

Severe Storm Spotter Training



**National Weather Service
Lincoln, IL**



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IMPORTANCE OF SEVERE STORM SPOTTING



Why we are here...

**More tornadoes,
severe storms &
flash floods occur
in the U.S. than
ANY other country
in the world!**

A Typical Year Brings:



6 Hurricanes



1,270 Tornadoes



5,000 Floods



10,000 Violent
Thunderstorms



Drought
Conditions



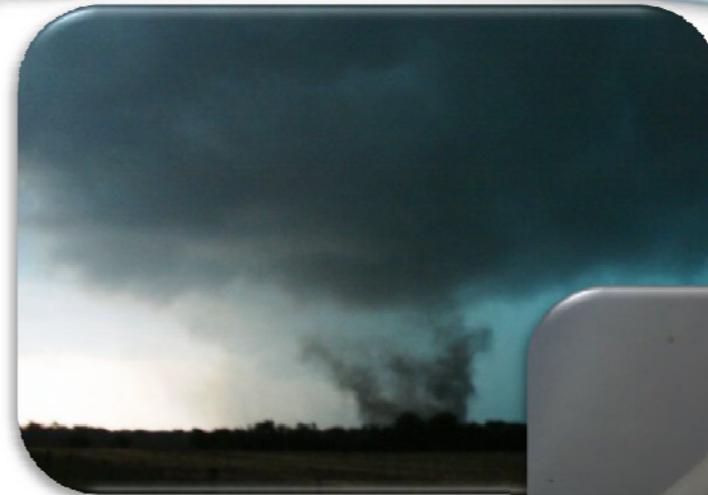
500 Deaths
5,000 Injuries
\$14 B in Losses



Illinois Severe Weather Impacts

A Typical Year:

- 44 Tornadoes
- 513 Severe T-storm Reports
- 165 Reports of Flash Flooding



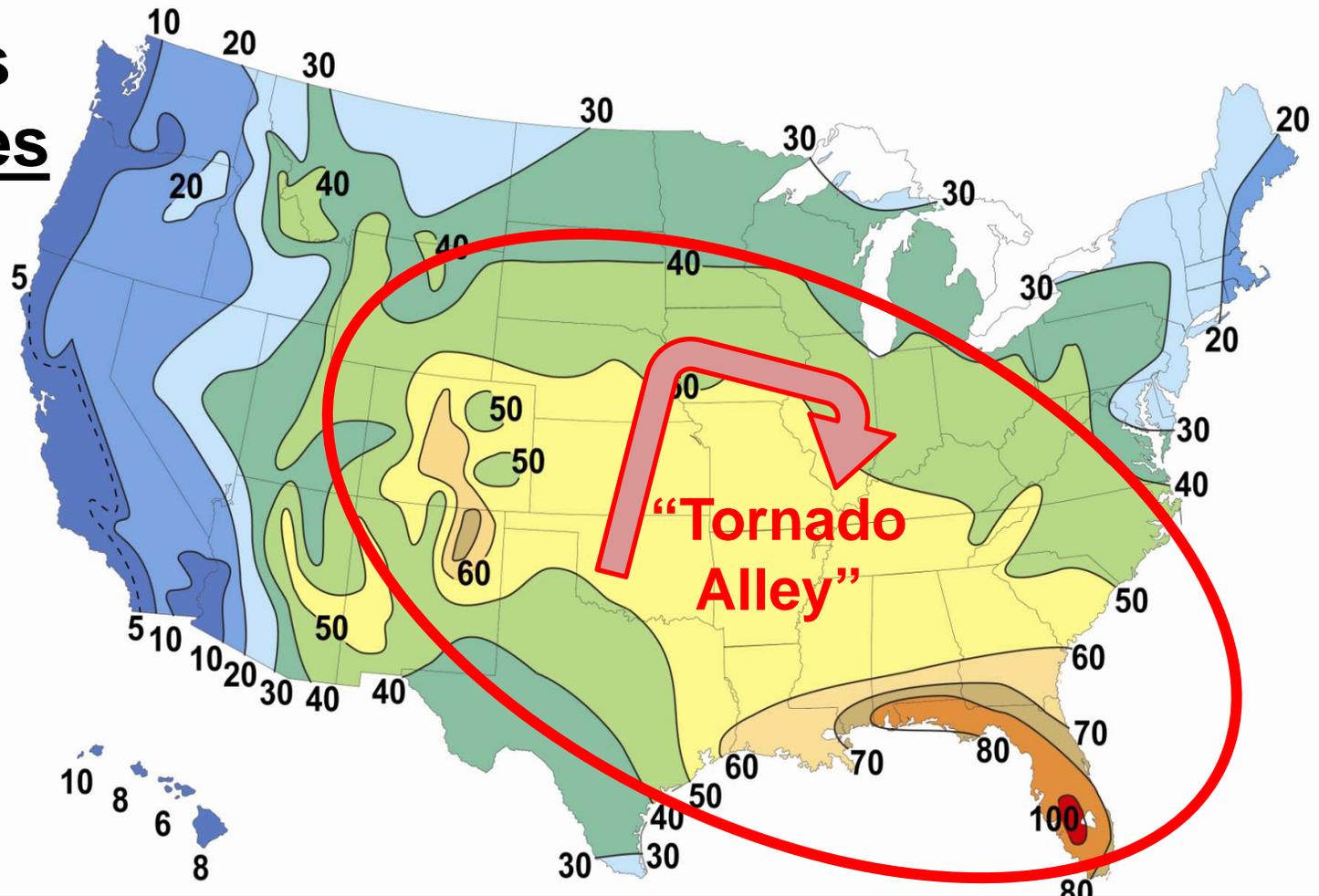


The Threat Area...

Top 5 States for tornadoes

1. Florida
2. Oklahoma
3. Kansas
4. Iowa
5. Illinois

of tornadoes per
10,000 sq miles

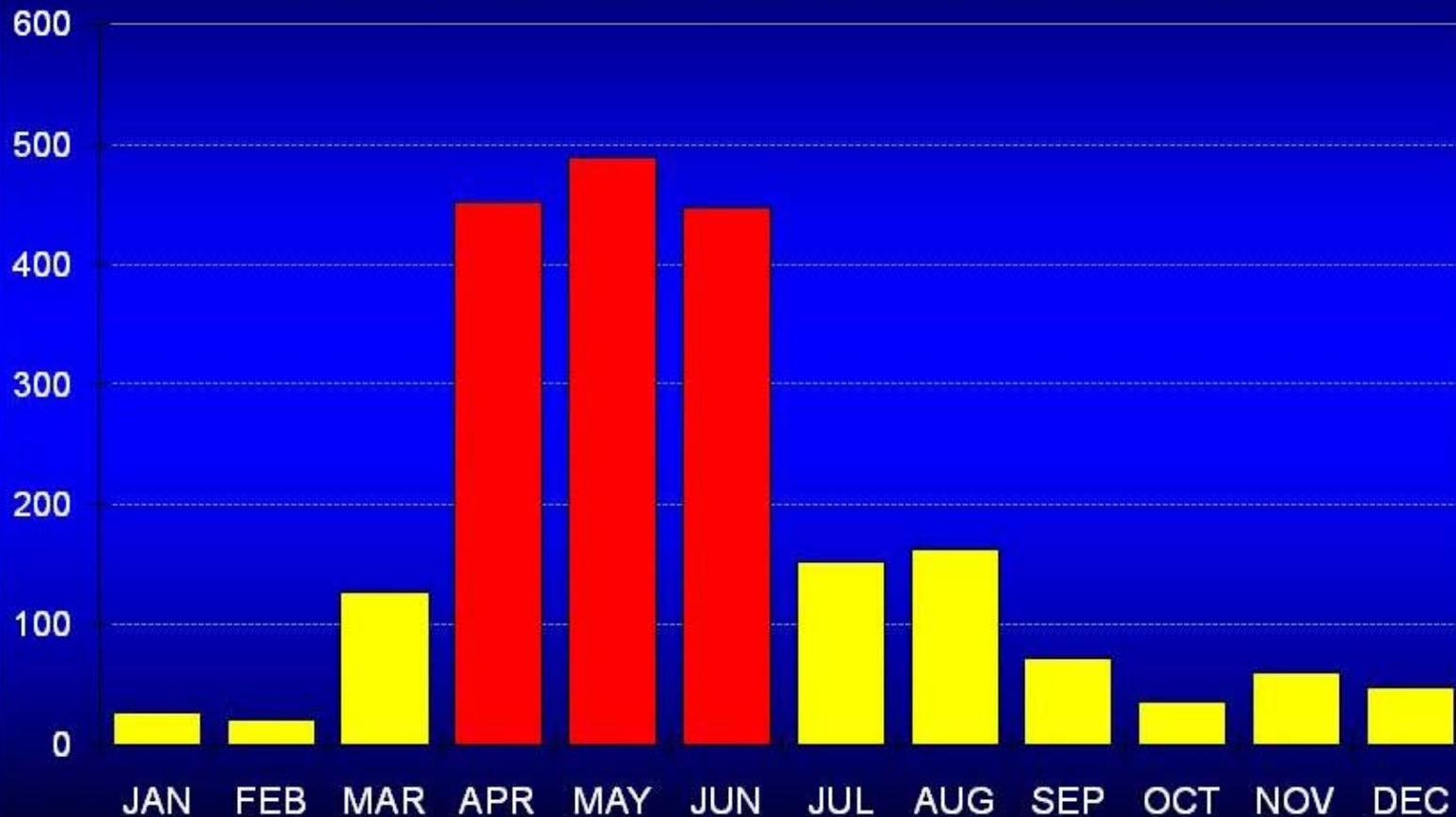


Map: Average Annual T-storm Days



Tornadoes: Monthly

Illinois Tornadoes (1950-2010)





How often does severe weather occur?

Central & Southeast IL 2001-10

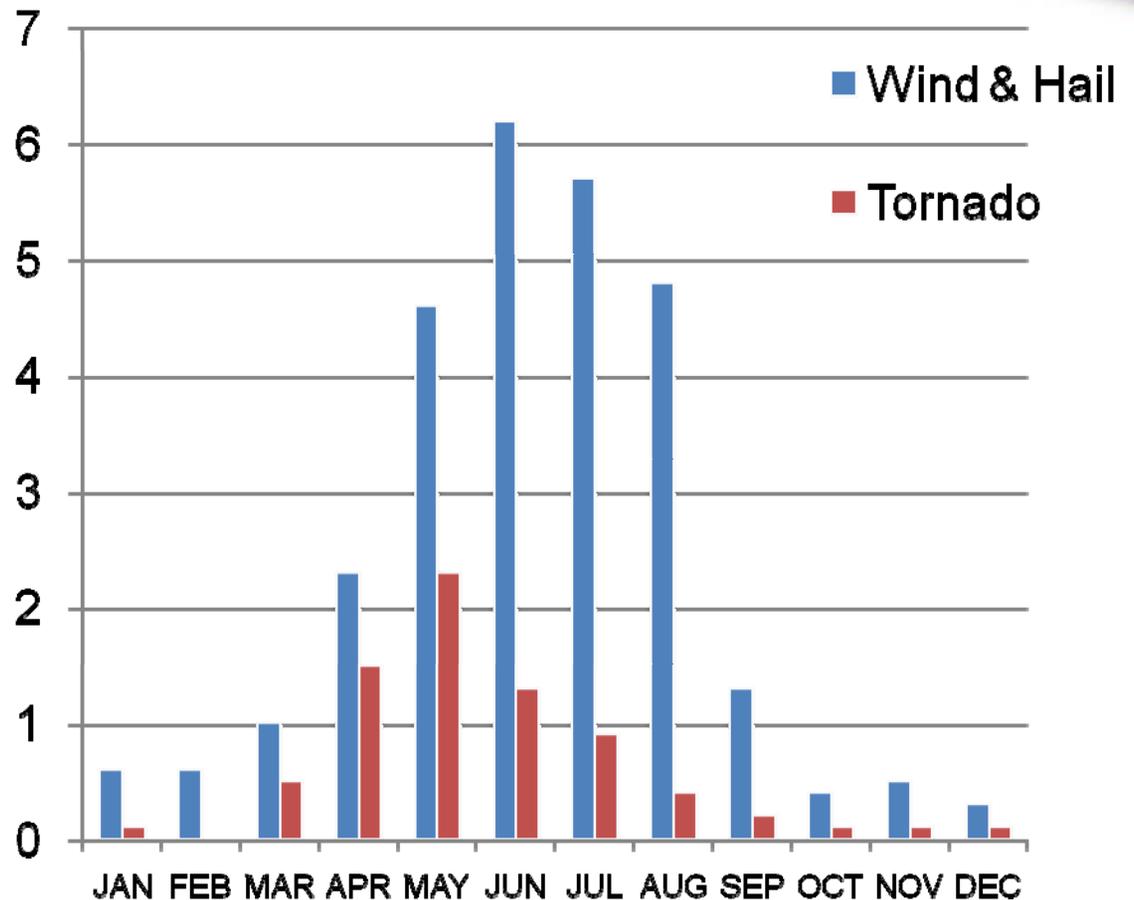
**Yearly # of
Days With:**

All Severe – 35

Tornado – 8

Wind/Hail – 27

**Highest incidence
of severe storms:
last 2 weeks of May**





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THUNDERSTORM BASICS



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Thunderstorm Ingredients

1.Lift

2.Moisture

3.Instability

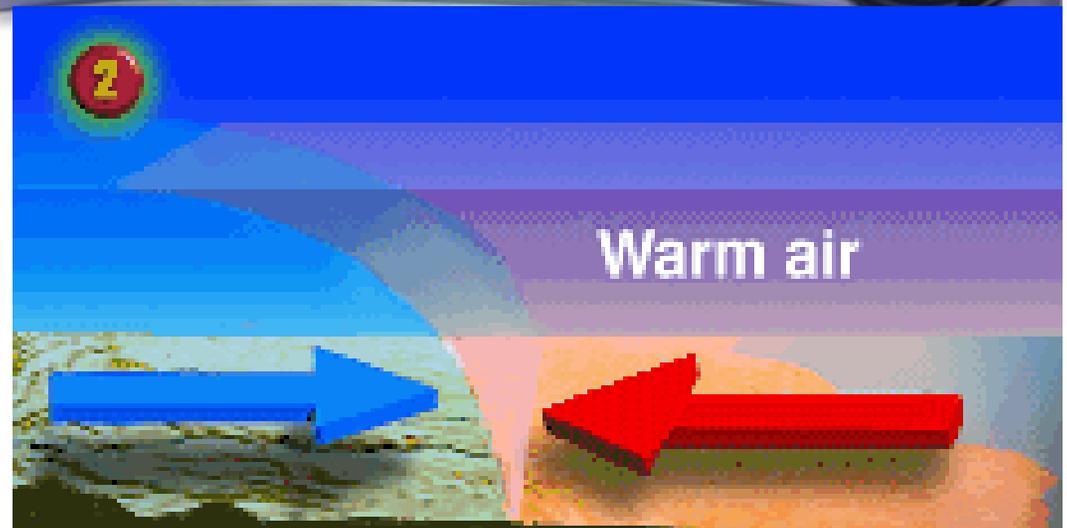




Thunderstorm Ingredients

1. Lift

a. Cold Front



b. Warm Front

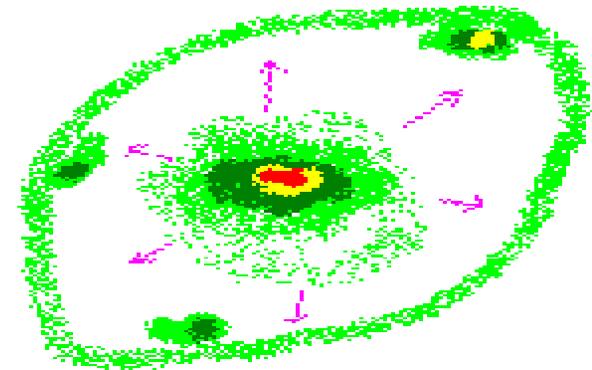




Thunderstorm Ingredients

1. Lift

- c. Heating of the earth (Convection)
- d. Cold outflow from nearby storms
- e. Jet stream or upper level disturbance





