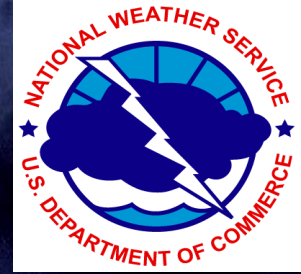


Spotter Concepts



John De Block

Warning Coordination
Meteorologist



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service – Birmingham, AL



Presentation Topics

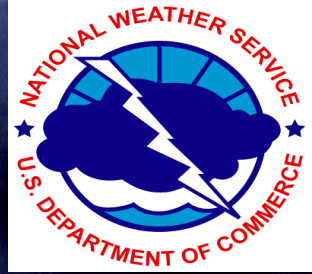
- ✦ National Weather Service overview, mission, and products
- ✦ Severe weather climatology
- ✦ Why we need spotters
- ✦ What to report
- ✦ Thunderstorm types – Single, multicell, supercell
- ✦ Thunderstorm components – wall clouds, funnel clouds, land spouts, shelf clouds,
- ✦ Thunderstorm phenomena look alike

Who is the National Weather Service?



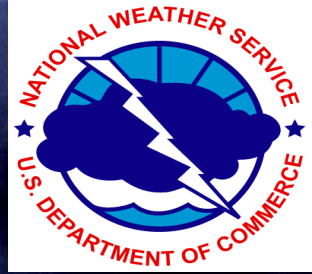
- A Federal Agency under the Department of Commerce
- A branch of the National Oceanic and Atmospheric Administration (NOAA)
- 122 LOCAL forecast offices
- Annual budget of approximately \$900 Million, or less than \$3.00 per U.S. Citizen
- About 5,000 employees nationwide
- The only entity to issue OFFICIAL severe weather watches and warnings

Why are we here?



PROTECT LIFE AND PROPERTY

helping you make informed
decisions



Surviving Severe Weather

What are the two most important factors in preventing loss of life and property from the effects of severe weather???

- Awareness
- Preparation



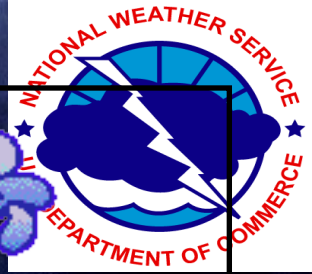
Presentation Topics

- ◆ National Weather Service overview, mission, and products
- ◆ Severe weather climatology
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Alabama's Climatology



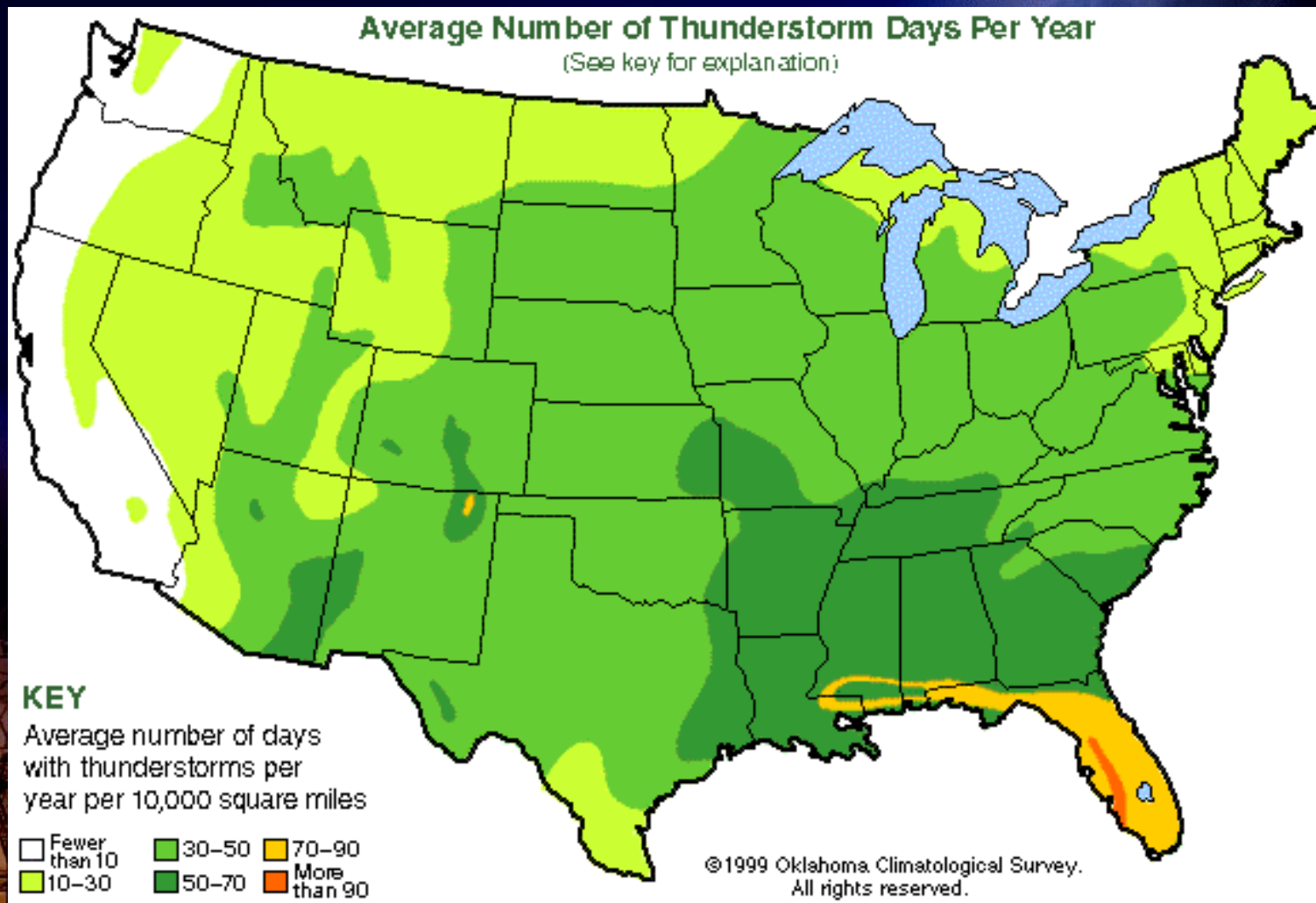
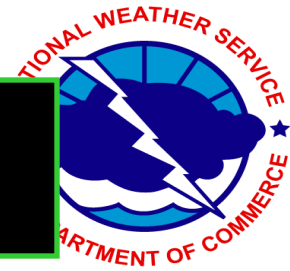
- We live in one of the most active weather areas in the world!
 - tornadoes, hurricanes, floods, droughts, and even snow/ice on rare occasions
- One of the wettest places in U.S.
 - 50 to 60 inches of rainfall on average each year
- Hot humid summers and mild wet winters



Just how much severe
weather do we
receive?

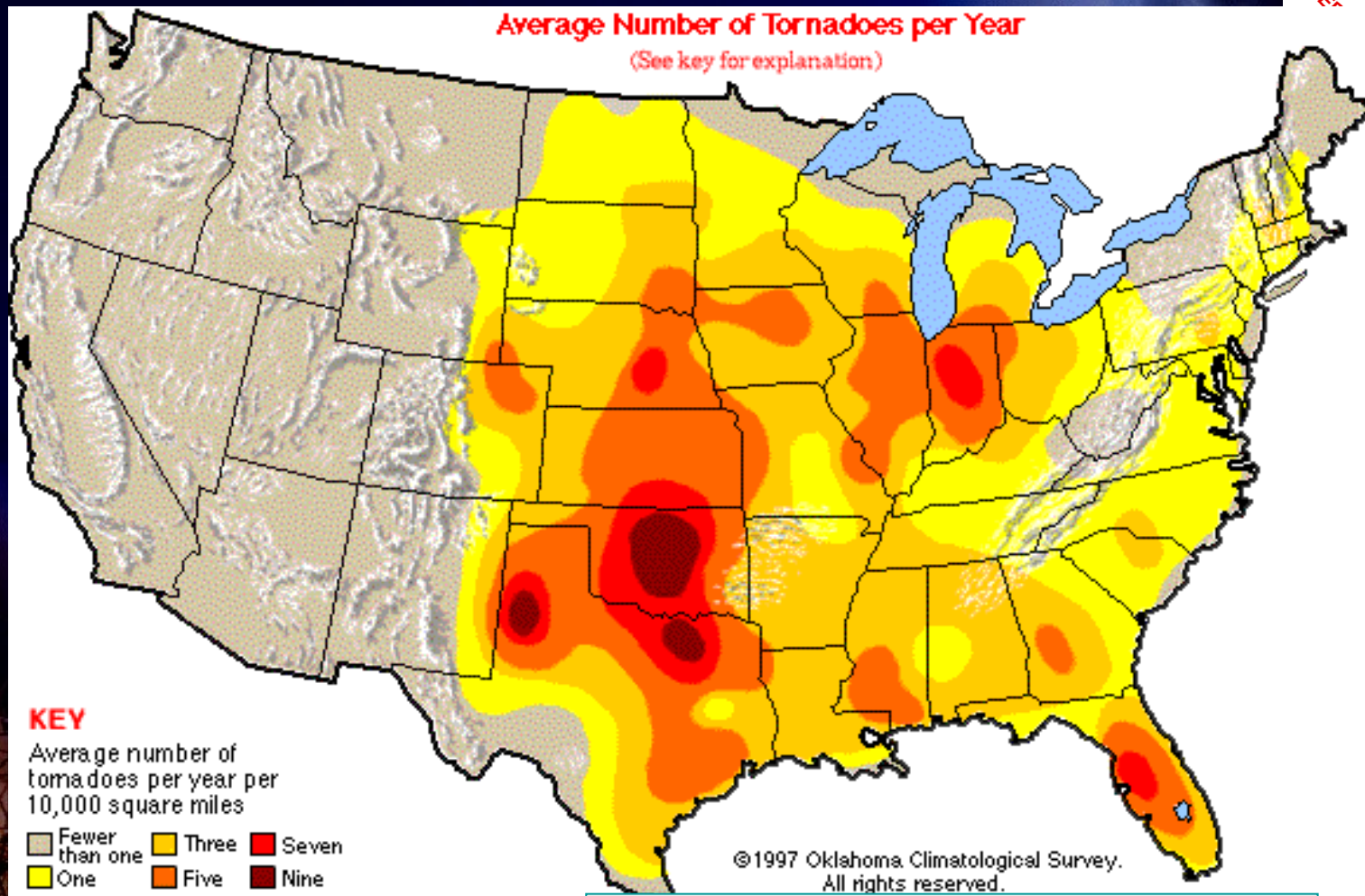


Thunderstorm Climatology



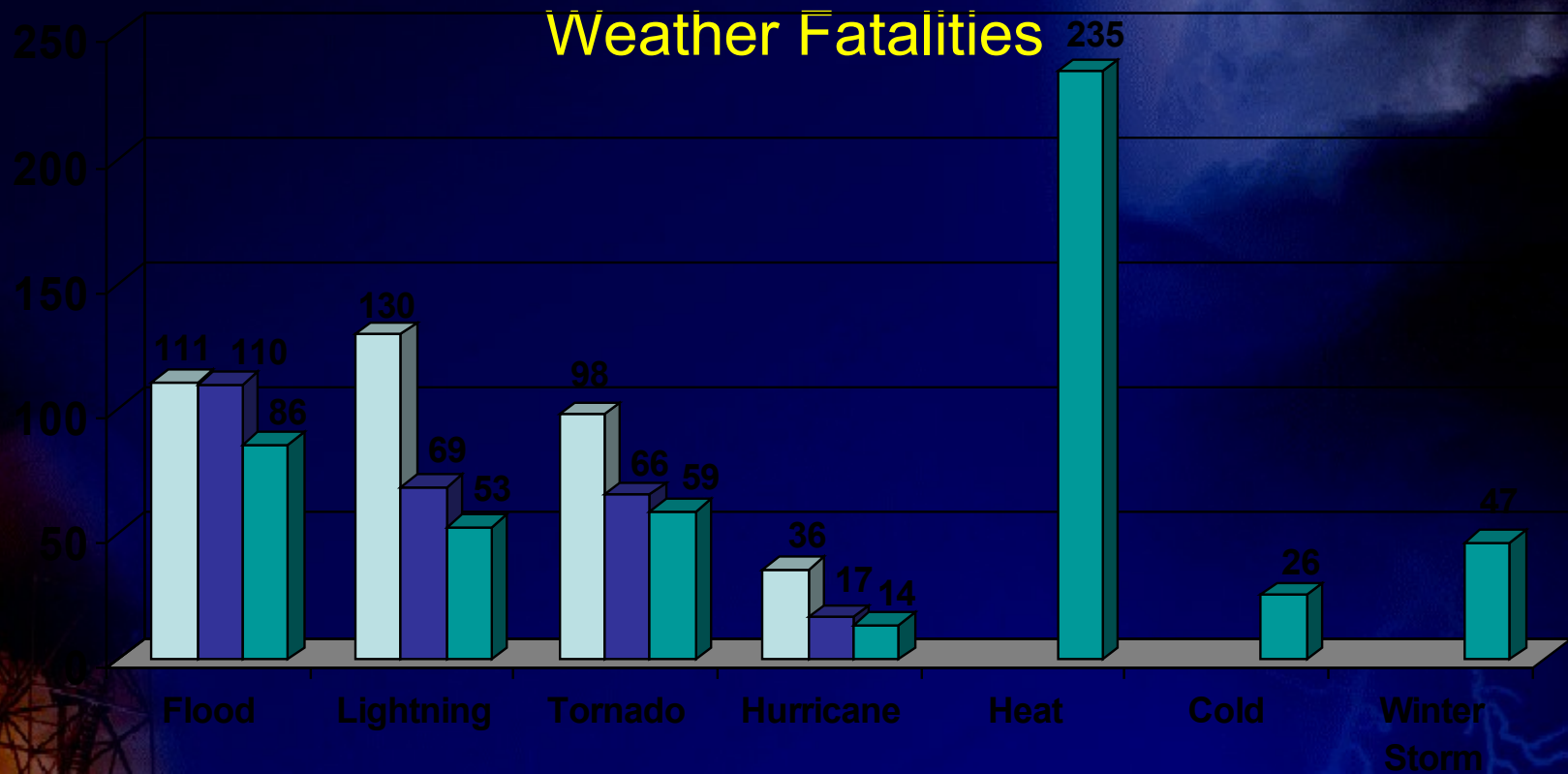
Oklahoma Climatological Survey <http://www.okcsonline.org/>

Tornado Alley



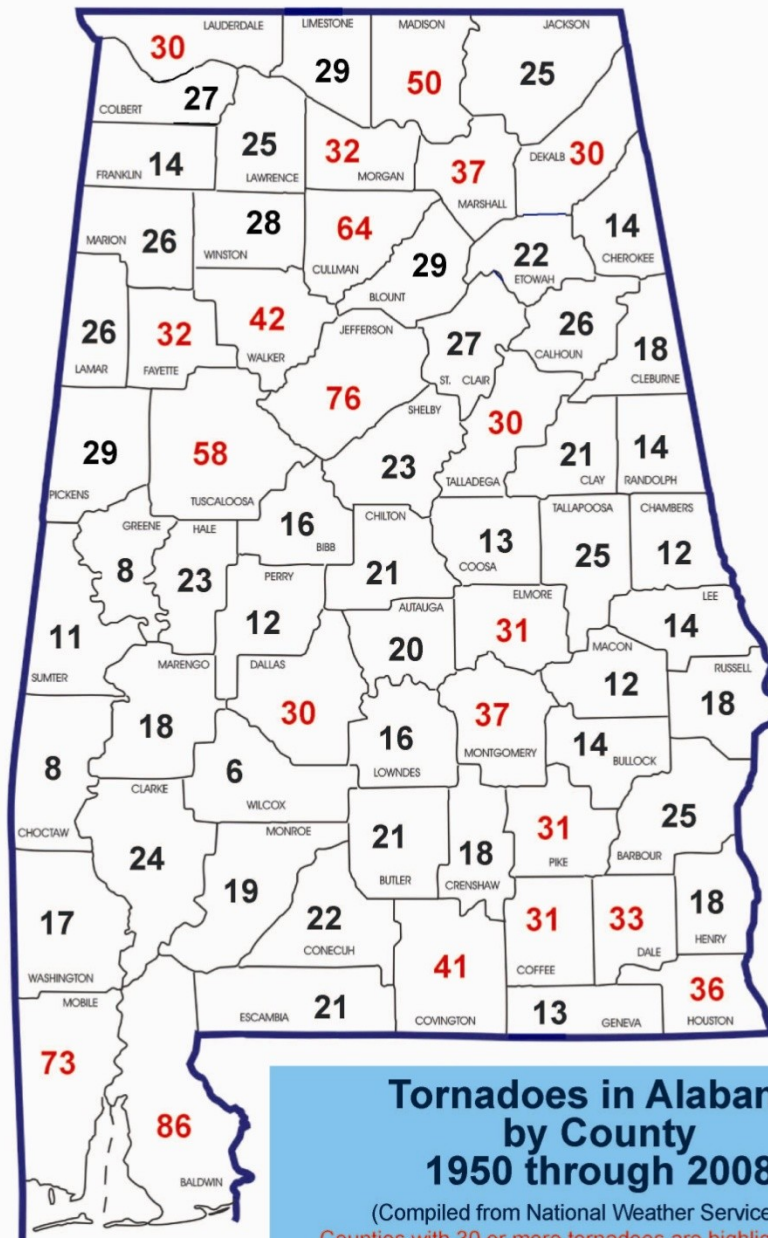
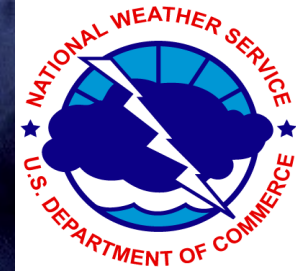
Oklahoma Climatological Survey <http://www.okclic.org/>

U.S. Weather Fatalities Per Year



60 year ave. 30 year ave. 10 year ave.

Tornadoes by County in Alabama



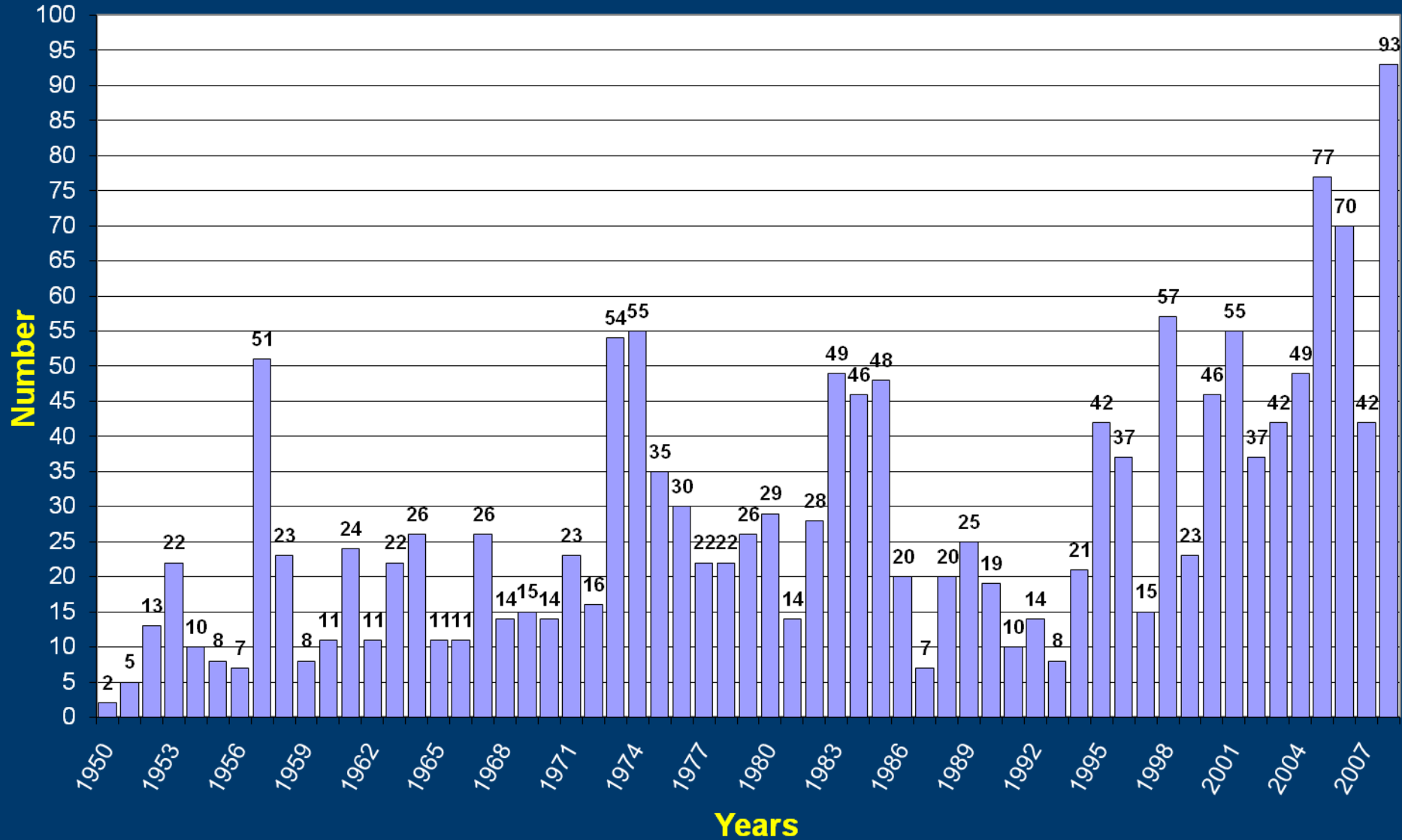
Tornadoes in Alabama by County 1950 through 2008

(Compiled from National Weather Service data)

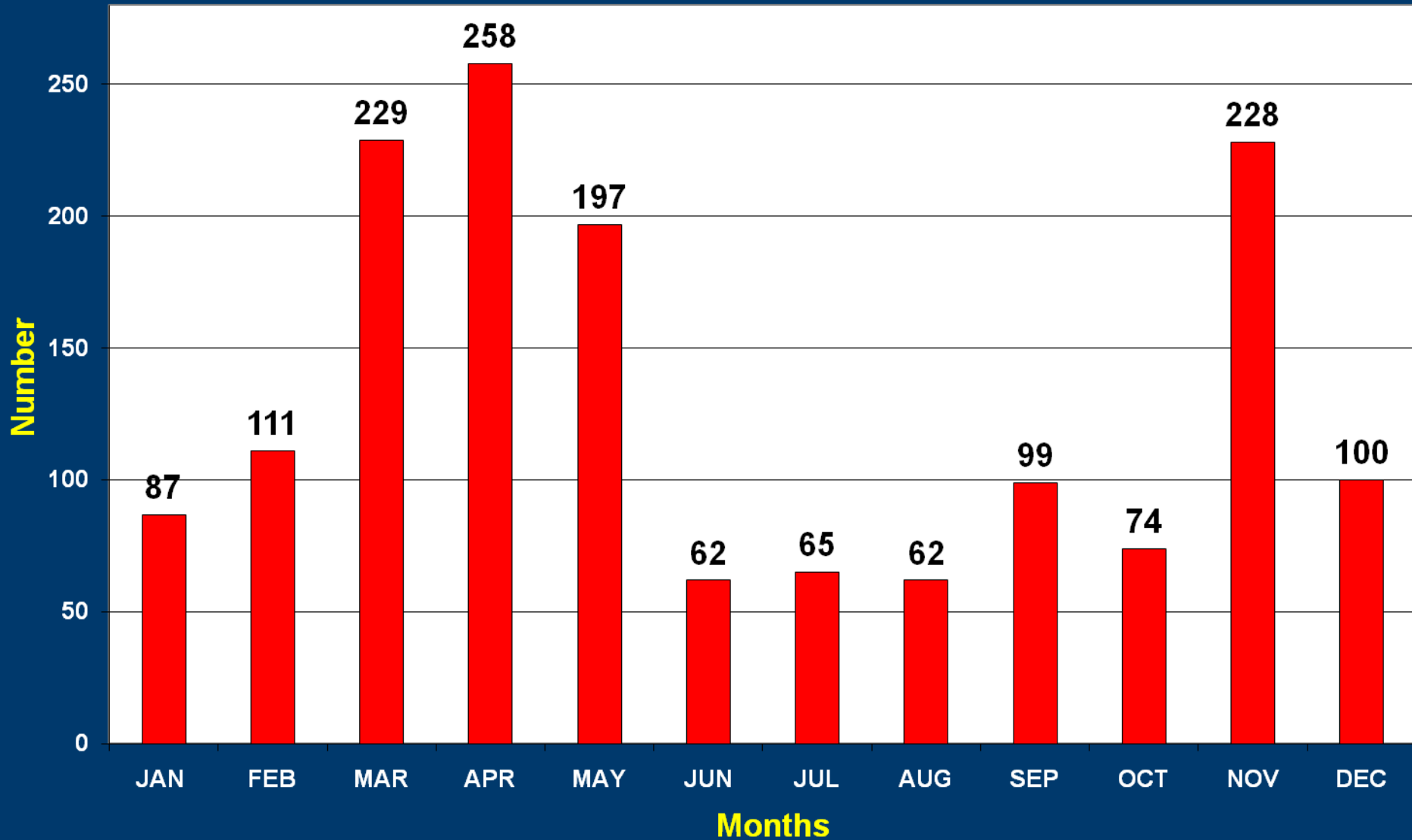
Counties with 30 or more tornadoes are highlighted in red.

