climatology throughout the Year



Time of Day Lightning Climatology

Morning

Afternoon

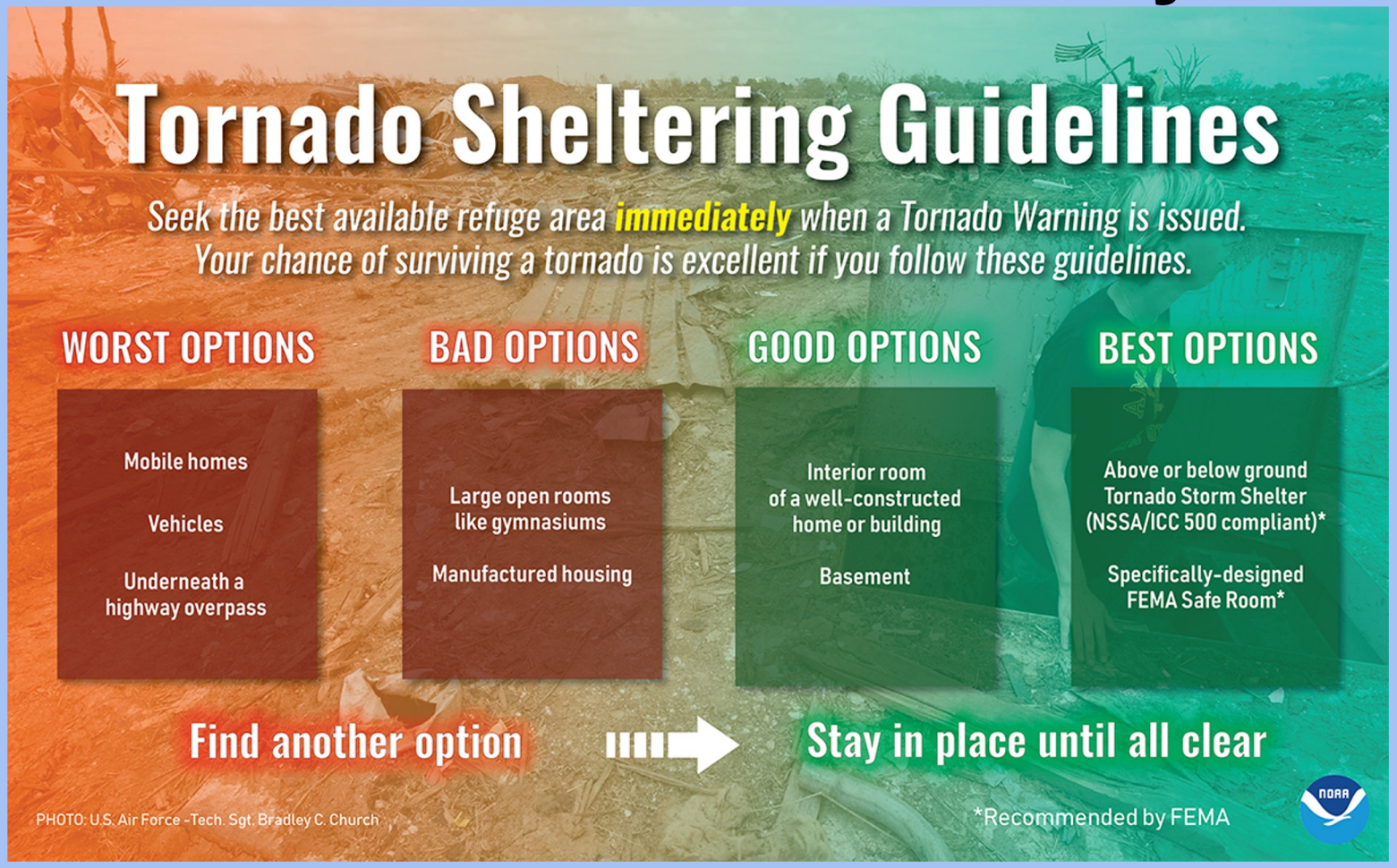
Evening

Overnight

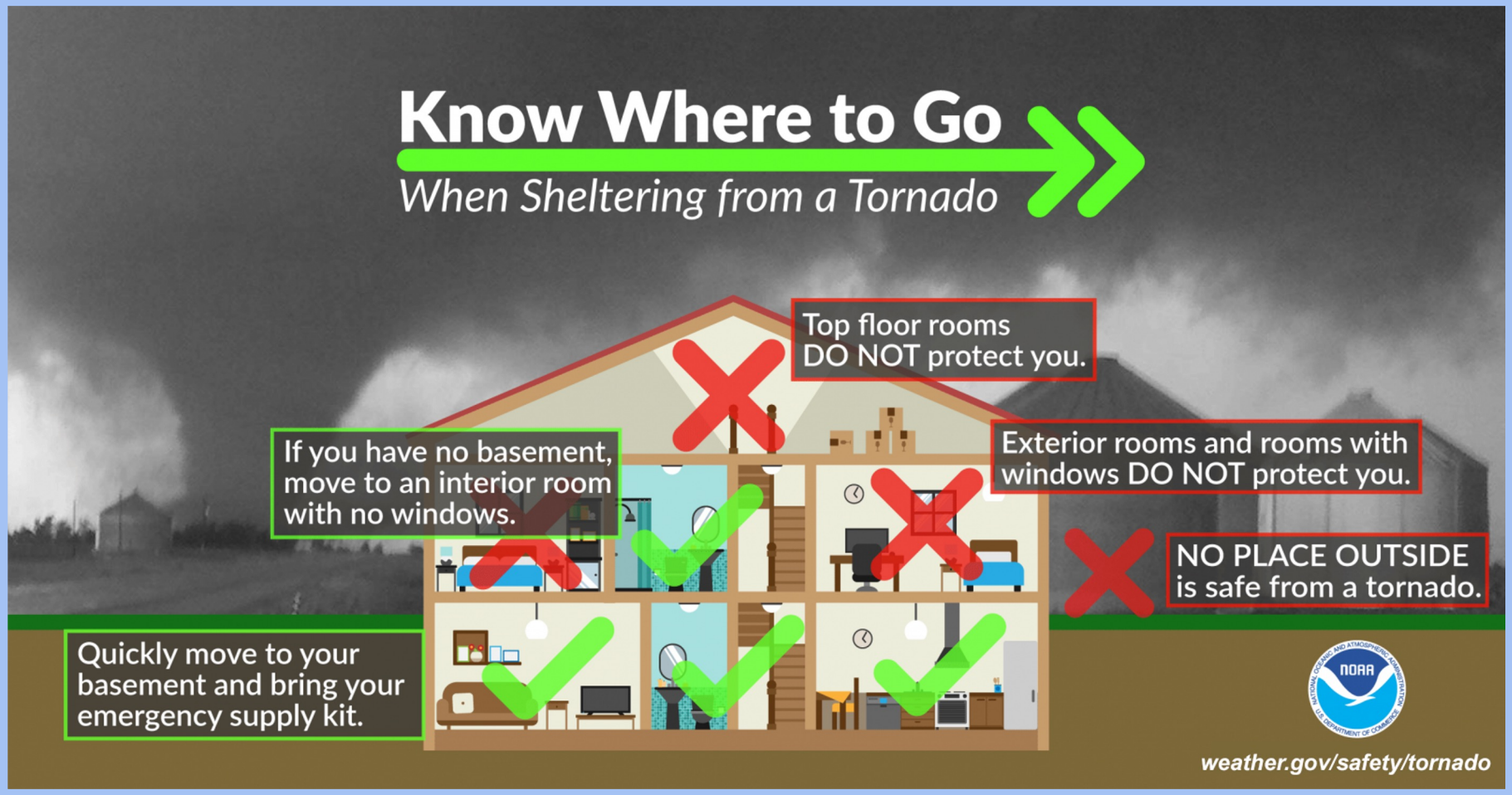
HR (z)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
12z	0.1	0.1	0.3	1.6	5.0	9.6	5.6	19.8	13.0	3.9	0.1	0
13z	0	0.1	0.3	1.4	4.8	9.1	3.8	16.6	13.6	2.9	0.1	0
14z	0	0	0.3	1.3	5.1	6.7	3.6	12.9	14.4	3.0	0.1	0
15z	0	0	0.1	1.6	5.7	6.8	3.3	12.9	14.5	4.3	0.1	0
16z	0	0	0.1	2.5	11.0	14.1	8.2	14.9	14.9	4.4	0.1	0
17z	0	0	0.4	4.8	27.7	46.0	39.3	45.3	24.9	5.6	0.4	0
18z	0	0.1	1.3	10.3	60.7	114.4	130.8	138.5	54.9	8.2	0.5	0
19z	0	0.3	2.9	16.4	97.2	187.3	272.9	272.4	96.3	12.8	0.9	0
20z	0	0.5	4.7	21.8	132.4	239.4	396.1	377.4	137.2	15.5	0.9	0
21z	0	0.7	5.2	25.5	146.6	286.5	479.3	464.3	150.3	20.9	0.9	0.1
22z	0	0.6	5.8	25.7	151.7	300.9	523.0	521.2	165.9	22.9	0.9	0.1
23z	0.1	0.6	5.4	22.2	136.2	298.8	505.0	521.5	154.9	21.7	1.0	0
00z	0.1	0.3	3.8	21.2	105.7	278.0	433.5	486.5	146.3	25.7	0.7	0.1
01z	0	0.2	2.3	17.5	87.8	223.9	358.1	388.4	112.6	21.8	0.7	0.1
02z	0.1	0.1	1.4	11.5	66.9	166.7	279.5	286.9	87.9	20.2	1.0	0
03z	0	0.1	0.9	8.4	51.4	117.3	198.2	195.4	66.7	13.3	0.9	0.1
04z	0.1	0.1	0.8	7.3	34.8	84.0	144.3	134.0	51.1	11.3	0.6	0
05z	0.1	0.1	0.6	7.2	22.3	64.7	91.1	91.4	37.4	10.9	0.4	0
06z	0.1	0	0.6	5.4	15.7	51.7	59.9	65.1	26.4	7.4	0.1	0
07z	0.4	0	0.4	3.1	11.4	39.3	36.1	48.4	19.5	5.6	0.2	0
08z	0.1	0	0.4	2.3	8.4	27.9	26.3	35.7	15.6	5.8	0.2	0
09z	0.1	0	0.6	2.0	5.6	19.5	16.2	27.5	14.2	4.4	0.1	0
10z	0.1	0	0.5	1.7	5.1	15.7	12.1	19.9	12.4	4.3	0.2	0
11z	0	0.1	0.2	1.8	4.2	12.8	8.6	18.5	11.8	4.4	0.2	0

Tornado & Severe Storm Safety

Tornado & Severe Storm Safety



Tornado & Severe Storm Safety



Flood Safety

Flood Safety

Never cross flooded roadways…

Flood Safety

…because it could be like this underneath.

Wildfire Safety

Question: What 3 ingredients do you need to start a fire?

1. Fuel
2. Oxygen
3. Ignition

How does a spark become a wildfire?

Or: how do fires spread?

Usually winds or embers, or a combination of the two

Here's the hard part: fires spread as fast as the winds can blow, and change direction with it.

How do you think the mountains make things worse here?

What we do we do about it?

- The National Weather Service has a special product for what we call Critical Fire Weather – The Red Flag Warning
  - ‘Critical Fire Weather Conditions’ need three things: What are they?

- Dry fuels
- Low Relative Humidity (<15 percent)
- Strong Winds (>25mph)
- Last two for at least 3 hours

Worst-case (Waldo and Marshall fires)

Recovery-burn scars

What's a Burn Scar?

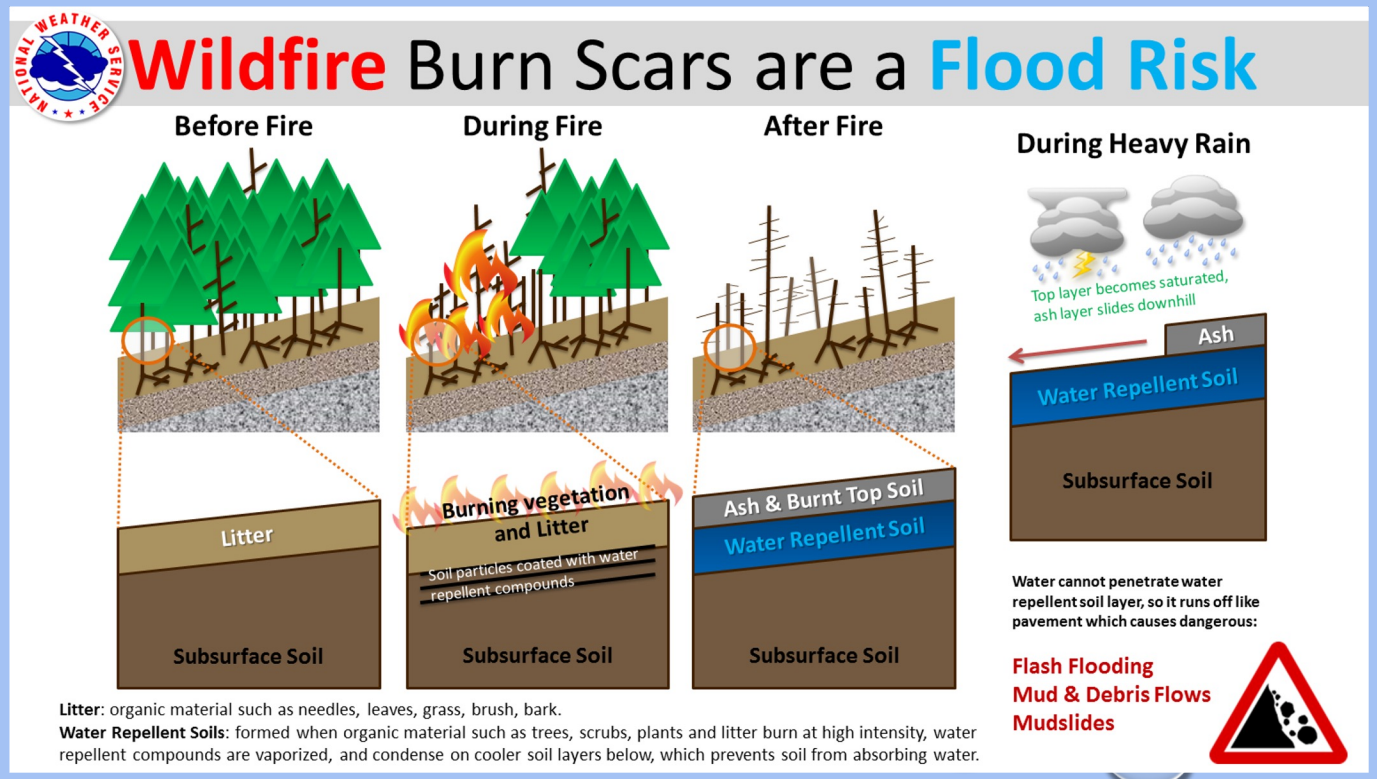
It is what remains after an extremely hot and large wildfire burns through the land.