Thunderstorm Ingredients

2. Moisture

- a. Gulf of Mexico
- b. Local Vegetation





Thunderstorm Ingredients

3. Instability

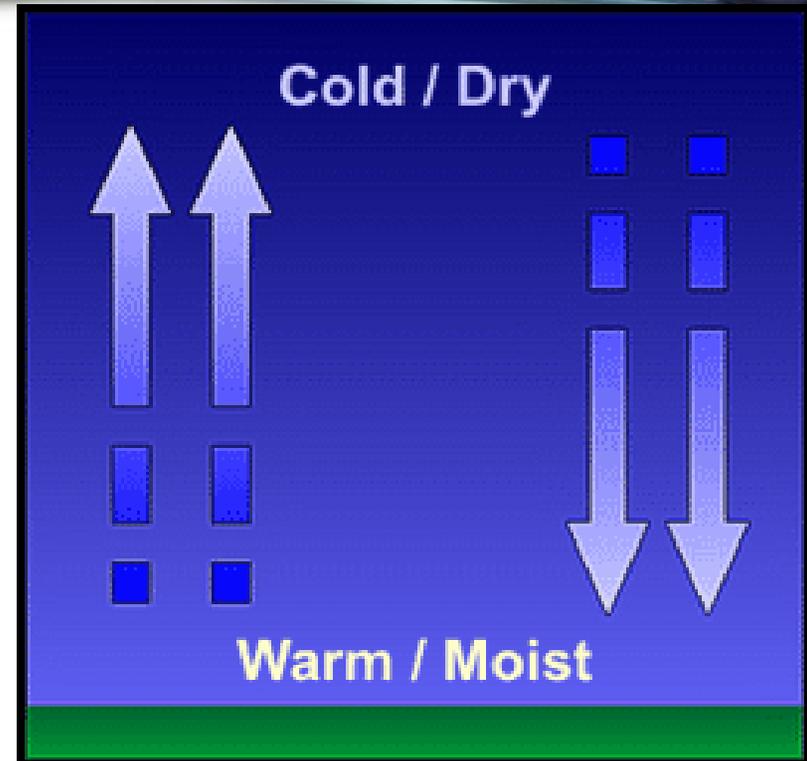
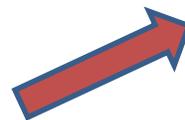
**Warm, moist air
below**

+

cold, dry air aloft

=

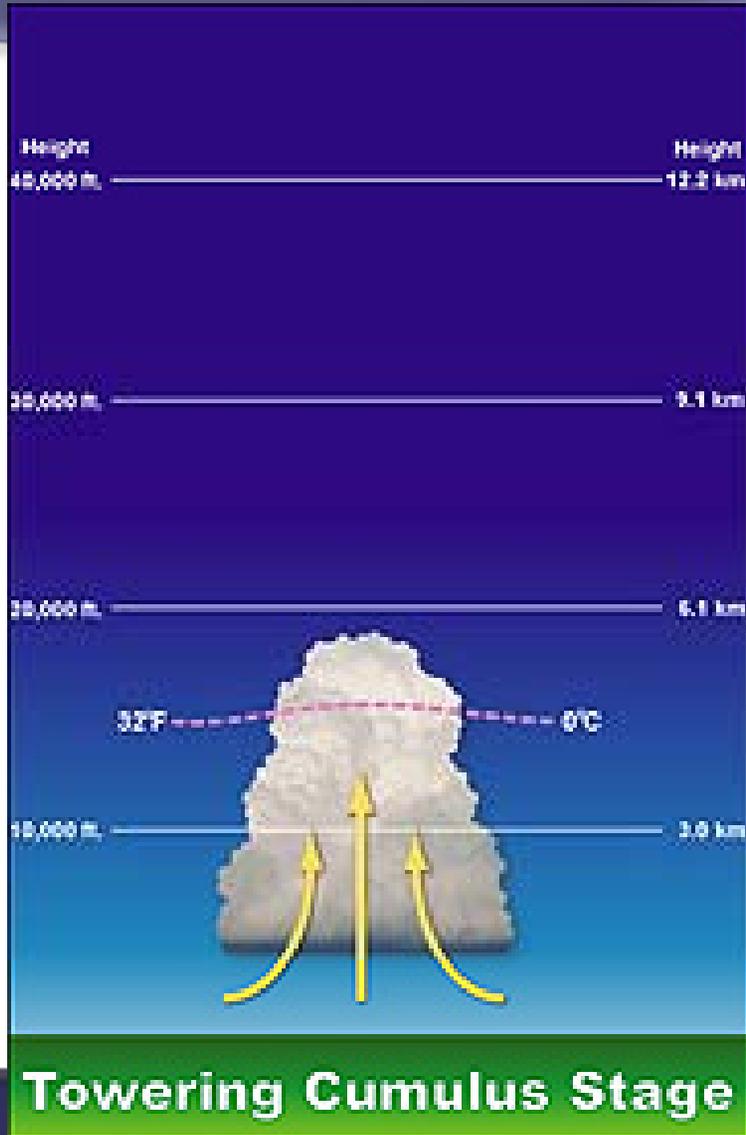
Instability



Air forced up will continue to rise...while air forced down will continue to sink

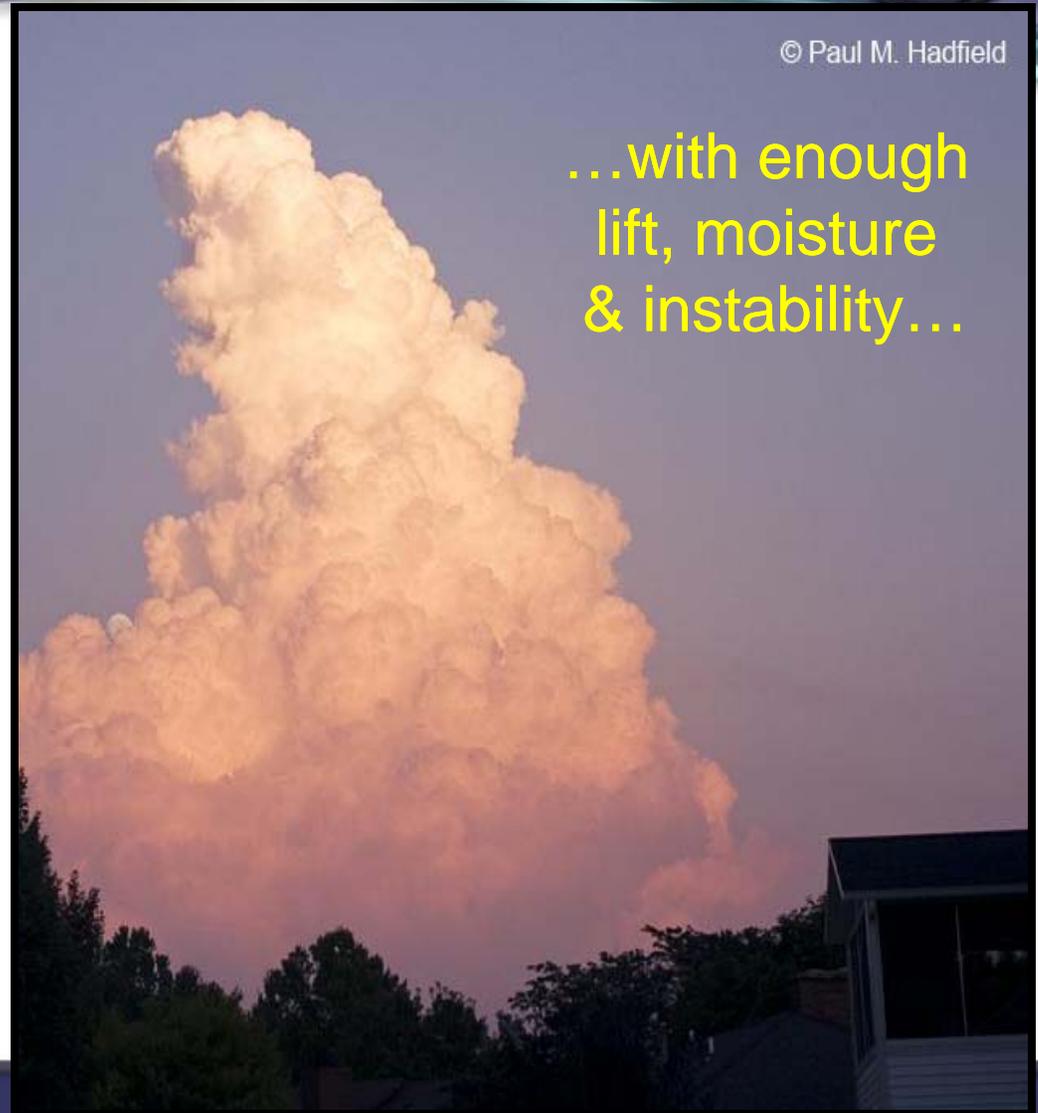


Thunderstorm Life Cycle



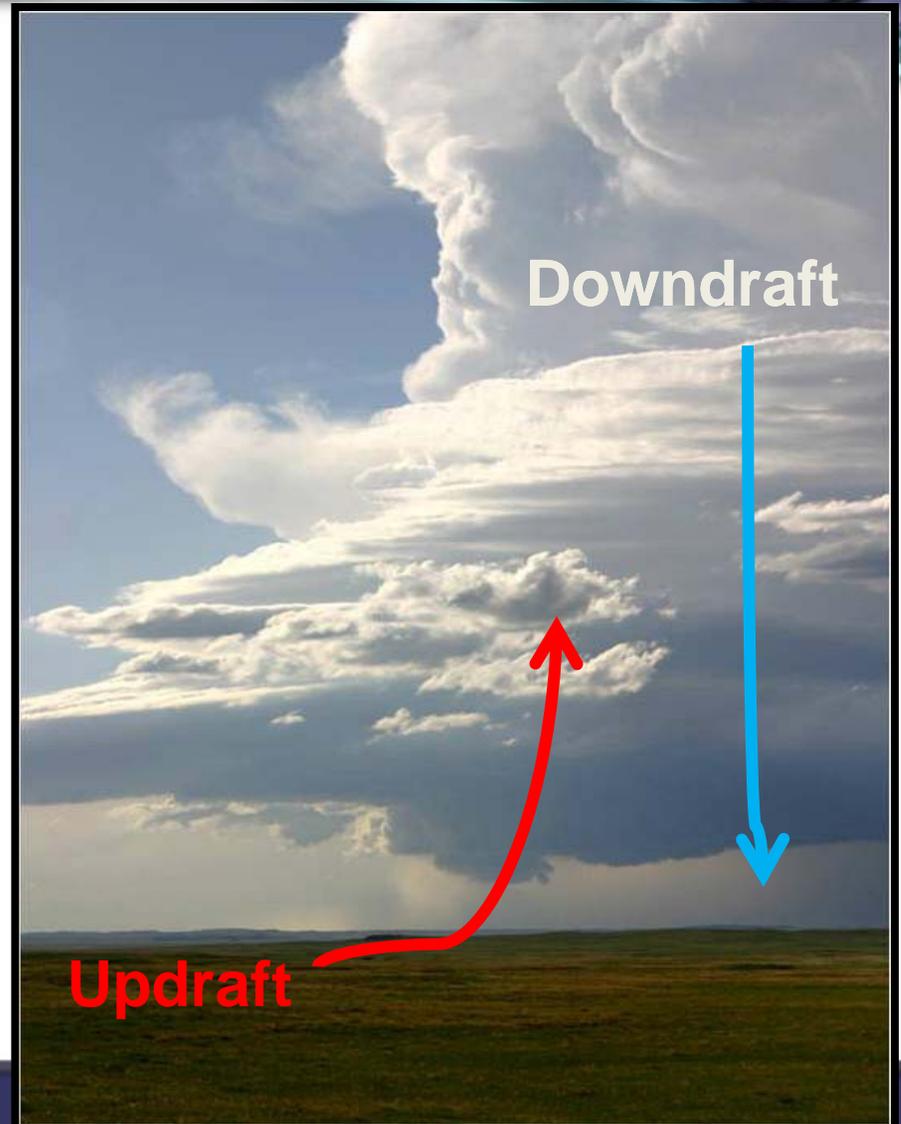
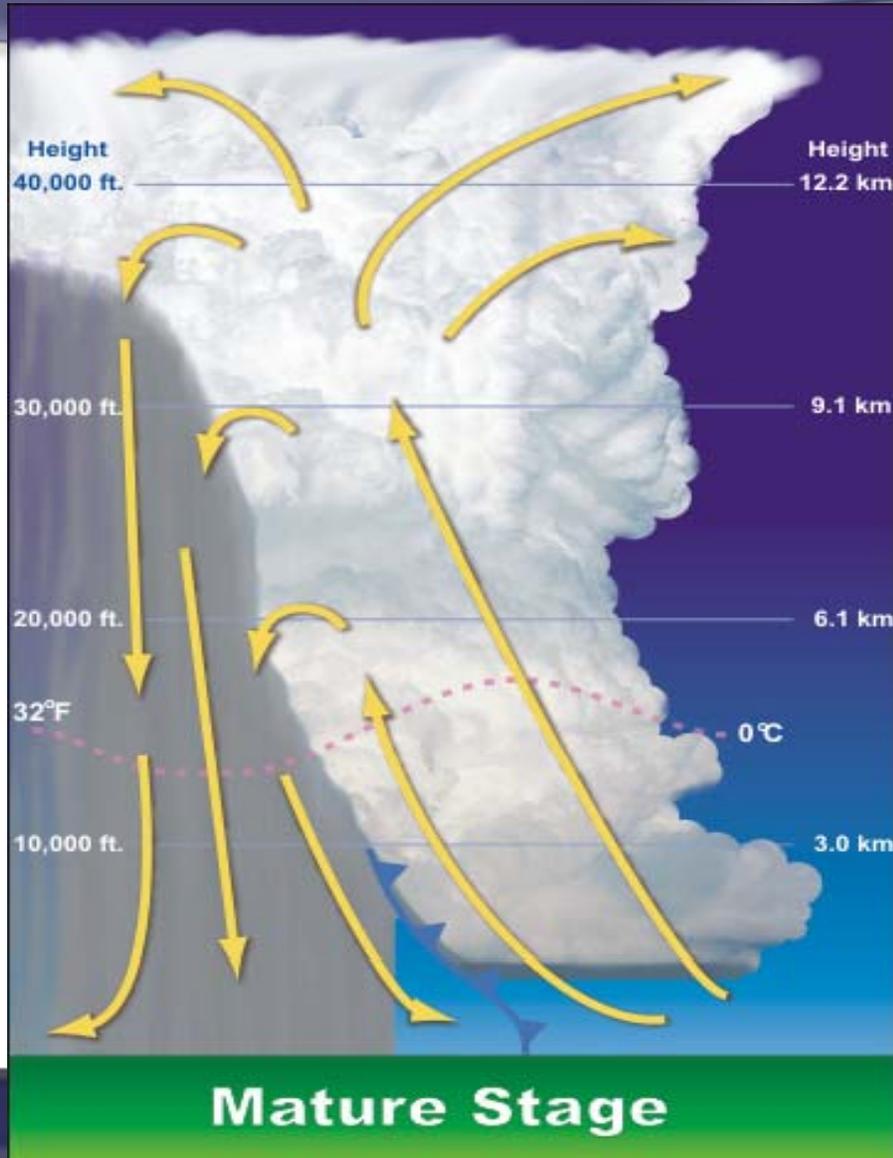
© Paul M. Hadfield

...with enough
lift, moisture
& instability...