Alabama Tornado Count By Year

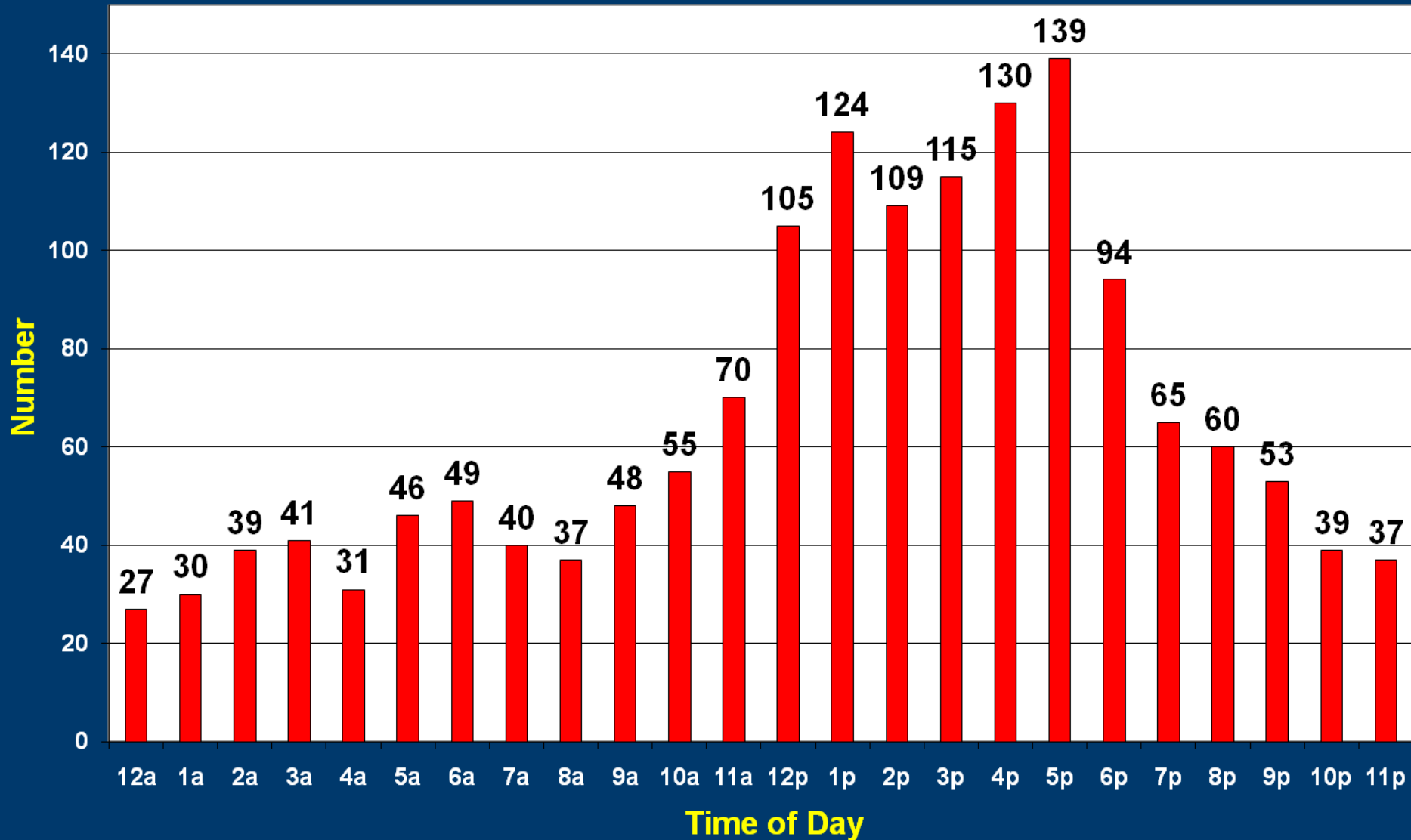
1950-2008



Tornadoes By Month 1950-2008



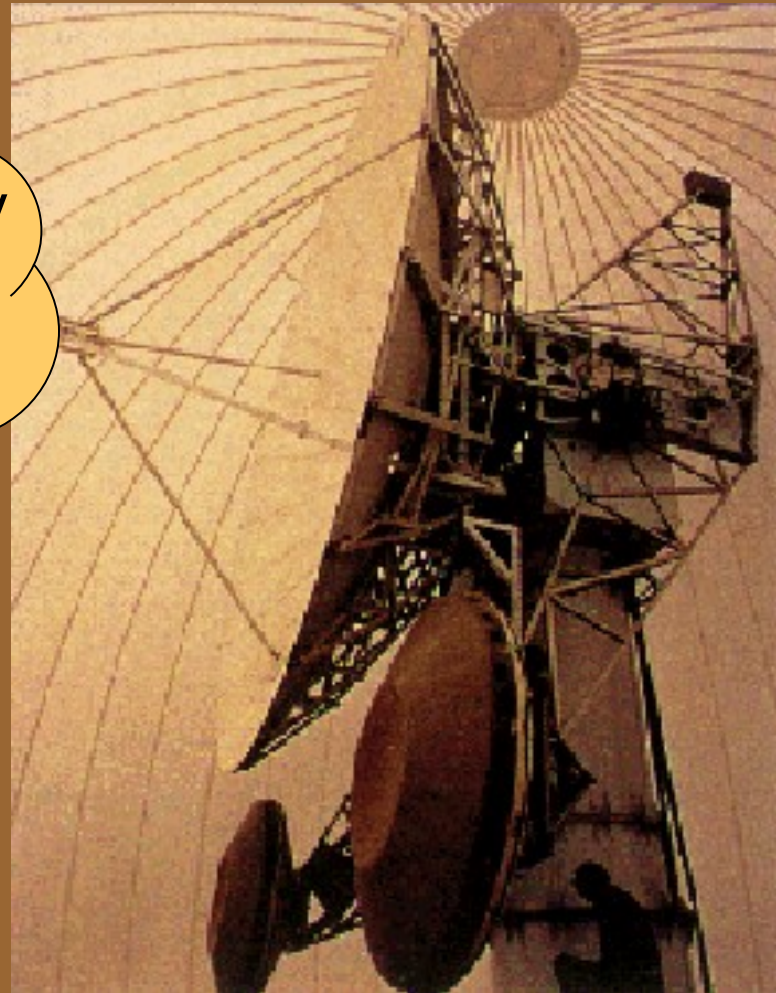
Tornadoes By Hour 1950-2008



Presentation Topics

- ◆ National Weather Service overview, mission, and products
- ◆ Severe weather climatology
- ◆ Why we need spotters
- ◆ What to report
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- ◆ Thunderstorm phenomena look alike
- ◆ Radar Perspective

With all those fancy gadgets, why does the NWS need weather spotters?

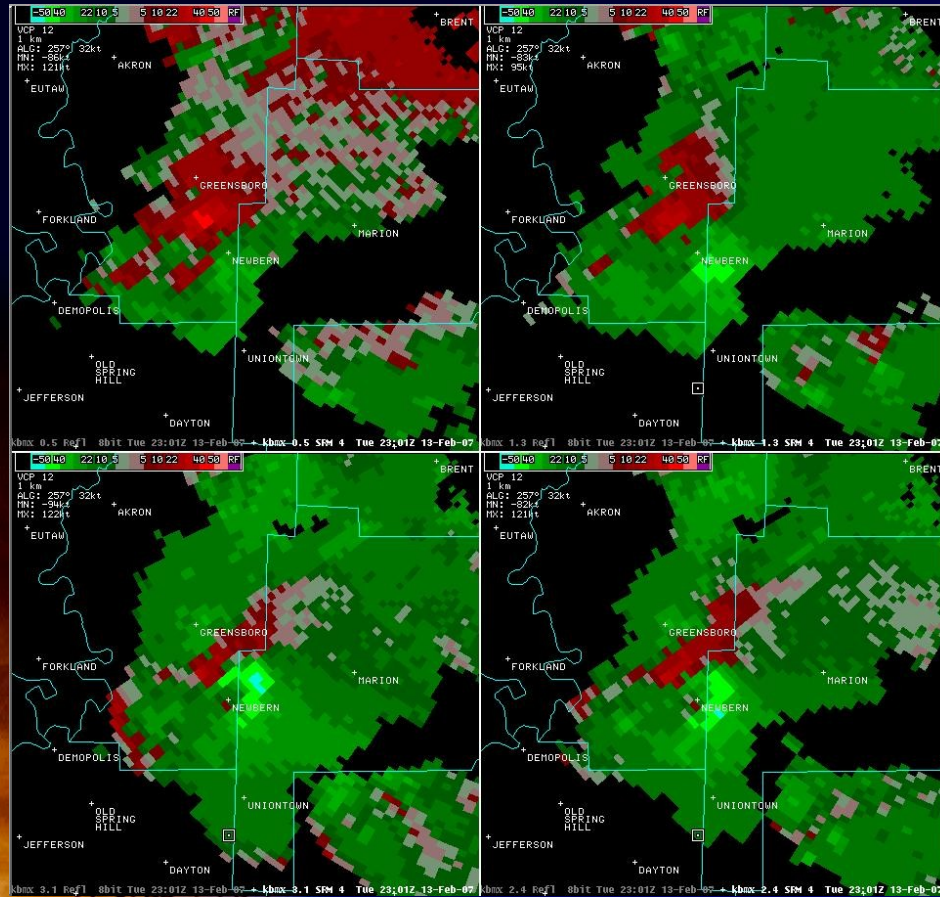


A word of caution- the next few slides may get a bit technical. Don't worry if you do not understand all the concepts presented.

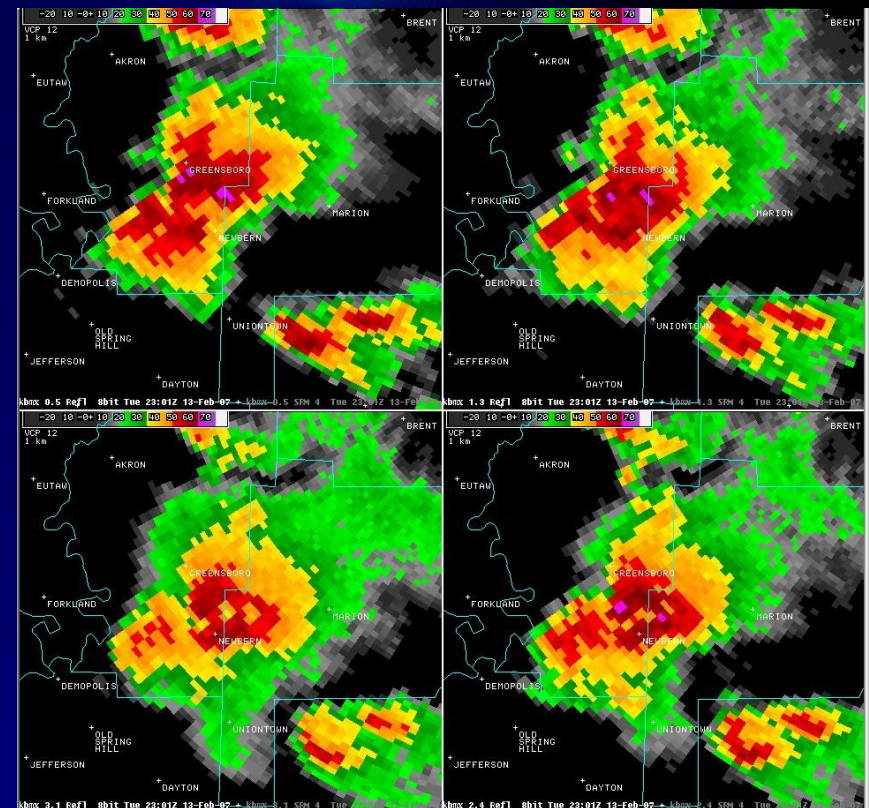


Don't get frustrated

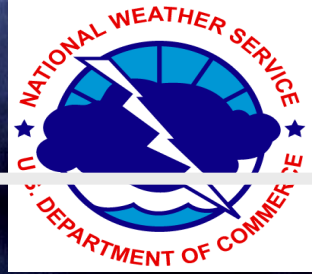
Why Are Storm Spotters Important?



Doppler radar imagery from
Newbern Tornado, February
13, 2007



Why we need spotters

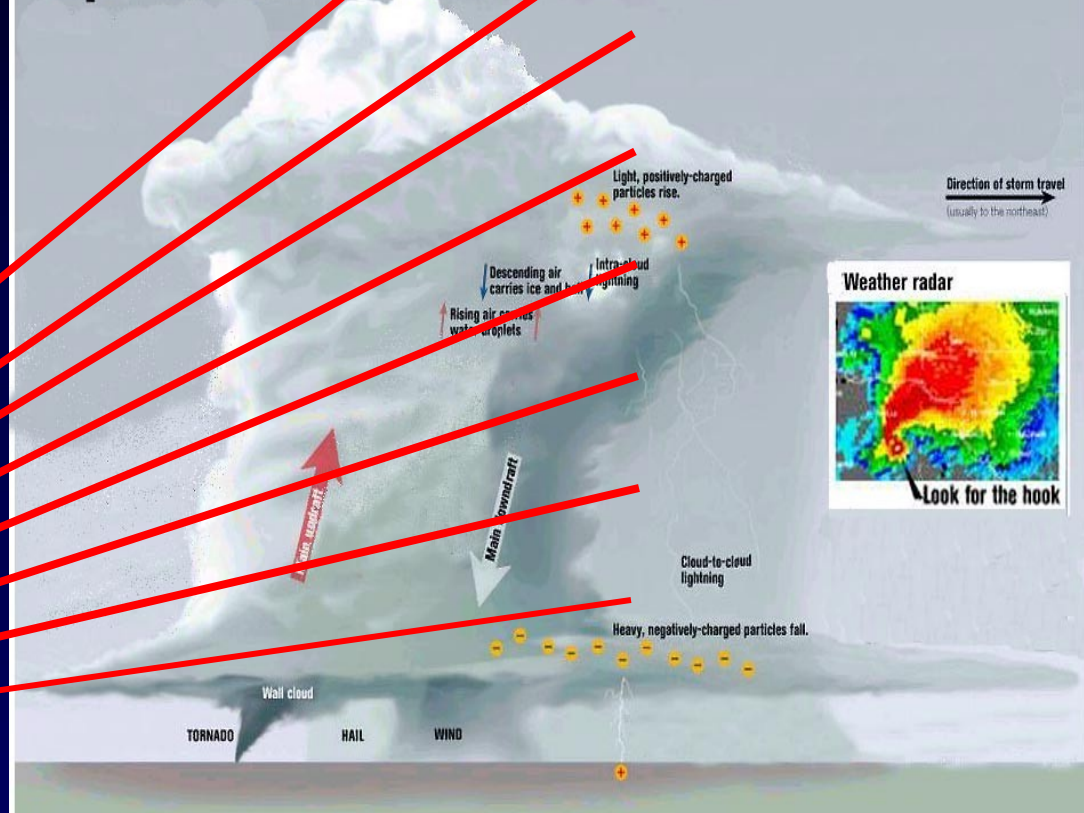


- *Radar limitations* (beam height & resolution...effective resolution decreases with distance...radars do not see tornadoes)
- **GROUND TRUTH!**
- Very high percent of *weak tornadoes* (radar signatures less defined)
- *Real-time verification* (adds credibility, enhances public response, and improves warning accuracy)
- Reports used and included in warnings, adding credibility



©2001 Chris Kridler
skydiary.com

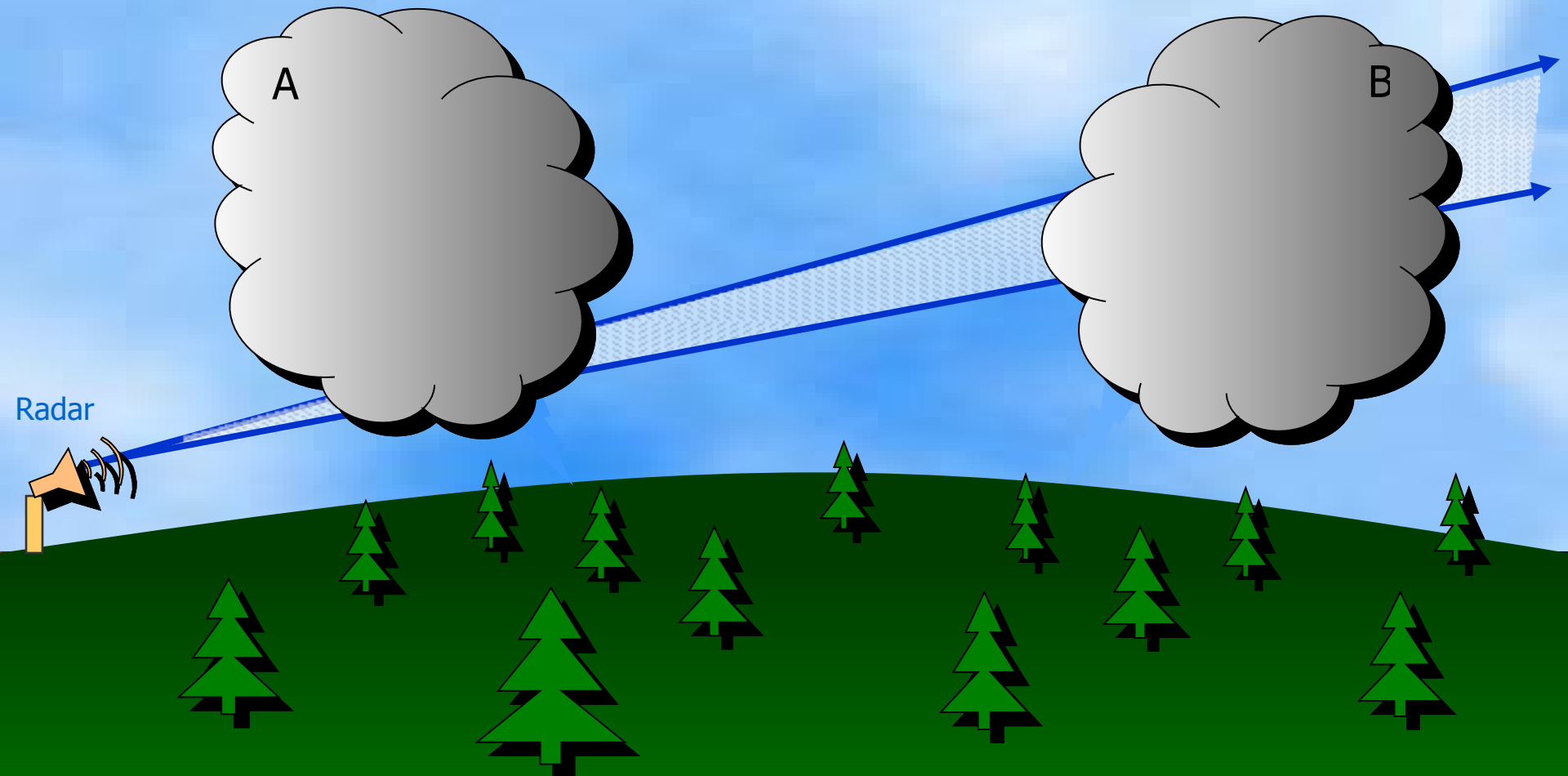
Supercell thunderstorm



STORMS ARE 3-DIMENSIONAL

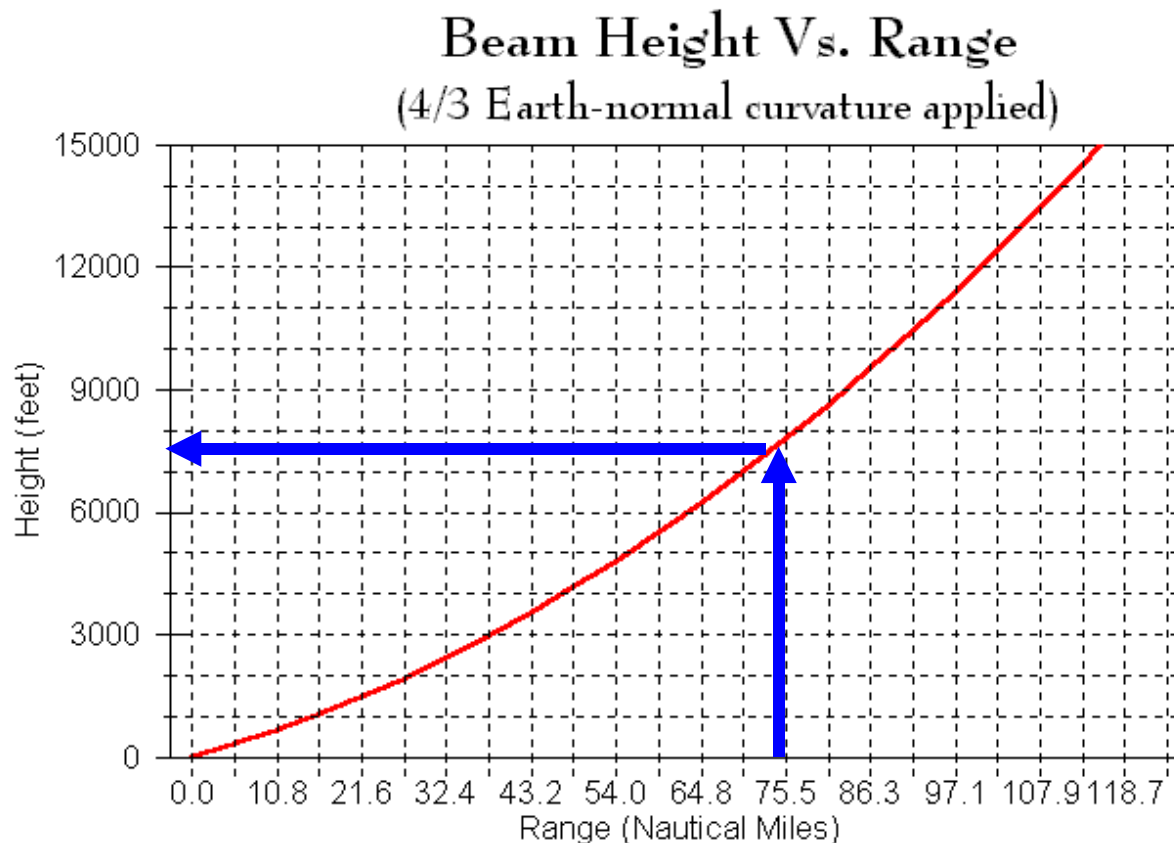
Why we need spotters

Radar Horizon



Radar beam cannot see lower portion of storm "B"

Why we need spotters



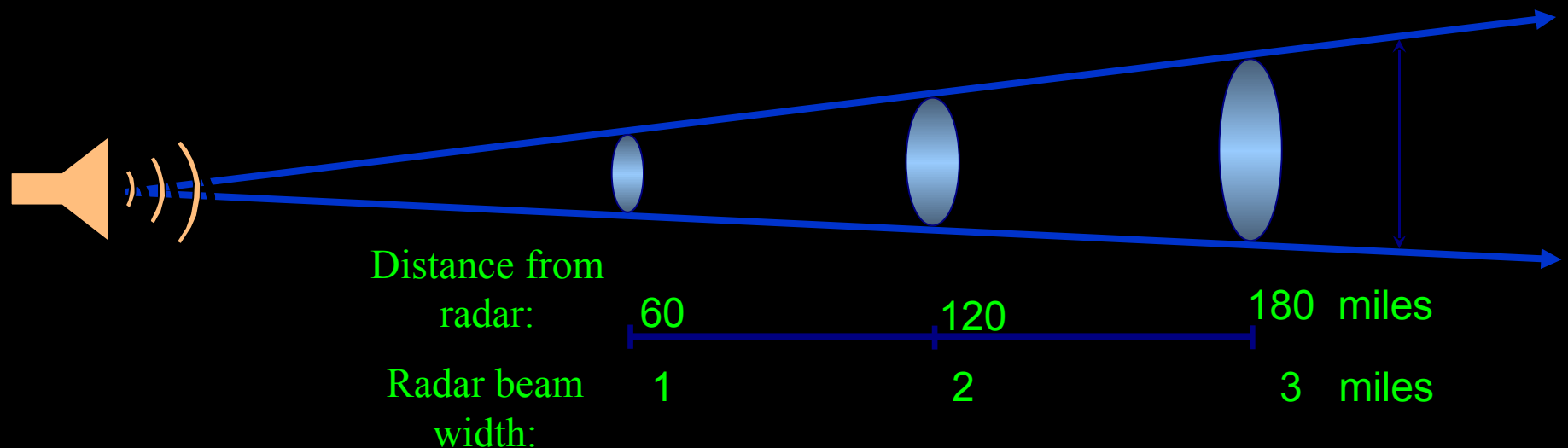
At a distance of 75 miles, the radar is looking 7,600 feet above the ground.