It takes the soil and vegetation *years* to recover.

The NWS pays extra-close attention to these areas. Why?

One thing leads to another…

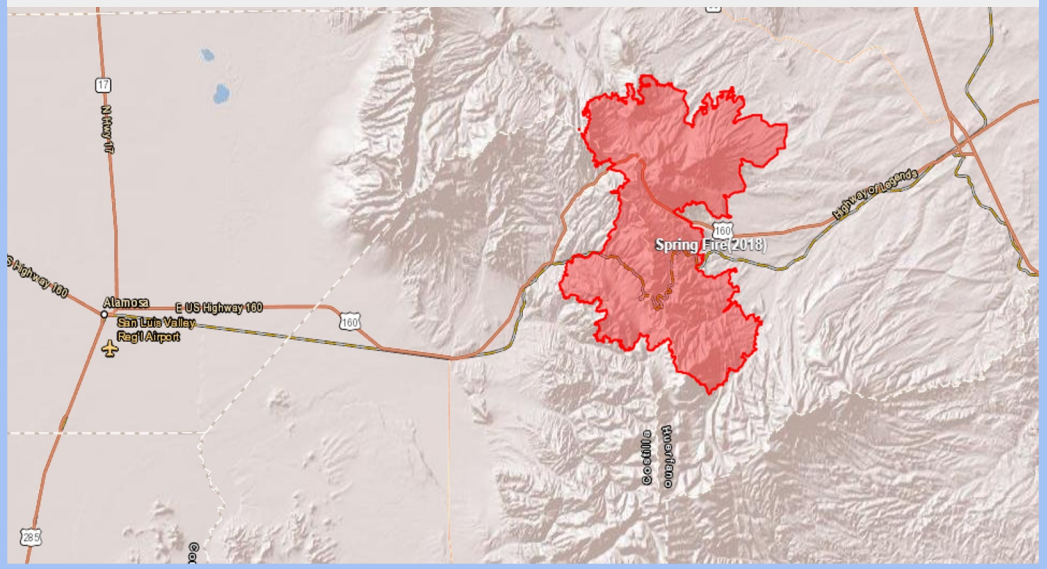
- Burn scars lead to other hazards, like flash-flooding and debris flow!



NWS PUB's Burn Scars

Decker Fire

Spring Creek Fire



Snow Squalls and Blizzards

QUESTIONS AND ANSWERS ABOUT

SNOW SQUALLS

WWW.WEATHER.GOV/SAFETY

WHAT ARE THEY?

Quick intense bursts of snow
Accompanied by strong gusty winds
Short-lived, typically less than 3 hours
Normally occur during the day

WHAT ARE THE IMPACTS?

Rapidly reduced visibility
Treacherous travel conditions
Potential for chain-reaction accidents

WHAT'S A SNOW SQUALL WARNING?

Warning is usually 30-60 minutes in length
Issued for small areas where snow squalls are expected
Similar to a Tornado or Severe Thunderstorm Warning

HOW CAN YOU STAY SAFE?

Have a way to get forecasts and warnings
Consider an alternate route or delaying travel
Stay alert for rapidly changing road conditions
Reduce speed and use low beam headlights

WEATHER.GOV

SNOW SQUALLS

Snow squalls are intense, but limited duration, periods of moderate to heavy snowfall, accompanied by gusty surface winds resulting in reduced visibilities and whiteout conditions.

Rapidly falling temperatures in conjunction with the snow can cause dangerous impacts to surface transportation.

For more information visit ***weather.gov***

WHAT'S A BLIZZARD?

WEATHER.GOV/WINTER

BLOWING SNOW

35+ MPH WINDS

≤1/4 MI VISIBILITY

FOR 3+ HOURS

DID YOU KNOW THAT FALLING SNOW ISN'T NECESSARY FOR A BLIZZARD?

A BLIZZARD THAT RESULTS FROM SNOW THAT HAS PREVIOUSLY FALLEN IS CALLED A GROUND BLIZZARD.

Emergency Alerts &
Wireless emergency alerts

Severe Thunderstorm Warnings

& Impact-based warning tags

Damage Threat Tag	Wind	Hail	WEA?
Base (No tag)	58 mph (60 mph in warning)	1.00 inch (quarter)	NO
Considerable	70 mph	1.75 inch (golfball)	NO
Destructive	80 mph	2.75 inch (baseball)	YES

```
HAIL THREAT...RADAR INDICATED
MAX HAIL SIZE...1.00 IN
WIND THREAT...RADAR INDICATED
MAX WIND GUST...60 MPH
```

```
THUNDERSTORM DAMAGE THREAT...CONSIDERABLE
HAIL THREAT...OBSERVED
MAX HAIL SIZE...1.75 IN
WIND THREAT...RADAR INDICATED
MAX WIND GUST...70 MPH
```

```
TORNADO...POSSIBLE
THUNDERSTORM DAMAGE THREAT...DESTRUCTIVE
HAIL THREAT...OBSERVED
MAX HAIL SIZE...2.75 IN
WIND THREAT...OBSERVED
MAX WIND GUST...80 MPH
```

IPAWS - WEA, NWR & EAS

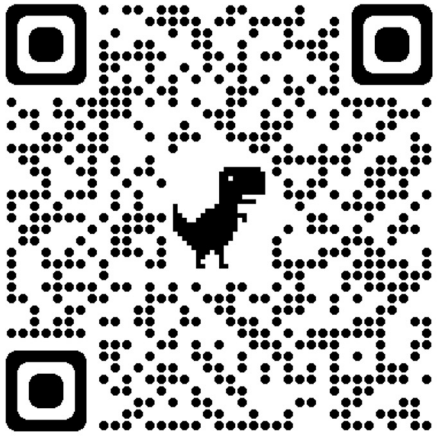
- WEA process is fully automated

- Standard messages for each warning type

NWS WEA

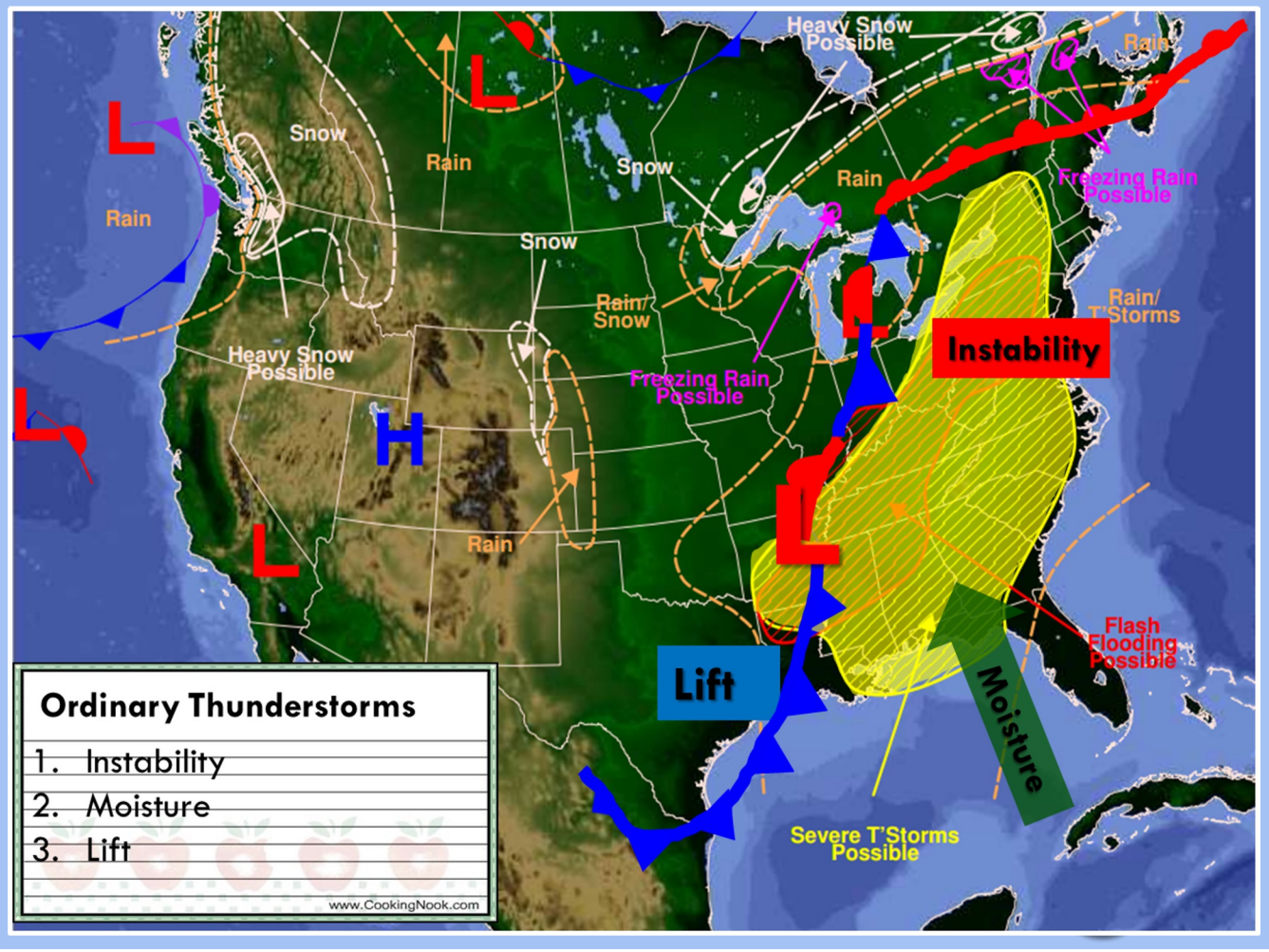
WIRELESS EMERGENCY ALERTS CAPABLE

WEA 360 language



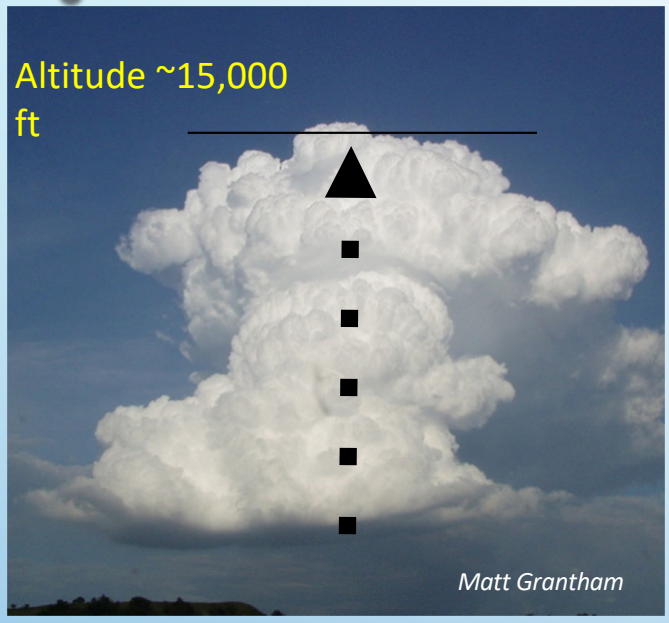
Severe Weather Types and Behavior

Question: What ingredients do we need for an ‘ordinary’ thunderstorm?