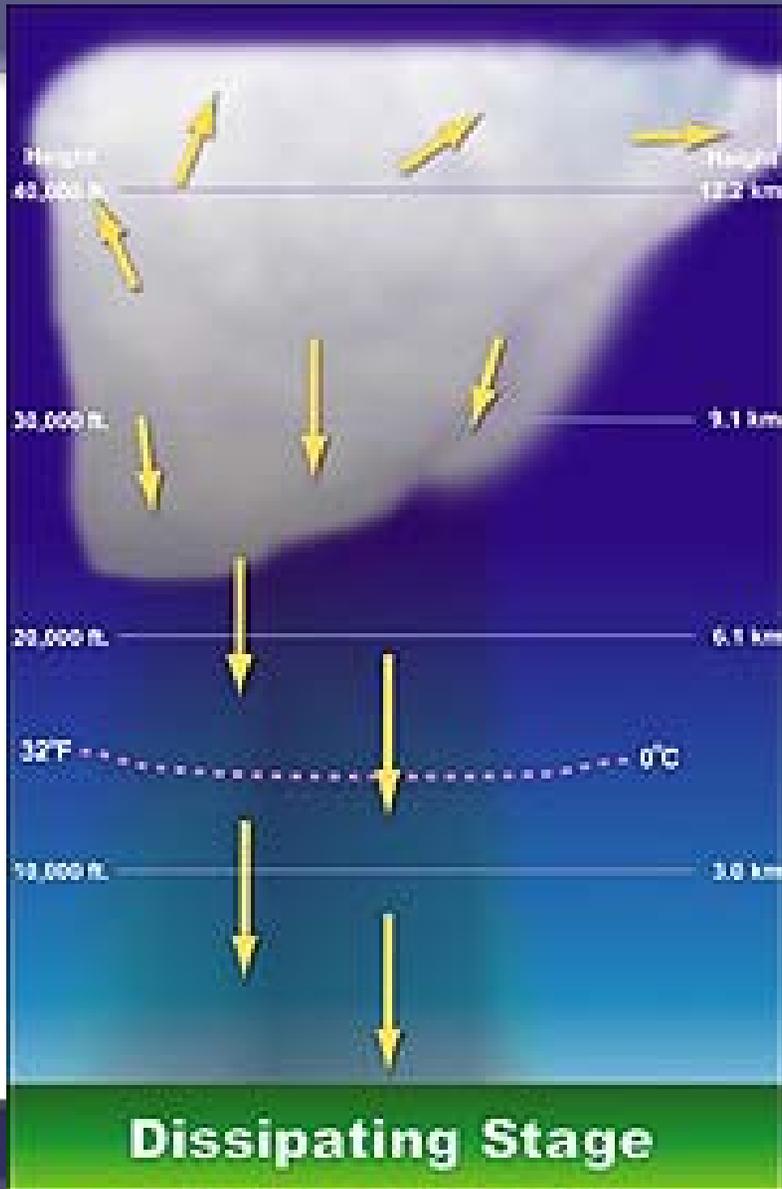


Thunderstorm Life Cycle





Thunderstorm Life Cycle





Updraft and Downdraft - Location

- It is **IMPORTANT** for spotters to identify the Updraft and Downdraft

- Updraft / Inflow

- Usually where most tornadoes form
- Warm, moist air feeds storm

- Downdraft / Outflow

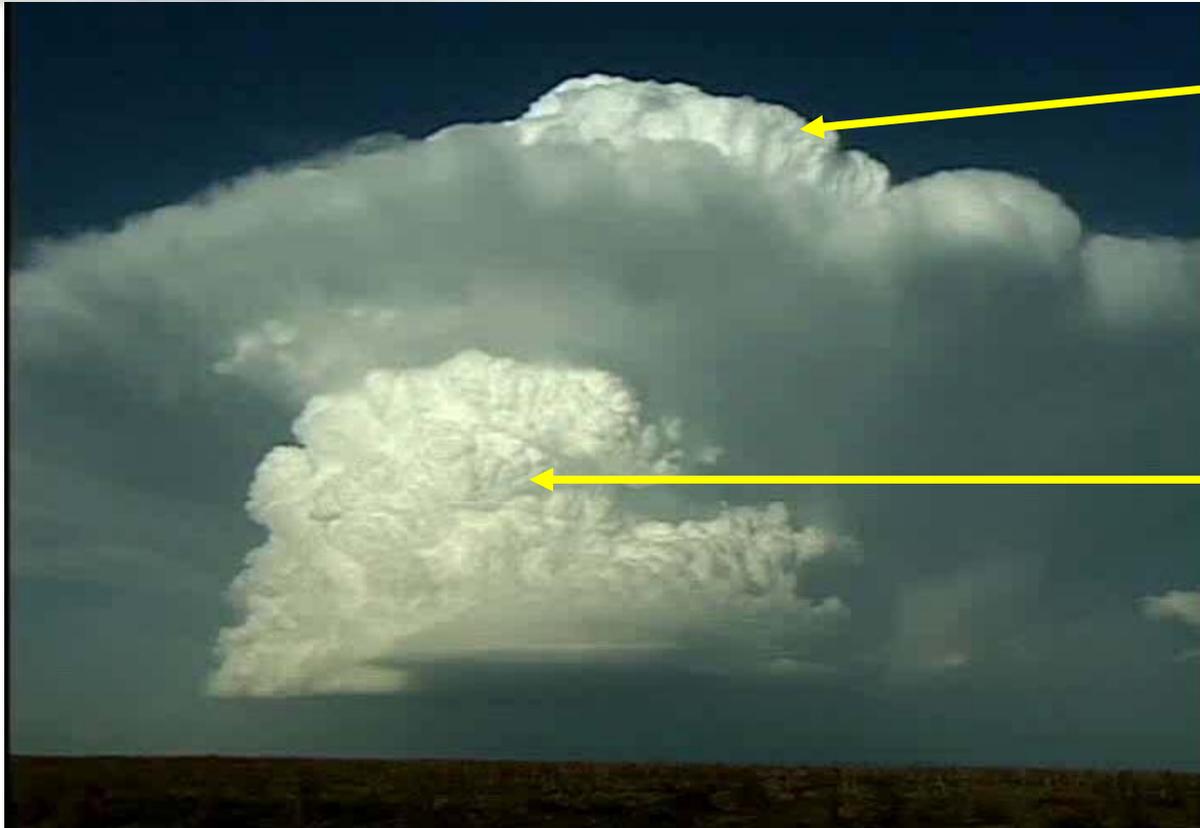
- High wind gusts
- Heavy rain / Hail
- Cool, rainy air spreads out





Updraft – Strong

Video – Normal speed, then time lapse



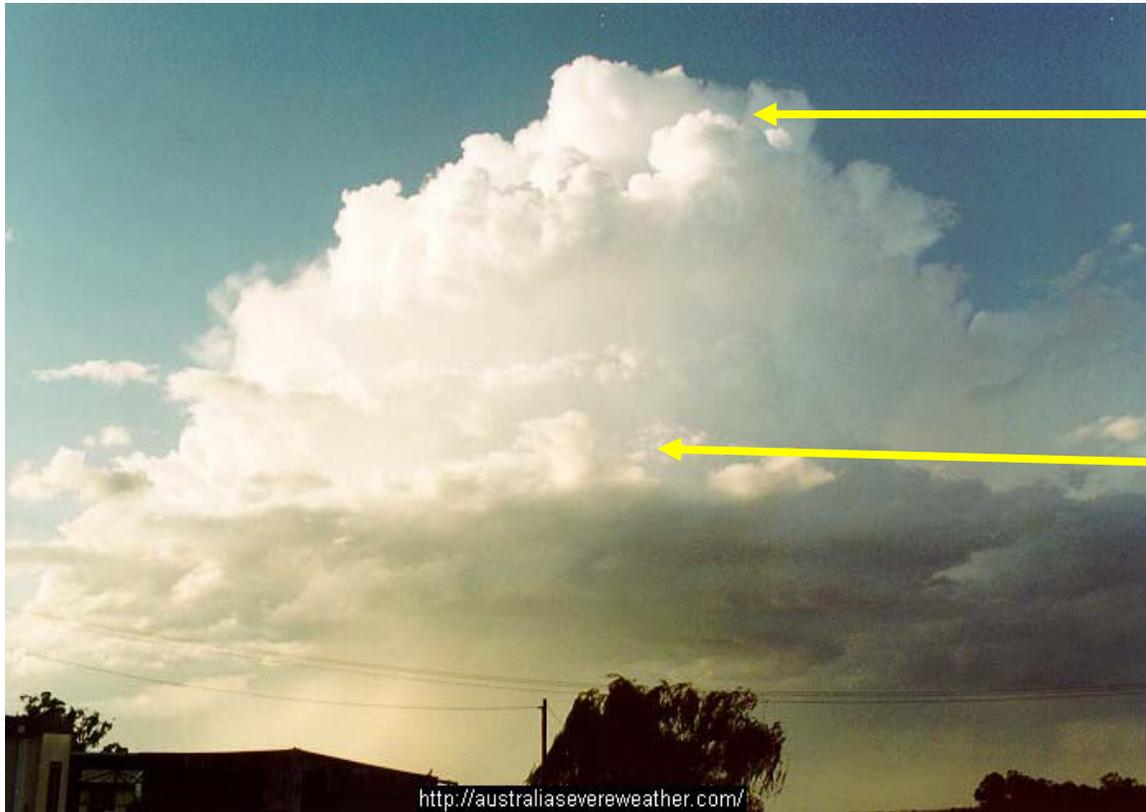
**Clouds boiling
above the anvil
cloud
(Overshooting Top)**

**Hard edges to
billowy clouds
in storm tower,
often tilted**

**Stronger Updraft = Higher Likelihood
of Severe Weather**



Updraft – Weak



**Little or no anvil
cloud at storm
top**

**Edges less
sharp, weak
storm tower
nearly vertical**

**Weaker Updraft = Short lived thunderstorm
and no support for severe weather**



Downdraft – Strong

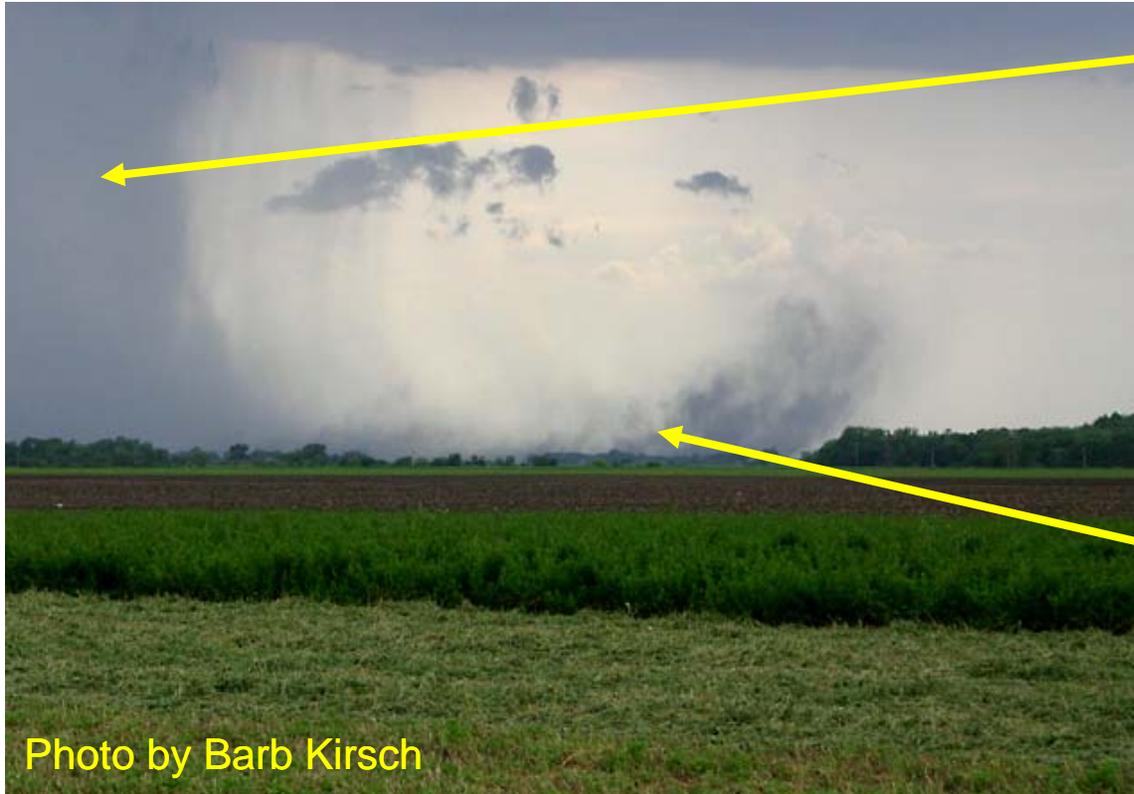


Photo by Barb Kirsch

Very heavy rain

Rapidly descending rain-cooled air can create a strong outflow or downburst with damaging wind

Strong downdrafts are a result of strong updrafts and very unstable air



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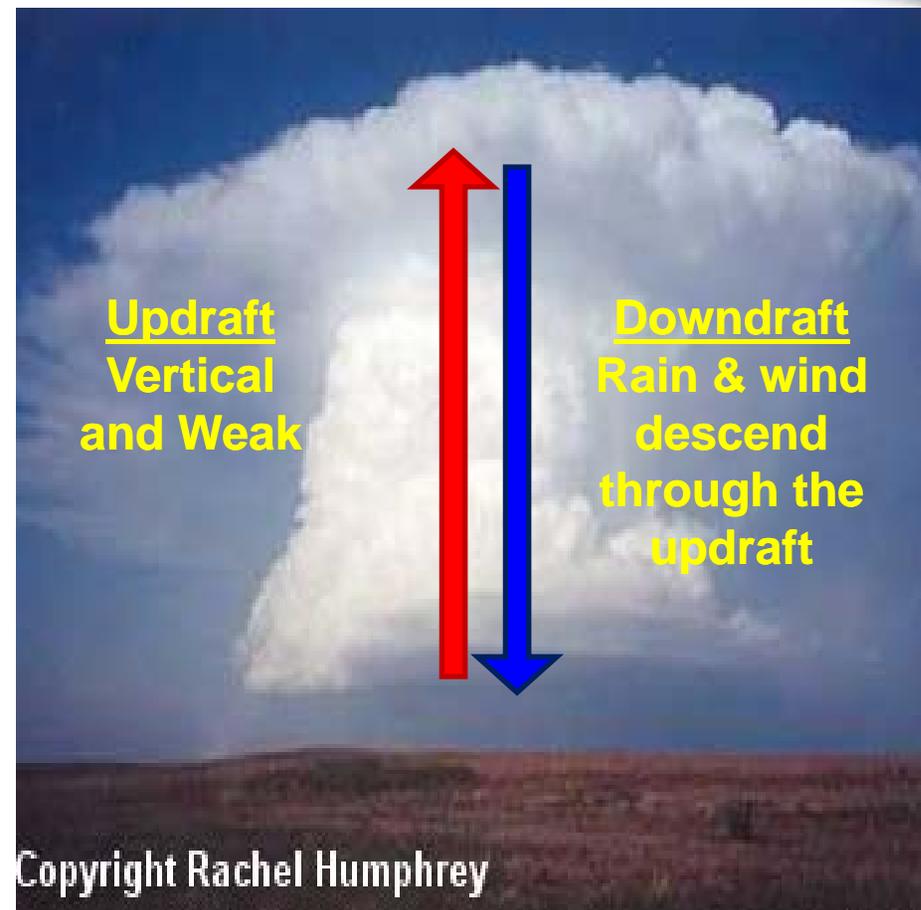


THUNDERSTORM TYPES



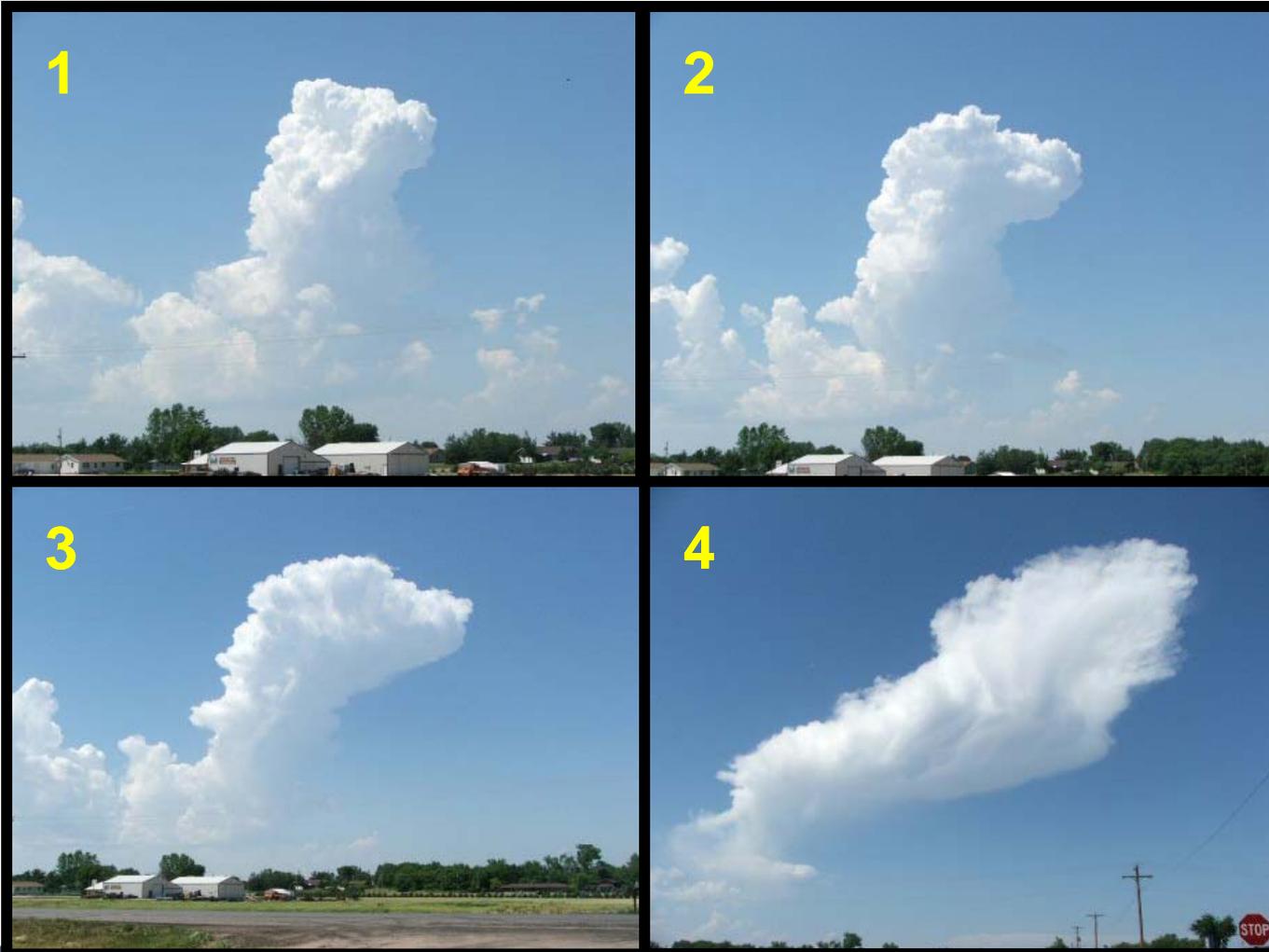
Single Cell Storms

- **Most common in summer**
- **Short lived:
Less than 1 hour**
- **Severe Weather:**
 - **Small Hail**
 - **Downpours**
 - **Gusty Wind**
(usually < 40-50 mph)