— Antenna tilt = 0.5 deg
(lowest elevation angle)

Why we need spotters



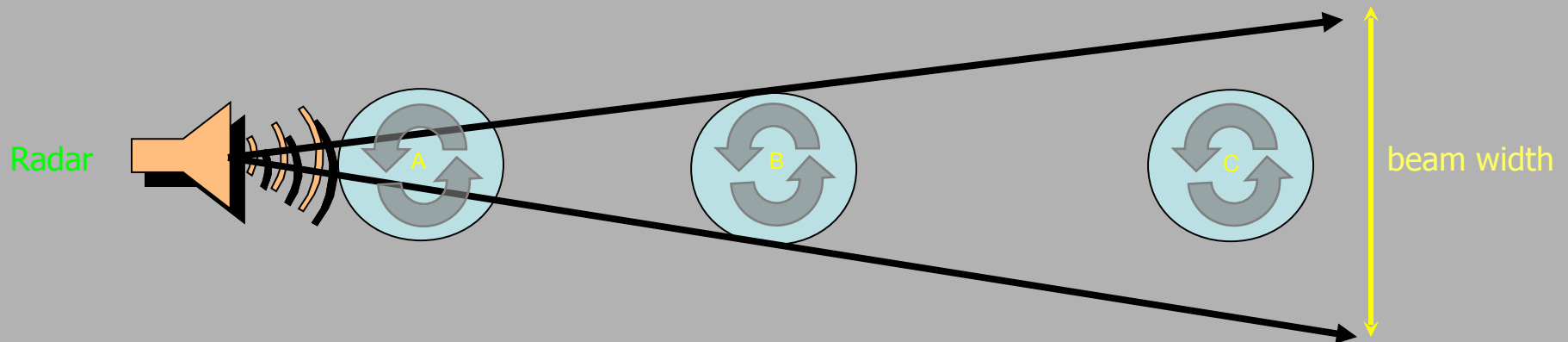
Beam width vs. range



Why we need spotters



Distance vs. effective resolution



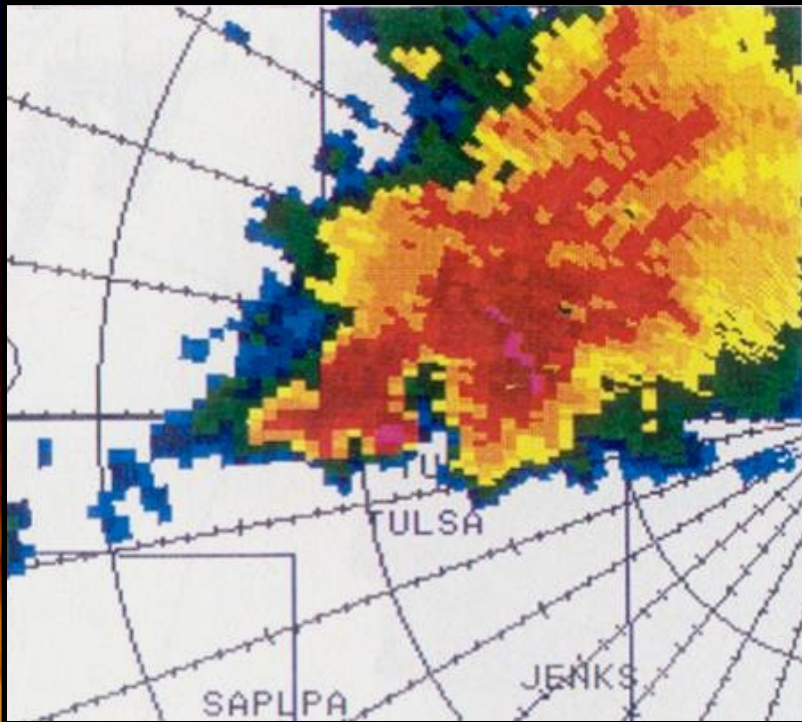
Aspect Ratio Problem

View from
above

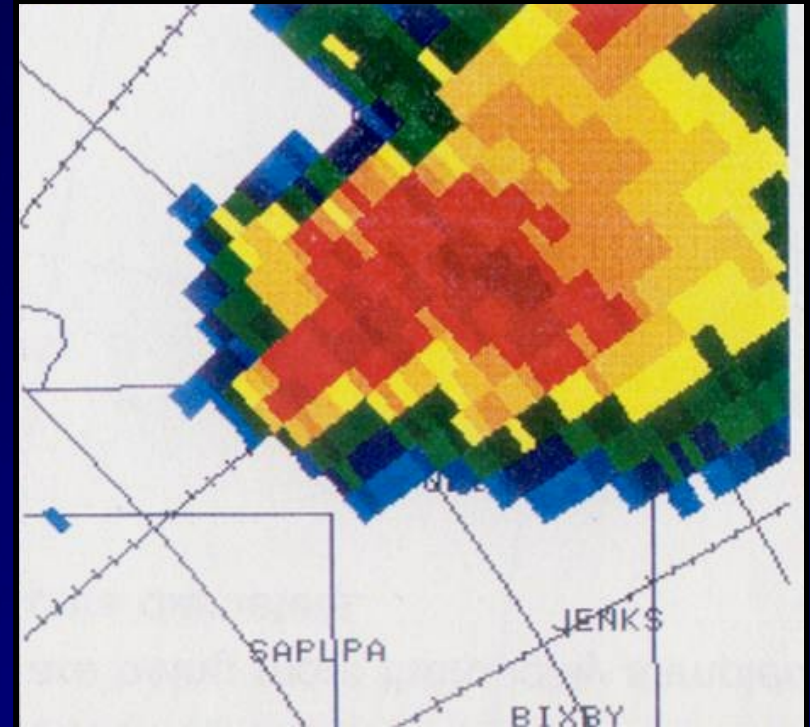
Why we need spotters



Beam width vs. effective resolution



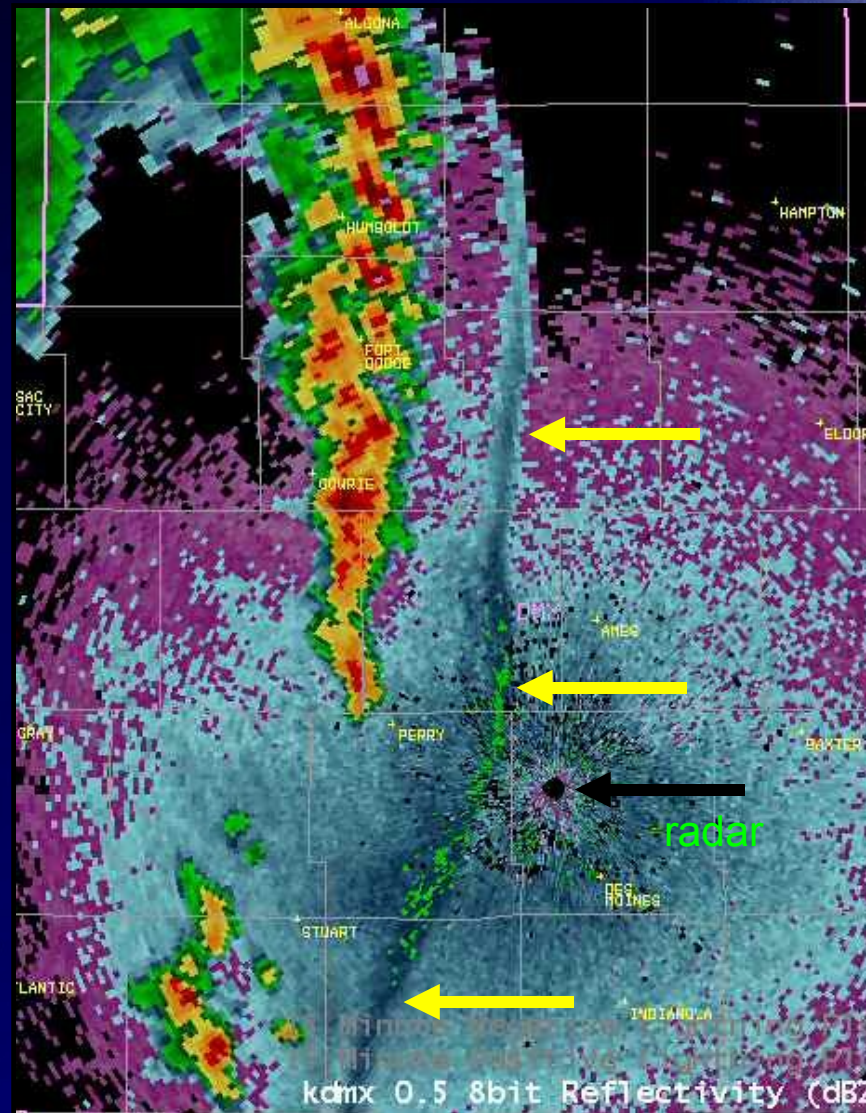
Storm 20 miles from radar



Same storm 80 miles from radar

Why we need spotters

Distance vs. height



Presentation Topics

- ◆ National Weather Service overview, mission, and products
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- ◆ Thunderstorm phenomena look alike

Important Definitions

- **Watch** - Atmospheric conditions are favorable (or could become favorable) for the development of thunderstorms which could produce severe weather – remain alert.
- **Warning** - Severe weather has occurred or is likely to occur – take protective action.



WATCH THE SKY!



TAKE ACTION!!!

Tornado Warning Criteria

A tornado is occurring, a verified funnel cloud is reported and the NWS believes it could develop on the ground, or radar indicates a thunderstorm capable of producing a tornado.



Severe Thunderstorm Criteria

You Tell me!



wind 58 mph or greater



Copyright Chuck
Palmer

3/4 inch or larger hail



Courtesy
KCCI

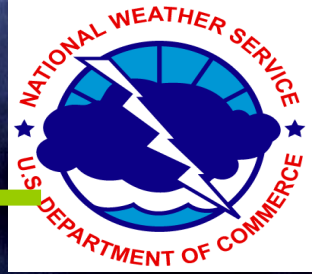
Flash Flood Warning Criteria



- A rapid rise out of banks flow in a river or stream that is a threat to life or property
- Approximately six inches or more of flowing water over a road or bridge and poses a threat to life or property
- Any amount of water in contact with, flowing into, or causing damage to an above ground building (does not include water seepage into basements)
- Three feet or more of ponded water that poses a threat to life or property

The above must occur within six hours of the causative event such as heavy rain, a dam break, or ice jam release

Spotter Groups



- County Emergency Management – Law enforcement, fire departments, trained volunteers
- NWS Skywarn Spotters – www.skywarn.org
- Amateur Radio - www.arrl.org
- Others – media, surface observations, storm chasers

Your storm report
can also be sent to
the NWS via the
Internet.



- Request access to eSpotter at <http://espotter.weather.gov> and you will receive an e-mail (including password) granting E-Spotter privileges

• Trained spotters are encouraged to register and participate by transmitting non-critical information that does not pose a danger to life and property

Date & Time			
Date		Time	
<input type="text" value="Feb"/>	<input type="text" value="21"/>	<input type="text" value="2003"/>	<input type="text" value="05 : 47"/>
		<input type="radio"/> Estimated <input type="radio"/> Exact	
Location			
Select County, State		City/Town	
<input type="text" value="Story, IA (169)"/>		<input type="text" value="Ames, IA"/>	
Weather			
<input type="checkbox"/> Tornado			
<input type="checkbox"/> Funnel Cloud			
<input type="checkbox"/> Wall Cloud			
<input type="checkbox"/> Hail			
		Size	<input type="text" value=""/>
<input type="checkbox"/> High Wind			
		Wind Speed	<input type="text" value=""/> MPH
		<input type="radio"/> Measured <input type="radio"/> Estimated	
<input type="checkbox"/> Flood			
<input type="checkbox"/> Flash Flood			
<input type="checkbox"/> Other			
Damage, Injuries, Narrative			
Any Damage?		<input type="radio"/> Yes	<input type="radio"/> No
Was Anyone Hurt?		<input type="radio"/> Yes	<input type="radio"/> No

• Connections made to this system are monitored. Your e-mail address is used to verify that you are authorized to access the system, and to contact you to follow up on your eSpotter reports

BMX SPOTTER CHAT

Secure, internet-based chat, monitored by ALERT.
<http://www.alert-alabama.org/spotterchat>



bmxbotspotterchat@muc.appriss.com

Conversation Options Send To

bmxbotspotterchat@muc.appriss.com

Topic:

2 people in room

iembot
nwsbm2

(4:49:48 PM) nwsbm2 entered the room.
(4:49:48 PM) iembot entered the room.
(1/3/2008 6:36:36 PM) iembot: BMX issues [Record Event Report \(RER\)](#) ... RECORD LOW TEMPERATURE SET AT TUSCALOOSA ...
(1/3/2008 7:15:33 PM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
(1/3/2008 7:17:57 PM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
(1/4/2008 4:20:44 AM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
(1/4/2008 4:30:17 AM) iembot: HUN issues [ELEVATED FIRE DANGER TODAY](#) for Colbert, Cullman, De Kalb, Franklin, Jackson, Lauderdale, Lawrence, Limestone, Madison, Marshall, Morgan [AL] till 3:00 PM CST
(1/4/2008 5:56:52 AM) iembot: BMX issues [Red Flag Warning](#) valid at Jan 04, 12:00 PM CST for Autauga, Barbour, Bibb, Blount, Bullock, Calhoun, Chambers, Cherokee, Chilton, Clay, Cleburne, Coosa, Dallas, Elmore, Etowah, Fayette, Greene, Hale, Jefferson, Lamar, Lee, Lowndes, Macon, Marengo, Marion, Montgomery, Perry, Pickens, Pike, Randolph, Russell, Shelby, St. Clair, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, Winston [AL] till Jan 04, 5:00 PM CST
(1/4/2008 8:38:52 AM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
(1/4/2008 10:23:40 AM) iembot: BMX issues [Hydrologic Outlook \(ESF\)](#) for Autauga, Barbour, Bibb, Blount, Bullock, Calhoun, Chambers, Cherokee, Chilton, Clay, Cleburne, Coosa, Dallas, Elmore, Etowah, Fayette, Greene, Hale, Jefferson, Lamar, Lee, Lowndes, Macon, Madison, Marengo, Marion, Montgomery, Perry, Pickens, Pike, Randolph, Russell, Shelby, St. Clair, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker [AL] till 7:00 AM CDT
(1/4/2008 12:01:58 PM) iembot: BMX continues [Red Flag Warning](#) for Autauga, Barbour, Bibb, Blount, Bullock, Calhoun, Chambers, Cherokee, Chilton, Clay, Cleburne, Coosa, Dallas, Elmore, Etowah, Fayette, Greene, Hale, Jefferson, Lamar, Lee, Lowndes, Macon, Marengo, Marion, Montgomery, Perry, Pickens, Pike, Randolph, Russell, Shelby, St. Clair, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, Winston [AL] till 5:00 PM CST
(1/4/2008 1:19:16 PM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
(1/4/2008 6:00:04 PM) iembot: BMX: ----- Jan 05, 2008 [GMT] -----
(1/4/2008 6:00:04 PM) iembot: HUN: ----- Jan 05, 2008 [GMT] -----
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(1/5/2008 4:30:35 AM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
(1/5/2008 12:07:19 PM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
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(1/5/2008 9:19:12 PM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
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(1/6/2008 12:38:59 PM) iembot: HUN issues [Hazardous Weather Outlook \(HWO\)](#)
(4:49:48 PM) nwsbm2 has set the subject to:
(4:51:49 PM) nwsbm2 has set the topic to: Weather
(6:00:04 PM) iembot: BMX: ----- Jan 07, 2008 [GMT] -----
(6:00:05 PM) iembot: HUN: ----- Jan 07, 2008 [GMT] -----

I am a spotter from Elmore County. At 4:15 pm there was a tornado on the ground between Friendship and the west side of Tallassee...near crossroads of CR 8 and CR 149.

Spotters in Shelby and Jefferson counties...the NWS need your help in locating possible touchdowns across northeast Shelby and southeast Jefferson. The storms are clear now...so travel is safe. Please report once any additional information has been discovered.

The Effective Spotter Report

- Storm Spotter Line: 1-800-856-0758
- Your local Emergency Management Office
- Amateur radio
 - Skywarn Net – K4NWS
 - BMX Spotter Chat (NEW!)
- Call local law enforcement / 911 service
- Email damage report at a later time (even if a week or more later) to:
JOHN.DEBLOCK@NOAA.GOV

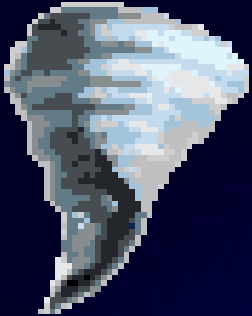
*** MOST IMPORTANT!!! BE AWARE OF YOUR SURROUNDINGS AND BE READY TO GET TO A PLACE OF SAFETY QUICKLY!!!**

The Effective Spotter Report

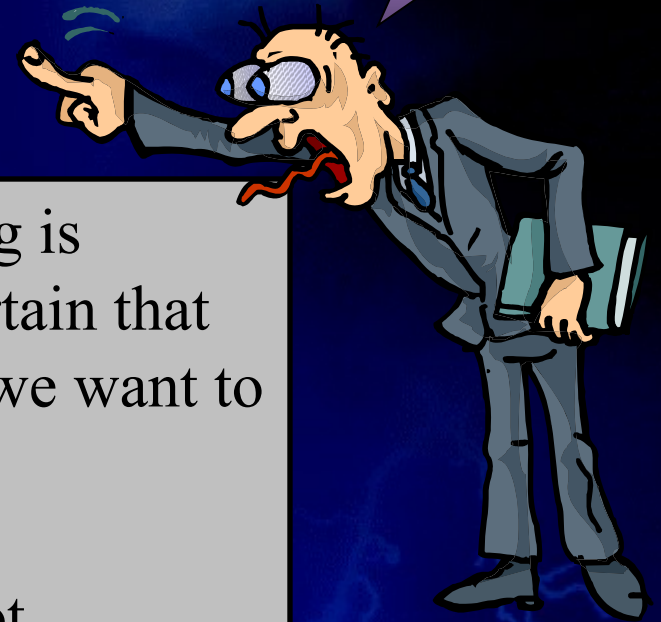
- Keep it brief
- Identify yourself as a NWS trained storm spotter
- Tell us WHO, WHAT, WHEN, AND WHERE
- Example:

MY NAME IS STORM MAN AND I AM A TRAINED STORM SPOTTER IN CALERA , ALABAMA, LOCATED IN SOUTHERN SHELBY COUNTY. AT 500 PM, I SPOTTED A TORNADO ON THE GROUND JUST SOUTH OF COUNTY ROAD 87, THAT JUST CROSSED INTERSTATE 65. NUMEROUS CARS HAVE BEEN DAMAGED, ALONG WITH POWERLINES AND NUMEROUS TREES DOWN, NEAR THIS COUNTY ROAD. MY GPS COORDINATES ARE...

The Effective Spotter Report



It's a twister



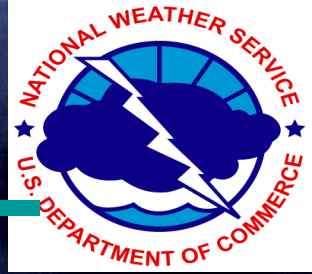
Do not assume that if a warning is issued, the NWS knows for certain that severe weather has occurred. (we want to hear from you!)

Never assume your report is not important.

Do not exaggerate your report!



What To Report

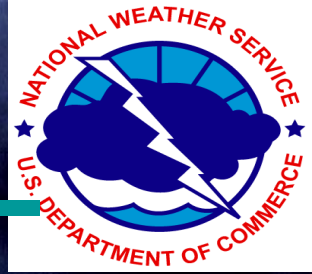


Tornado, Funnel Cloud, or Wall Cloud



Copyright Eric
O'Connor

What To Report



Strong or Damaging Wind



Copyright Chuck
Palmer

Estimating Wind Speed



25-31 mph - large branches in motion

32-38 mph – whole trees in motion

39-54 mph – twigs break off, wind impedes walking

55-72 mph – damage to chimneys and TV antennas, large branches broken and some trees uprooted

73-112 mph – removes shingles, windows broken, trailer houses overturned, trees uprooted

113+ mph – roofs torn off, weak buildings and trailer houses destroyed, large trees uprooted



Copyright Mike
Umscheid

Estimating Wind Speed

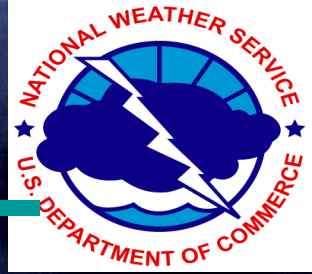
THE "SET" EFFECT.....

Storm spotters must also keep in mind that during a severe weather event, Stress, Excitement, and Tension levels are running high. This is called the "SET" effect, and it can alter your logic and reasoning abilities. Because of its presence, it is often very easy to over-estimate wind speeds.

A wind gust of 40 MPH during a fair weather day will not cause any great concern, but this same wind speed when experienced during a thunderstorm may seem like 60 MPH gust because of the SET effect.

When in doubt about your estimate, re-think it and try to remain calm and objective as possible. Use the table in the previous slide as a guide. Your goal is to pass real time observations with accuracy, speed, and professionalism.