ORDINARY THUNDERSTORM LIFECYCLE

TOWERING CUMULUS STAGE



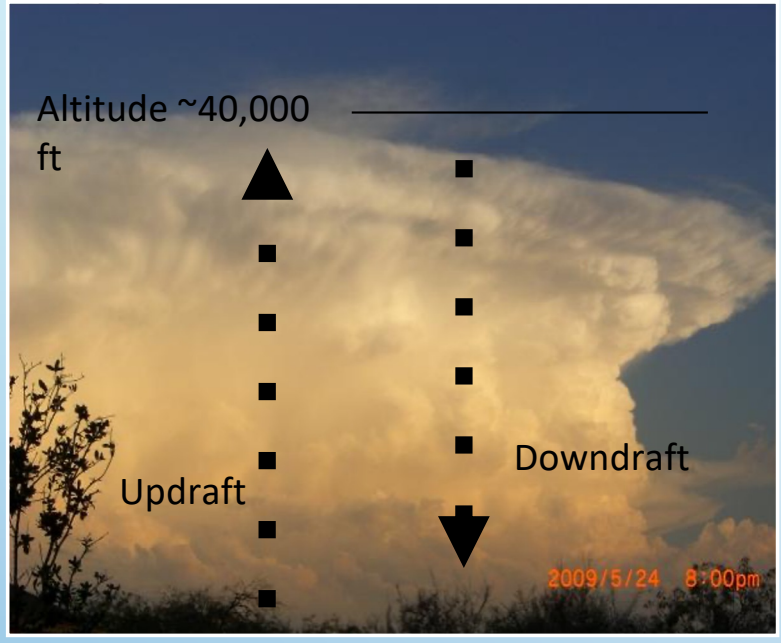
Air motion is all upward into the cloud

Updraft – Upward moving column of air

Cloud drops increase in size in the upper portions of the cloud, not falling as precipitation yet

ORDINARY THUNDERSTORM LIFECYCLE

MATURE STAGE



Top of the cloud forms an anvil, where air spreads outward

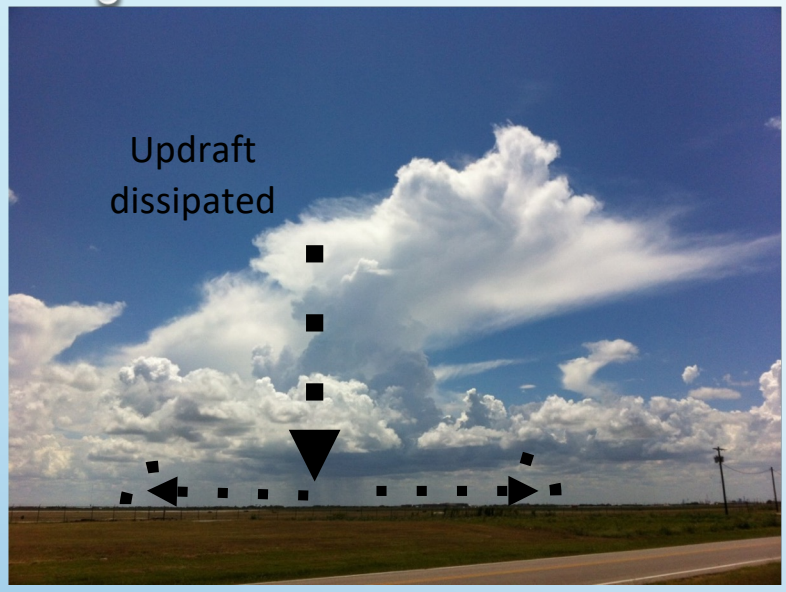
Updraft and Downdraft co-exist

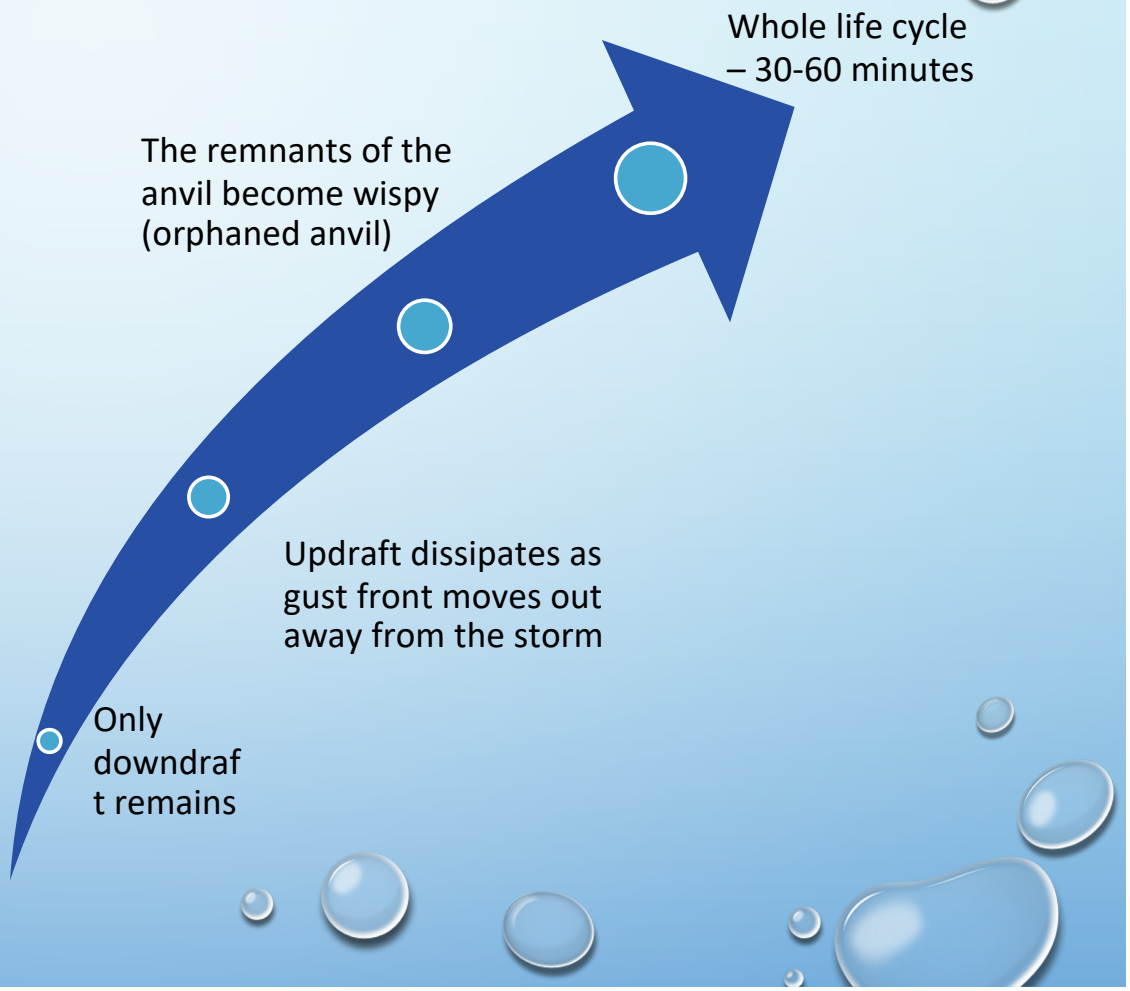
Rain cooled air spreads out at the surface – gust front/outflow boundary

Downdraft – Rain and hail now falling back to ground

ORDINARY THUNDERSTORM LIFECYCLE

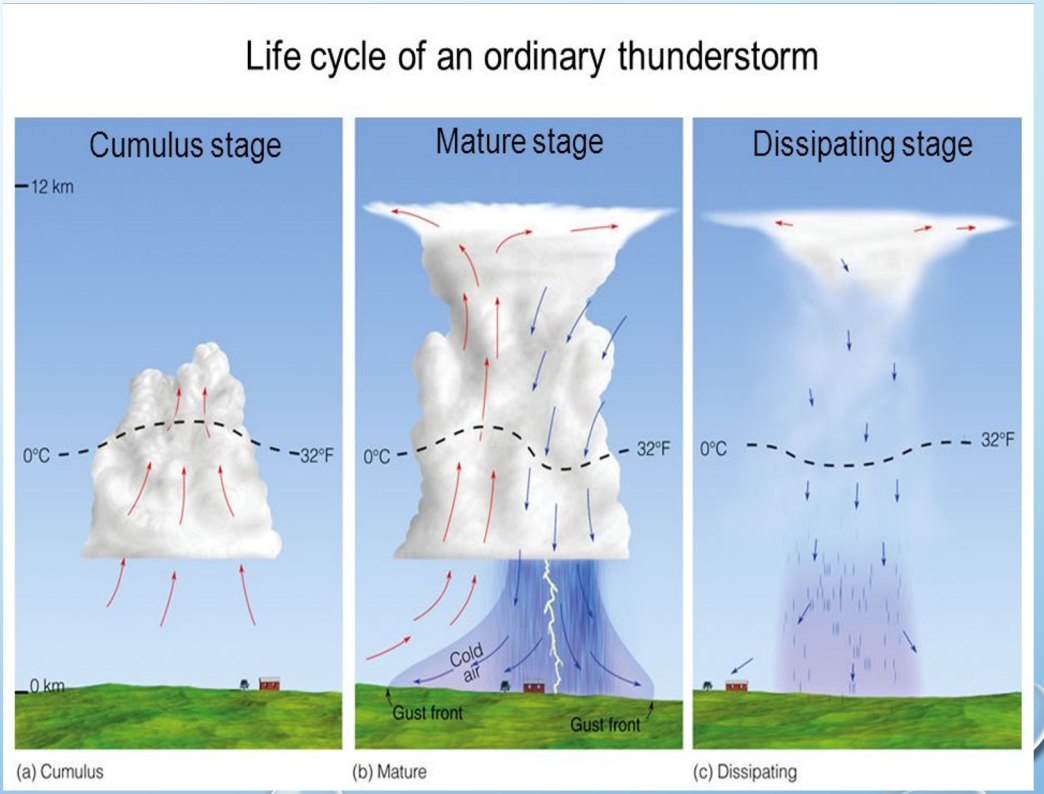
DISSIPATION STAGE





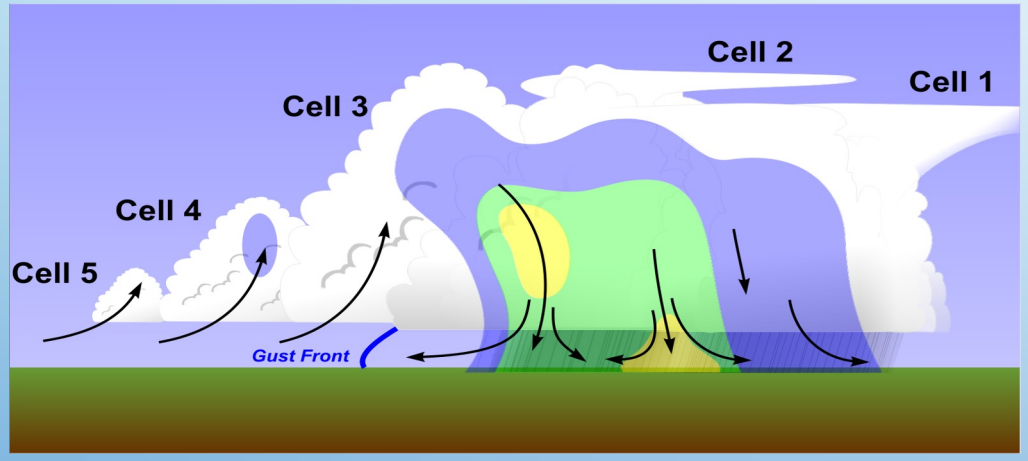
ORDINARY THUNDERSTORM THREATS

- **Most common over the mountains**
- **Can produce heavy rainfall and localized flooding**
- **Most can produce small hail, but a few storms can become severe**
- **Gusty winds are common during the dissipation stage**
- **Lightning is common**



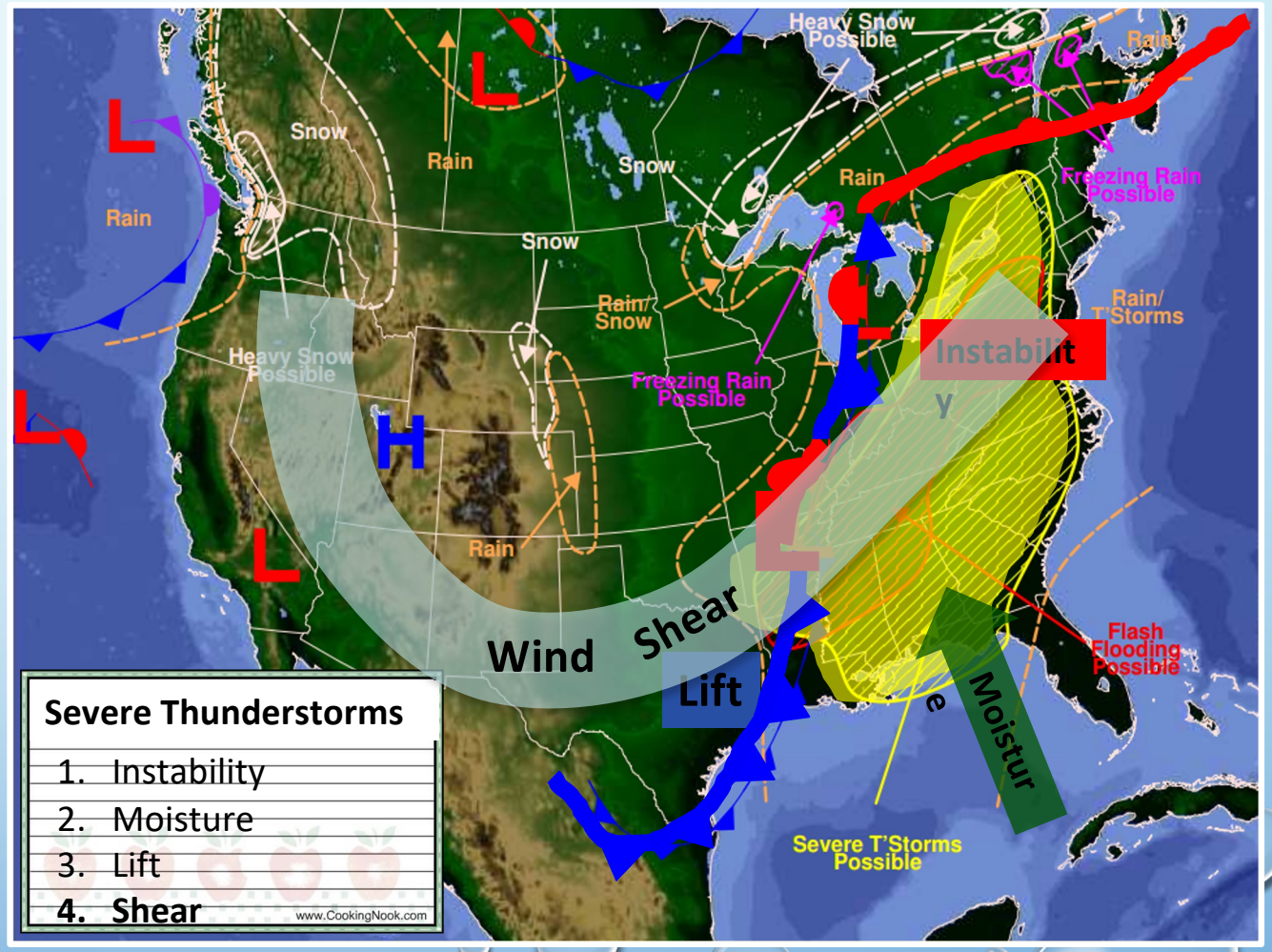
MULTICELL THUNDERSTORMS

- **Very similar threats to ordinary thunderstorms (hail, wind, heavy rain)**
- **More likely to be severe due to outflow winds and hail**