Single Cell Storms



**Single
Cell Storm
Life Cycle**
(Mature to
Dissipating
Stage)

**Photos
are about
5 minutes
apart**

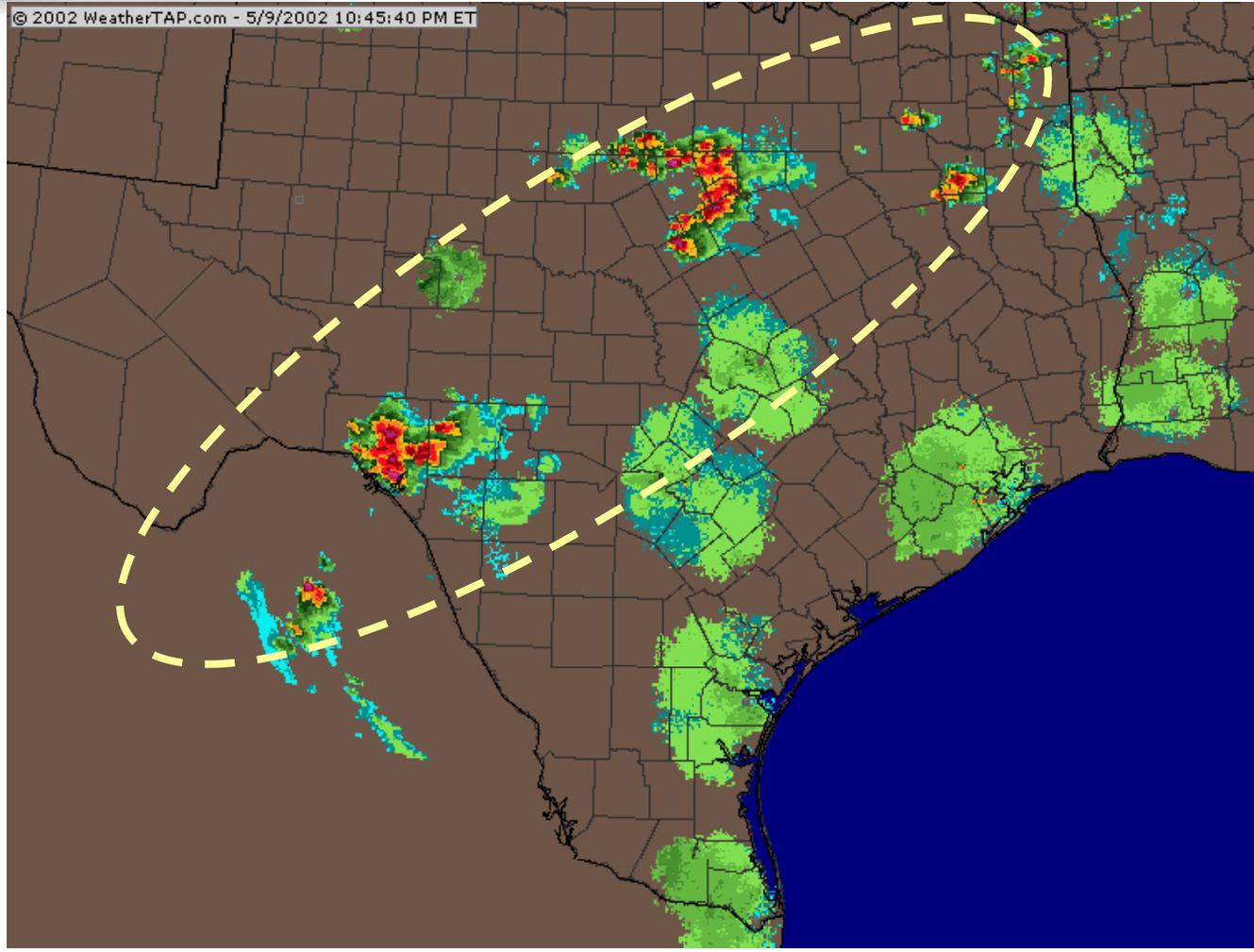


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Single Cell Storms

Radar View





Multicell Cluster Storms

- **Most common type of thunderstorm**
- **The “cluster” is a group of storms moving as one unit**
- **Severe weather:**
 - **Heavy Rain / Hail**
 - **Downburst Winds**
 - **Weak Tornadoes**



Looking NORTH

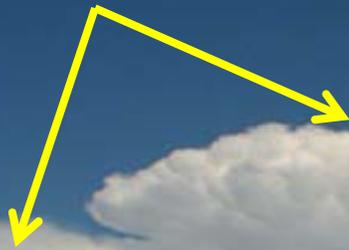
Photo by Gary Woodall



Multicell Cluster Storms

© Paul M. Hadfield

**Oldest / weakening
thunderstorms**

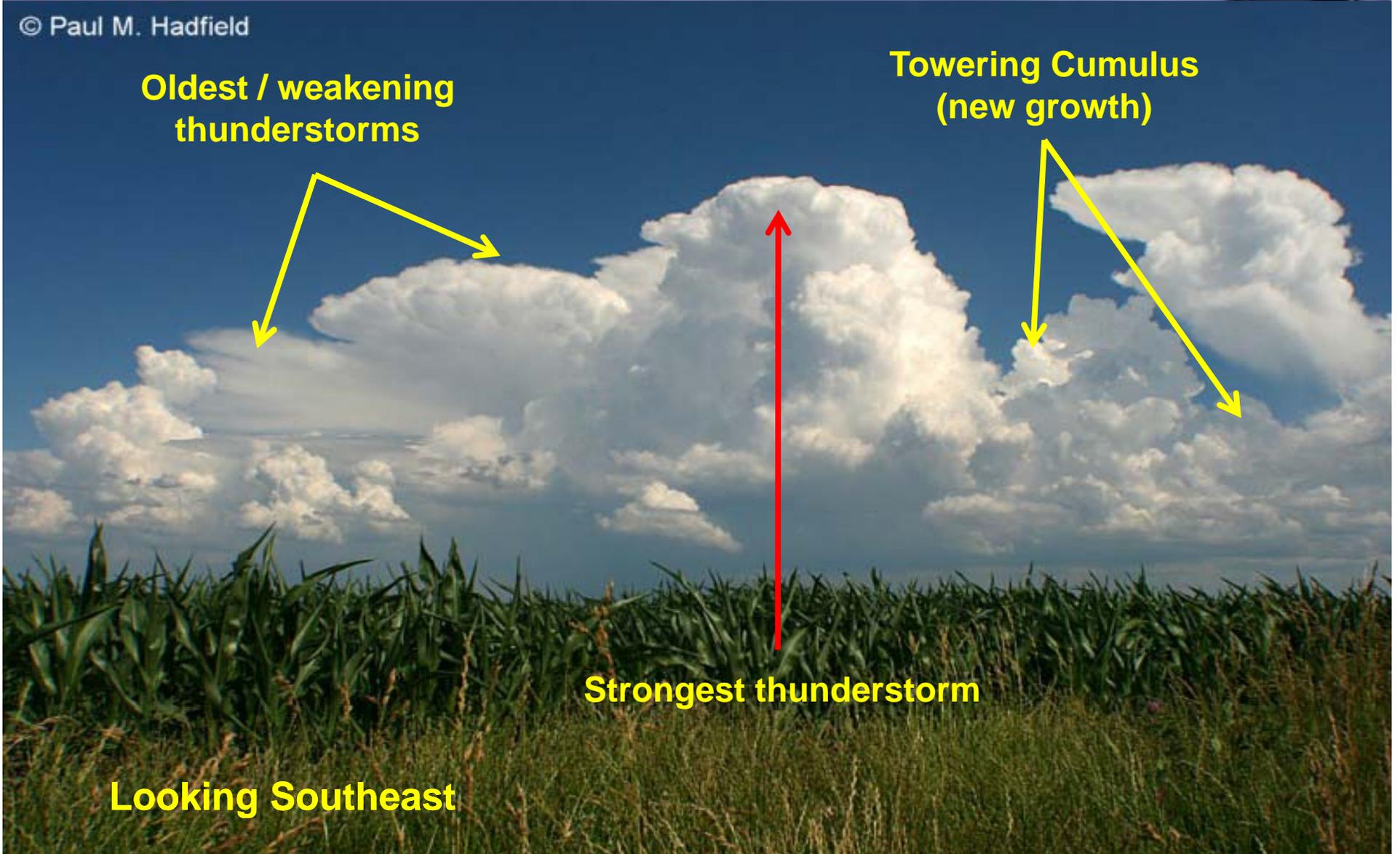


**Towering Cumulus
(new growth)**



Strongest thunderstorm

Looking Southeast



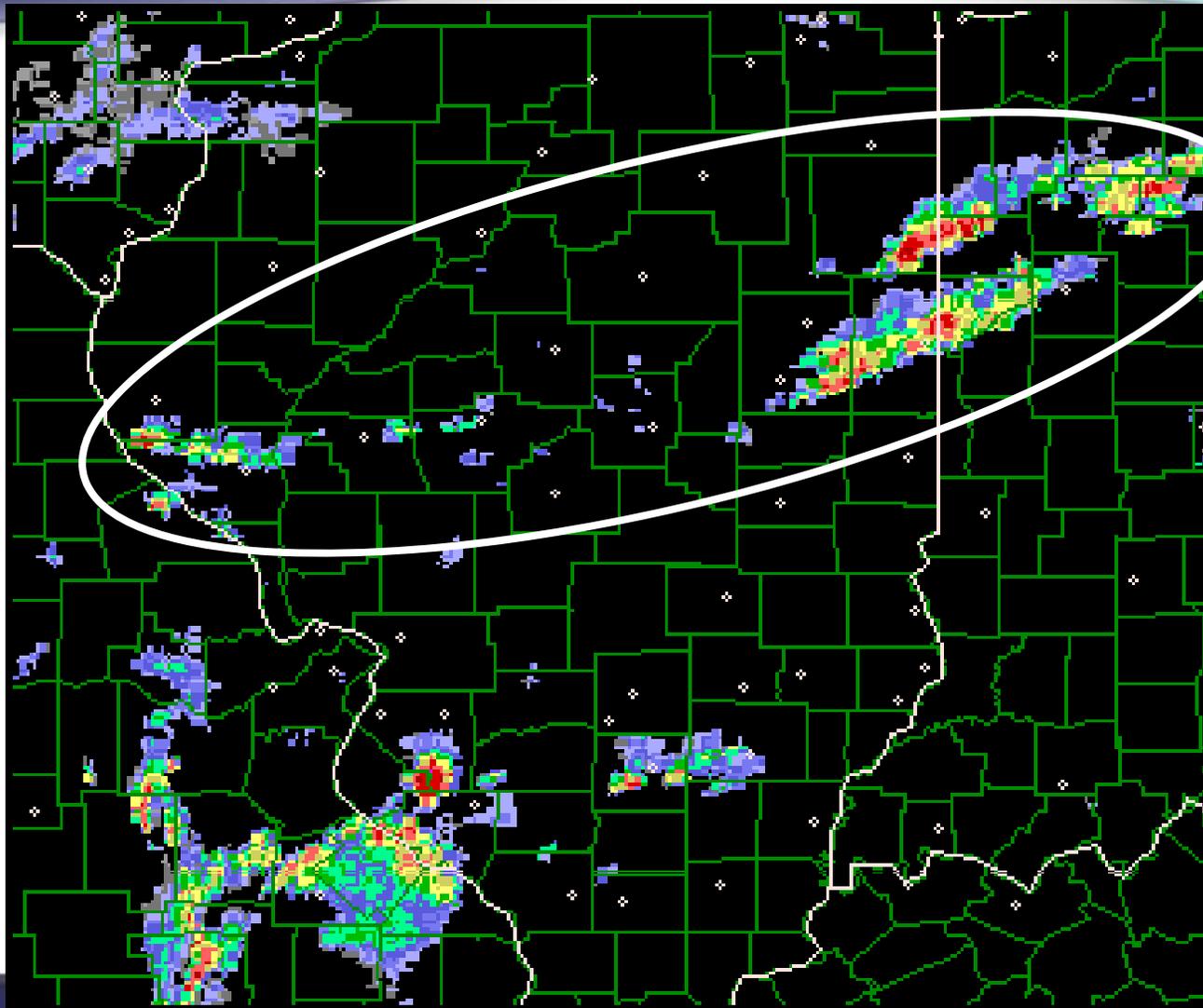


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Multicell Cluster Storms

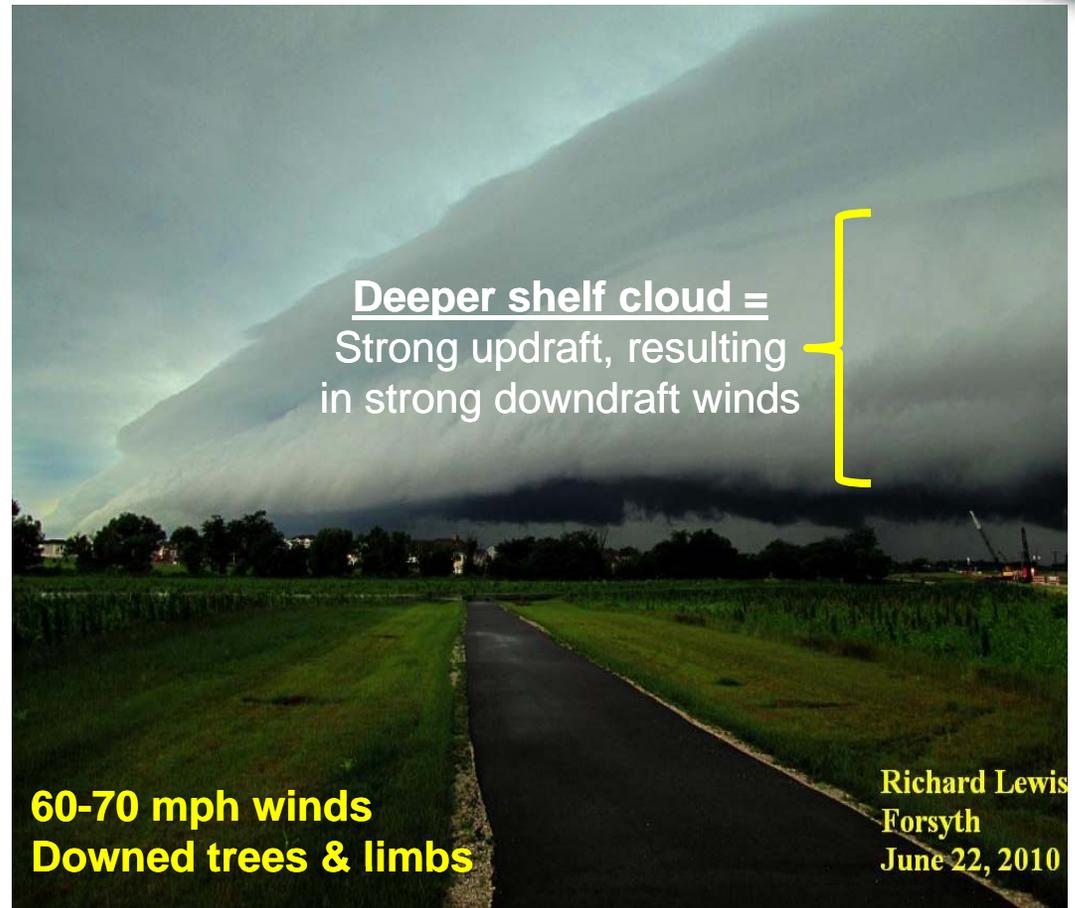
Radar View





Squall Line

- Long line of separate storms
- The leading edge is usually defined by a “Shelf Cloud”
- Depth of the shelf cloud is an indicator of the downdraft strength