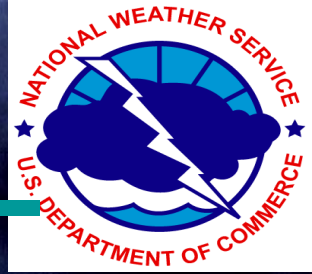
What To Report



Hail



What To Report



What To Report



Hail

0.75" - Penny

0.88" - Nickel

1.00" - Quarter

1.25" – Half Dollar

1.50" – Ping Pong Ball

1.75" - Golf Ball

2.50" - Tennis Ball

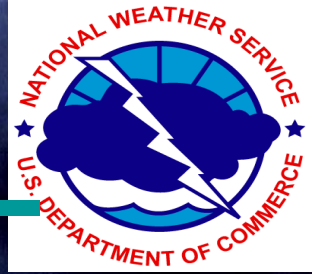
2.75" – Baseball

4.00" - Grapefruit

4.50" - Softball



What To Report

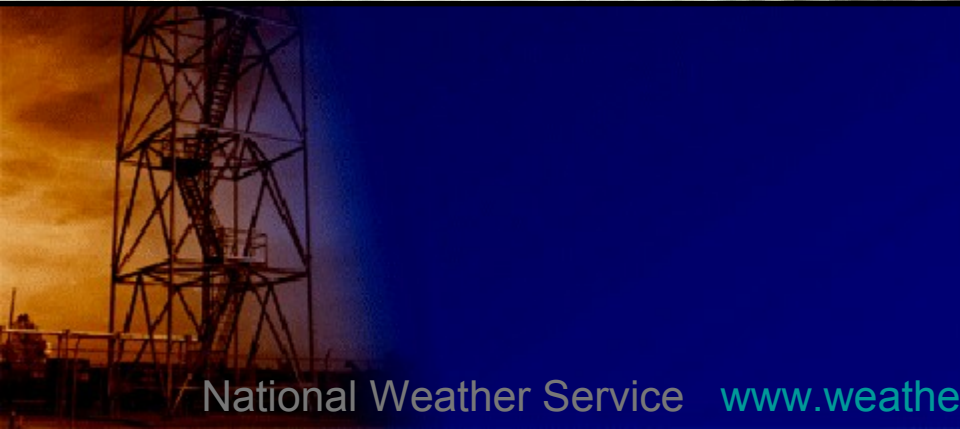
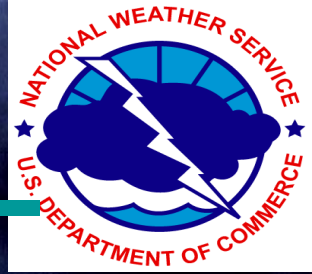


Any Storm Damage



What To Report

Urban Flooding



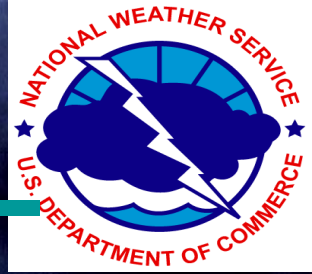
What To Report

Rural Flooding



Copyright Joel
LaRue

What To Report

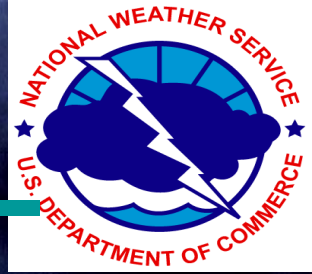


Heavy Rain or High Water



What To Report

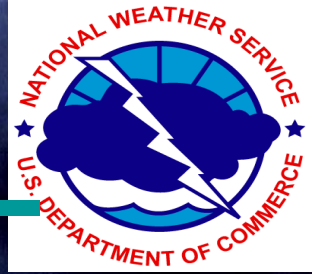
Past Water/Flood Damage



Courtesy of Debbi Segina



What To Report



Snowfall or Ice Amounts



Courtesy
KCCI TV

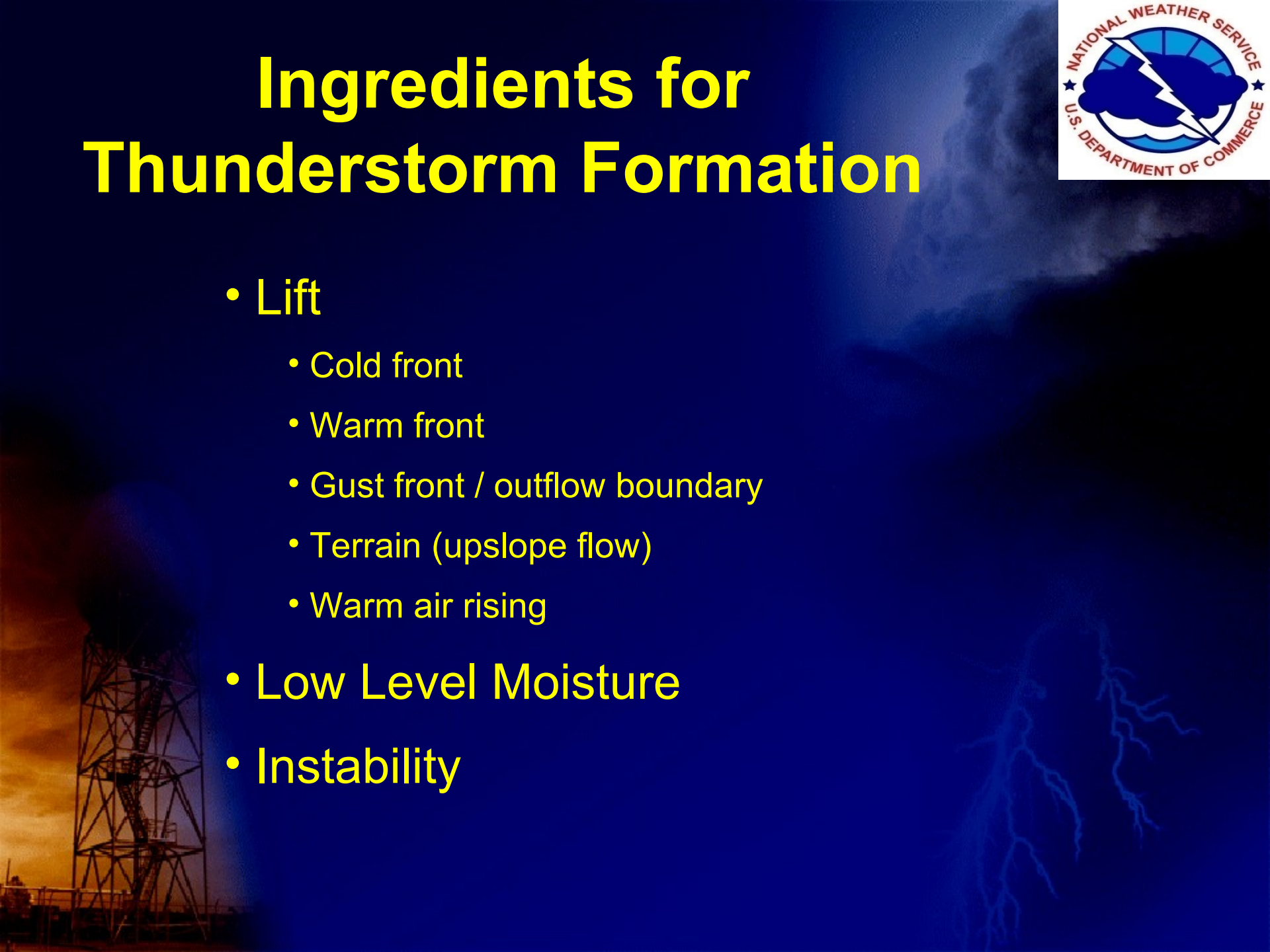
Presentation Topics

- ◆ National Weather Service overview, mission, and products
- ◆ Severe weather climatology
- ◆ Why we need spotters
- ◆ What to report
- ◆ Thunderstorm development and types – Single, multicell, supercell
- ◆ Thunderstorm components – wall clouds, funnel clouds, land spouts, shelf clouds,
- ◆ Thunderstorm phenomena look alike

Ingredients for Thunderstorm Formation



- Lift
 - Cold front
 - Warm front
 - Gust front / outflow boundary
 - Terrain (upslope flow)
 - Warm air rising
- Low Level Moisture
- Instability

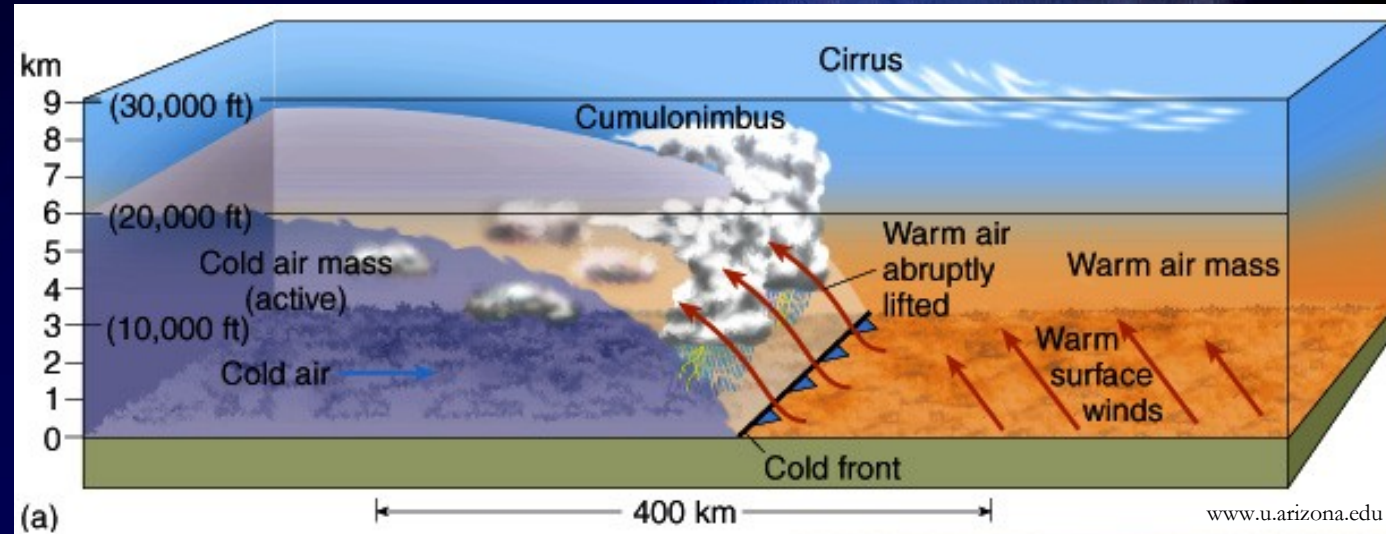


Fronts

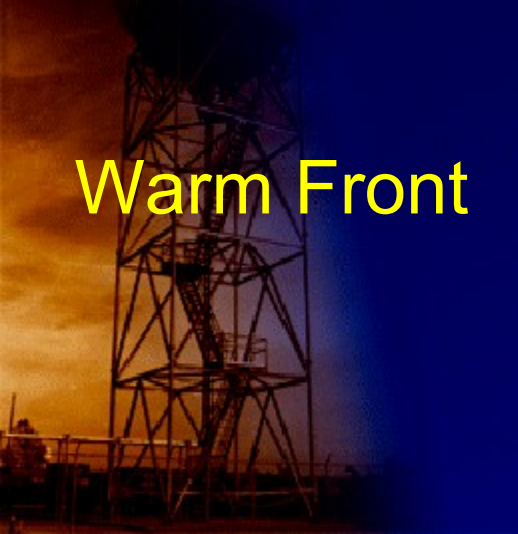
Sources of Lift



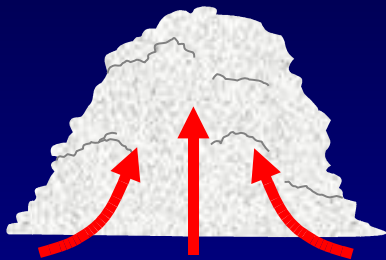
Cold Front



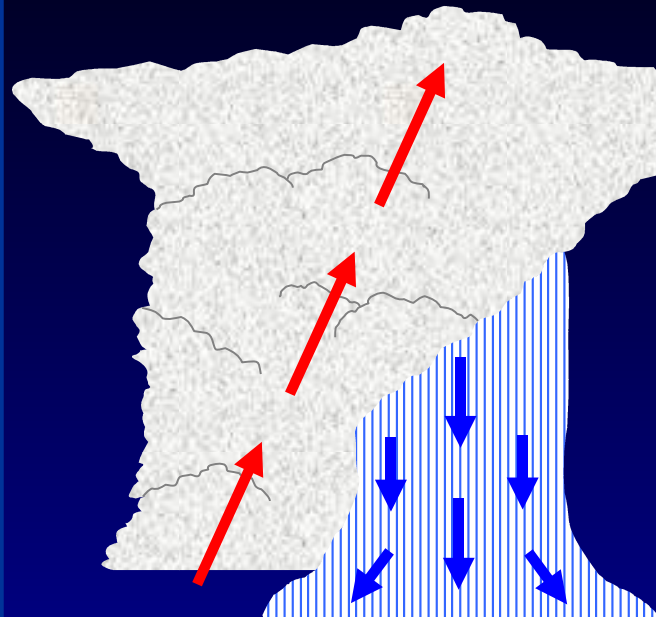
Warm Front



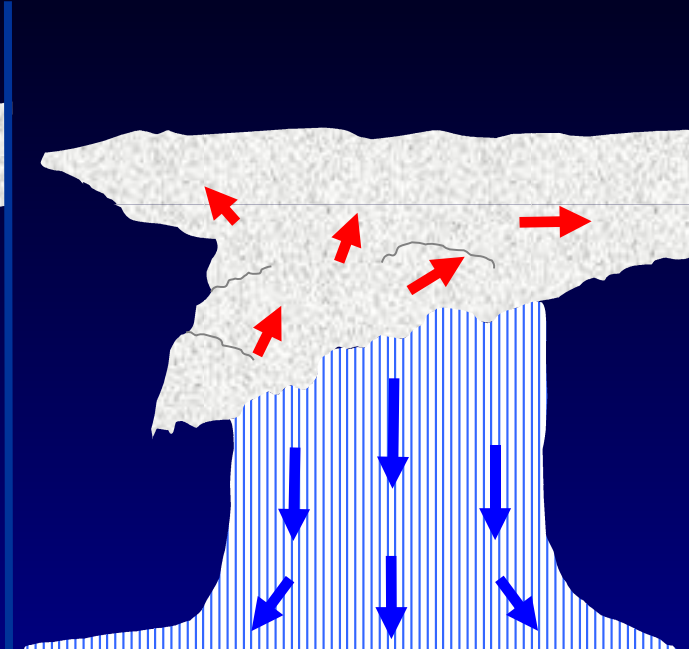
Thunderstorm Life Cycle



Cumulus
Stage



Mature
Stage



Dissipating
Stage

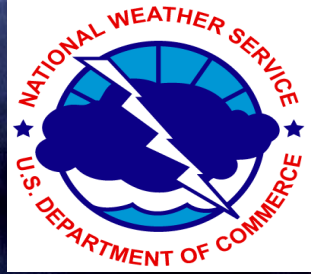


Updraft Characteristics



- “Back” side of storm
- Cumulus tower
- Rainfree base
- Upward cloud motion
- Supercell has rotating updraft

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Chapman



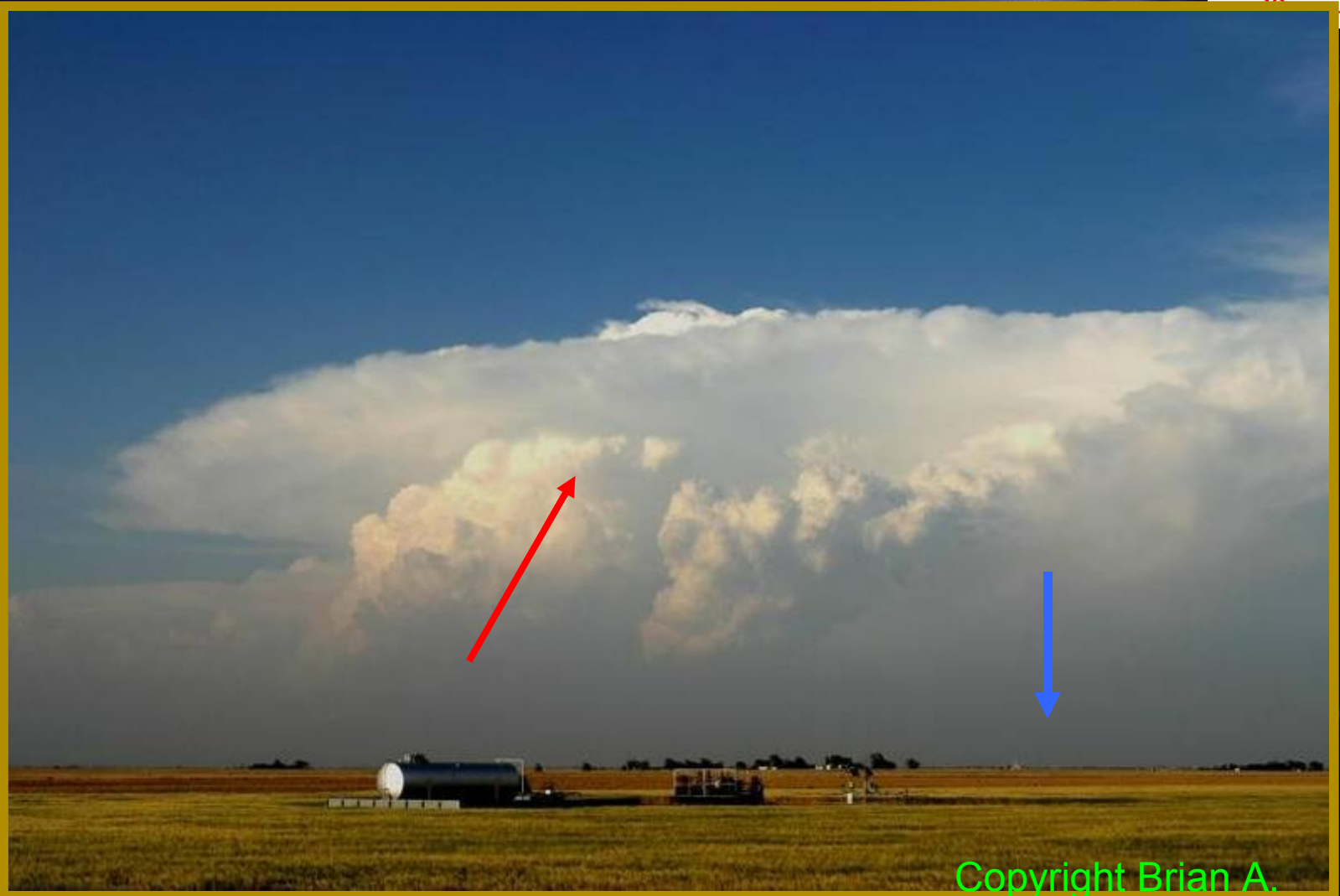
Downdraft Characteristics

- “Front” side of storm
- Dark area of storm
- Rainfall region
- Downward motion
- Downburst/hail threat



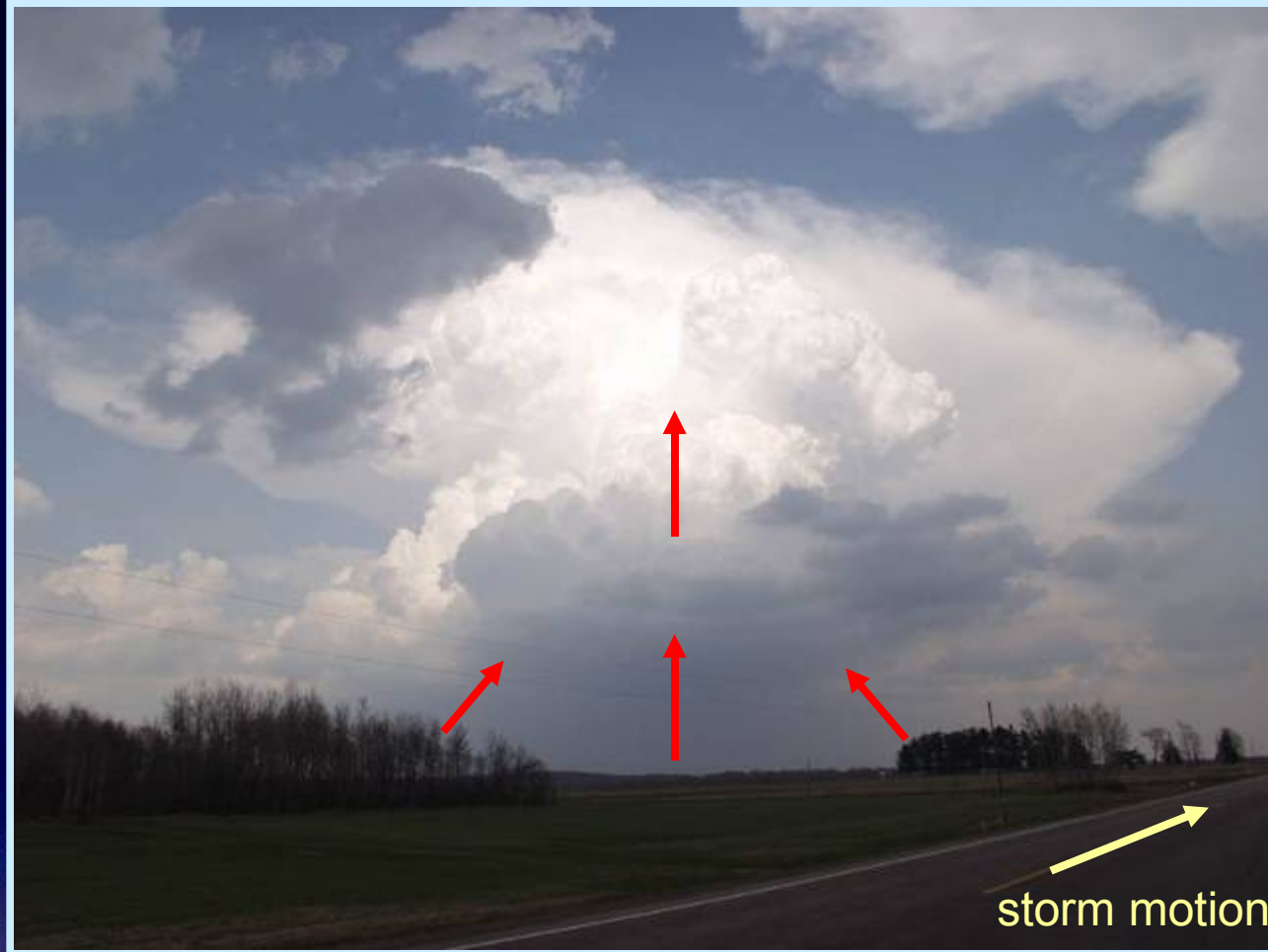
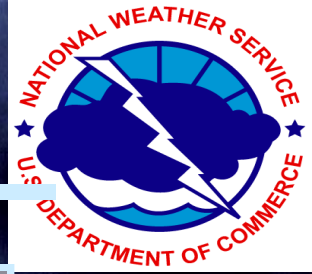
Copyright Chris
Gullikson

Updraft/Downdraft



Copyright Brian A.
Morganti

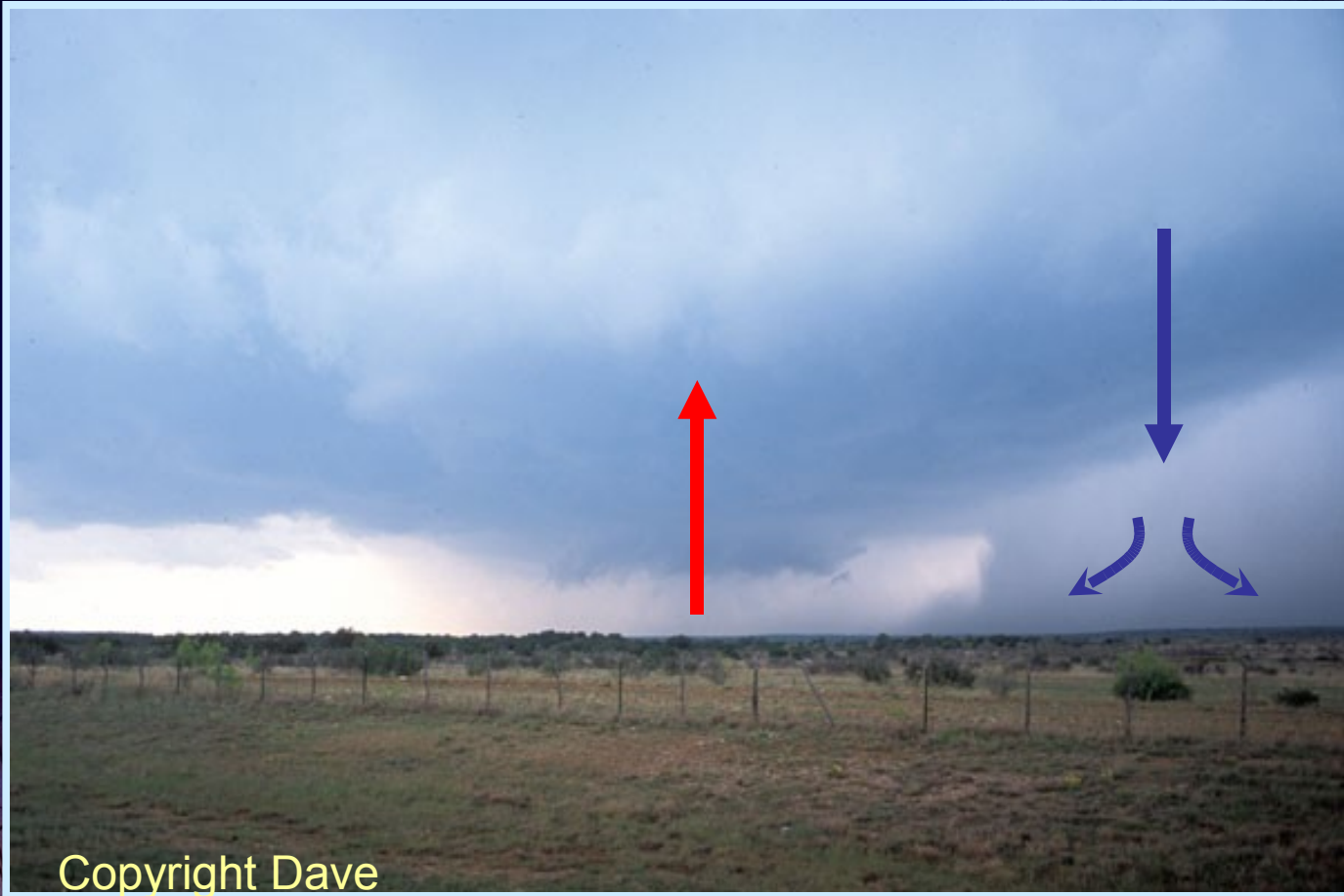
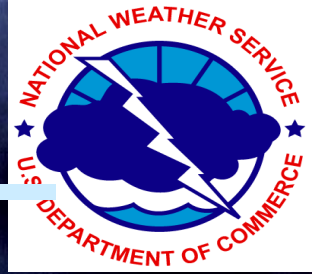
Updraft/Downdraft



Copyright Chris Gullikson

National Weather Service www.weather.gov

Updraft/Downdraft



Copyright Dave
Chapman



Copyright Ken Dewey



Courtesy Adrian Pingstone

Upper Level Storm Strength Clues



07/14/2004
Copyright Robert Heishman



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Mid Level Storm Strength Clues