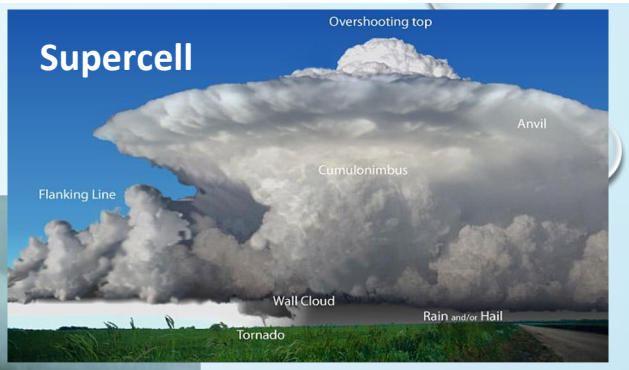
MULTICELL THUNDERSTORMS

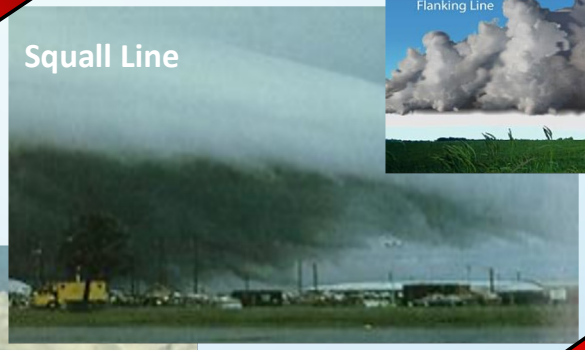
INGREDIENTS FOR "SEVERE" THUNDERSTORMS

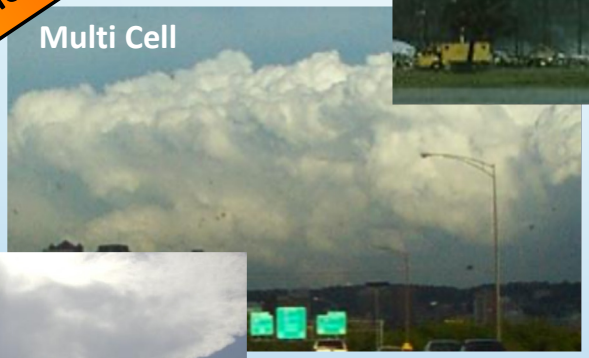


THUNDERSTORM TYPES

More to Less Frequent/Common



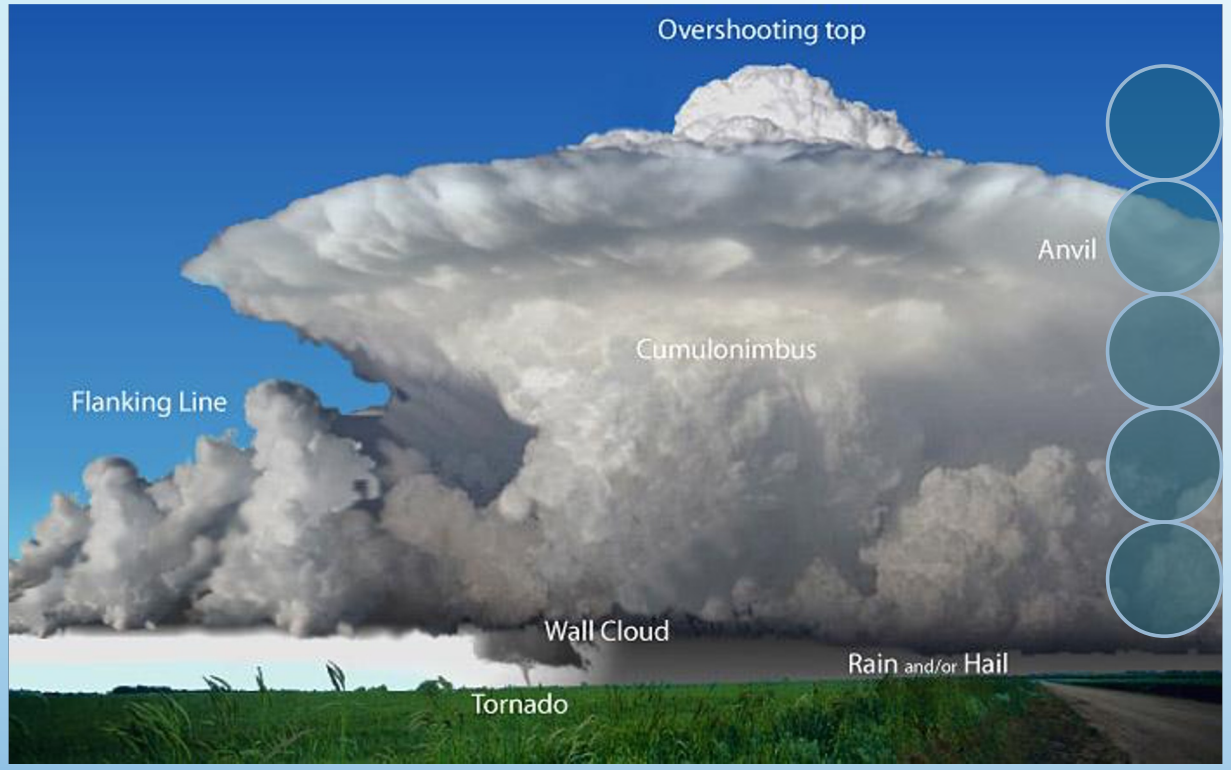




Increasing Threat

As instability and wind shear increases, so does the threat for severe weather

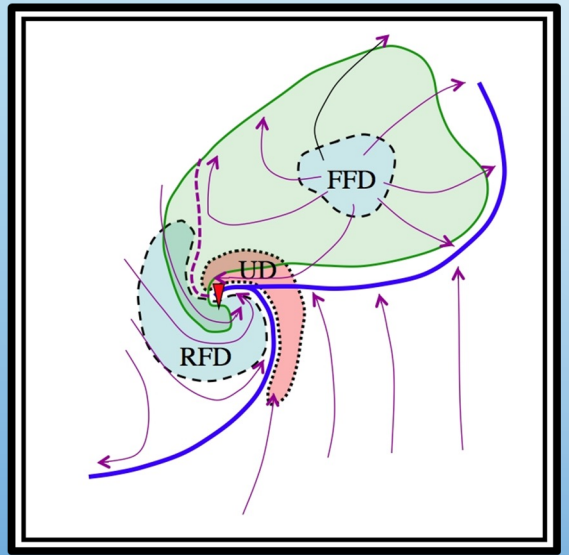
Supercell Thunderstorms

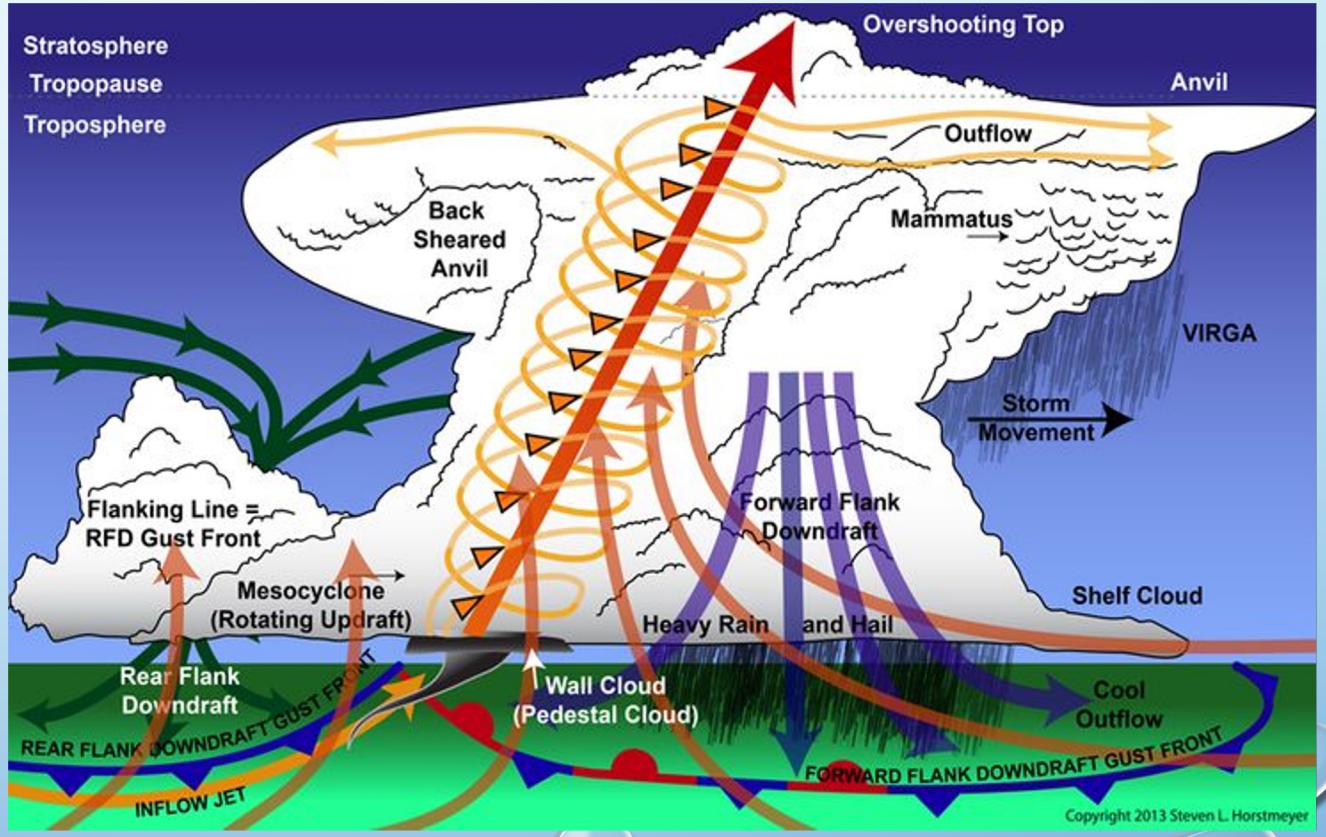


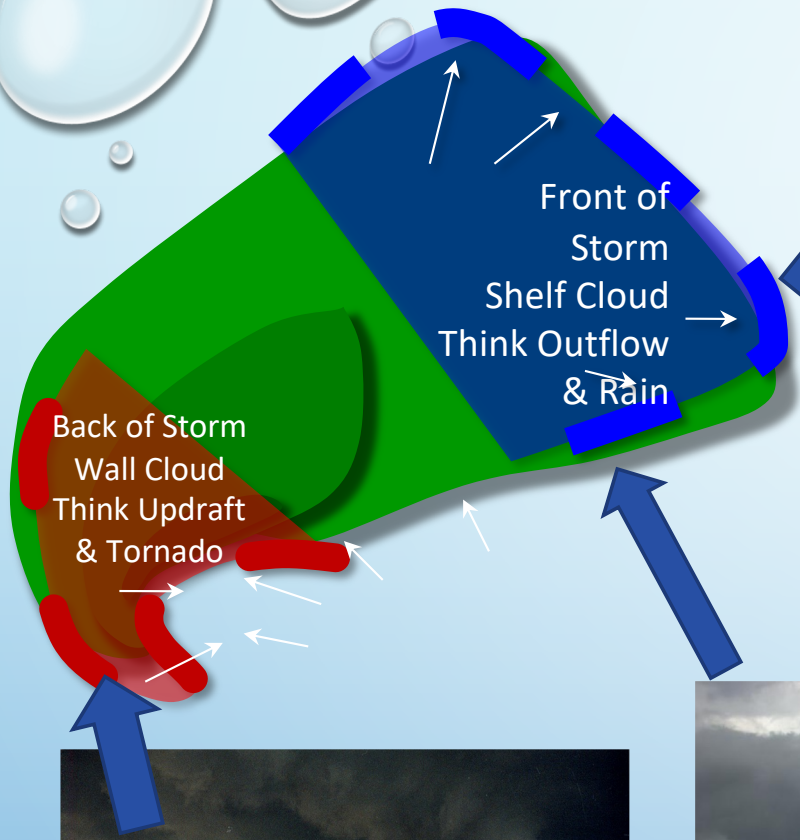
- Moderate to Strong Wind Shear
- Long-lived
- Meso-cyclone – intense storm-scale rotation through depth of storm
- Usually isolated
- Feed on warm moist air from miles around.