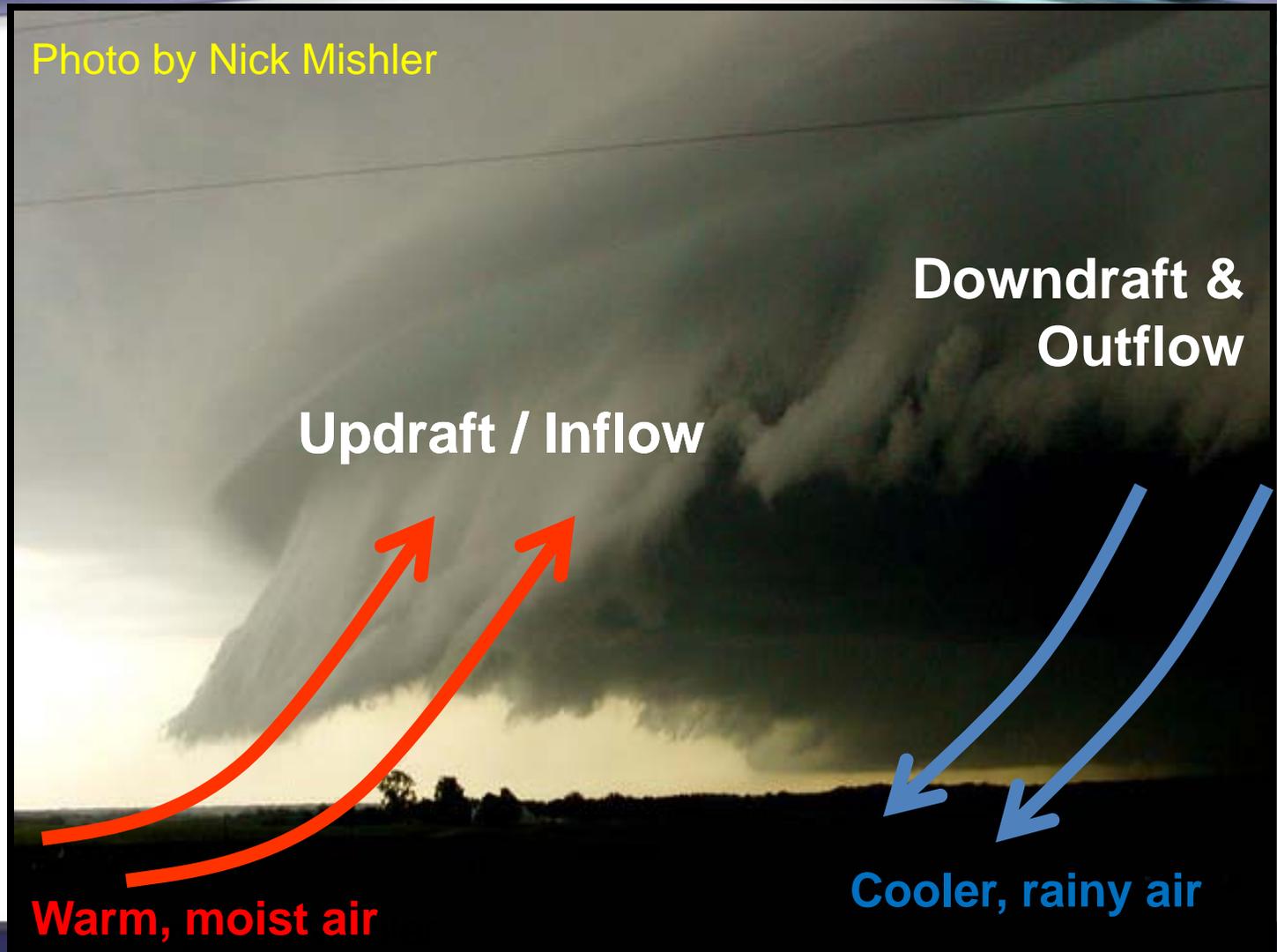


Squall Line – Shelf Cloud

Shelf Cloud

Where the
**Warm
Updraft &
Cool
Downdraft
Meet**

Photo by Nick Mishler





Squall Line

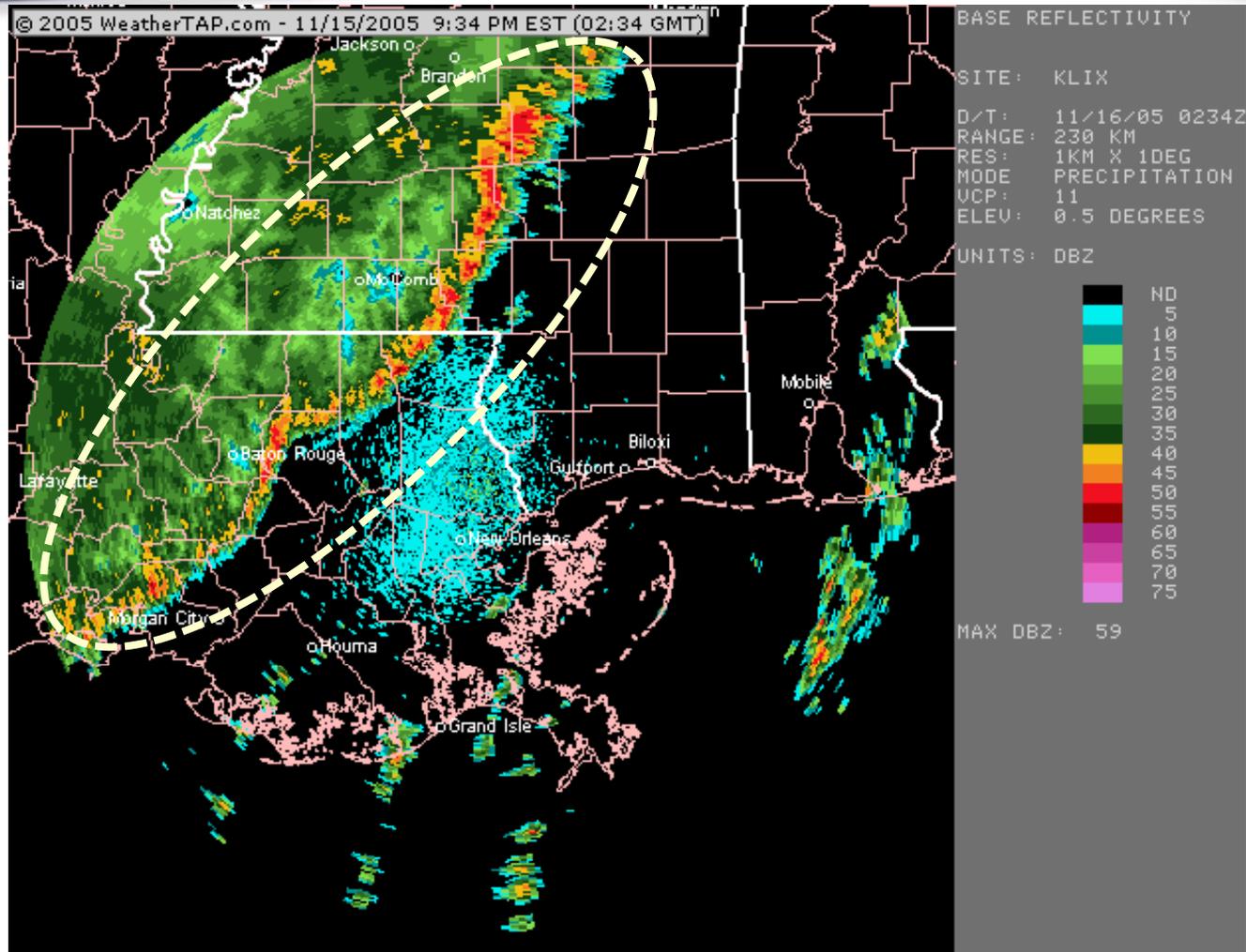
- **Severe Weather:**
 - **Potential for high winds / damage**
 - **Occasional Tornadoes**
 - **Heavy Rain**
 - **Hail (dime to golf ball sized)**





Multicell Line Storms (Squall Line)

Radar View





Supercell Thunderstorms

- Highly organized storms
- Pose a **HIGH** threat to life & property
- Updrafts rotate
 - Rotating “Updraft” is called a “MESOCYCLONE” or “Meso”...this only occurs in supercells
 - Rotation caused by “wind shear” in the atmosphere





Supercells

- **Severe Weather:**

- **High winds & wind damage**
- **Tornadoes**
(higher potential for strong or violent)
- **Large Hail**
(bigger than a golf ball)
- **Heavy Rain & Flash Flooding**





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Visual Clues of Supercells

Rotating Updraft / Meso



Spiral bands and striations in updraft tower are clues that the updraft is rotating



Visual Clues of Supercells

Wall Clouds



Jarrod Cook
Near Abingdon, IL
6/5/10

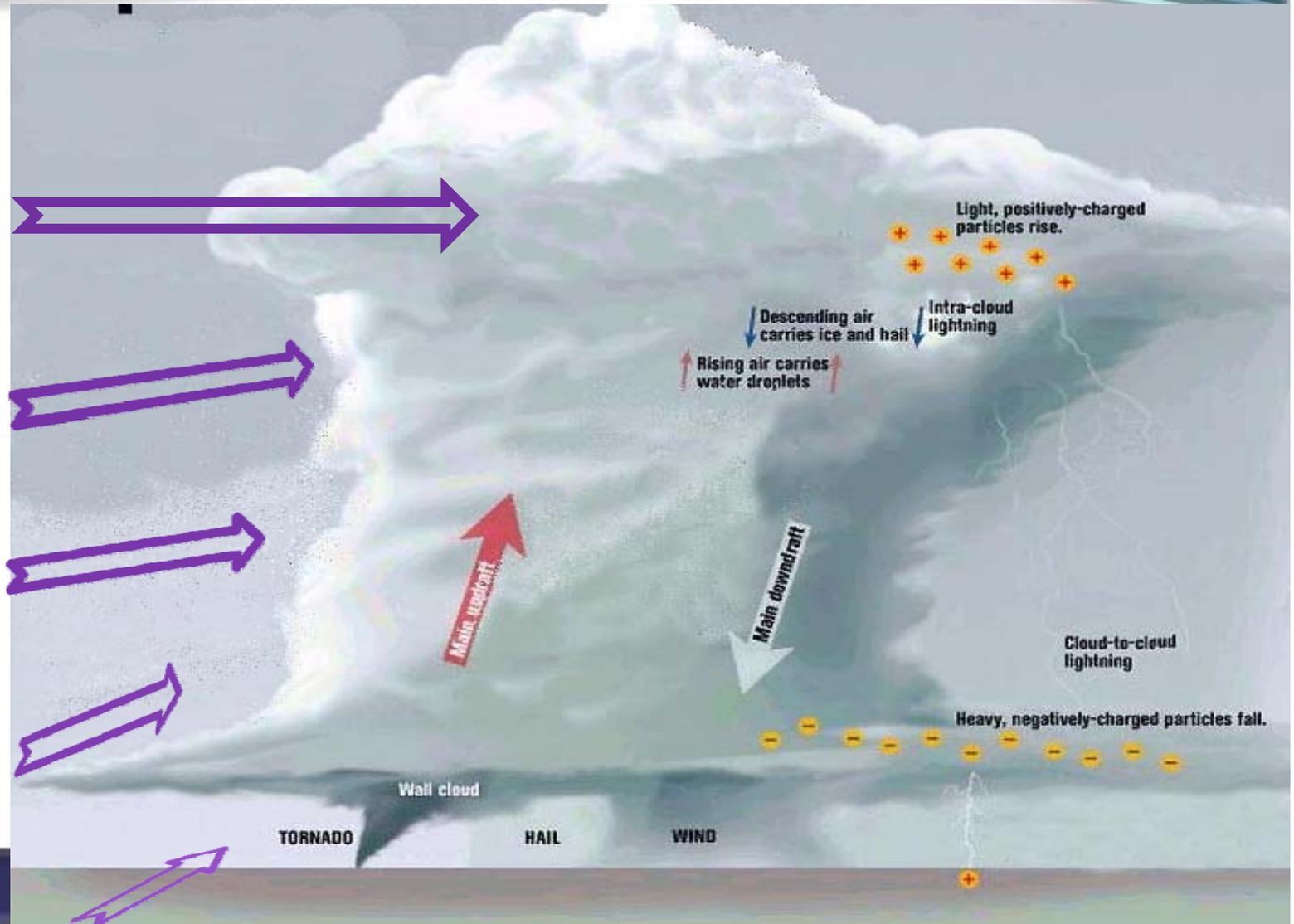
- **Persistent lowering of the rain-free base**
- **Usually long lived – the key is rotation**
- **Upward motion often present**
- **May contain a “tail cloud” which points toward the downdraft**