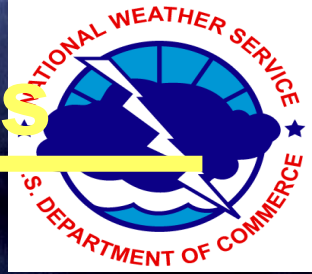


Copyright Mark Erk



Copyright Nicole Kelly

Common Thunderstorm Types

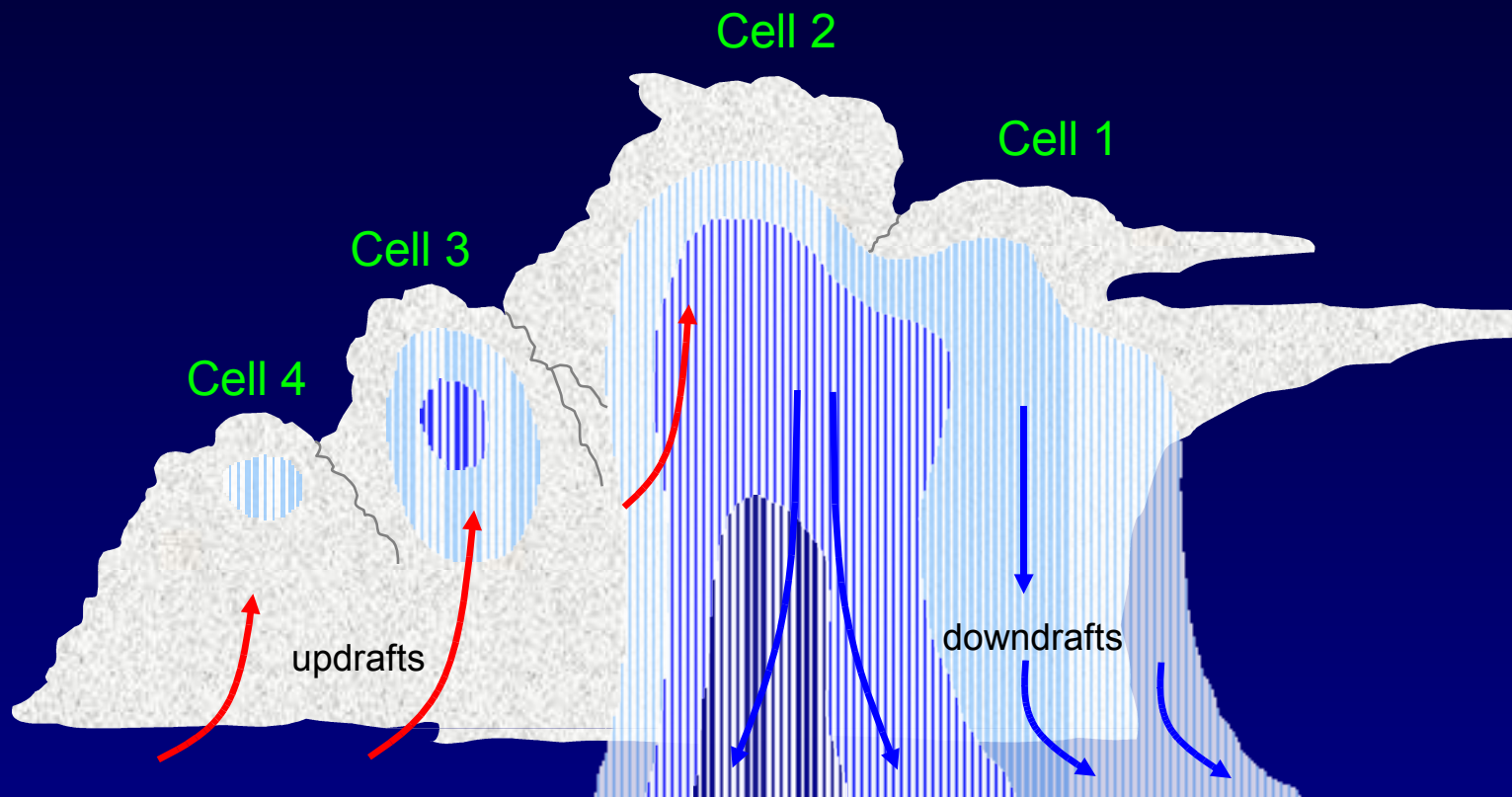


- Multicell - ordinary storms with low severe threat
- Squall line - line of storms with moderate wind threat
- Classic Supercell - rotating updraft with high severe threat
- Mini Supercell - small storm with rotating updraft, low wind/hail threat
- HP (high precipitation) Supercell - rotating updraft often times obscured by heavy rain, high severe threat



Copyright Bob Henson

Multicell Thunderstorm



Side view

Multicell Thunderstorm

- Series of cells moving as one unit
- Most common type of storm

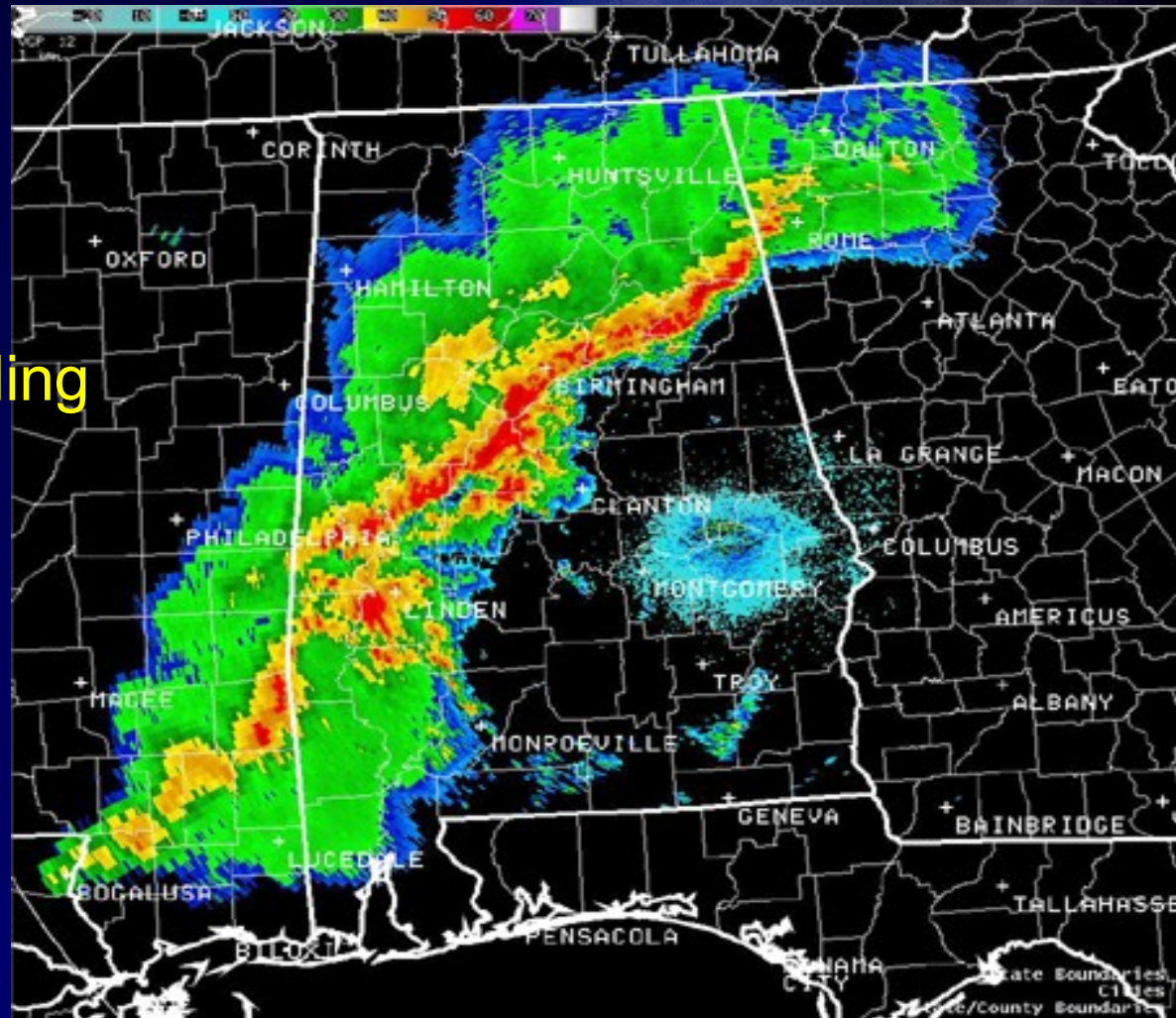


Copyright Alan
Switzer

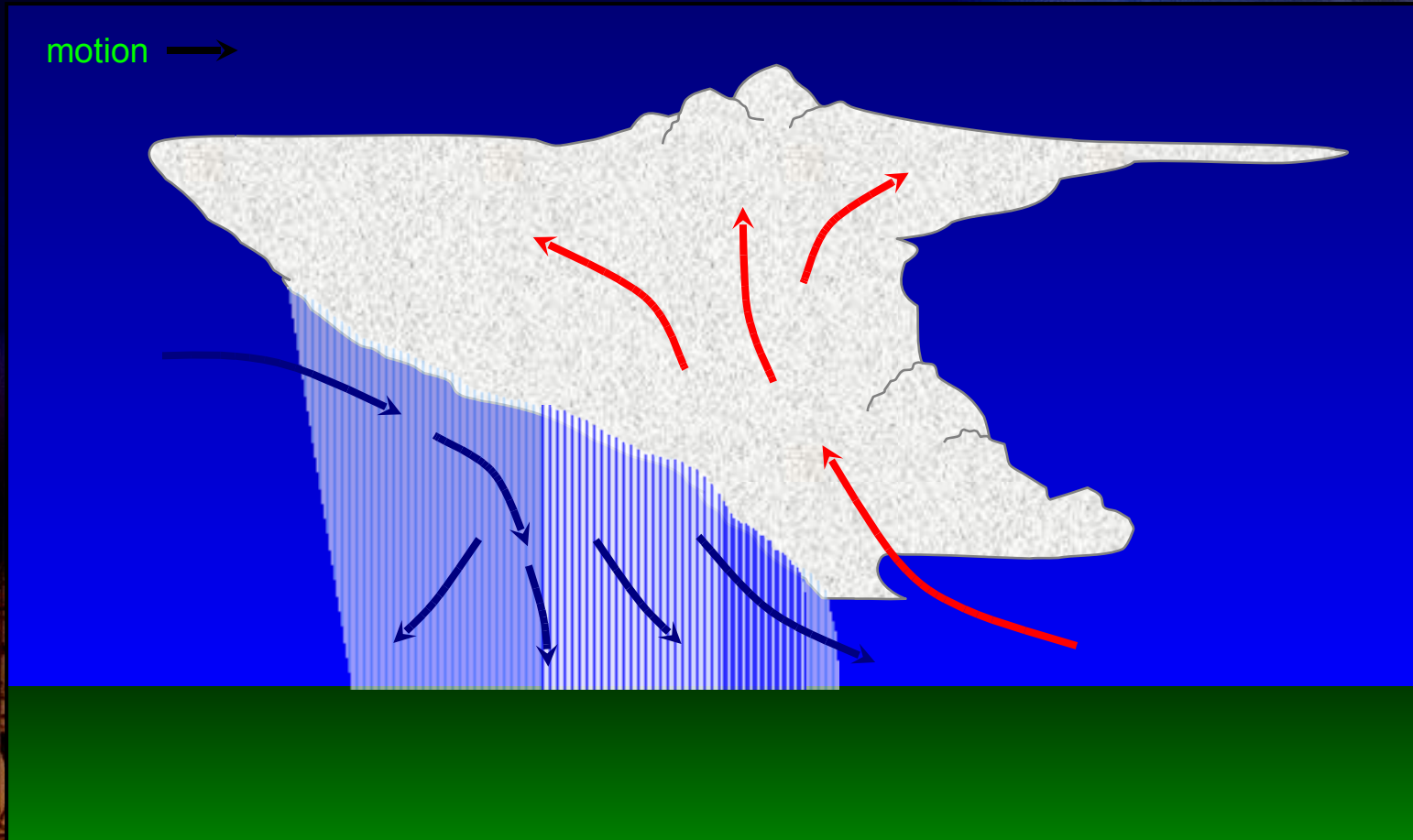
Multicell Line (Squall Lines)



- Long line of storms
- Gust front at the leading edge



Squall Line



(Cross section)

Squall Line



THE "WORST
IS FIRST"
WINDS OVER
58 MPH WILL
BE FOLLOWED
BY HEAVY
RAIN.

Squall Line



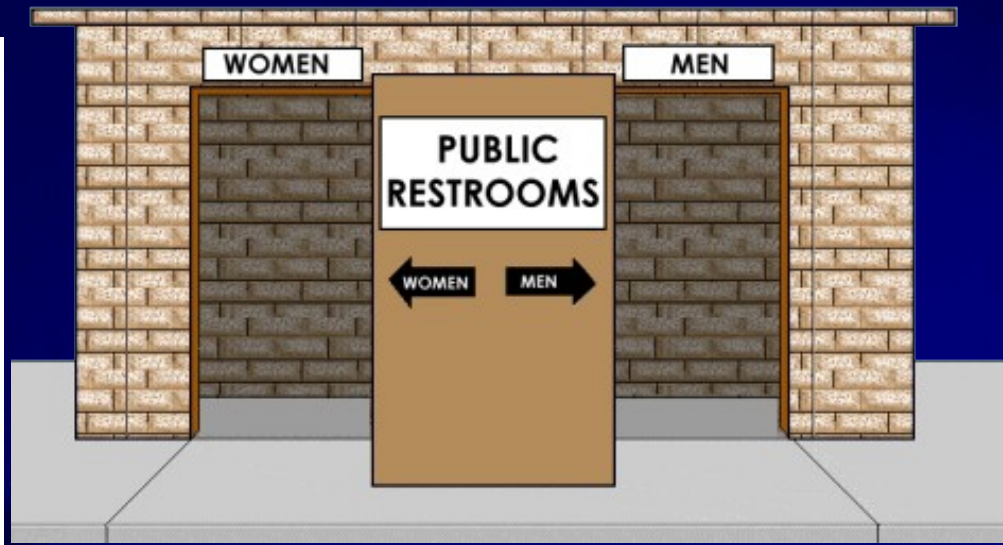
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Bishop

Break Time



Grab a snack or
take a break.

Meet back here
in 10 minutes!



Presentation Topics

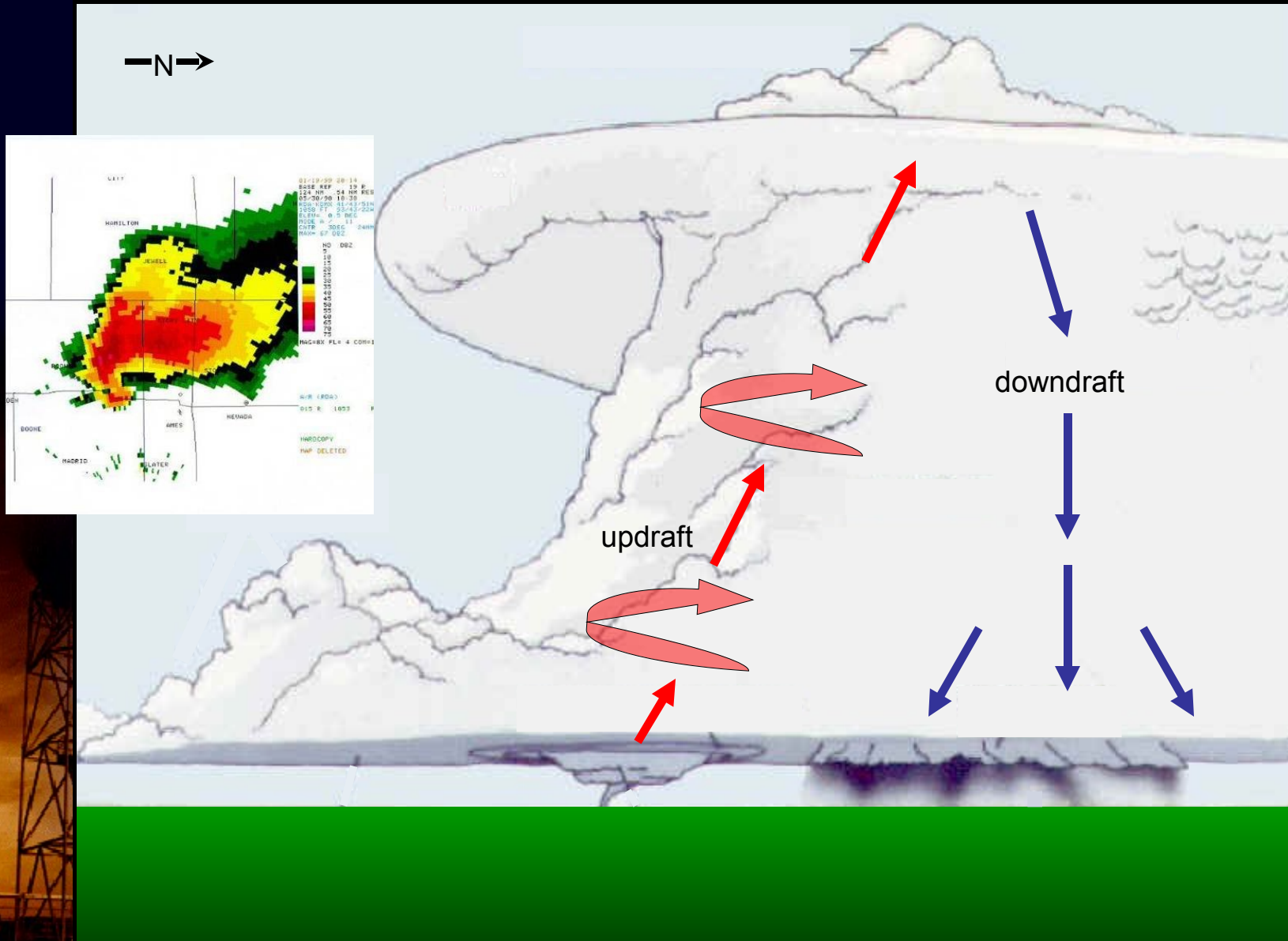
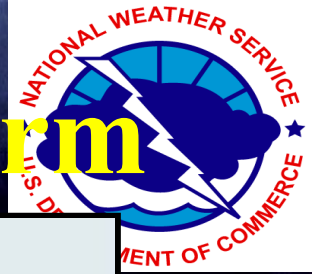
- ◆ National Weather Service overview, mission, and products
- ◆ Severe weather climatology
- ◆ Why we need spotters
- ◆ What to report
- ◆ Thunderstorm development and types – Single, multicell, supercell
- ◆ Thunderstorm components – wall clouds, funnel clouds, land spouts, shelf clouds,
- ◆ Thunderstorm phenomena look alike
- ◆ Radar Perspective



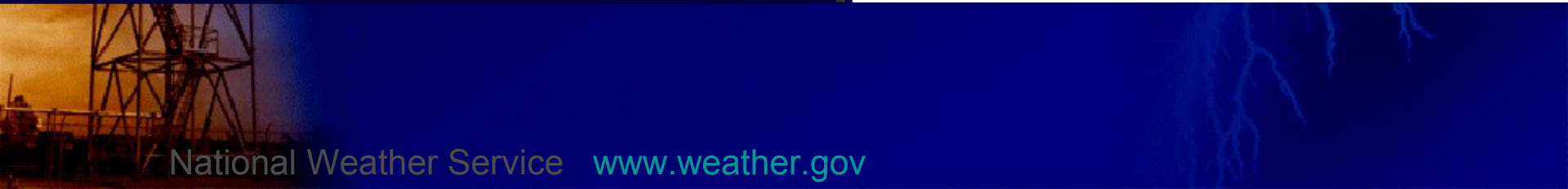
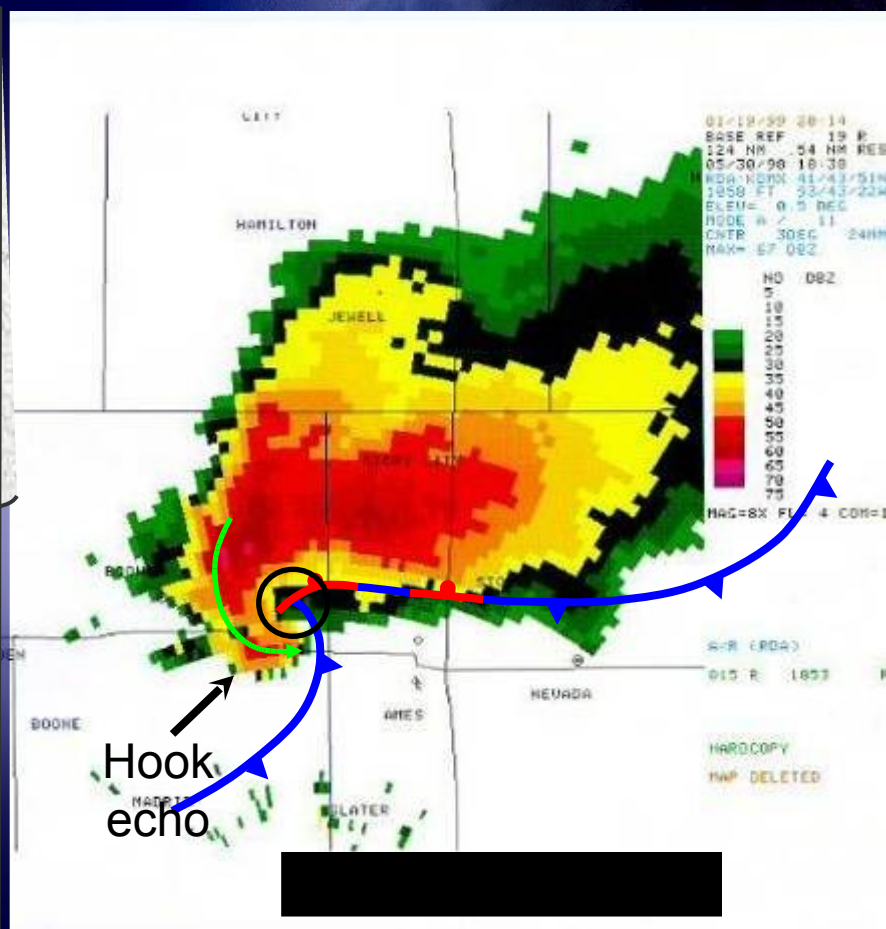
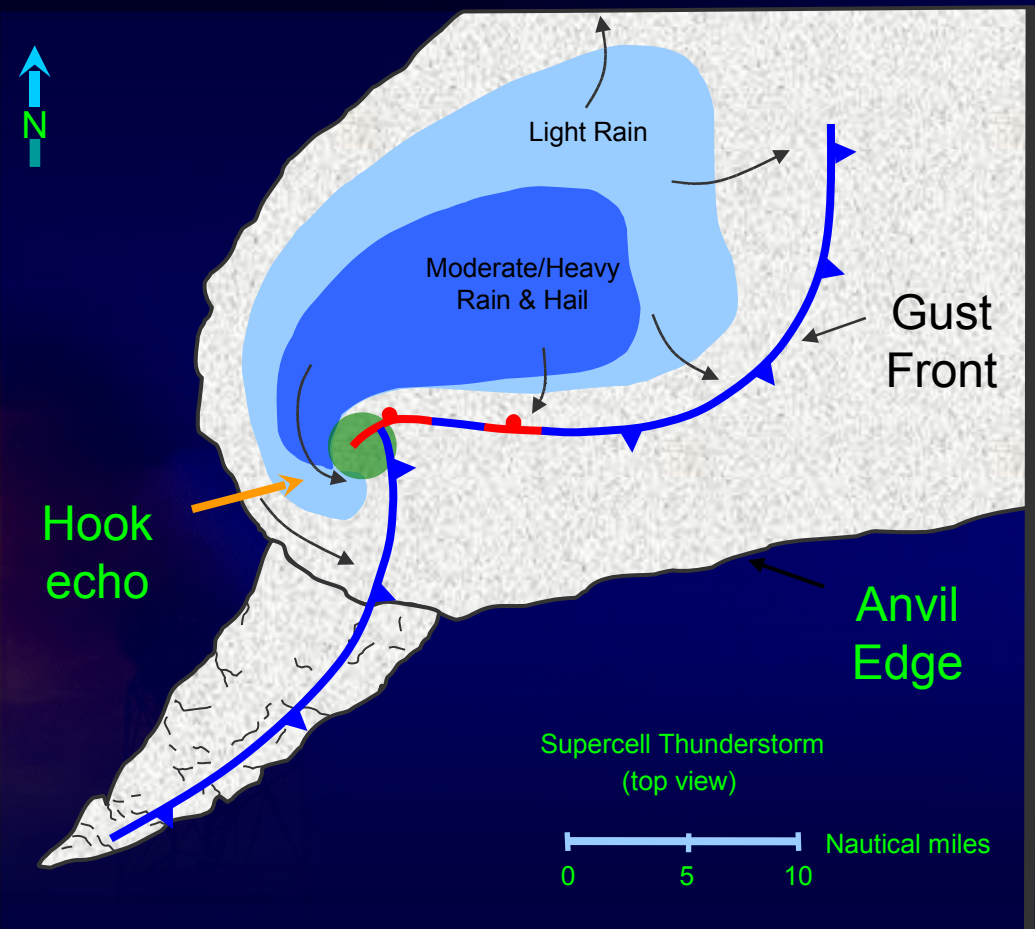
Supercell Structure & Appearance