SUPERCELL THUNDERSTORMS

- **Responsible for nearly all severe weather**
- **Large hail, strong winds and tornadoes**
- **Requires shear to rotate**

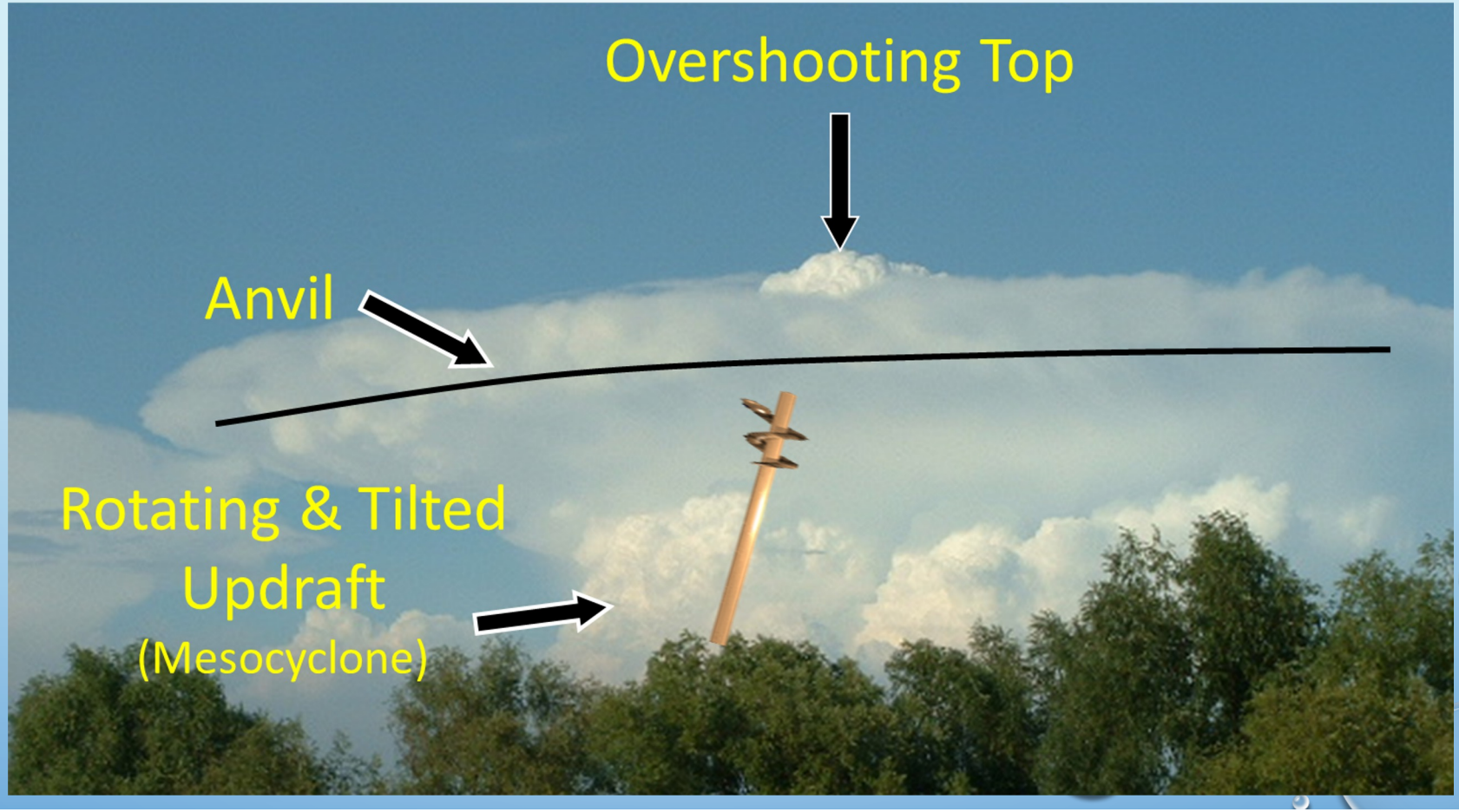




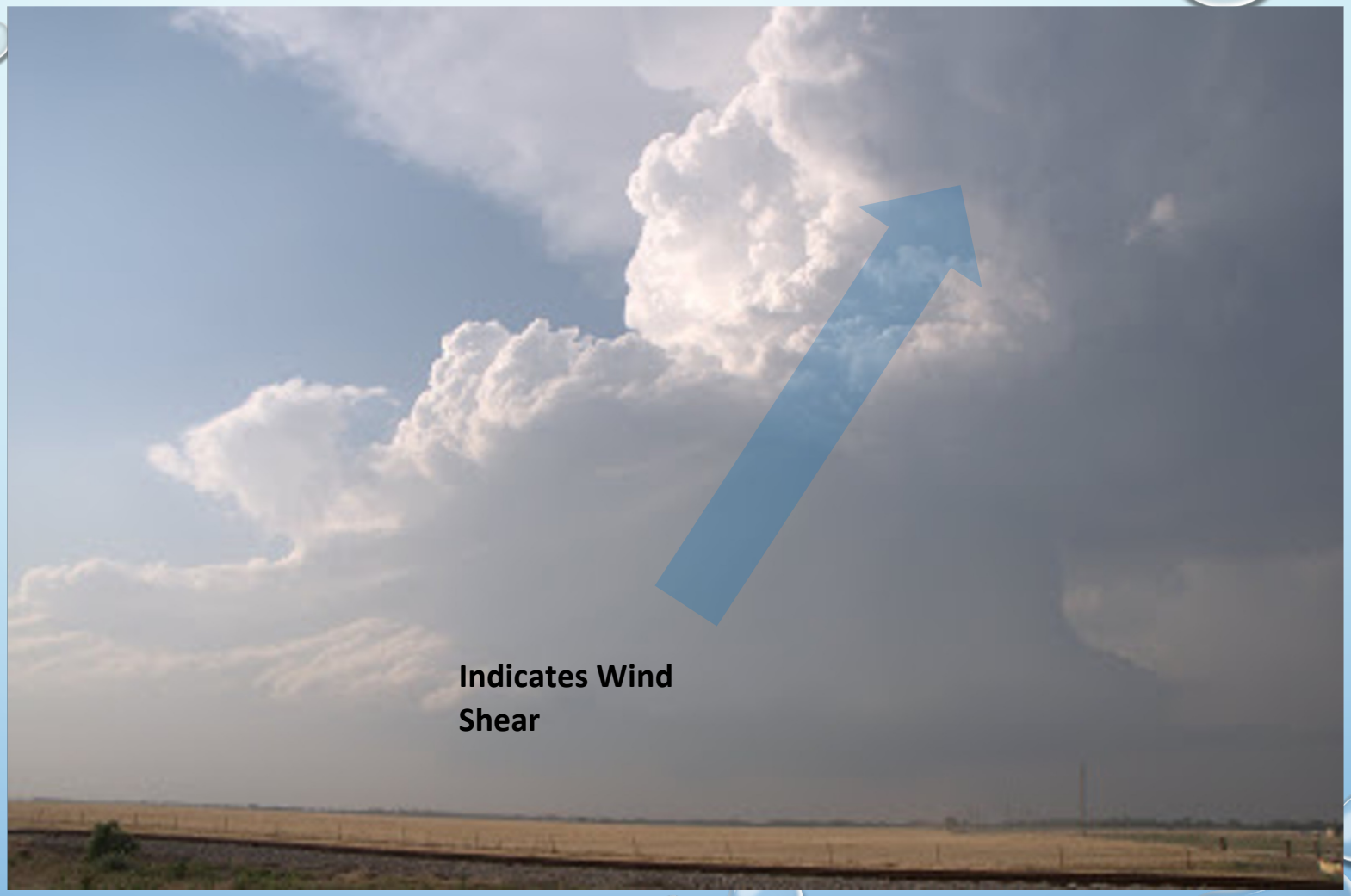


TWO FACES OF A SUPERCELL

SUPERCELL THUNDERSTORM STRUCTURE

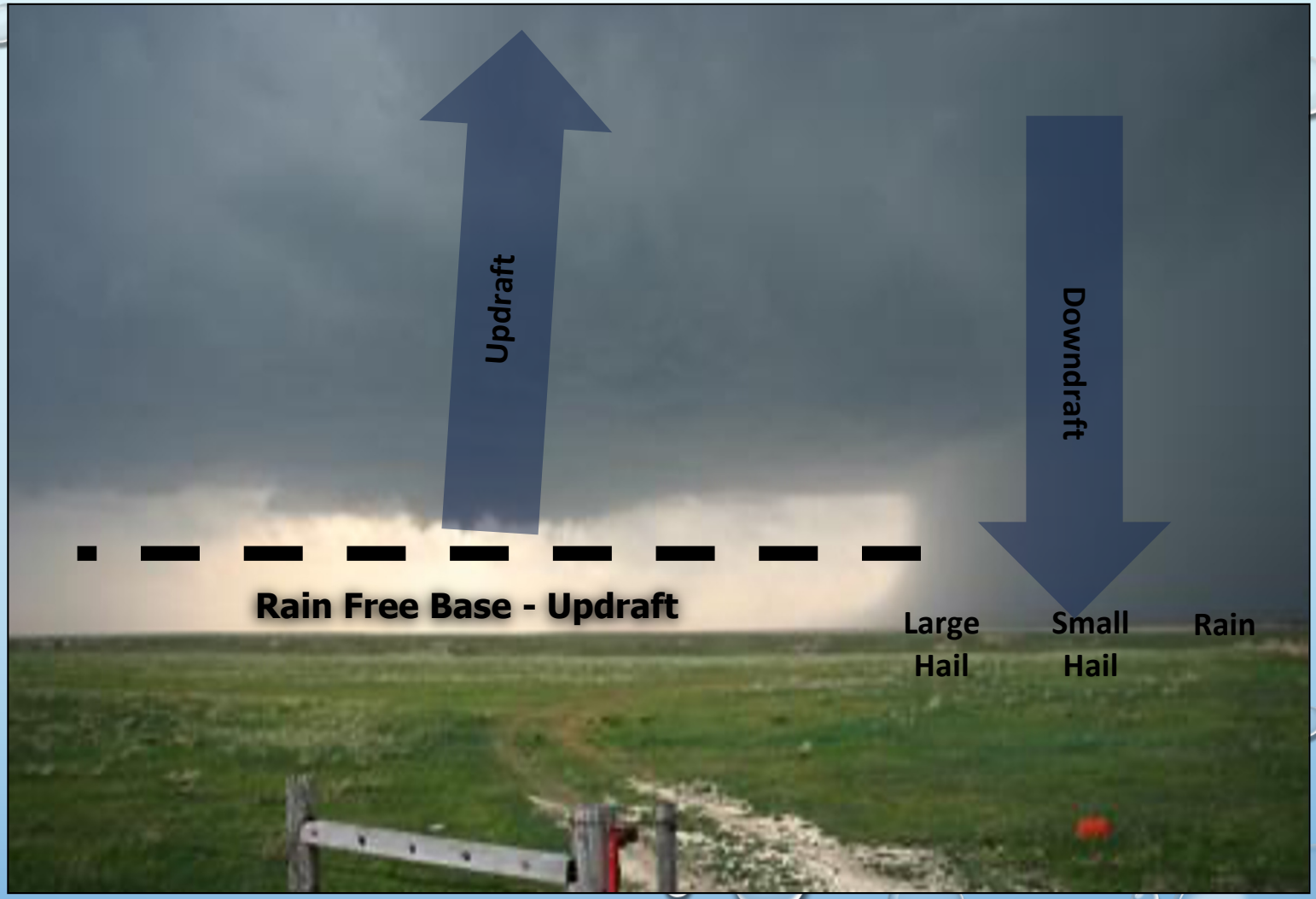


Tilted/ Rotating Updraft



Mesocyclone/ Supercell

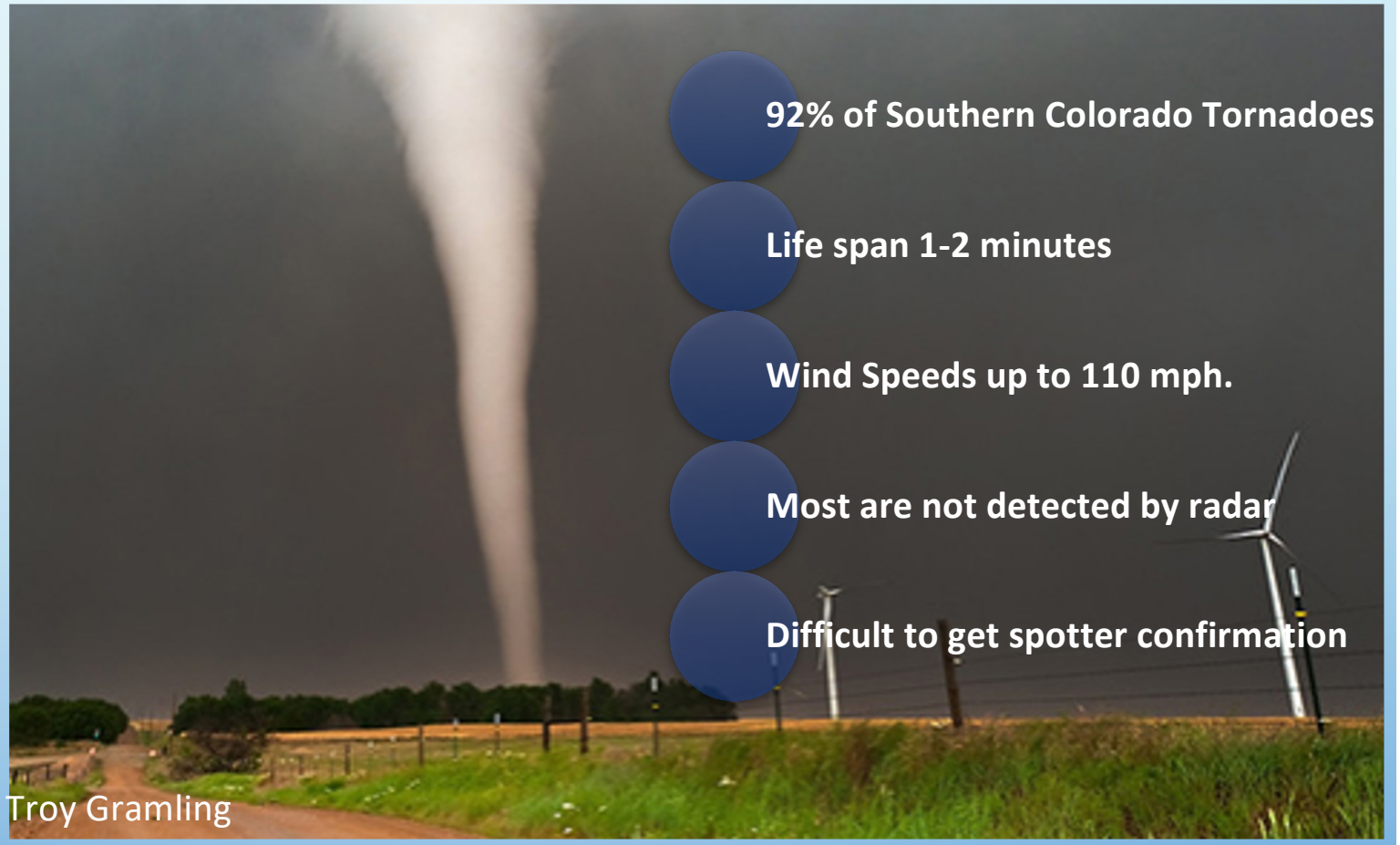
HAIL SHAFTS


Updraft
Downdraft
Rain Free Base - Updraft
Large Hail
Small Hail
Rain

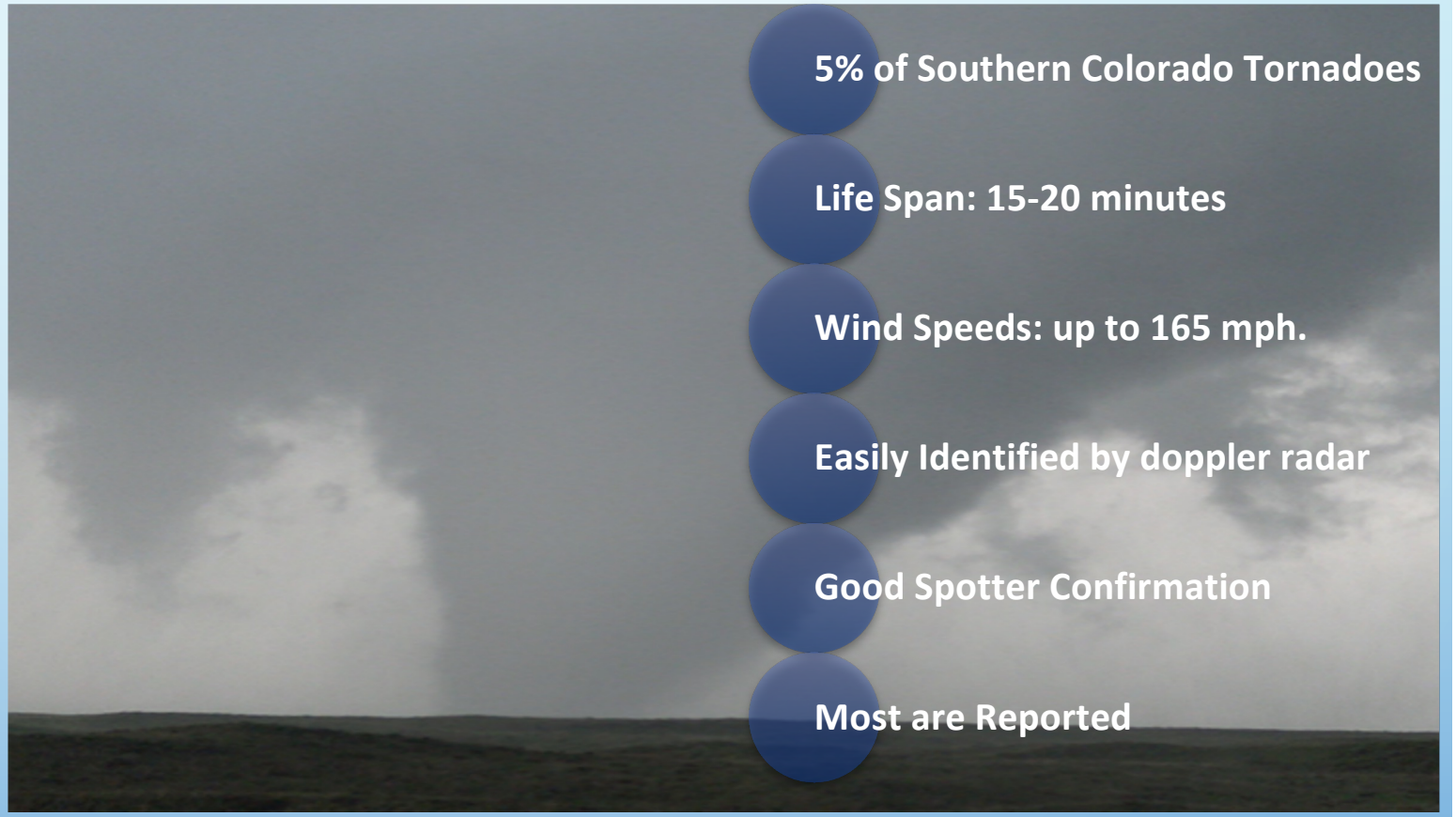
- **Tornadoes**
- **Non-Mesocyclone Tornadoes**
- **Gustnadoes**

Starting with… the EF Scale!

Weak Tornadoes
EF0 - EF1



Strong Tornadoes
EF2 – EF3



- 5% of Southern Colorado Tornadoes
- Life Span: 15-20 minutes
- Wind Speeds: up to 165 mph.
- Easily Identified by doppler radar
- Good Spotter Confirmation
- Most are Reported

Violent Tornadoes
EF4 – EF5

- None have occurred in Southern Colorado
- Life span 1-2 hours.
- Wind speeds over 200 mph

Non-Mesocyclone Tornadoes

- Form most often beneath rapidly developing towering cumulus or thunderstorms
- NOT associated with a large scale, deep rotation (mesocyclone) in a supercell storm
- Circulation connects to the cloud base
- Can be persistent and destructive, due to slow movement
- Most common form of tornado in Colorado

What is a Gustnado?

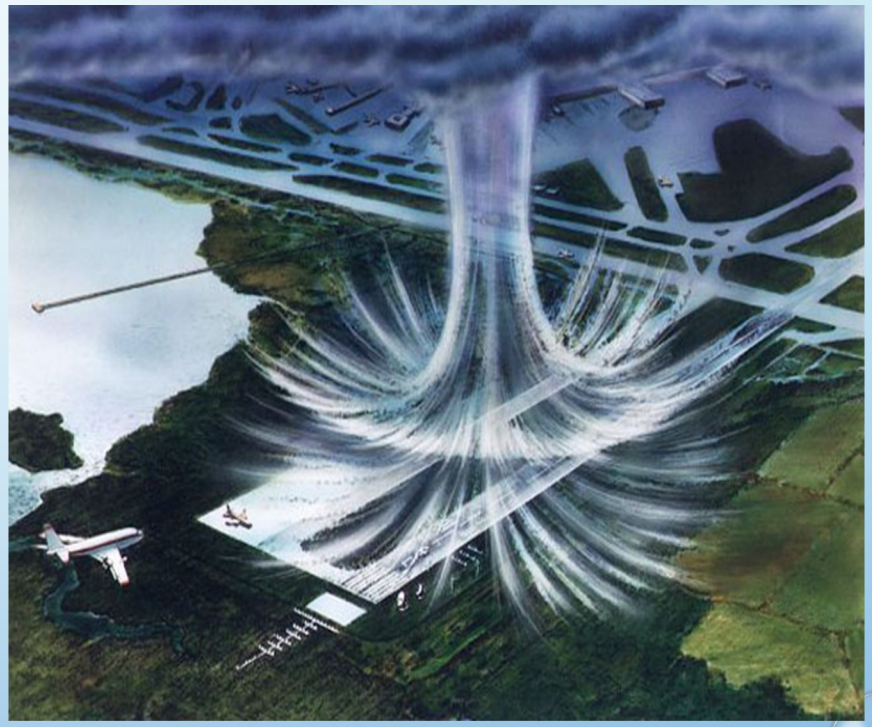
- Small short-lived vortex (it is rotating) along the storm's outflow winds
- Can cause damage, but technically it is NOT a tornado because the circulation does NOT extend up to the base of the cloud

Severe Wind Threats

Microbursts and Straight-line Winds

Microbursts and Macrobursts

- 2 types: Wet and Dry
- Dry Microbursts are most common in Colorado
- Can produce severe winds 60 to over 100 MPH
- Particularly hazardous for aviation
- Winds spread out in all directions at the ground
- <u>Microbursts</u>