Classic Supercell

Structure & Severe Weather

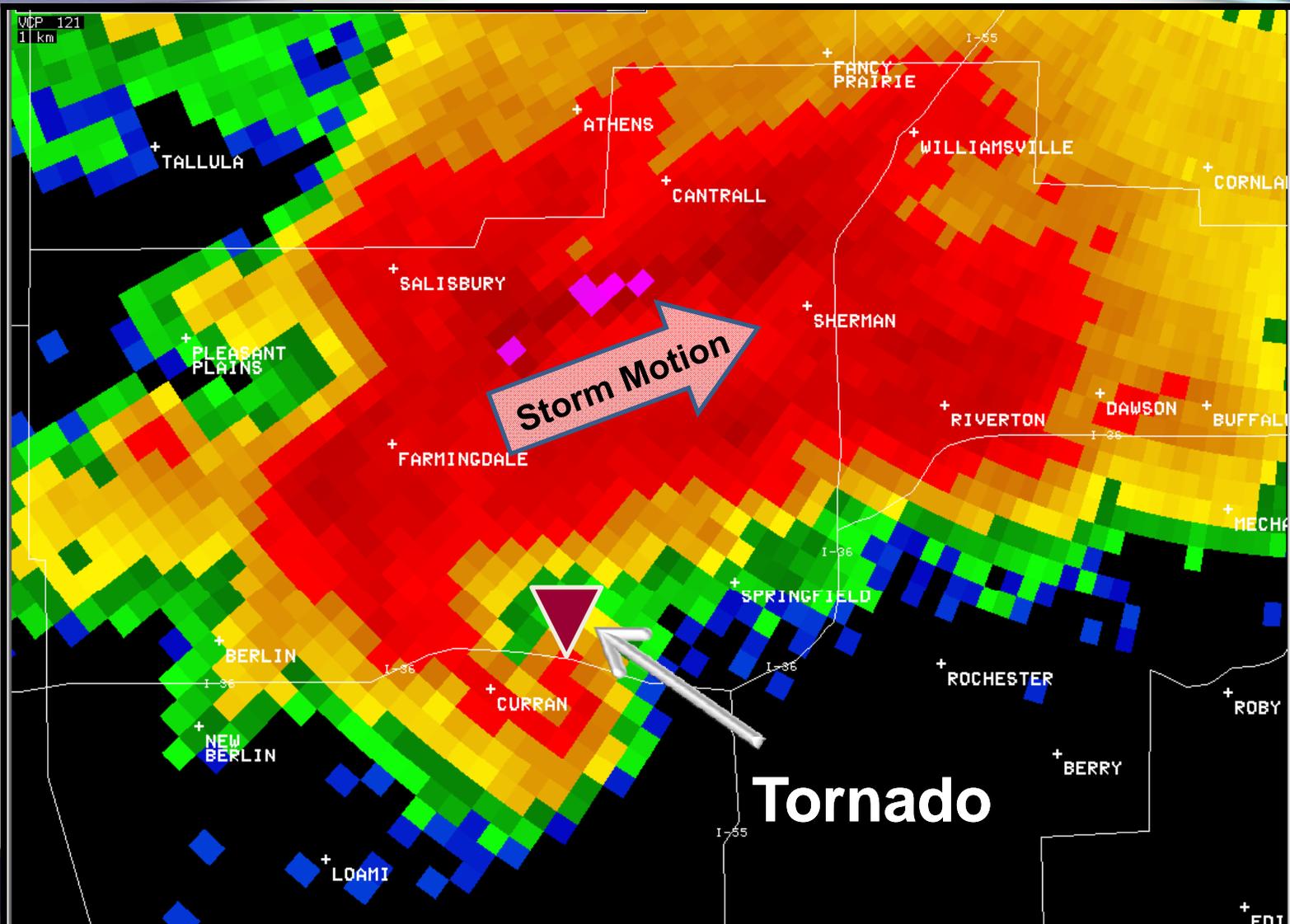
Side
View





Classic Supercell

Radar View



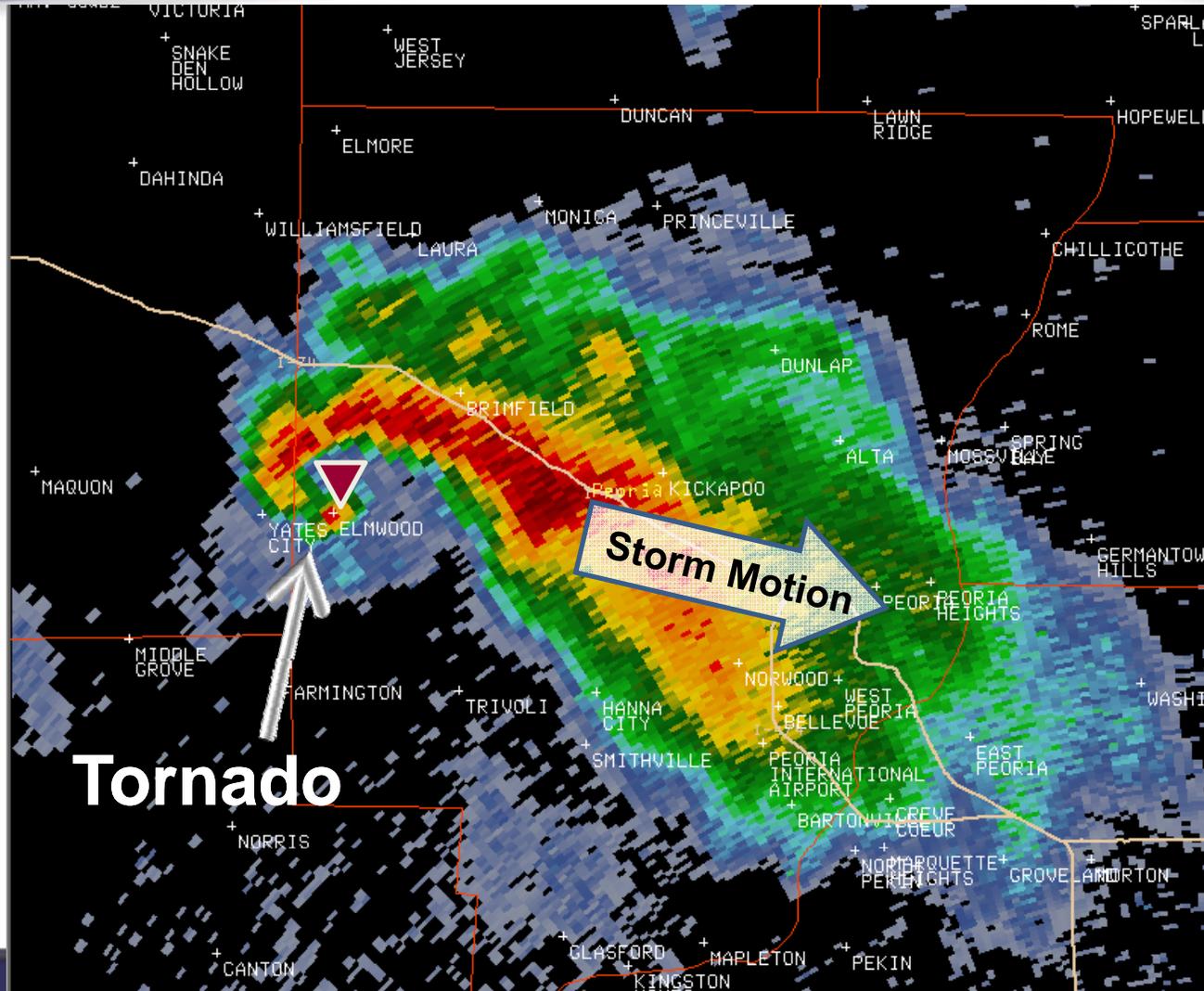


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Classic Supercell (small)

Radar View



6/5/10
Elmwood, IL
(Peoria Co.)

Tornado



High Precipitation (HP) Supercell

- Rain nearly surrounds the updraft / wall cloud
 - Rotation is **VERY difficult to see**
- Tornado is usually wrapped in rain
 - **VERY Dangerous for spotters !!**

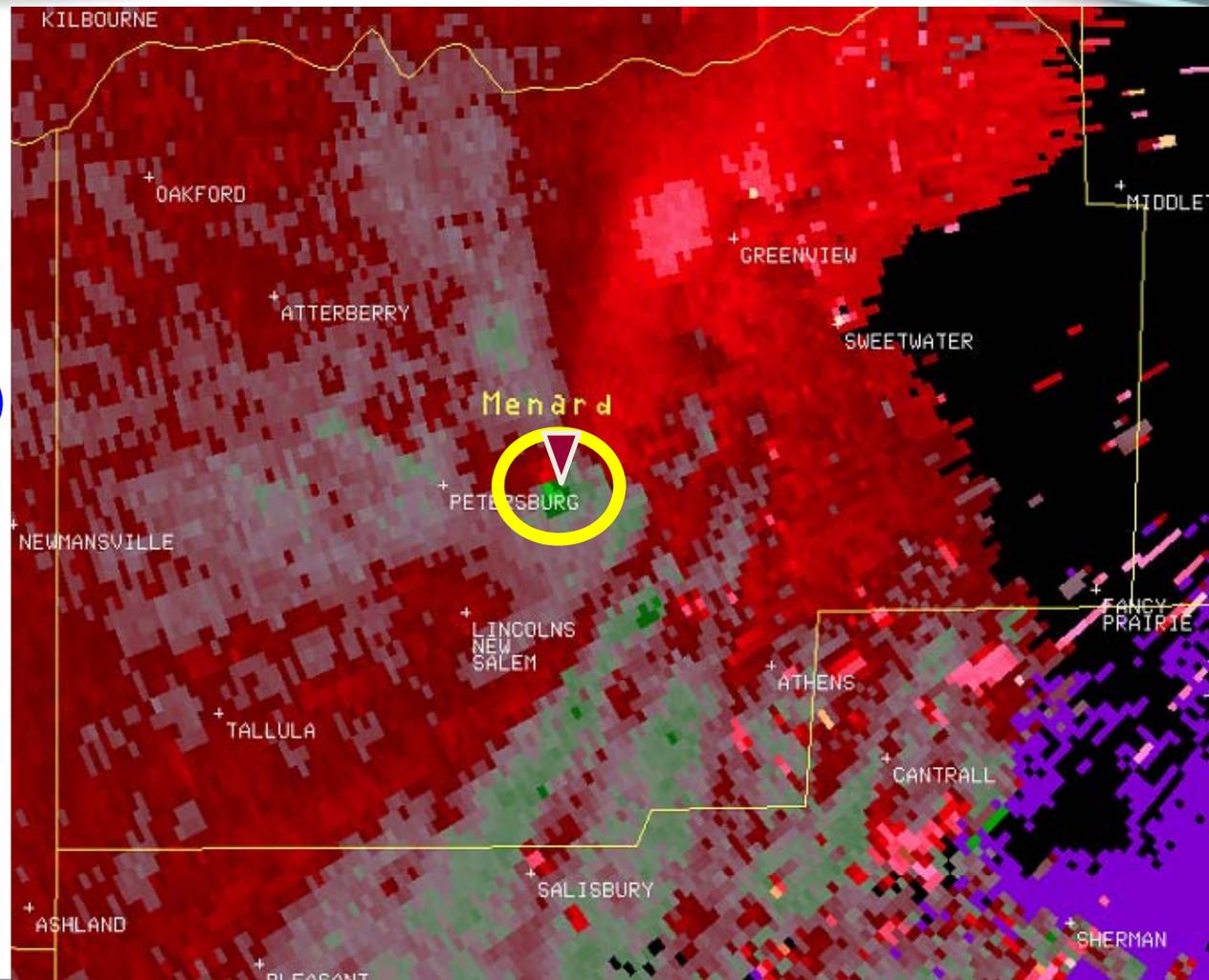


© SUSAN STROM, LIGHTNINGLADY.COM



HP Supercell Radar View

**HP Supercell
Mesocyclones
(rotating updrafts)
are best
detected on
radar with the
Storm Relative
Velocity image**





Types of Severe Weather

- 1) **Tornadoes**
 - A. **Supercell Tornadoes (Classic & HP)**
 - B. **Other Rotations**
- 2) **Damaging Winds**
- 3) **Hail**
- 4) **Flash Flooding**



Tornado Formation

“Classic Supercell”

- **Visual Clues of Tornado Formation:**
 1. **Large, rounded rain-free base**
 2. **Persistent wall cloud, with increasing rotation**





Tornado Formation

“Classic Supercell”

- **Visual Clues of Tornado Formation:**

3. Development of a funnel cloud, in or near the wall cloud

4. Formation of a “Clear Slot”
(bright, cloud-free notch in the rain-free base)



Photo by John Farley



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Classic Supercell Tornado

Life Cycle

1. Developing Stage



Watch for: Rotation and dust whirl at the ground – connection to wall cloud or funnel



Classic Supercell Tornado

Life Cycle

2. Mature Stage



Photo by Mike Umsheid

Watch for: Debris with tornado may mask that it is still in contact with the ground.



Classic Supercell Tornado

Life Cycle

3. Dissipating (Rope) Stage



Photo by KCBD-TV



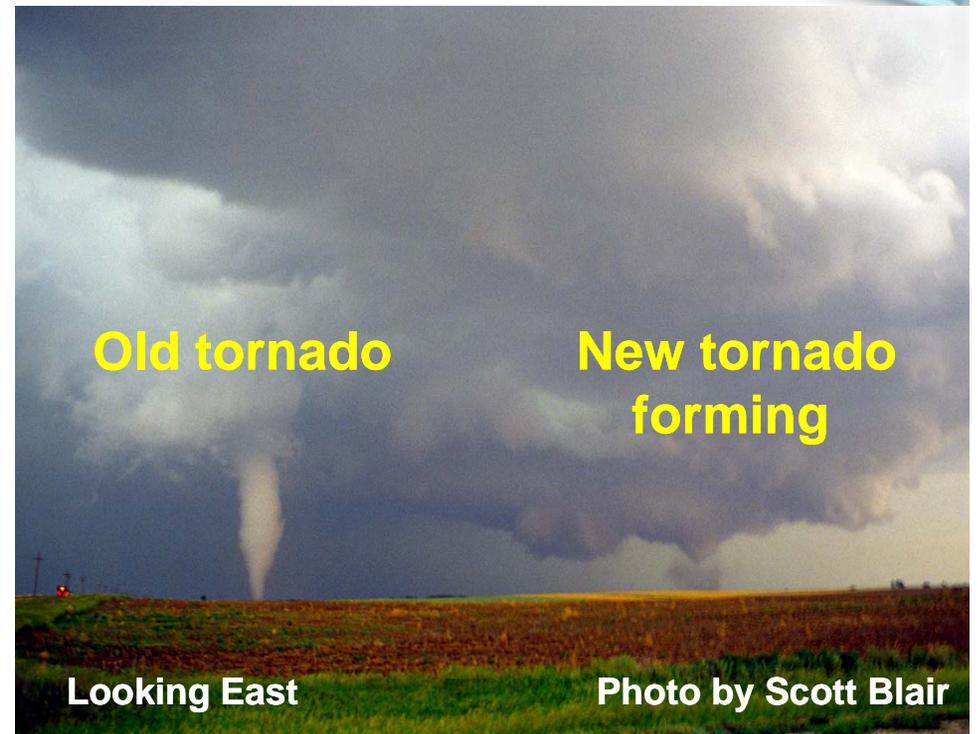
Photo by Mike Umsheid

Watch for: Another tornado to develop a few miles or so to the east of the dissipating one



Cyclic Supercell Tornadoes

- **Favored area:**
E to SE of a
dissipating tornado
- **The new wall cloud
and funnel cloud
will be the dominant
part of the storm**
- **Watch this area very carefully for a NEW
tornado to develop**





HP Supercell Tornado Formation

- The formation of an HP Supercell tornado is similar to a classic supercell
 - Mesocyclone deepens and lowers in storm
 - Wall cloud & sometimes a funnel cloud forms
- However...It is very difficult & DANGEROUS for spotters to see the tornado form





Landspout Tornado

- **No “organized” large scale rotation**
 - **No wall cloud**
 - **No rotation on radar**
- **Often curved and nearly transparent**
- **Form near an E-W front, on SW edge of multicell clusters**





Landspout Tornado – 5/31/06

May 31, 2006

9 Landspouts developed in central Illinois between 2:20 and 2:43 PM



Photo courtesy of Champaign County EMA
Near Ivesdale, IL



Gustnado

- Small short-lived rotations along a gust front
- Does not reach up to cloud, no rotation in cloud or on radar
- Look for rotation at ground not just blowing dust
- Can cause minor damage to structures and are hazardous to people





Gust Front on Radar

**Multiple
gustnadoes
could form
anywhere along
or just ahead of
the gust front**





Dust Devil

- A small, short-lived rotation that swirls dirt and debris to great heights
- Form on warm and sunny days, usually over open fields when the ground heats up
- No clouds or storms are present





Cold Air Funnels



Photo by Pete Mantell

- Occur in vertically developed clouds, usually with no thunder
- **Most common in late spring/early summer, and in autumn**
- Rarely touch down... but if they do, they can cause minor damage



Damaging Wind Types

- **Straight-line wind**
 - Usually from a squall line
 - Downdraft spreads out ahead of a line of storms
- **Downbursts**
 - Downdraft descends, making impact with the ground
- **Dereches / Bow Echoes**
 - Long lived “bowing” line of downburst clusters & tornadoes





Straight-line Wind

- **Squall Line**

- Visual clue is deep, wavy shelf cloud on the approaching side
- Squall lines are best seen on radar
- Keep in mind:

- The wind speeds will vary along the line
- Some locations may have intense wind speeds, while others nearby have much less wind





Downburst

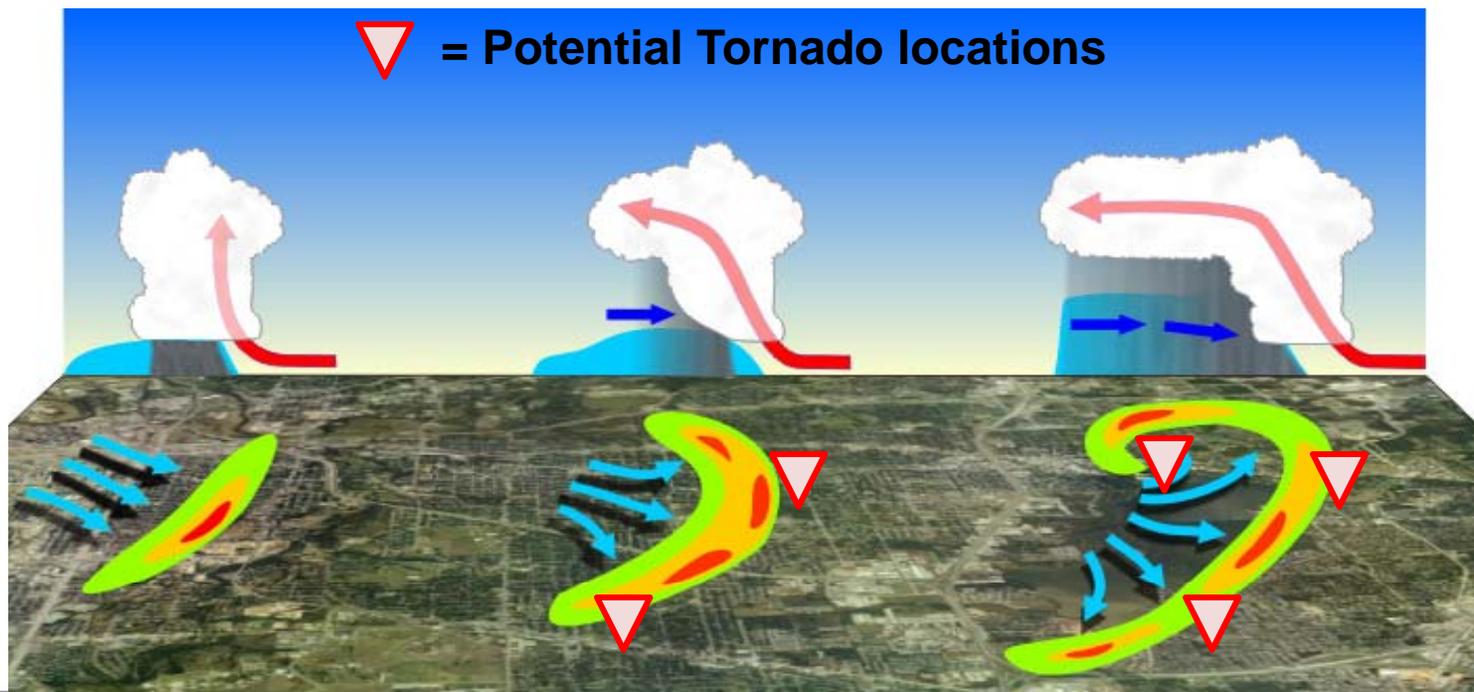
- Rapidly descending rain, cooled air
- Rain-foot indicates strongest winds
- Wind speeds:
 - Can reach > 100 mph
 - Damage will be the SAME as what a weak or even a strong tornado produces