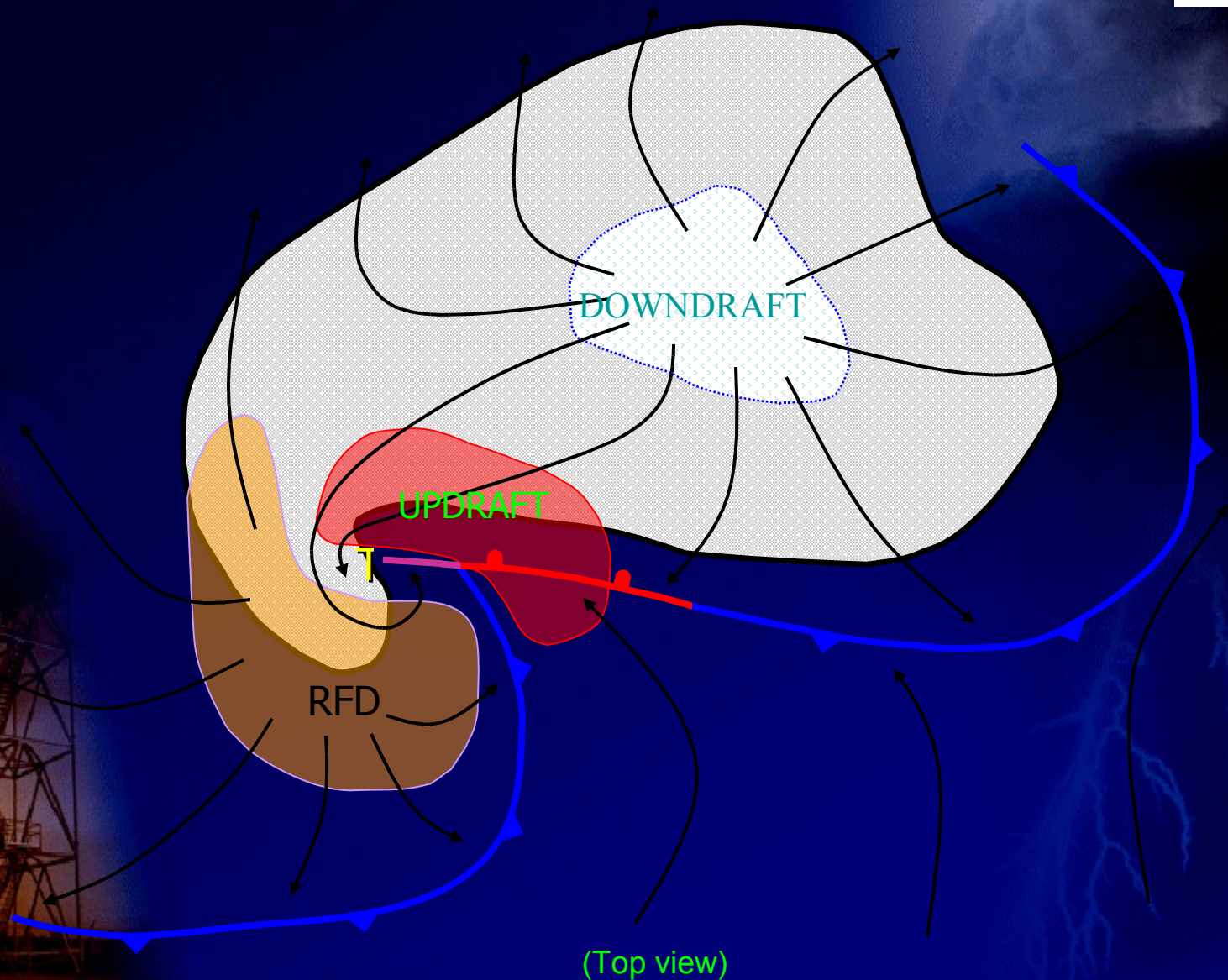
Classic Supercell Thunderstorm



Classic Supercell Thunderstorm



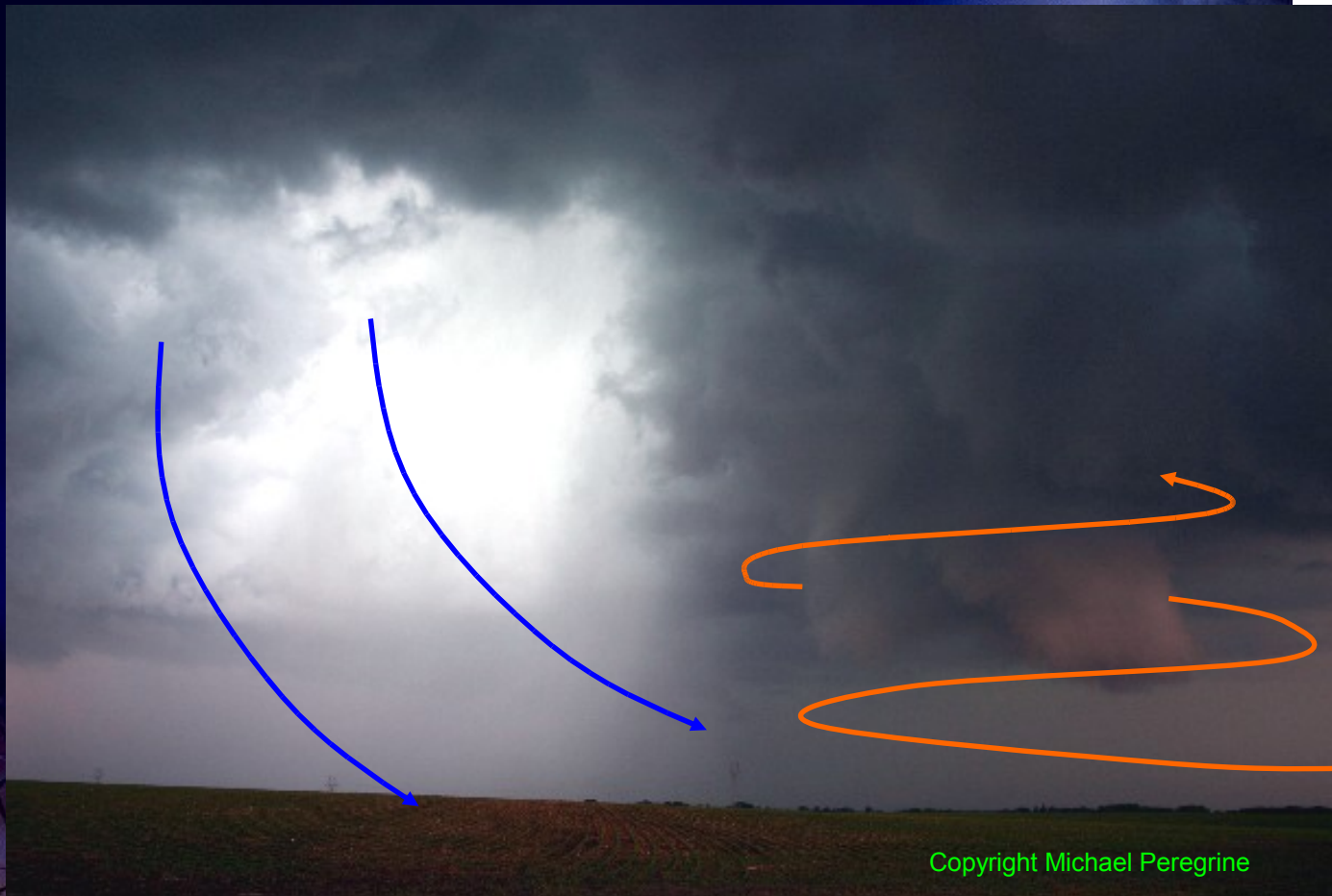
Updraft/Downdraft Tornadogenesis



Rear Flank Downdraft

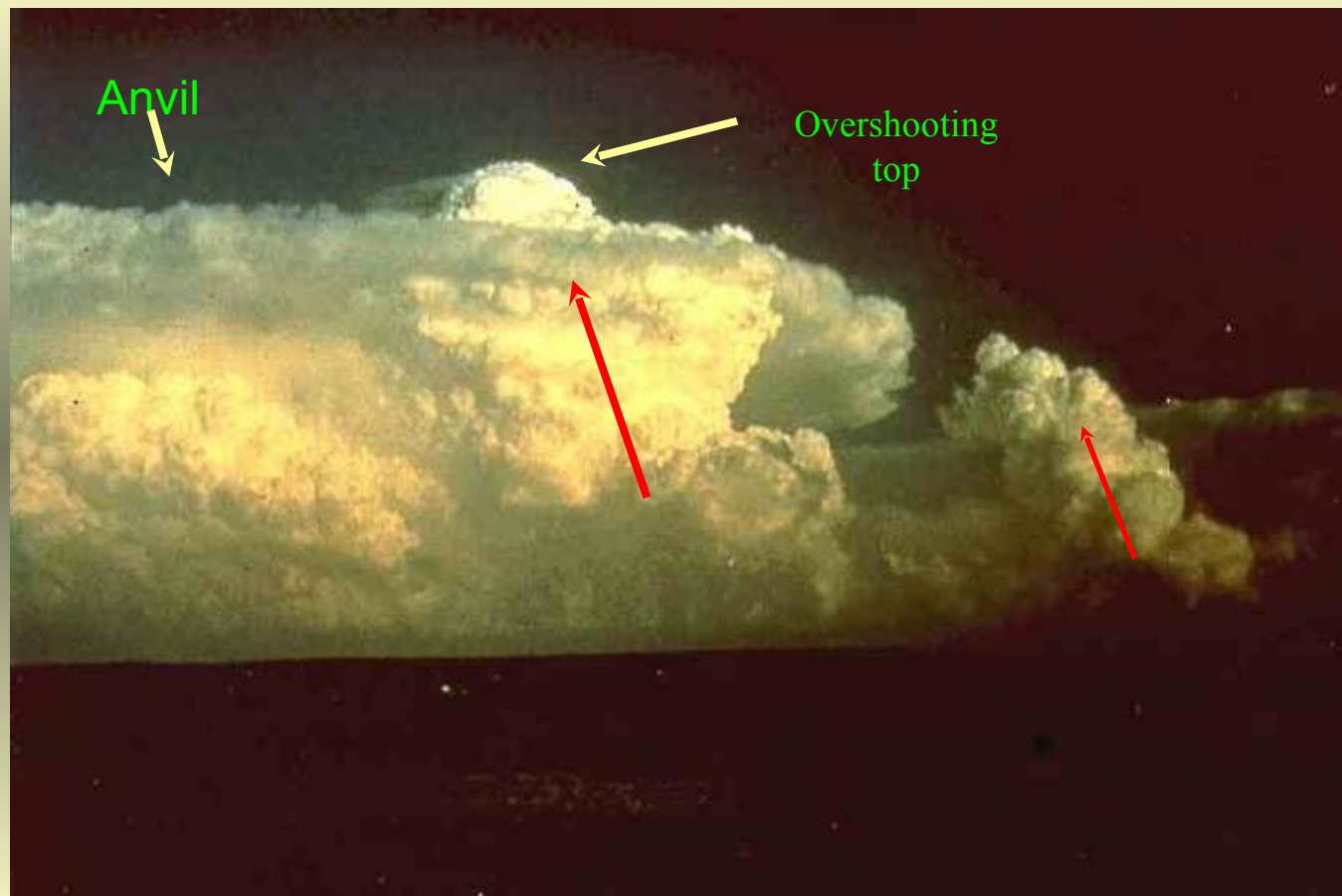


Rear Flank Downdraft

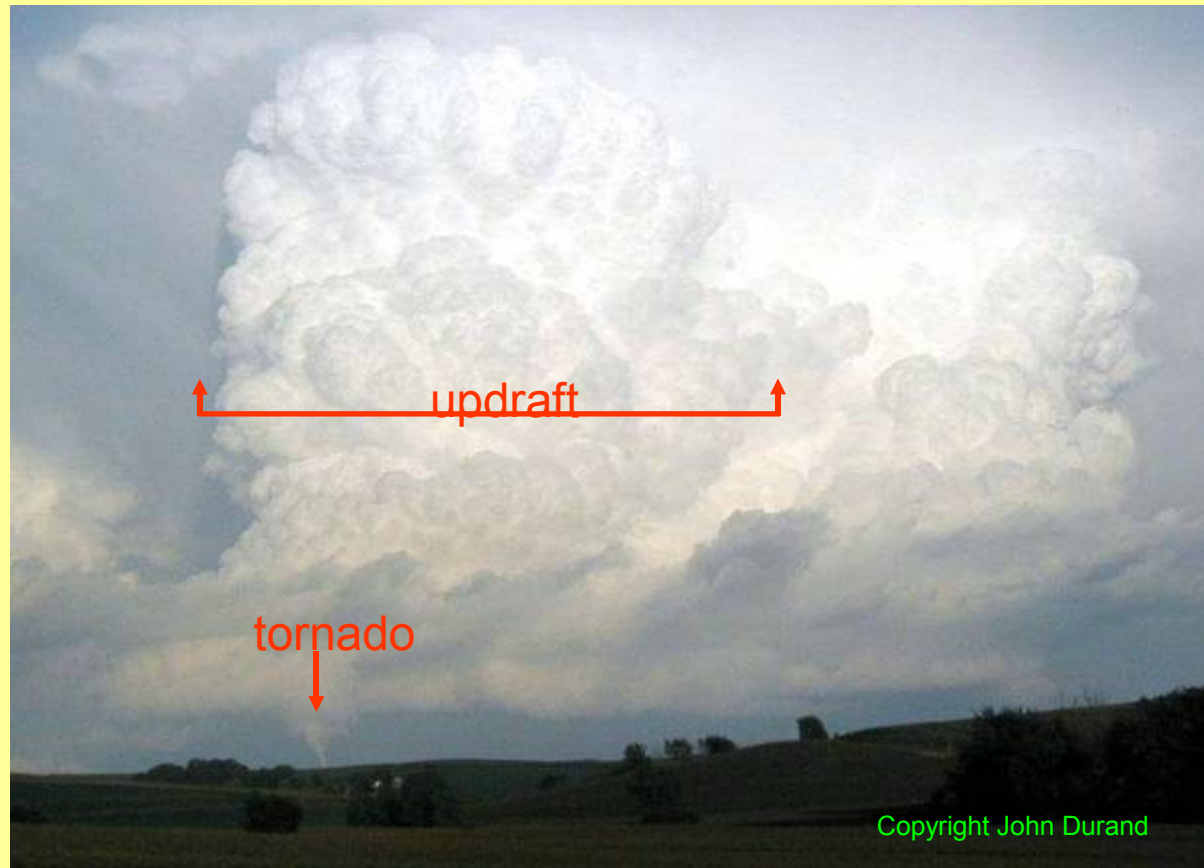
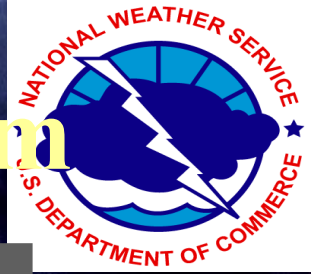


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Classic Supercell Thunderstorm



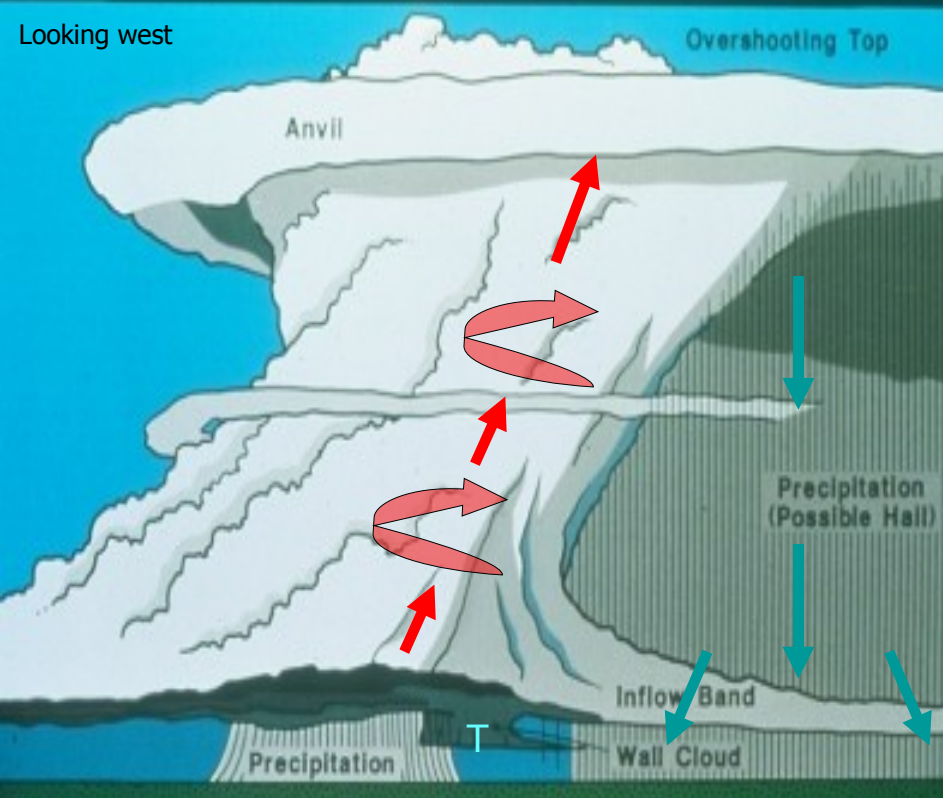
Classic Supercell Thunderstorm



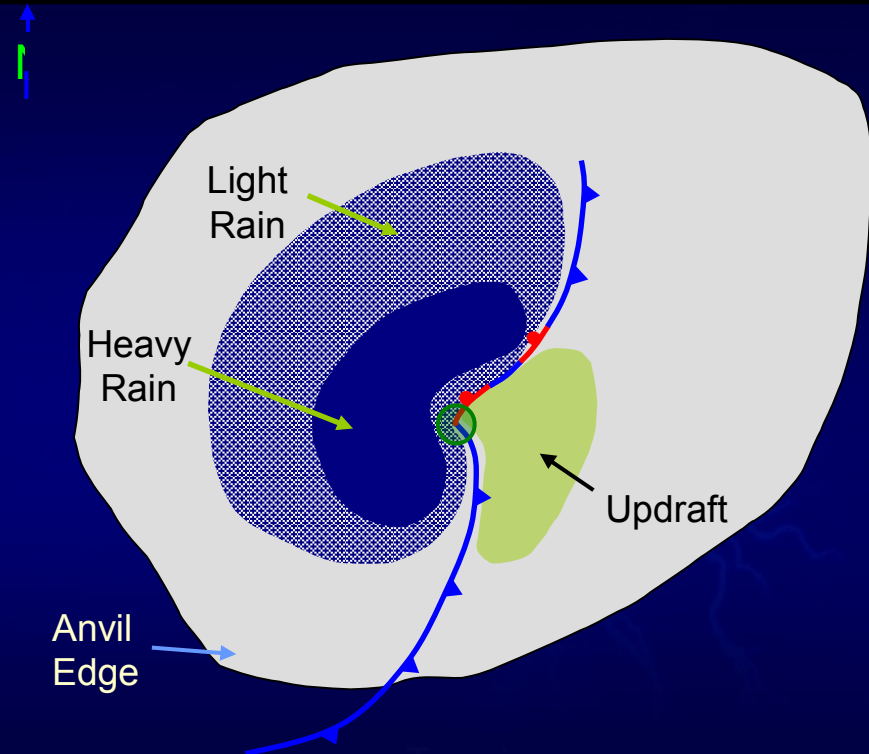
HP Supercell



HEAVY PRECIPITATION SUPERCELL (b)



HP Supercell

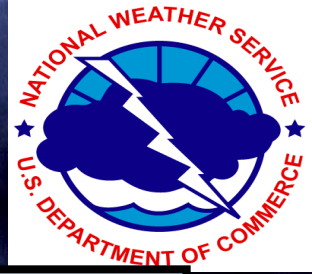


HP Supercell



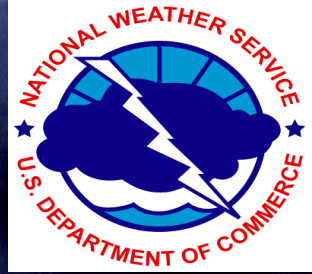
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Davies

HP Supercell



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HP Supercell



Spotter Positioning



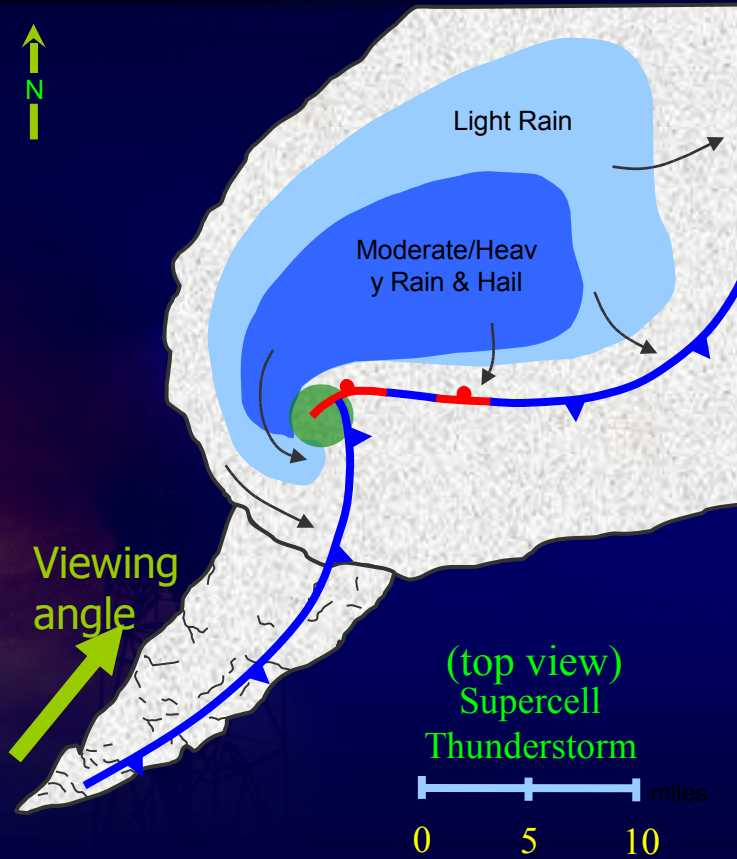
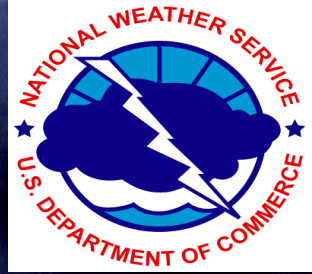
Copyright 19



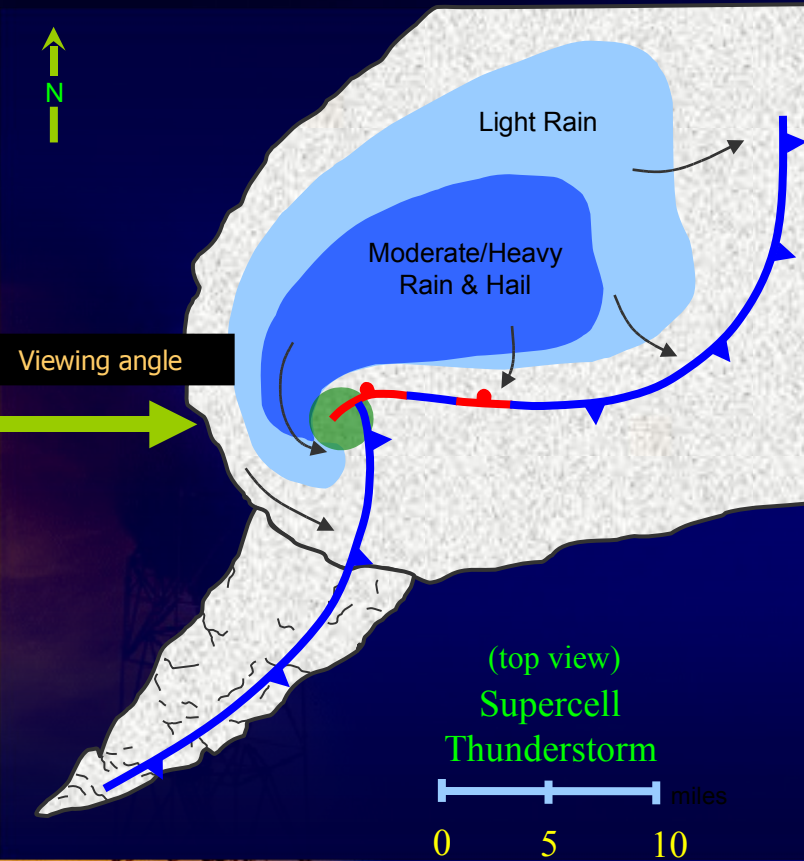
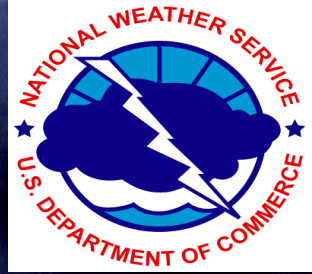
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Spotter Positioning