  - only impact a small area
  - usually less than 2.5 miles in diameter
  - Only last 2 to 5 minutes
- <u>Macrobursts</u>
  - Greater than 2.5 miles in diameter
  - Last 15 to 20 minutes



Wet vs. Dry

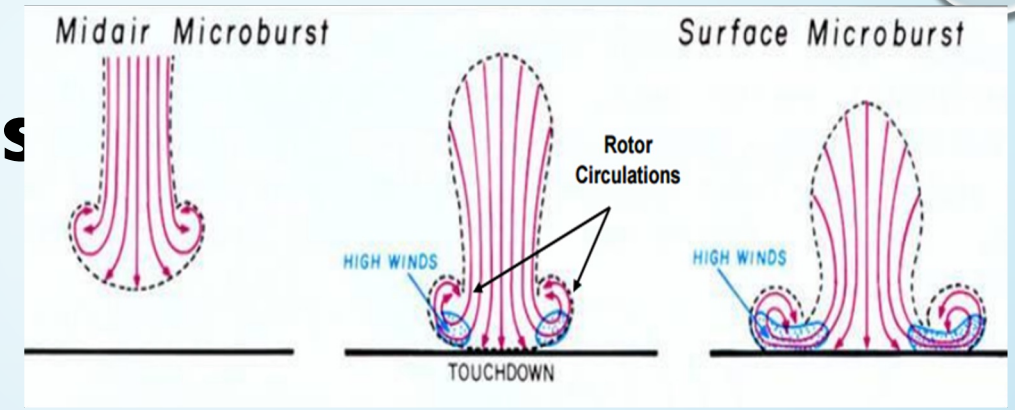
Dry Microbursts

- When rain falls below the cloud base or is mixed dry air, it begins to evaporate
- This evaporation cools the air
- The cool air descends and accelerates as it approaches the ground
- When it reaches the ground, it spreads out in all directions

Wet Microbursts

- Downbursts accompanied by significant precipitation at the surface
- Relies more on the drag of precipitation for downward acceleration of parcels

Microburst Process



Contact Stage

- Initially develops as the downdraft begins its descent from the cloud base
- The downdraft accelerates and within minutes reaches the ground
- Its during this contact stage the highest winds are observed

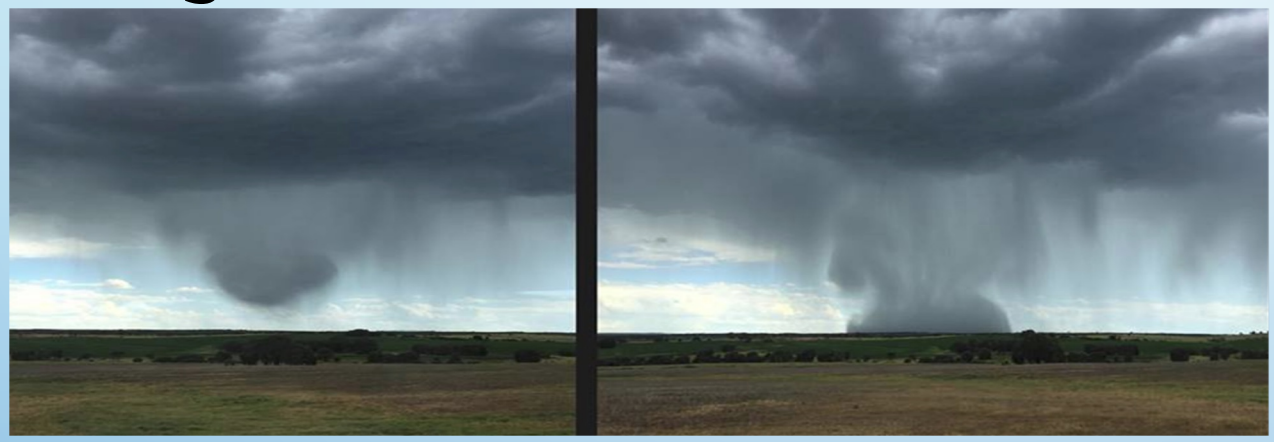
Outburst Stage

- The wind curls as the cold air of the downburst moves away from the ground contact point

Cushion Stage

- Winds in the curl continue to accelerate
- Winds at the surface slow due to friction

Wet Downbursts



Dry Downbursts

SHELF CLOUD and Straight-line Winds

Along the LEADING EDGE of the Gust Front (Associated with the Downdraft)

WALL CLOUD OR SHELF CLOUD?

Shelf Clouds

- Downdraft and straight-line winds
- Points *away from* rain shaft

Wall Clouds

- Updraft & Tornado Region
- Points *towards* rain shaft

Reporting Overview

When to Report?

As soon as you feel comfortable, usually **after** the reportable weather occurs.

3 C's of Emergency Communication

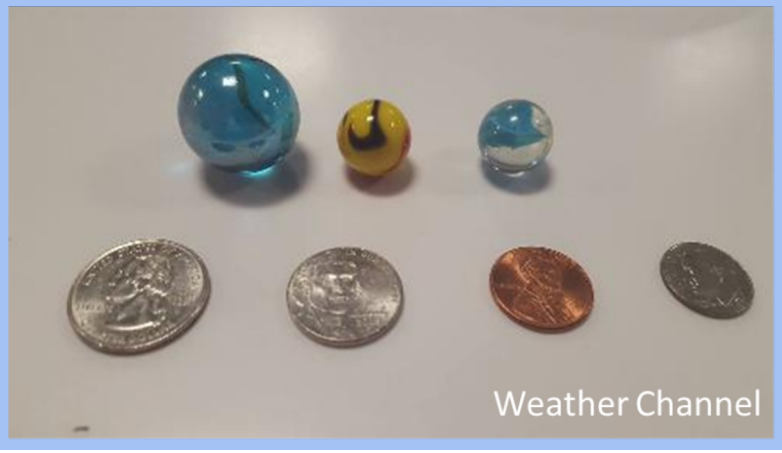
- Clear
- Concise
- Calm

GOOD Example

Who Are You?	• Name
Where Are You?	• Exact location • Easy to find on a map
What Do You See?	• Describe it • Be brief
Where Did You See It?	• Where IT was • Don’t get confused
When Did It Happen?	• Be specific