Bow Echo

- A “bow shaped” line of radar returns often associated with swaths of wind damage and occasionally tornadoes



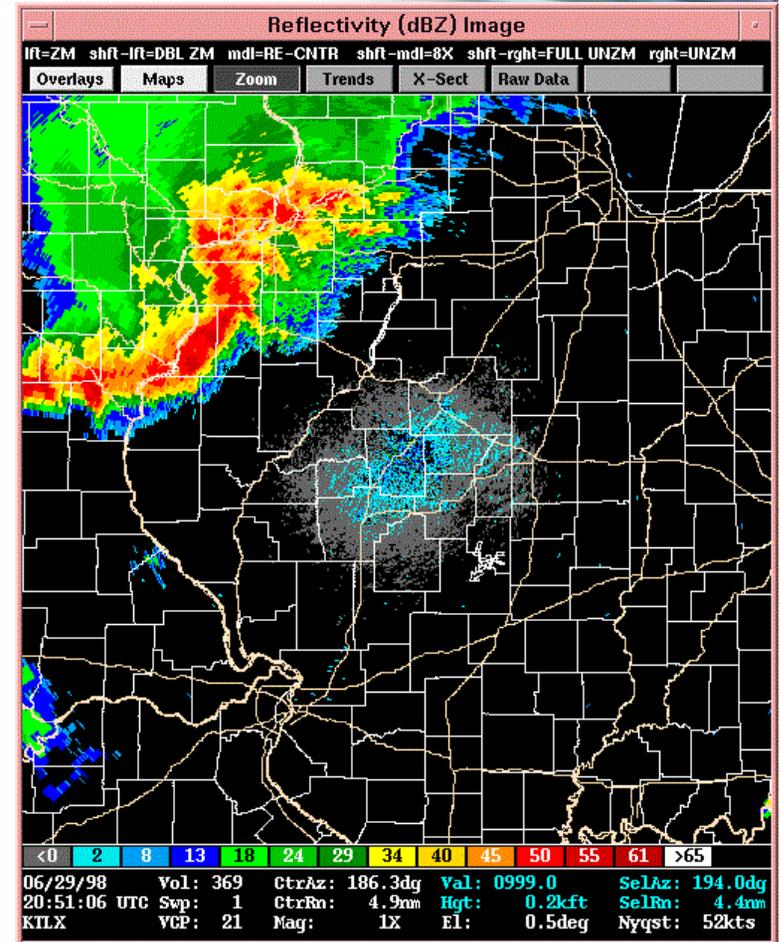


Derechoes



Photo by Brittney Misialek
7/10/08 near Hampshire, IL

- Long lived windstorm with a band of rapidly moving thunderstorms
- “Bow echoes” produce several “downburst clusters” – often with winds the same as a weak or strong tornado

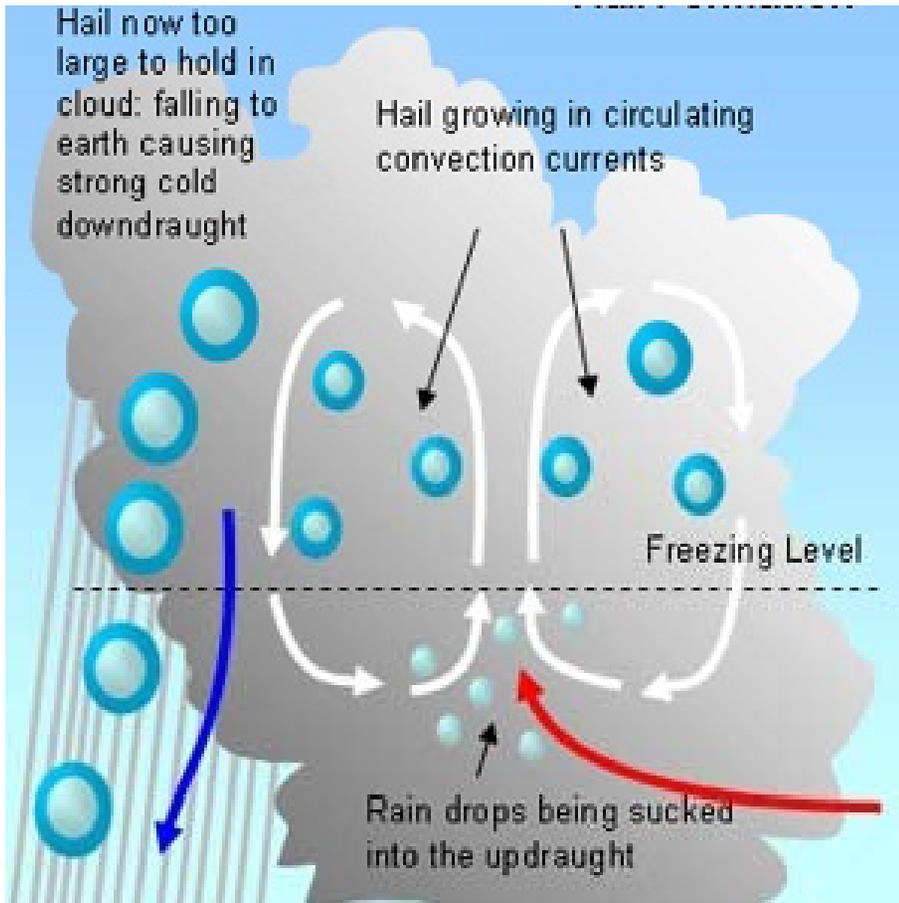


ILX Radar Loop
6/29/98 Derecho



Hail

Hail Formation





Flash Flood

- A flood where the water rises rapidly
 - Can occur in any area, especially if the ground is moist (or frozen)
 - Usually caused by heavy rain
 - 1.00” or more per hour
 - Can also be caused by an ice jam or dam break



Toowoomba, Australia Flood 1/10/11



Photo by Jim Gray
Springfield, IL 5/26/10



Flash Flood

- Water flowing over roads – 6” deep or more
- Ponding water 12” or deeper
- Water flowing over a bridge
- Rapid rises in creeks or streams



*Photo by Steve Bonser
Pana, IL 7/24/10*



*Steve Hardesty
Near Birds
May 21, 2010*



Important information for Spotters

- 1) **Spotting Challenges**
- 2) **Spotter Resources**
- 3) **Spotter Safety**
 - a. **Safe Spotter Positioning**
 - b. **Weather Threats**
- 4) **Spotter Reports**



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CHALLENGING ITEMS FOR SPOTTERS

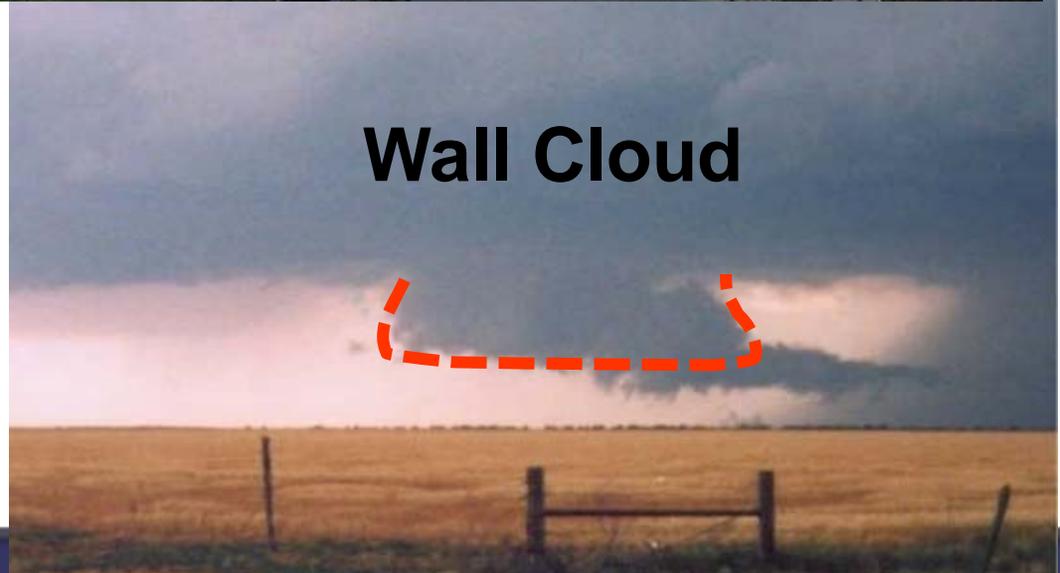


Shelf Cloud vs. Wall Cloud

Shelf Cloud



Wall Cloud





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Obstructions to View



Tree Lines



Hazy Sky



Look Alikes:

Scud Clouds



Photo by Paul Nelles

- Low hanging clouds
- Can be attached, or detached from the cloud base
- Easily confused for wall clouds and funnels... especially at night
- Look for lack of rotation to confirm it is scud



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More Scud Clouds

John Romadka
July 27, 2009
Verona, Dane Co.
740 pm

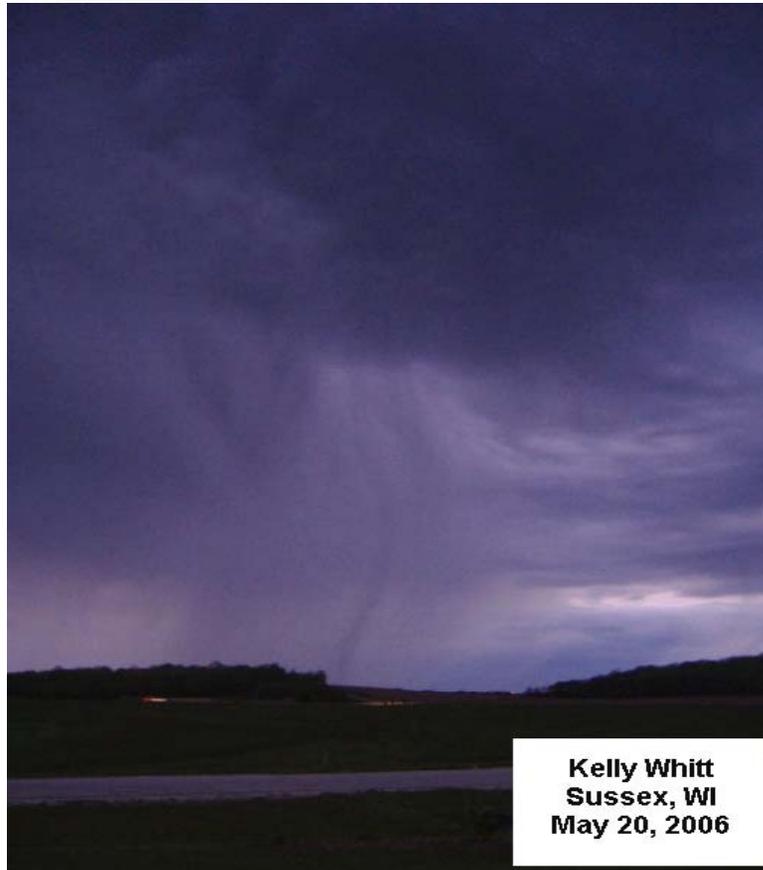




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Look Alikes: Rain Shaft



Rain Shafts – Can easily be confused for tornadoes



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Look Alikes: Shadow

**The sun casts
a shadow off
of a distant
thunderstorm**

Photo by Bill Kulschbach





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RESOURCES FOR SPOTTERS



Useful Items for Spotters

- **Communications**
(phone or radio)
- **Binoculars**
- **Safe shelter nearby**
- **Weather radio**
- **Computer**
- **GPS or local maps**
- **Cameras**
(still and/or video)





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Top
News of
the Day

Outlook
page

National Weather Service Weather Forecast Office
Central Illinois

Home Site Map News Organization

Local forecast by
City, St Go

Top News of the Day

- Hot and Humid Weather Expected This Weekend
- Major Severe Weather Event on August 4
- Summer Newsletter Now Available (PDF, 1.1 MB)

Watches & Warnings Observations Forecast Graphics Rivers & Lakes Climate Radar

Click on the map below for the latest forecast.

Read watches, warnings & advisories

Zoom Out

- Flood Warning
- Heat Advisory
- Special Weather Statement
- Hazardous Weather Outlook
- Short Term Forecast

Last map update: Fri, Aug. 7, 2009 at 11:50:41 am CDT

- Local forecast by
- City, St Go
- Current Hazards
- Watches/Warnings
- Outlooks**
- Submit Report
- Current Conditions
- Observations
- Radar
- Satellite
- Observed Precip
- Forecasts
- Forecast Discussion
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Outlook page – Severe Weather

Severe Weather

[Latest Local Hazardous Weather Outlook](#)

- Local HWO

- SPC Outlooks

- Other SPC Resources

Day 1



Day 2



Day 3



Mesoscale Discussion

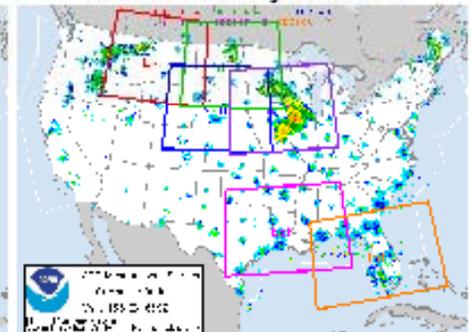


SPC Activity Chart



Showing a 1 hour radar loop, the current Day 1 convective outlook, and all active watches.

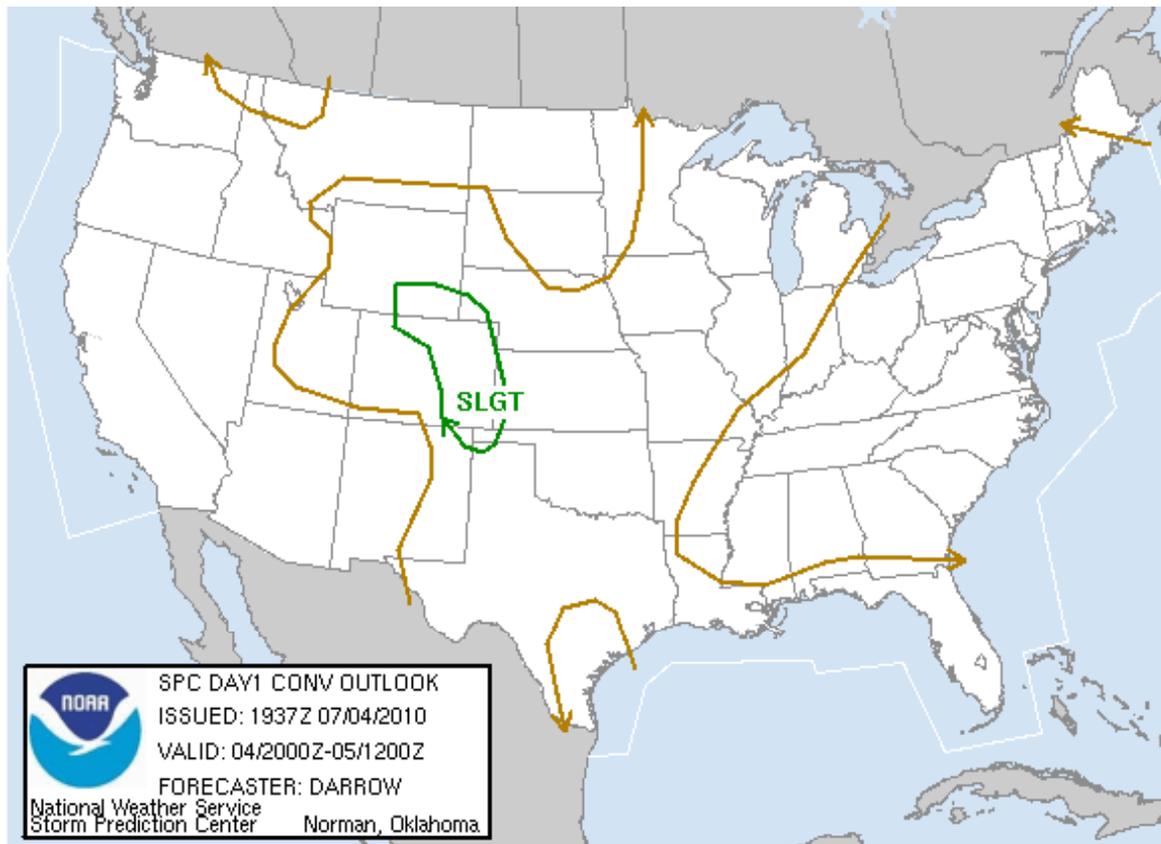
SPC Mesoanalysis Chart



Click on the image for a detailed look at severe weather parameters for various sectors across the county.