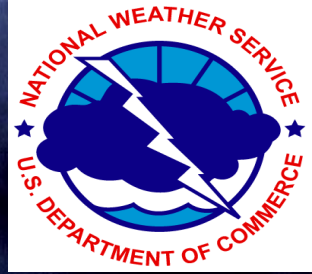


Spotter Positioning



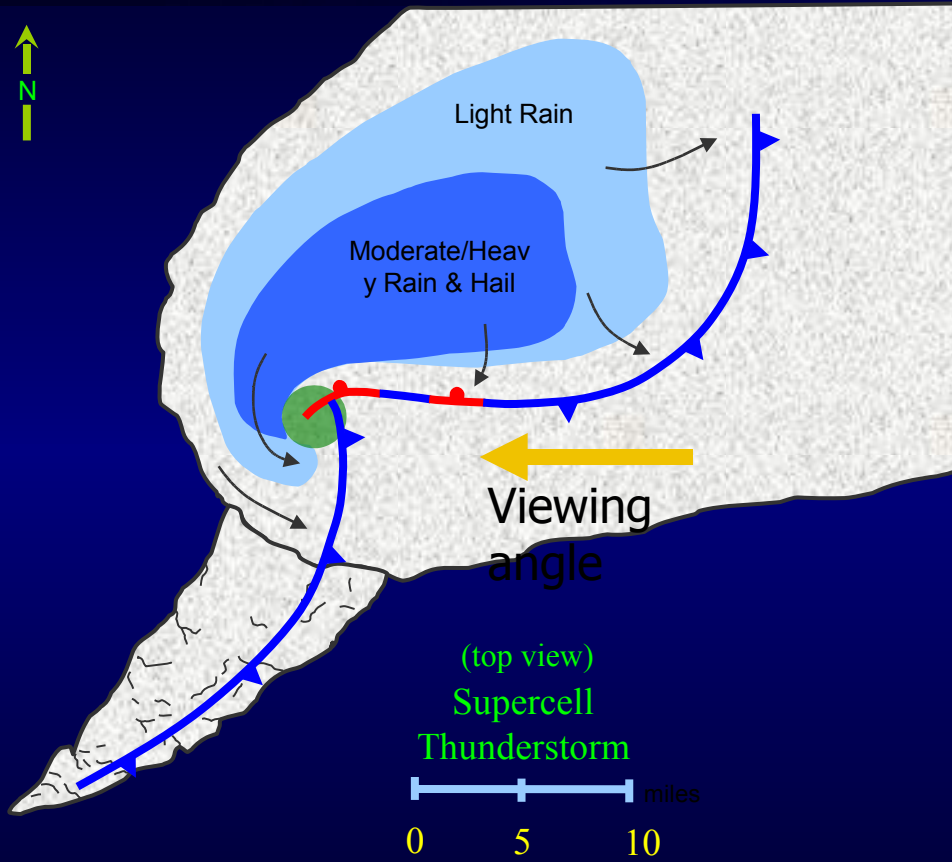
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Spotter Positioning



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Spotter Positioning



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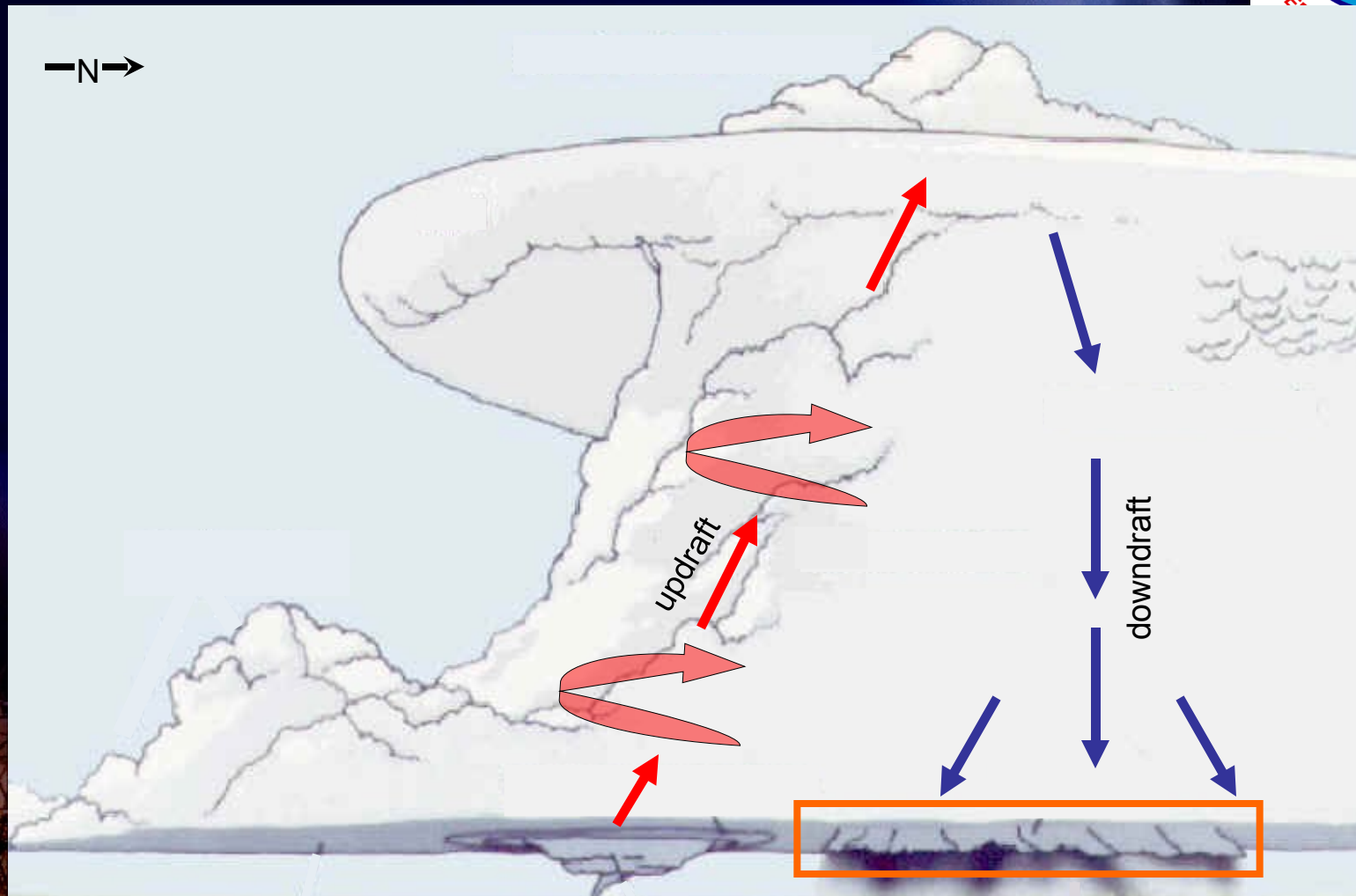


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Presentation Topics

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- ◆ Thunderstorm phenomena look alike



Shelf Cloud



Palmer

Shelf Clouds



- Marks the leading edge of the gust front
- Usually produced by rain cooled air
- Can be found on the FFD or RFD
- Usually in area of low level shear
- Slope down away from precipitation area
- Often associated with a squall line- can be associated with gustnadoes or damaging straight-line wind



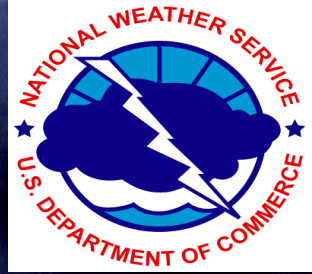
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Shelf Clouds



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Shelf Cloud = Outflow

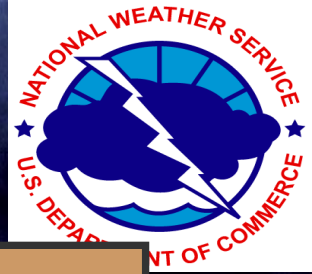


Slopes away from precipitation area



Near Genoa, MN - July 21, 2005
Photo by the Bob Oesterlin

Shelf Cloud



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Umscheid

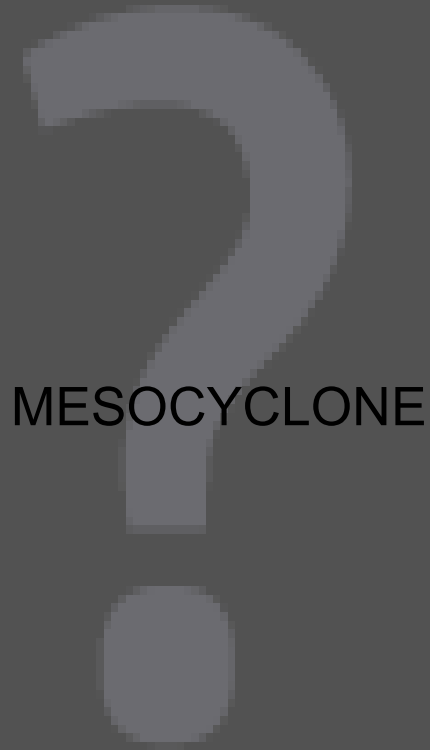
Shelf Cloud



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Kula



The Mesocyclone



WALL CLOUD



A storm-scale region of rotation, typically 2-6 miles in diameter.

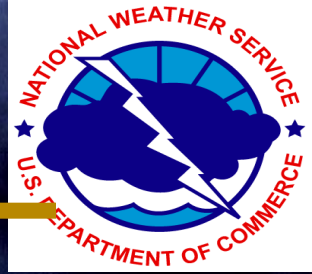
The circulation of a mesocyclone covers an area much larger than the wall cloud or tornado that may develop within it.

The Wall Cloud



- A localized, persistent, lowering of the cloud from the rain free base.
- Normally found on the south/southwest (inflow) side of the thunderstorm.
- May exhibit rapid upward and downward motion, as well as rotation. However, not all wall clouds rotate.

Wall Cloud Characteristics



- > Surface based inflow under the updraft
- > Attached to cloud base
- > Look for persistence
- > May or may not rotate
- > Look for vertical cloud motion
- > Often slopes or points toward precipitation or downdraft



Copyright Andy Ku

Wall Cloud Development



1a.



1b.



1c.

Copyright Alan Switzer



2a.

Copyright Alan Moller



2b.

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More examples of wall clouds...



Ron Przybylinski



© 1997 Roger Edwards



NWS Boise Idaho



© 1999 Scott Blair

Wall Cloud

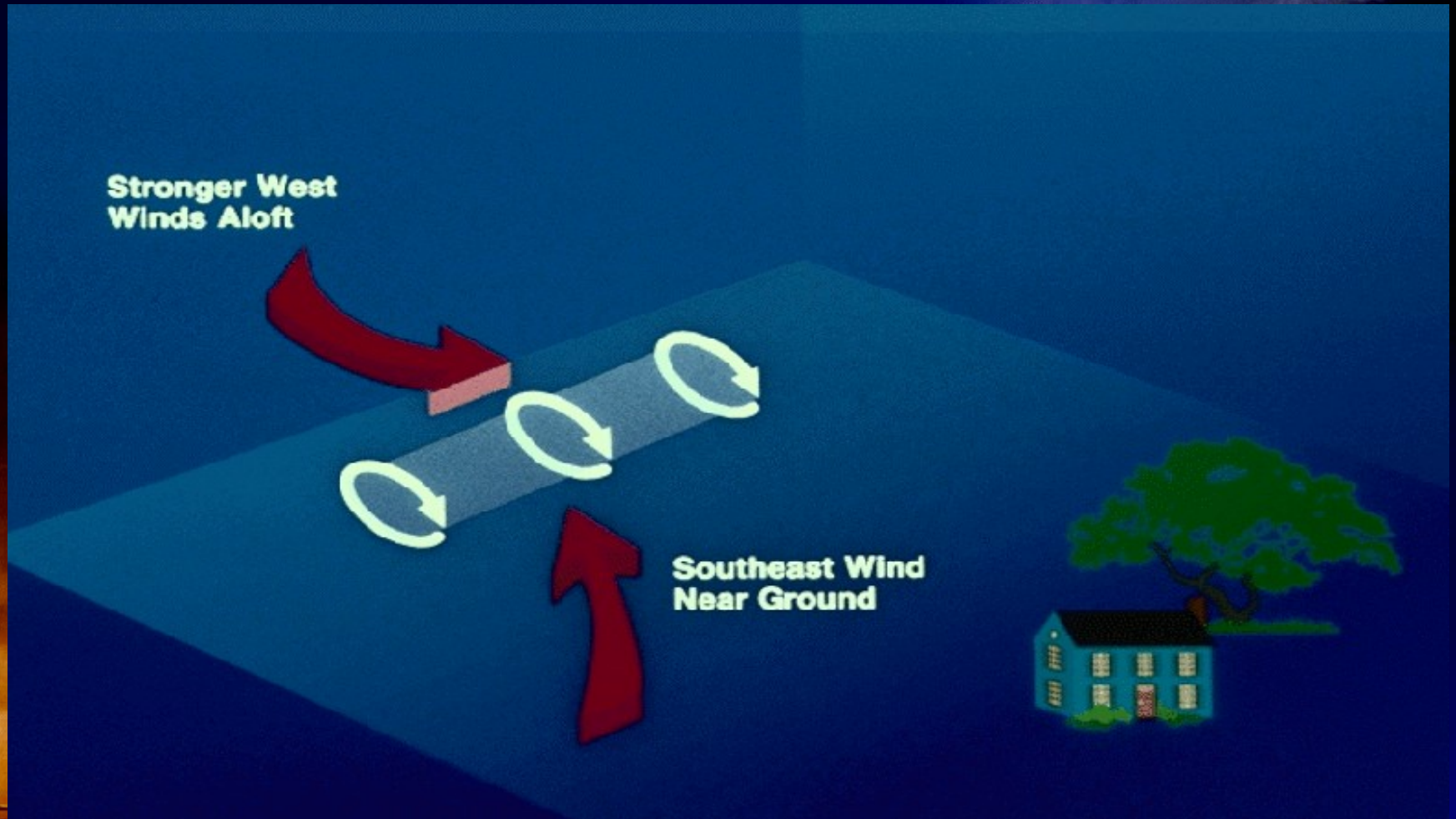


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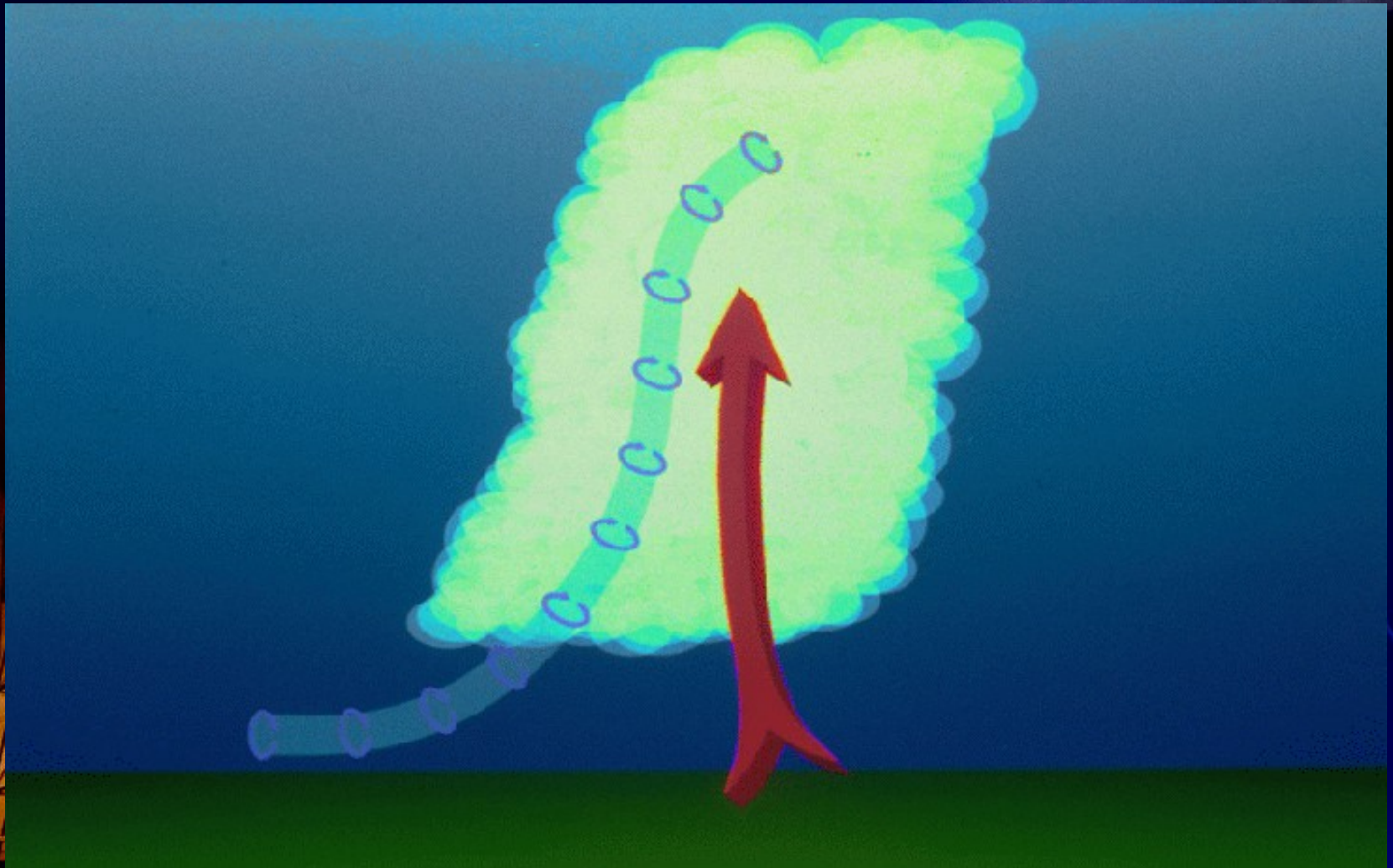
Wall Cloud / Shelf Cloud Summary

	Wall Cloud	Shelf Cloud
Associated with the updraft	Yes	No
Associated with the downdraft	No	Yes
Often slopes down toward the rain (downdraft)	Yes	No
Slopes down away from the rain (downdraft)	No	Yes
Sometimes associated with gustnadoes	No	Yes
Often associated with funnel clouds	Yes	No
Favored area for rotation	Yes	No

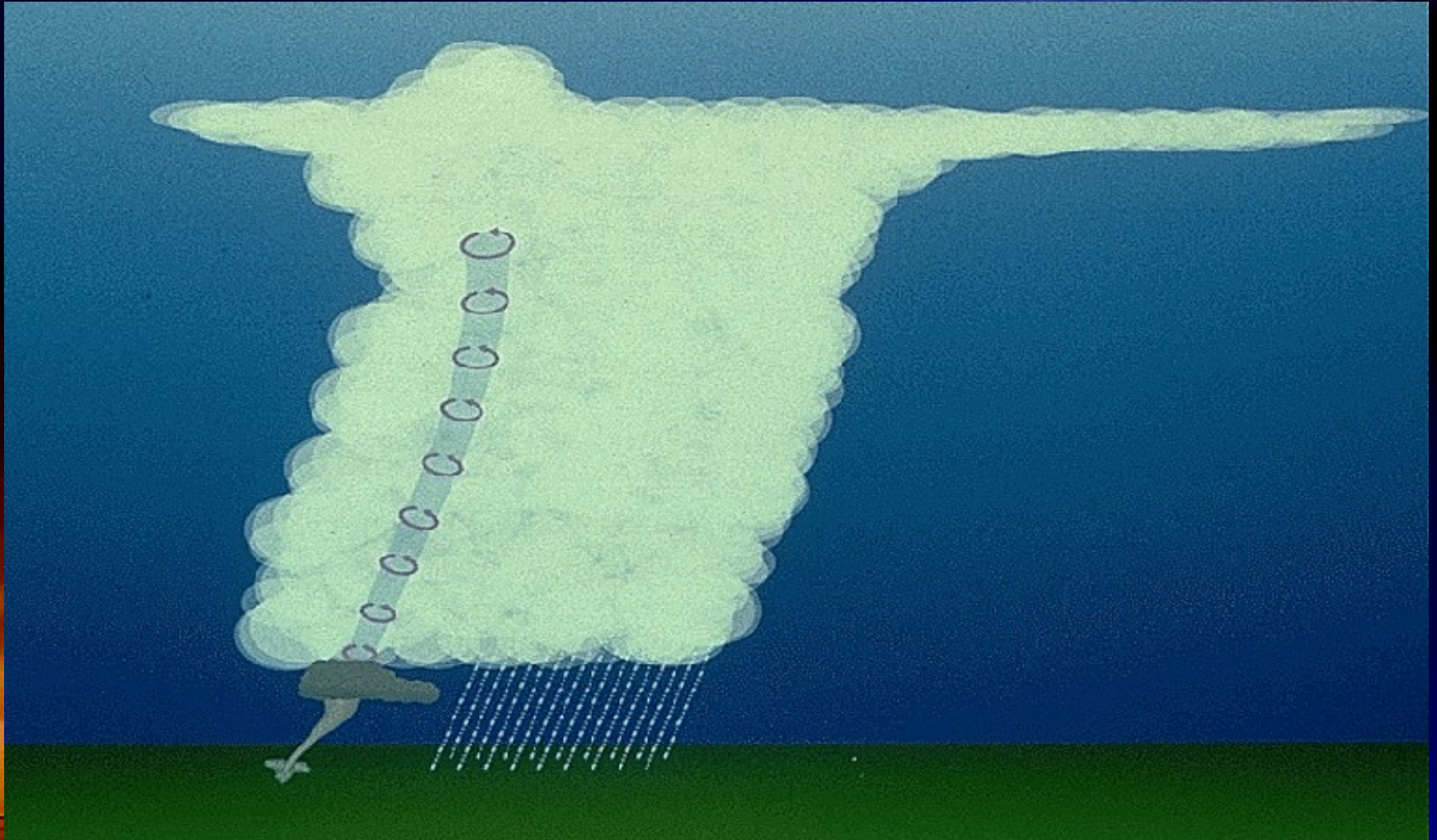
Tornado Formation



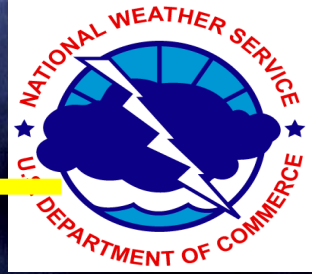
Tornado Formation



Tornado Formation



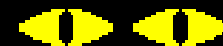
Funnel Clouds



- > A rotating, funnel-shaped cloud extending downward from a thunderstorm base.
- > Usually located near updraft but can be found anywhere
- > Attached to cloud base
- > Exhibit rapid rotation and are most often laminar or smooth in appearance
- > Do not reach ground



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Tornado

A violently rotating column of air extending
from cloud base to the ground.