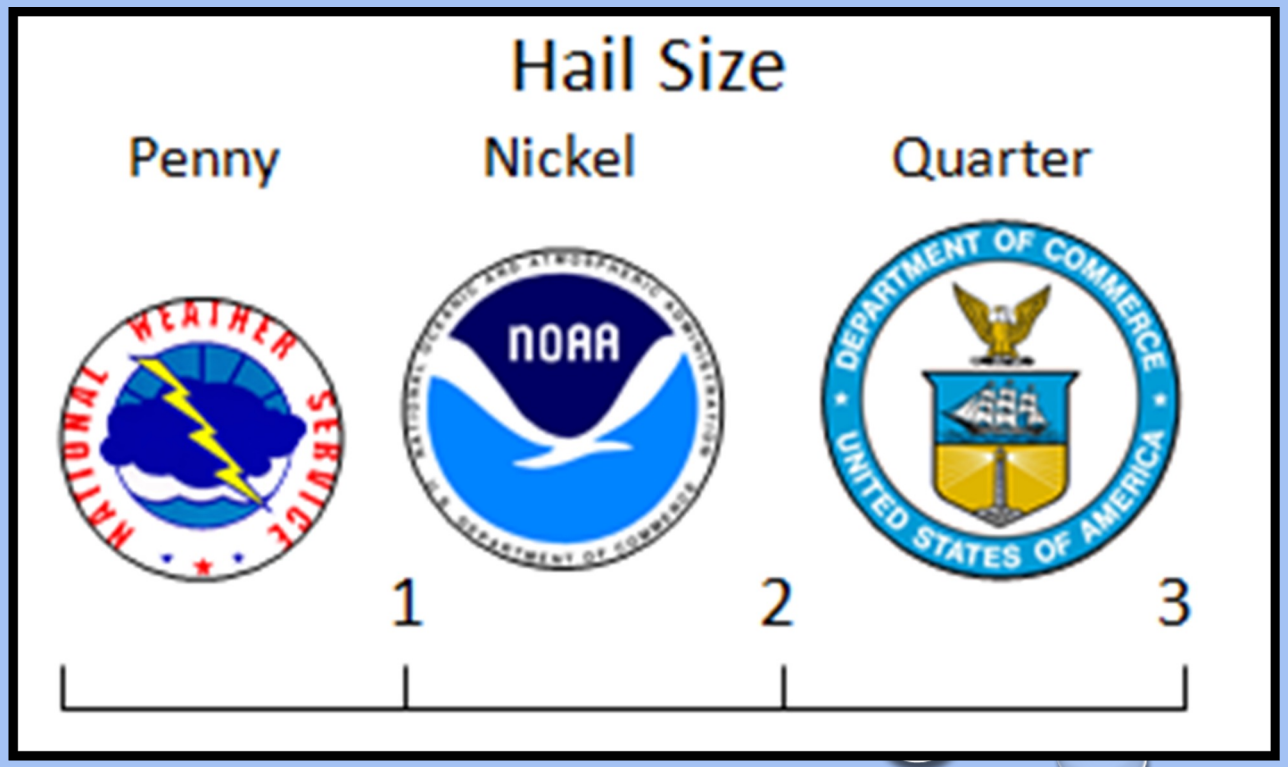
What to Report…Hail

- Report widest diameter of hailstone
- Report hail **Penny** size or larger
- Severe Thunderstorms require hail of 1 inch in diameter (Quarter sized hail)
- Do NOT report Marble size hail (they come in all different sizes!)



Common Object	Size
BB	<.25”
Pea	.25”
Dime	.7”
Penny	.75”
Quarter	1”
Half Dollar	1.25”
Ping Pong Ball	1.5”
Golf Ball	1.75”
Hen Egg	2”
Tennis Ball	2.5”
Baseball	2.75”
Grapefruit	4.00”

What to Report…Hail
Hail Card



What to Report…Hail
Hail Card

Severe Weather Spotter Card - WFO Pueblo, CO

To report by phone to WFO Pueblo - **1-800-884-1540**

WHO, WHERE, DIRECTION LOOKING, WHAT, WHEN **Local** (948-3838)

EVENT	
TORNADO -	Location and size
FUNNEL CLOUD -	Location and size
RAPIDLY ROTATING WALL CLOUD -	Location and size
WIND -	Direction and estimated speed (if possible)
HAIL -	Size of largest stone related to coins, or in inches
FLOODING -	of creeks, rivers and roadways, etc.

What to Report…Damaging Winds

Winds of 58 mph (50 knots) or greater

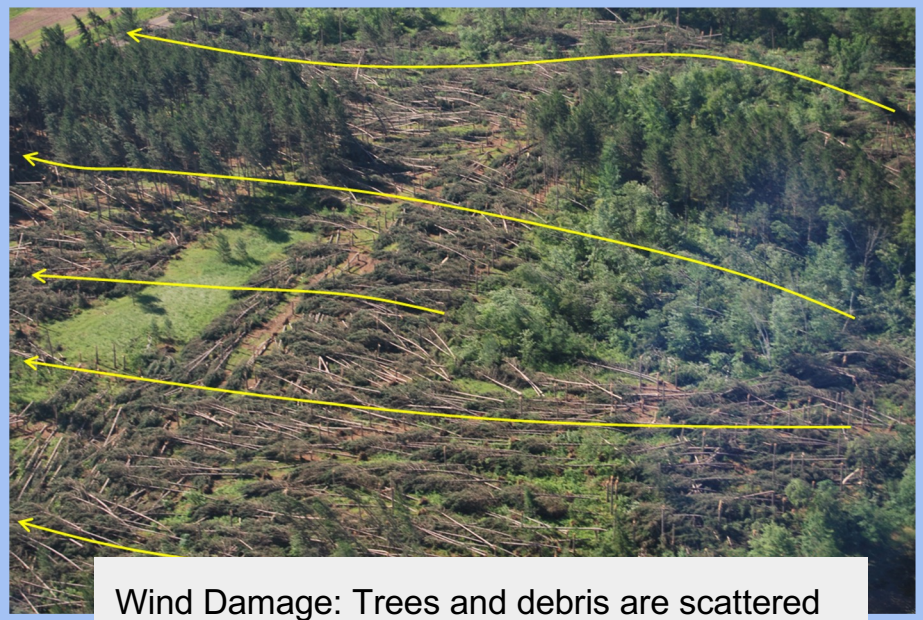
- Only if it is measured

Physical damage caused by the winds

- Include measured or best estimate of large branches or trees

Thunderstorm Damage: Winds or Tornado?

How do you tell if wind damage is caused by ‘straight-line’/outflow winds, or a tornado?



Wind Damage: Trees and debris are scattered in a single direction (the ‘straight’ in straight-line winds)

Tornado Damage: More haphazard. Debris appears ‘tossed’ in scattered/random directions

What to Report…Rotating Wall and/or Funnel Clouds

Lowering of rain-free base

Look for persistent rotation

Rapidly rotating wall cloud often precedes tornado development

Rotating Wall Cloud

Funnel Cloud

What to Report…Tornado

Again, the air is the tornado, not the condensation funnel.

What to Report…Flash Flooding

Best estimate of water depth

- Do not enter flood waters to measure
- If unsure, use references such as curbs or wheels on a car

Courtesy of NWS Social Media

Any damage or washed-out roads


Courtesy of NWS Social Media

Snow Reporting

Winter Weather Reporting Criteria

*Remember to include **Time**, **Location**, **Condition**, and **Source** in your report!*
*Example: "At **7am** I measured **4" of new snow** here in **Duluth** - this is **Joe**, a trained spotter"*

Snow

- You may report any amount, but **we want reports of 1" or greater of new snowfall**
- Report anytime, but in the morning (~7am) and/or after the storm is great
- Use a snow board if possible!
- If you don't have a snow board, take multiple measurements and avoid drifts!
- May also report total snow depth on the ground (snow pack)

Ice

- **Please report ANY ice, even just a glaze**

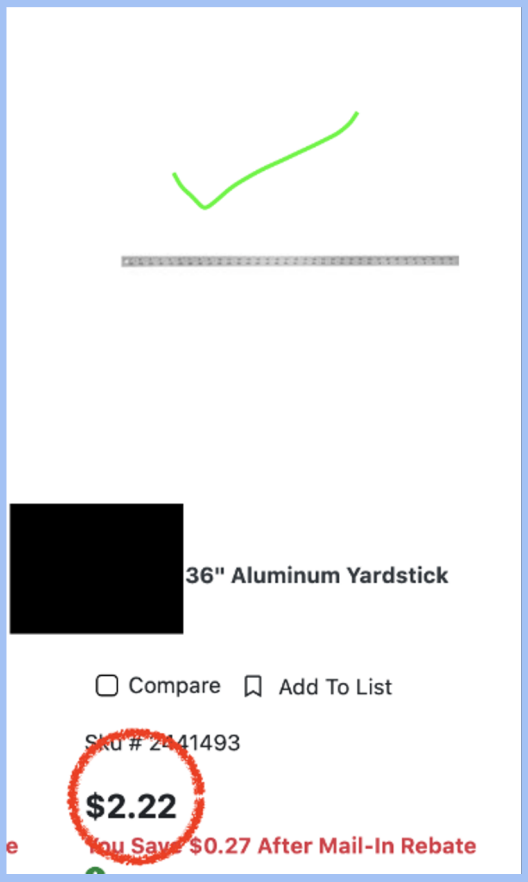
1. **Flat Ice** - Measure thickness of ice on flat surface like a flat deck railing or patio furniture
2. **Radial Ice** - Measure ice around a branch - we want the RADIUS of the ice around a branch

- Report any impacts from ice (i.e. downed branches)

Snowfall Measurement

You Will Need…

1. Ruler/Measuring Stick
2. Snow Board (2'x2' plywood painted white)
3. Flag/reflective marker (to find the snow board!)
4. Standard 4" Rain Gauge *(Optional, ~$40, Visit cocorahs.org)*



Where do I measure the snow?

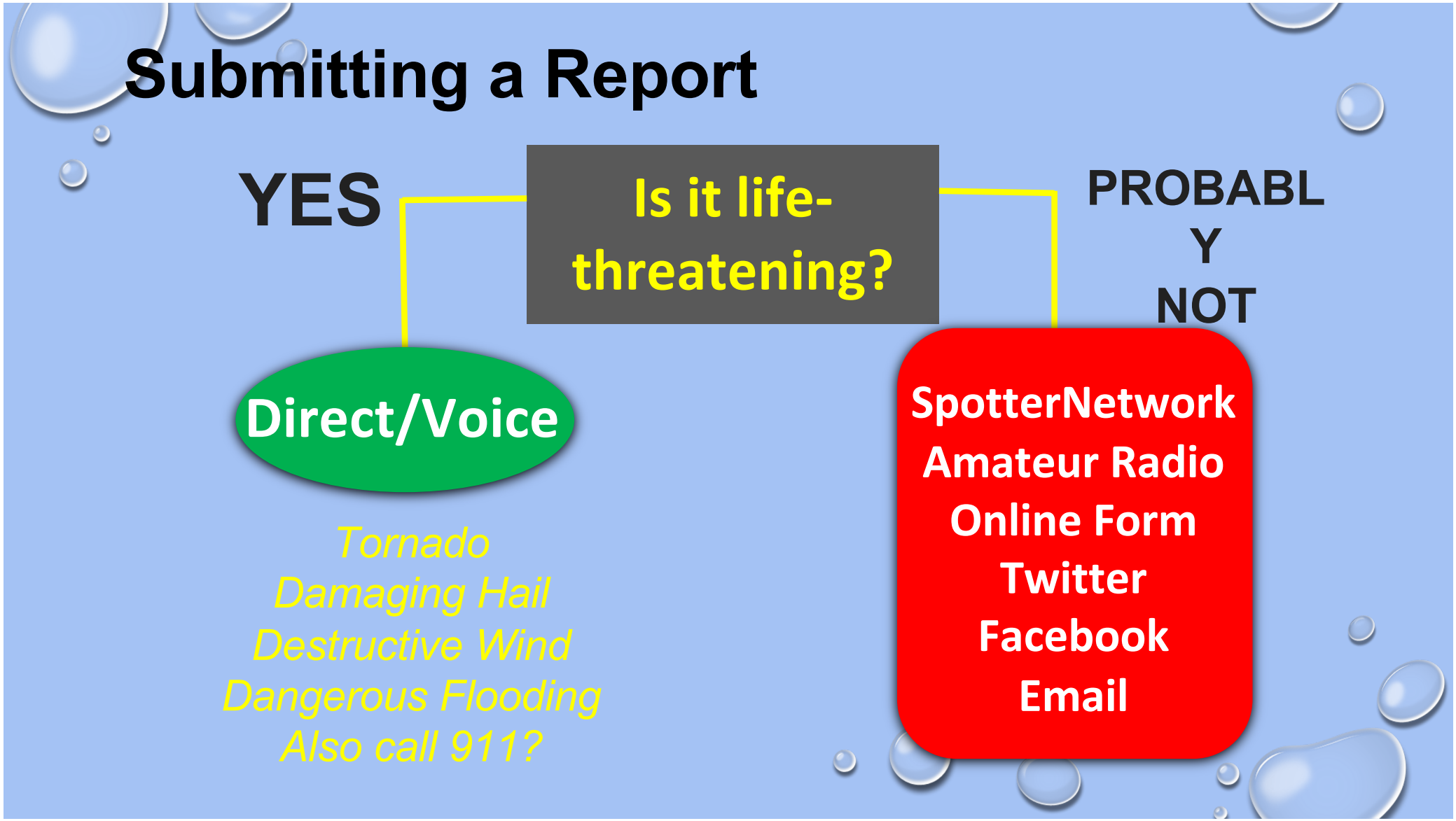
Q: Can I just measure on my deck/patio?

A: Sometimes - if there was little wind/drifting it might be OK, but measure from a surface at least 2'x2' (No deck railings!)

Q: Will I always measure snowfall in the same spot?

A: Not necessarily. Find a place where snow is least drifted and about average depth for the location. Use your best judgement.

Submitting a Report



Calling Us for a Report

Dial

1-800-884-1540

What Weather You Witnessed

Where It Was Witnessed

What Time It Was Witnessed

Social Media

Twitter/X

- @NWSPueblo
- Use #pubspotter
- Send reports and pictures
- Constantly monitored

Facebook

- @NWSPueblo
- Send reports and pictures
- Constantly monitored

Amateur Radio

Pikes Peak SKYWARN: 147.345 107.2Hz tone

Pueblo SKYWARN: 146.790 88.5Hz tone

EMAIL

nws.pueblo@noaa.gov

- Good way to send us pictures or videos, especially after the storm is over.

Spotter Simulation - How this works

We'll show you a hypothetical weather situation, and you tell us what you would report, if anything.

Remember!

Who, What, When, Where

Simulation #1

Simulation #1 - Scenario

- Thunderstorms have been rolling through the area all afternoon. But then, you start to hear the sounds of loud impacts on the roof.
- Practicing good weather safety, you wait until the sounds have *stopped*, before walking outside, where you find these->
- Is this reportable?

Simulation #1 - Results

Is this reportable? Yes, so long as the hail meets the size requirements

- What is the minimum size for reportable hail?

- Hail isn't always an easily-measured shape. How do we decide what to measure if different sizes and shapes are falling?