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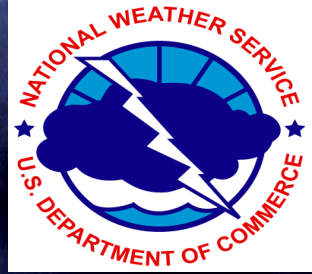
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Funnel Cloud



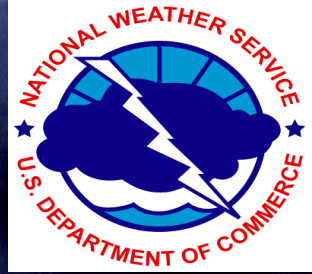
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Tornado



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Funnel Cloud or Tornado



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Funnel Cloud or Tornado



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Tornado



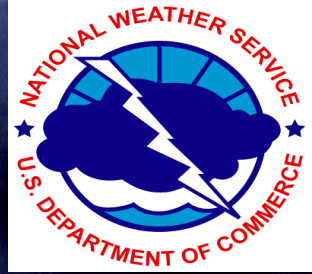
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Funnel Cloud/Tornado



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Tornado



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Humphrey

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- ◆ Thunderstorm components – wall clouds, funnel clouds, land spouts, shelf clouds
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Look Alike



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Temeyer



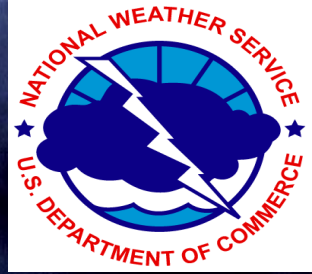
Look Alike



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Look Alike



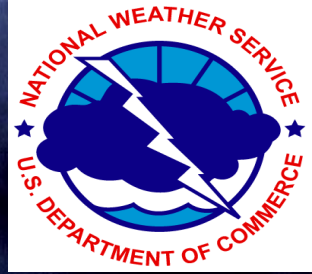
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Look Alike

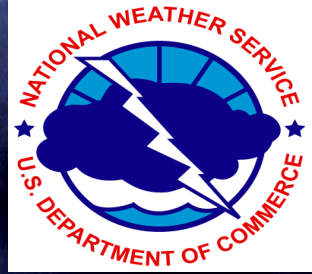


Copyright
Susan Kula

Look Alike



Look Alike



© 2003 Andrew Revering



Spotter Safety

- ◆ If a mobile spotter, use two people (an extra pair of eyes needed to watch skies above and behind you)
- ◆ If you are a mobile spotter, do not speed (especially on wet roads)
- ◆ If mobile, avoid dirt roads (they get extremely slick when wet)
- ◆ If mobile, park well off the road (and not under electrical lines)
- ◆ If mobile, never take shelter under a highway overpass

Spotter Safety

- ◆ Keep a one to two mile safety buffer zone between you and the storm. Have an escape route available.
- ◆ If a tornado approaches, when possible, move away at a right angle to the tornado- if this is not possible, abandon your vehicle for a sturdy shelter (like a house)- if no shelter is available, lay flat in a dry ravine or ditch away from your vehicle
- ◆ If indoors – the safest place is the basement, if a basement is not available, move to a small interior room away from windows

Lightning Safety

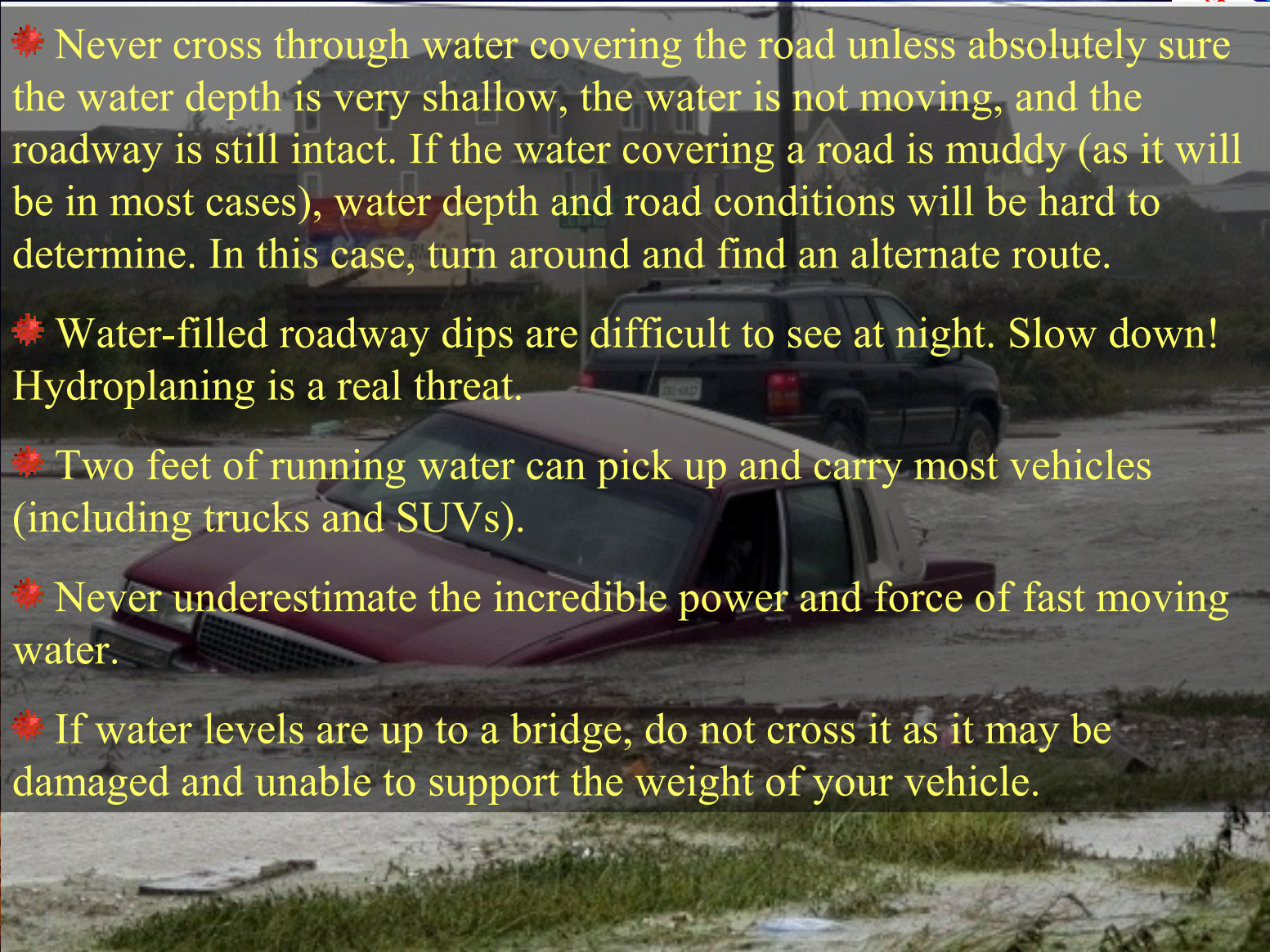
- The safest place to remain is indoors and away from windows and electrical appliances
- If mobile spotting, the safest place is to remain inside your vehicle
- If mobile spotting, do not park along fence lines, or near overhead electric/phone lines
- Avoid being the tallest object, and stay away from other tall objects such as isolated trees.
- If you can hear thunder, you are in danger of being struck by lightning. Take shelter.



Flood Safety

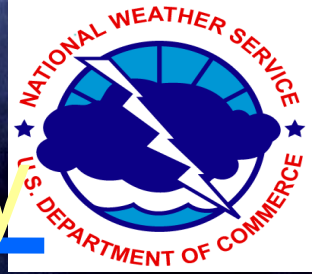


- ✱ Never cross through water covering the road unless absolutely sure the water depth is very shallow, the water is not moving, and the roadway is still intact. If the water covering a road is muddy (as it will be in most cases), water depth and road conditions will be hard to determine. In this case, turn around and find an alternate route.
- ✱ Water-filled roadway dips are difficult to see at night. Slow down! Hydroplaning is a real threat.
- ✱ Two feet of running water can pick up and carry most vehicles (including trucks and SUVs).
- ✱ Never underestimate the incredible power and force of fast moving water.
- ✱ If water levels are up to a bridge, do not cross it as it may be damaged and unable to support the weight of your vehicle.





Flood Safety



It may just be a whole lot deeper than what
you think!

Remember, boats float, cars don't.




Don't become another flood death statistic



Story County, IA



Nighttime Spotting

- 
- ▼ Mobile spotting at night is especially dangerous
 - ▼ Watch for ground based flashes produced by a tornado breaking power lines
 - ▼ Note the wind direction and changes in wind direction
 - ▼ Utilize lightning to note storm structure and possible lower cloud base
 - ▼ Know your directional relationship to the storm
 - ▼ Don't confuse shelf clouds with wall clouds, look for signs of rising or rotating clouds.

Spotters Must



- Know the difference between a shelf cloud and a wall cloud
- Know that funnel clouds usually do not form on a shelf cloud
- Know that a low hanging cloud in the shape of a funnel, if not rotating, is NOT a funnel cloud
- Know the difference between blowing dust and a tornado
- Spotters must not exaggerate their report

How to Get Weather Information



NOAA WEATHER RADIO
S.A.M.E.



COMPUTER

TELEVISION



BATTERY OPERATED RADIO

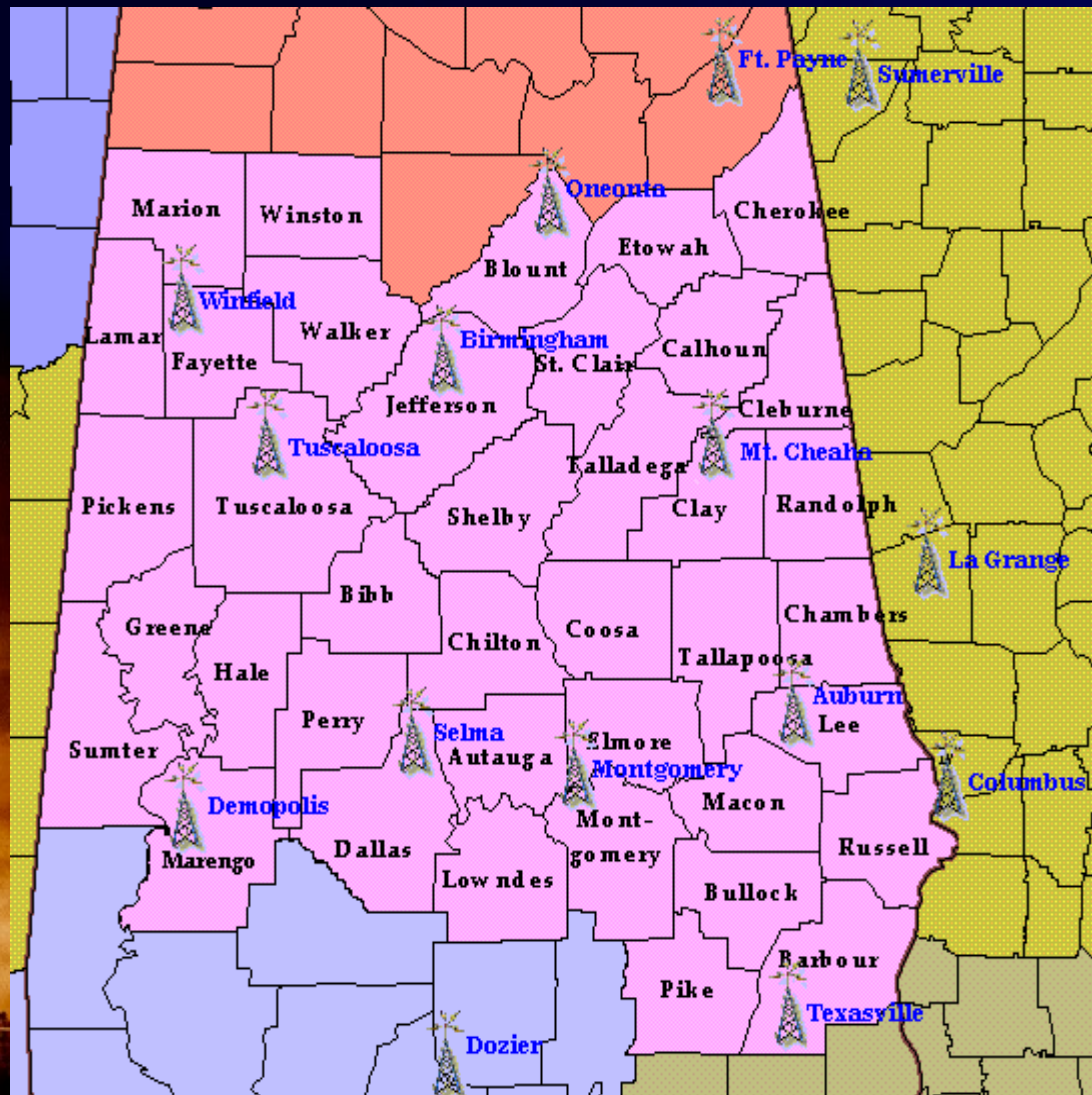


CELL PHONE



CAR RADIO

NOAA Weather Radio



- 10 Transmitters across Central Alabama
- NOAA Weather Radio is the fastest way to get our warnings!!!



News

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Organization

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Local weather
forecast by

"City, St" or zip code

City, St

Go

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Central Alabama
Storm Watch
National

Current Conditions
Observations
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Rivers & Lakes AHPs

Radar Imagery
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2008 Season

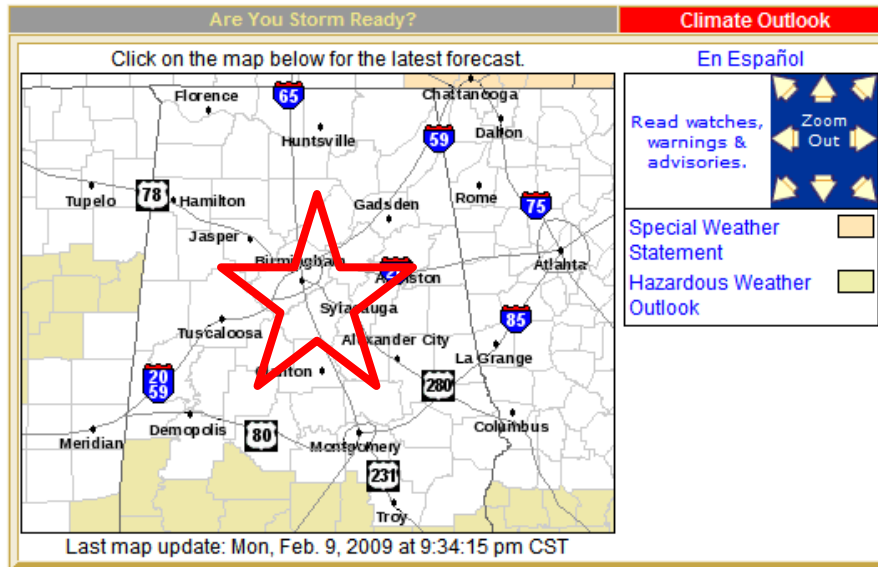
Weather Safety
Skywarn
StormReady
FloodReady
Preparedness
Weather Radio

Additional Info
SWAW 2008
Tornado Database
Storm Data
Product Guide

- A Few Severe Storms Possible Wednesday
- UPDATED 2009 Spotter Training Schedule
- Severe Weather Awareness Week is Coming!
- Past Headlines | Meteorological Calculator | CoCoRaHS



Updated: Feb 09 3PM



Current Weather Conditions (click on city for daily observation history)

Site	Sky	Temp	Index	Dewpt	Rel Hum	Wind Dir	Wind Spd	Pressure
Gadsden	Clear	61F	-	34F	36%	S	5MPH	30.24In.
Anniston	Clear	54F	-	43F	67%	-	Calm	30.24In.
Birmingham	Clear	62F	-	43F	50%	S	7MPH	30.23In.
Calera	Clear	59F	-	46F	62%	S	7MPH	30.22In.
Tuscaloosa	Clear	65F	-	47F	52%	SE	11MPH	30.16In.
Sylacauga	Clear	61F	-	46F	58%	SW	6MPH	30.24In.
Alexander City	Clear	52F	-	46F	80%	-	Calm	30.25In.
Auburn	Clear	57F	-	43F	60%	S	10MPH	30.25In.
Montgomery	Clear	57F	-	43F	60%	SW	6MPH	30.25In.
Demopolis	Clear	63F	-	52F	68%	SE	11MPH	30.17In.
Troy	Clear	53F	-	43F	69%	-	Calm	30.28In.
Clayton	Clear	50F	-	48F	93%	-	Calm	30.28In.

Observations updated February 09 at 8:53PM

Click here for daily and weekly rainfall plots

Point Specific Information:

* Hazardous Weather Outlook

* Watches

* Warnings

* Severe Weather Statements

* Short Term Forecasts

National Weather Service • Since 1870



Birmingham, AL



News

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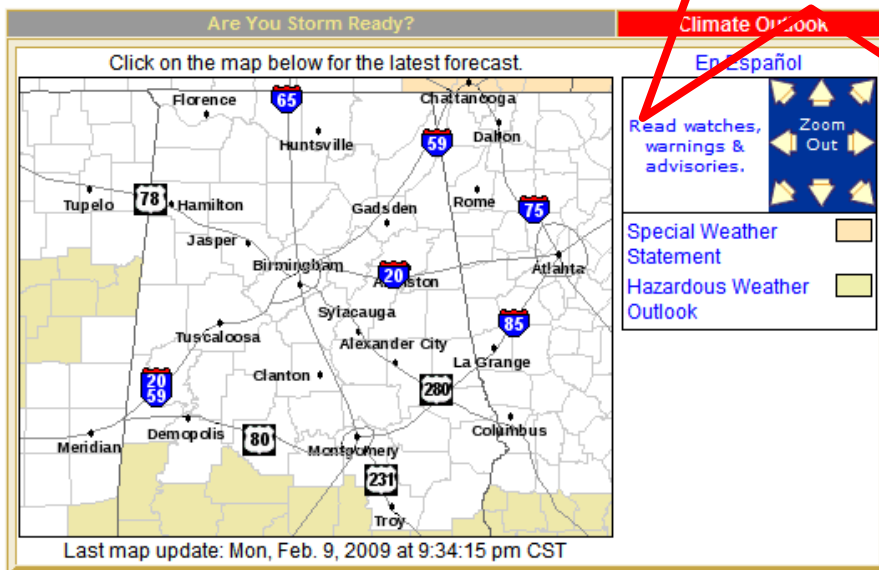
Organization

Search

Search

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Multimedia Impact
Weather
Briefing
Updated: Feb 09 3PM



Current Weather Conditions (click on city for daily observation history)

Site	Sky	Temp	Index	Dewpt	Rel Hum	Wind Dir	Wind Spd	Pressure
Gadsden	Clear	61F	-	34F	36%	S	5MPH	30.24In.
Anniston	Clear	54F	-	43F	67%	-	Calm	30.24In.
Birmingham	Clear	62F	-	43F	50%	S	7MPH	30.23In.
Calera	Clear	59F	-	46F	62%	S	7MPH	30.22In.
Tuscaloosa	Clear	65F	-	47F	52%	SE	11MPH	30.16In.
Sylacauga	Clear	61F	-	46F	58%	SW	6MPH	30.24In.
Alexander City	Clear	52F	-	46F	80%	-	Calm	30.25In.
Auburn	Clear	57F	-	43F	60%	S	10MPH	30.25In.
Montgomery	Clear	57F	-	43F	60%	SW	6MPH	30.25In.
Demopolis	Clear	63F	-	52F	68%	SE	11MPH	30.17In.
Troy	Clear	53F	-	43F	69%	-	Calm	30.28In.
Clayton	Clear	50F	-	48F	93%	-	Calm	30.28In.

Observations updated February 09 at 8:53PM

Click here for daily and weekly rainfall plots

Point Specific
Information:

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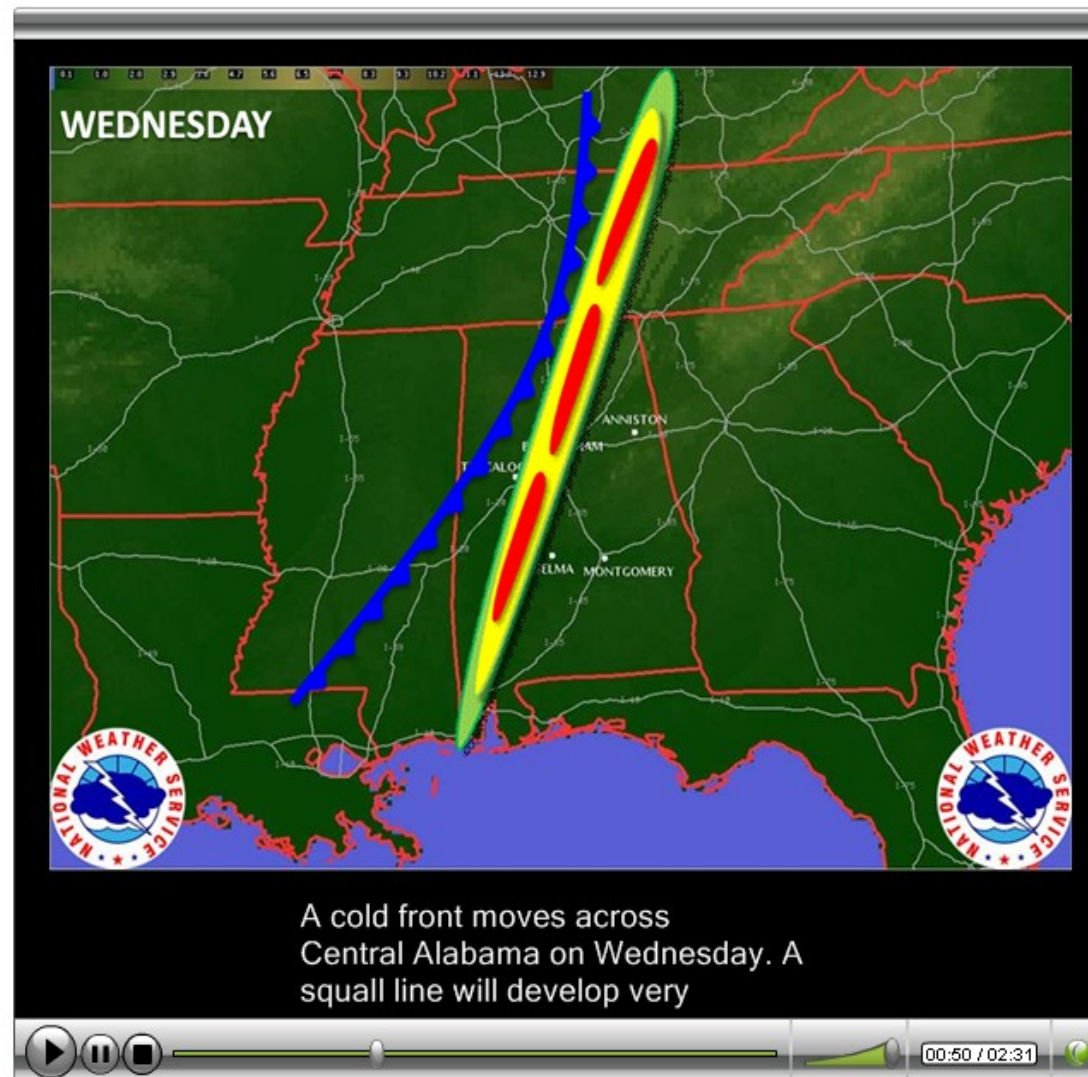
Daily Multimedia Impact Weather Briefing

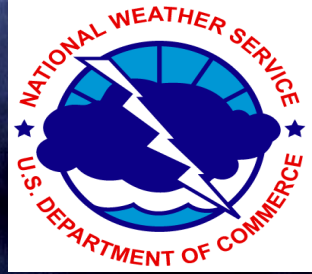
The Central Alabama Impact Briefing is designed to keep you informed about any upcoming hazardous weather. The briefing will be updated at least twice per day when hazards are highlighted in the Hazardous Weather Outlook, with additional updates as needed. Information will consist of any potential hazards over the next 7 days, the latest forecast challenges and forecast uncertainty. Please be sure to take the [online survey](#) and let us know what you think about this product. Thank you!

You can listen to the MP3 audio file by clicking the Audio only (MP3) link below. The Multimedia Impact Weather Briefing uses the latest Flash Player from [Macromedia/Adobe](#). You can download the latest Flash player for free [here](#). Otherwise, just click on the movie to begin the briefing.

[Audio only \(MP3\)](#)

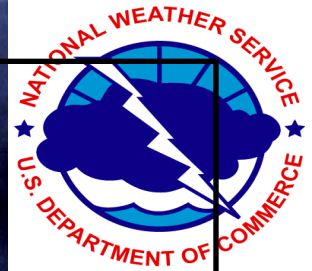
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We want your storm photos!!



If you have any storm photos or videos that you would like to share with us, please e-mail them to your local NWS. Include your name, date of the photo, where the photo was taken, and a description of the photo. Also indicate if you give the NWS permission to use the photo. We are interested in ALL weather

phenomenon and cloud types. The best photos or videos are those taken which show a wide view of thunderstorm structure. Close-ups are good, but they do not allow others to take in the bigger picture (no pun intended). It is this wider perspective that allows others to learn by seeing the structure of a specific phenomenon relative to that of the entire thunderstorm.



Spotter Presentation Reference Material Website

<http://www.srh.noaa.gov/bmx/SpotterTraining/SpotterTraining.html>

- Business Cards / NWR Frequencies
- Spotter Certificates
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Spotter Presentation Reference Material

Who issues *your* severe weather watches and warnings



National Weather Service
465 Weathervane Road
Calera, AL 35040
(205)-664-3010
www.srh.noaa.gov/bmx

....it's all about saving lives

NOAA Weather Radio Frequencies

Birmingham	Central, AL	162.550 MHz
Anniston	East Central, AL	162.475 MHz
Oneonta	North Central, AL	162.425 MHz
Selma	Central, AL	162.450 MHz
Demopolis	West Central, AL	162.475 MHz
Texasville	Southeast, AL	162.475 MHz
Montgomery	Central, AL	162.400 MHz
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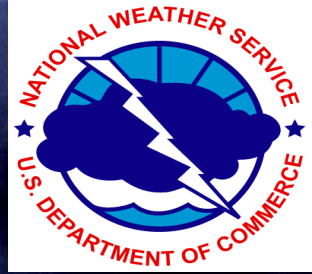
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Spotters are the eyes and ears of the National Weather Service. Without your help, our job of warning would be very difficult.

We thank you for your participation!



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The End



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Questions or Comments?

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