Simulation #1 - Measuring Hail

If the hail you find is all different sizes and shapes, find the *biggest* hailstone and measure along it's *longest* axis.

- Why?
- The biggest hailstone will be the most dangerous.

Measure hail size with either a ruler or with your *official* NWS hail card!

Simulation #1 - Giving Your Report

What do you say?

Who? (*This is* [Name], *one of your Storm Spotters]*

Where? (*I'm at* [Location])

When? (Either 'now' or when the hail fell.)

What? *(The storm that just passed dropped hail, measuring about…)*

Also be sure to report any damages! (Dented vehicles, broken glass, damaged plants/trees, etc.)

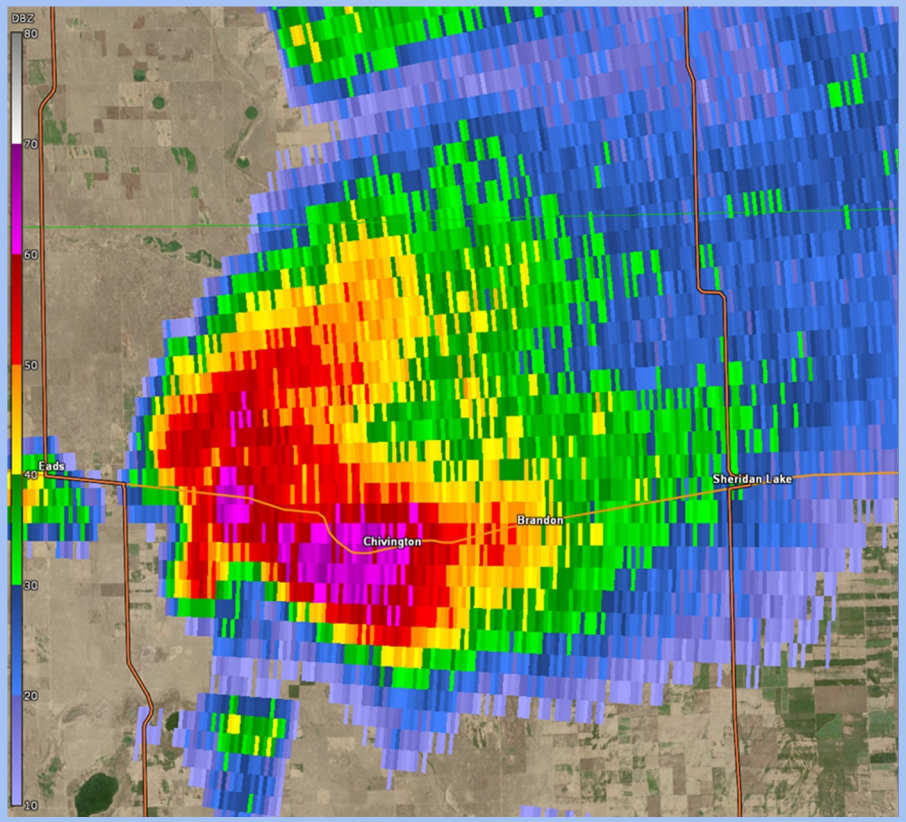
Simulation #2

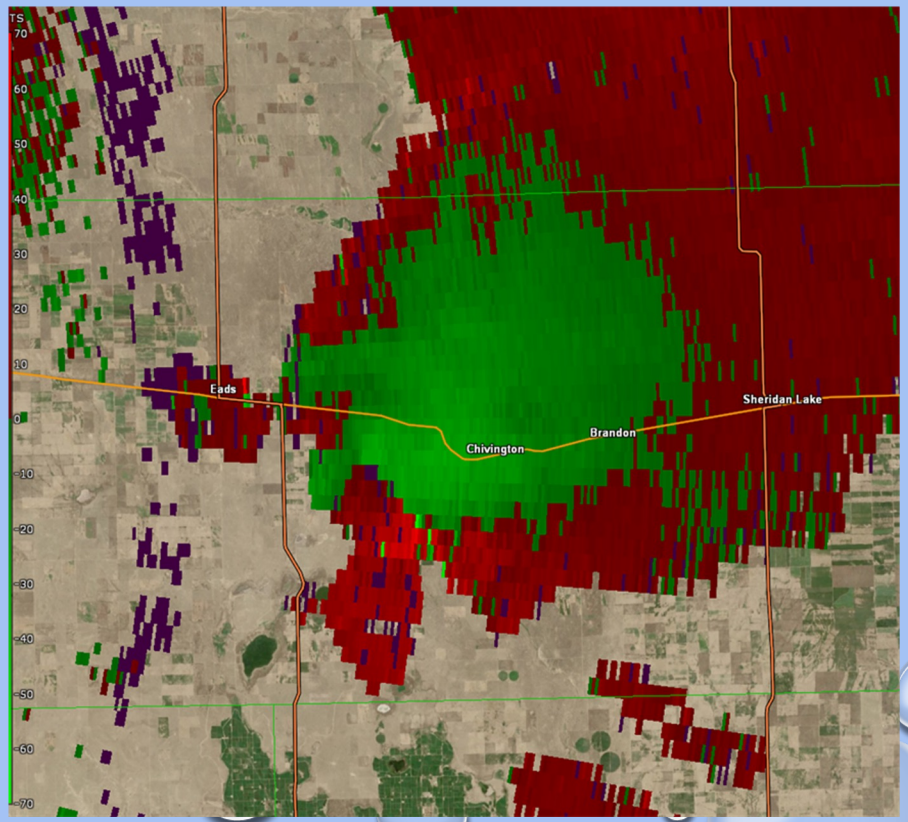
Simulation #2 - Scenario

- You're aware of the potential for severe weather today, and already see some strong thunderstorms popping up in your area during the afternoon.

- You check your favorite radar software/app and see the following images…

Simulation #2 - Radar Images





Simulation #2 - Scenario (cont.)

- Well, that looks spooky. Better keep an eye out!
- Since you don't hear any thunder at the moment, you decide to take a peek outside. For the sake of the scenario, let's pretend you're visiting your BFF on the south side of La Junta.

- Here is what you see…

What do we report here?

Let’s say the storm is to your east, and moving north-ish.

Scenario #2 - Results

Is this reportable? Yes!

What do you say?

Who? (*This is* [Name], *one of your Storm Spotters]*

Where? (*I'm located on the south side of La Junta, looking east.*)

When? (Either 'now' or when you saw the hazard)

What? *(I see a funnel cloud to my east, lowered from the base of the clouds and moving north-northeast. I can't see the ground from where I am.)*

Why is this detail important?

Simulation #3

Simulation #3 - Scenario

- It's been raining hard all day today, but you have errands to run!
- Dawning your favorite raincoat, you drive into town and finish your shopping, but on your way home, downtown Alamosa looks like this:

Scenario #3 - Results

Is this reportable? Yes!

What do you say?

Who? (*This is* [Name], *one of your Storm Spotters]*

Where? (*I'm in downtown Alamosa, near [this street or landmark].*)

When? (Either 'now' or when you saw the hazard)

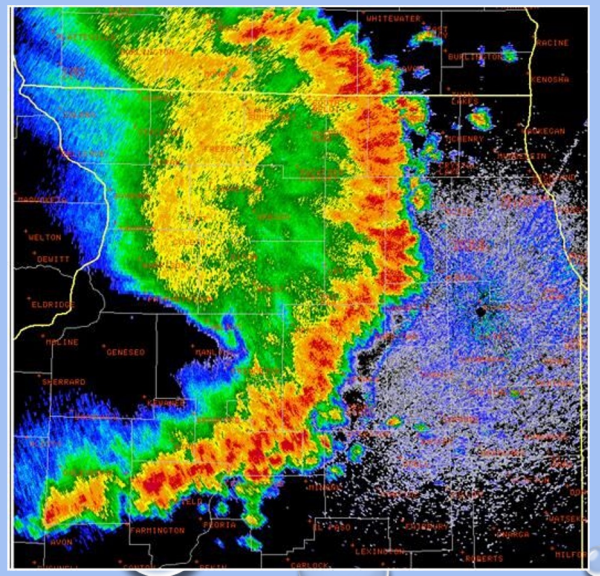
What? *(There's bad street flooding here. I see a few disabled vehicles. I see water halfway up the wheels on a sedan, and the water is deeper where the road dips.)*

Why are these details important?

Simulation #4

Simulation #4 - Scenario

- A line of strong thunderstorms is tracking across the eastern plains, looking something like this on radar:



Simulation #4 - Scenario (cont.)

- The National Weather Service issues a Severe Thunderstorm Warning across the entire line of storms, citing the possibility of 75 mph winds and 1-inch hail.

- Taking a peek out the window, here's what you see as the storm approaches:

What is this?

Is it reportable?

Simulation #4 - Scenario (cont.)

- That's a shelf cloud!
  - Remember, these clouds precede precipitation and strong winds!

- Is it reportable?
  - Actually, no. While the cloud itself is usually associated with stronger storms, you haven't actually seen any impacts or hazards to report yet.

- Seeing the incoming storm clearly now, you head back inside and shut the windows, preparing. The storm is pretty violent, but moves on quickly with plenty of loud snapping sounds.
- When you head outside **once the storm has passed**, this is what you see around the neighborhood:

What do you report?

More importantly, HOW do you report?

Simulation #4 - Results

- How do we report this?
  - Spotter safety! DON’T GO ANYWHERE NEAR DOWNED/DAMAGED POWER LINES. EVER.
- We report wind damage here, but what kind and of what severity?
  - Structural damage, tree size (measured or estimated, depending on scene safety)
  - Types of trees if you know, hardwood vs softwood, uprooted vs snapped, stripped bark, size of branches, etc…….

Simulation #4 - Report

Who? (*This is* [Name], *one of your Storm Spotters]*

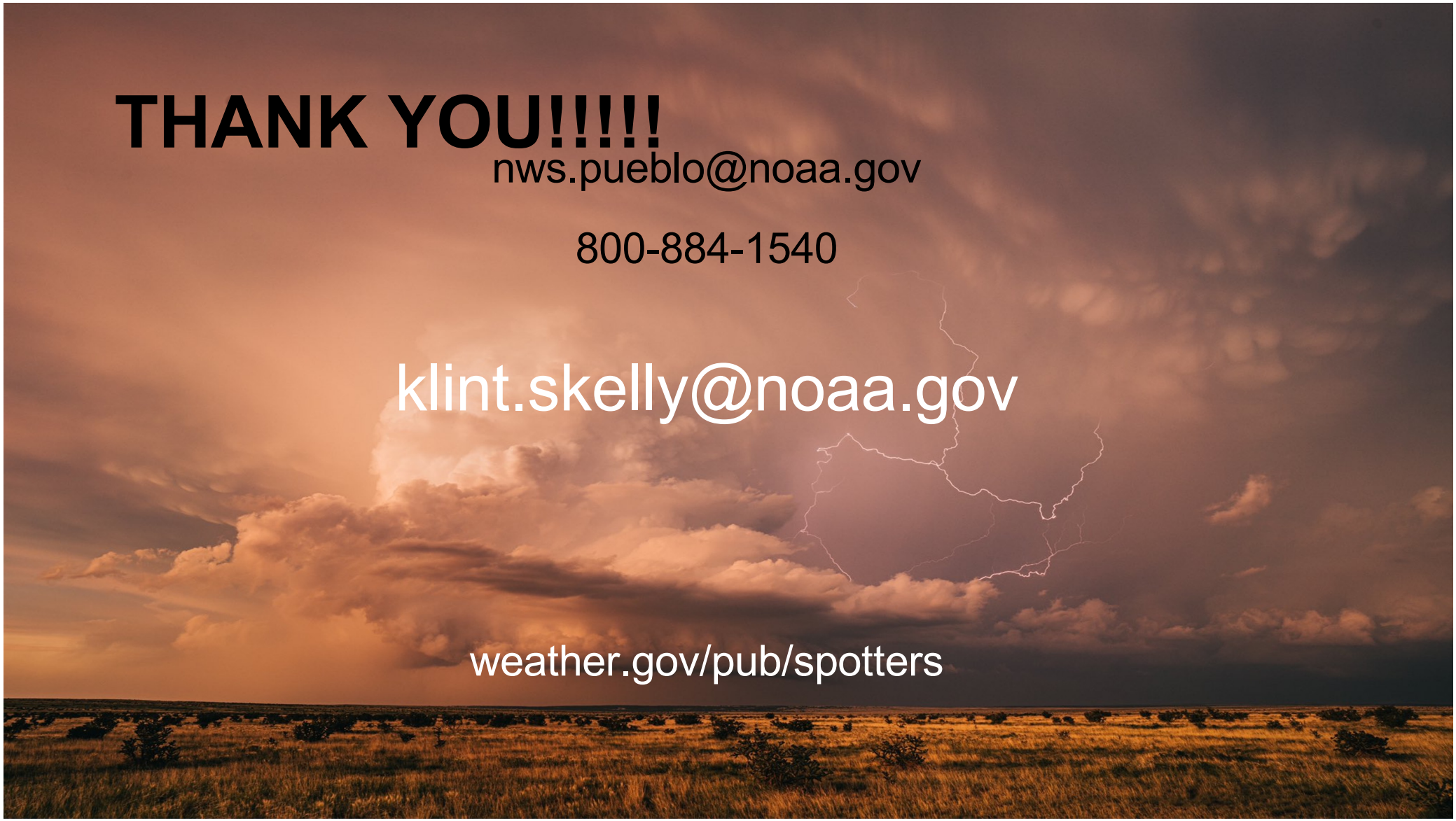
Where? (*I'm at my home, in [location]*)

When? (Either 'now' or when you saw the hazard)

What? *(I'm reporting wind damage from the storms that just passed through. Several trees are down in my neighborhood, along with tons of branches. There's a lot of power line damage, and my neighbor's house has some broken windows. The bigger trees look about 8 inches thick or more, but I can't get close enough to measure with the power lines down.)*

Thank you to all of those who submitted photos and videos!

Certificate Password: Skyw4rn2024!


THANK YOU!!!!!
nws.pueblo@noaa.gov
800-884-1540
klint.skelly@noaa.gov
weather.gov/pub/spotters