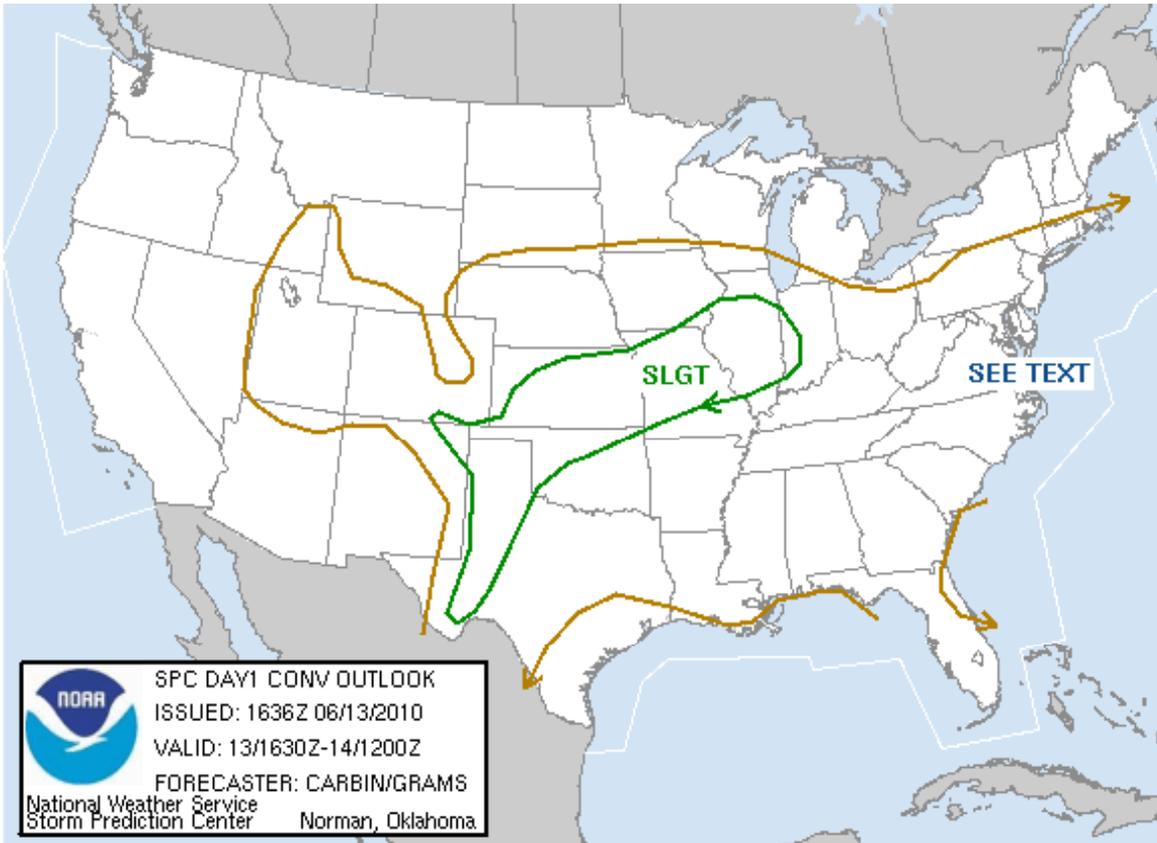
Levels of Severe Risk - General



Thunderstorms are anticipated, but they are not expected to become strong or severe.



Levels of Severe Risk – Slight Risk

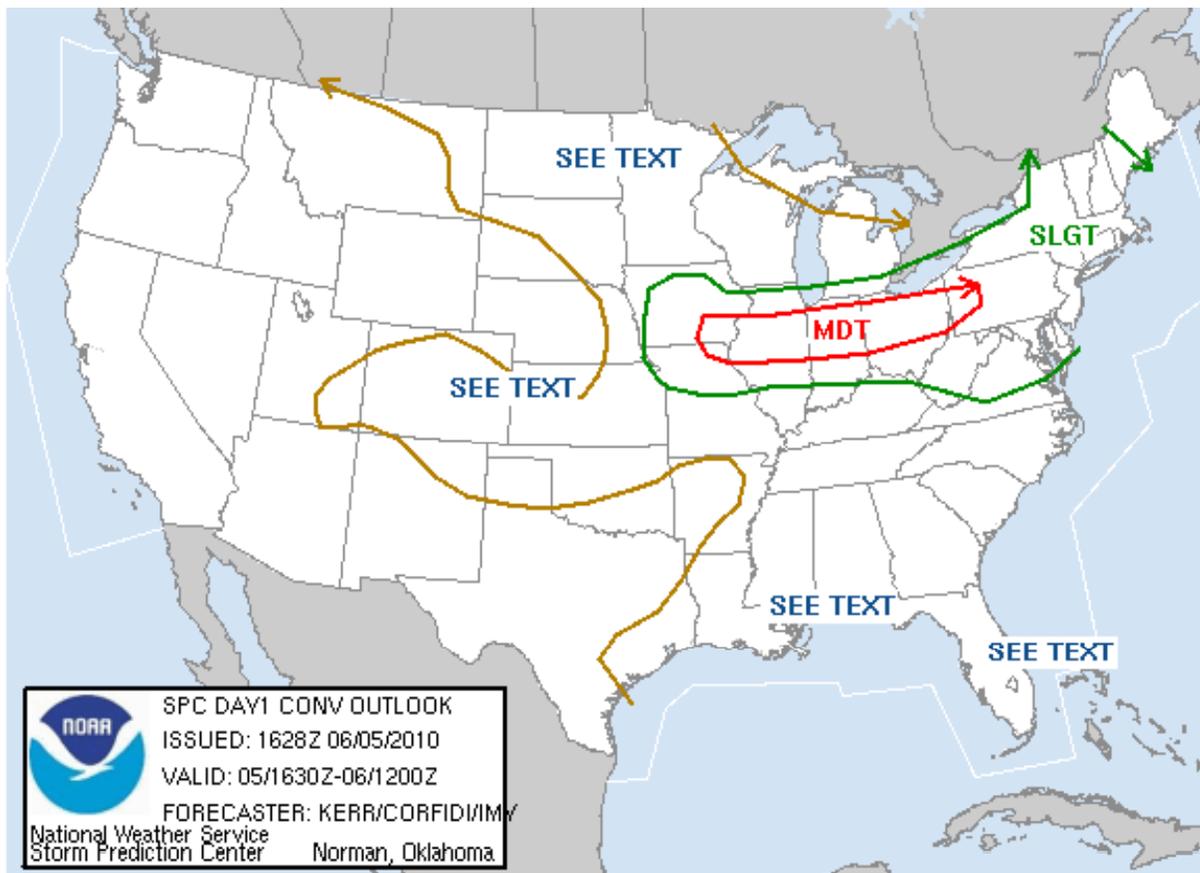


SLGT

Well organized
severe
thunderstorms
are expected,
but in a
relatively small
areal coverage



Levels of Severe Risk – Moderate

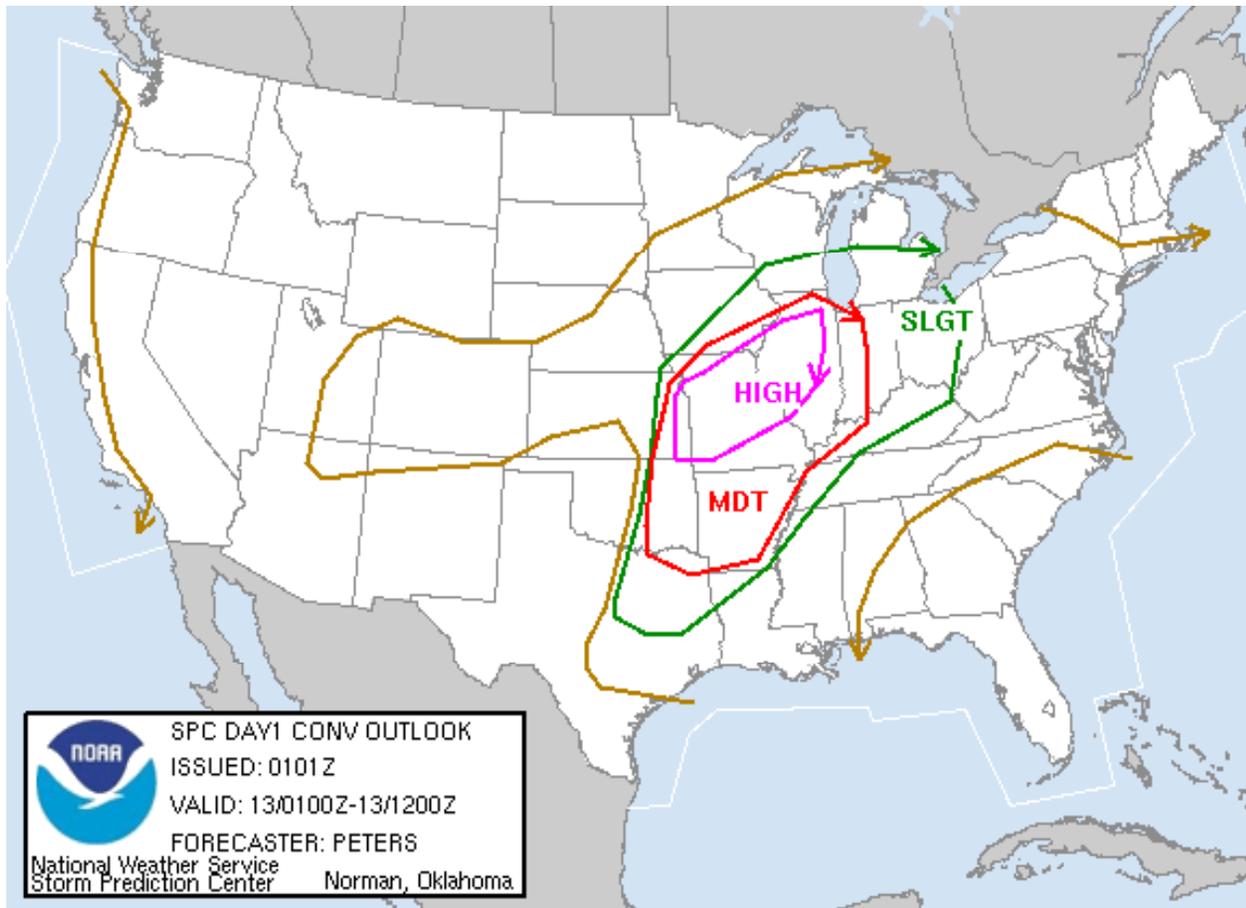


MDT

**A larger
concentration
of severe
t-storms & of
greater
magnitude**



Levels of Severe Risk – High Risk



HIGH

**A major
severe
weather
outbreak is
expected**



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Central Illinois

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Local forecast by "City, St" or Zip Code
City, St

Current Hazards
Watches/Warnings
Outlooks
Submit Report

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Forecasts
Forecast Discussion
Local Area
Activity Planner
Aviation Weather
Fire Weather
Severe Weather
Hurricane Center

Hydrology
Rivers & Lakes
Climate
Local
National
Drought

Top News of the Day

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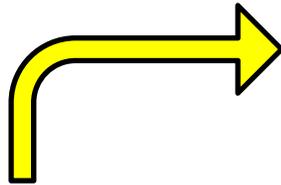
Watches & Warnings Observations Forecast Graphics Rivers & Lakes Climate Radar

Click on the map below for the latest forecast.

Last map update: Fri, Aug. 7, 2009 at 11:50:41 am CDT

Read watches, warnings & advisories

Zoom Out



**Latest
Watches
&
Warnings**

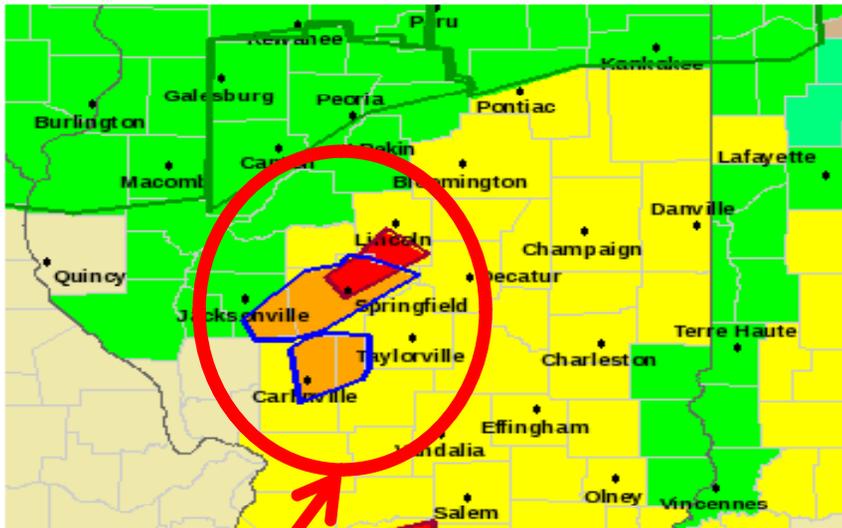


National Weather Service Central Illinois

Severe Weather Summary Page

[Home](#) [Site Map](#) [News](#) [Organization](#)

Watches, Warnings, Advisories (Click to zoom)



Last map update: Sun, Mar. 8, 2009 at 11:58:54 am CDT

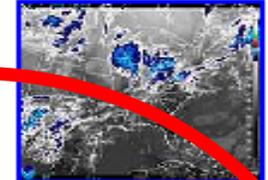
Warning Boxes

Read watches, warnings & advisories



- Tornado Warning
- Severe Thunderstorm Warning
- Flood Warning
- Tornado Watch
- Flash Flood Watch
- Severe Weather Statement
- Flood Advisory
- Wind Advisory
- Flood Watch
- Special Weather Statement
- Hazardous Weather Outlook
- Short Term Forecast

Radars and Satellite (Click for larger image)



Tornado Warning(s)

all or portions of the following counties, In Illinois: Logan, Sangamon, Washington

Severe Thunderstorm Warning(s)

all or portions of the following counties, In Illinois: Macoupin, Montgomery, Morgan, Sangamon

Flash Flood Warning(s)

None

Click the name of the county you want

Local Links

Hazardous Weather Outlook	Local Storm Reports
Rivers & Lakes (AHPS)	E-Spotter
Office Home	

Region - National

Convective Outlooks	Mesoscale Discussions
Current Watches	Storm Reports
Excessive Rainfall	Flood Outlook
U.S. Hazards	Weather Safety
Quantitative Precipitation Forecasts (QPF)	



Severe Weather Summary Page

Sangamon County (March 8, 2009 12:05pm CDT)

[Text](#) | [Zoom Out](#)

Warning Polygons



Warnings & Follow-Up Statements

- Tornado Warning (#0002 issued at 11:40am)
- Statement (issued at 11:46am)
- Statement (issued at 11:53am)
- Statement (issued at 12:04pm)

Other Products

- Tornado Watch (#0049 - until March 8 4:00pm CDT)
- Hazardous Weather Outlook
- Wind Advisory

Radar



Local

Hazardous Weather Outlook	Local Storm Reports
Rivers & Lakes (AHPS)	E-Spotter
Office Home	

Regional-National

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Lincoln, IL



SPOTTER SAFETY



National Weather Service
Lincoln, IL

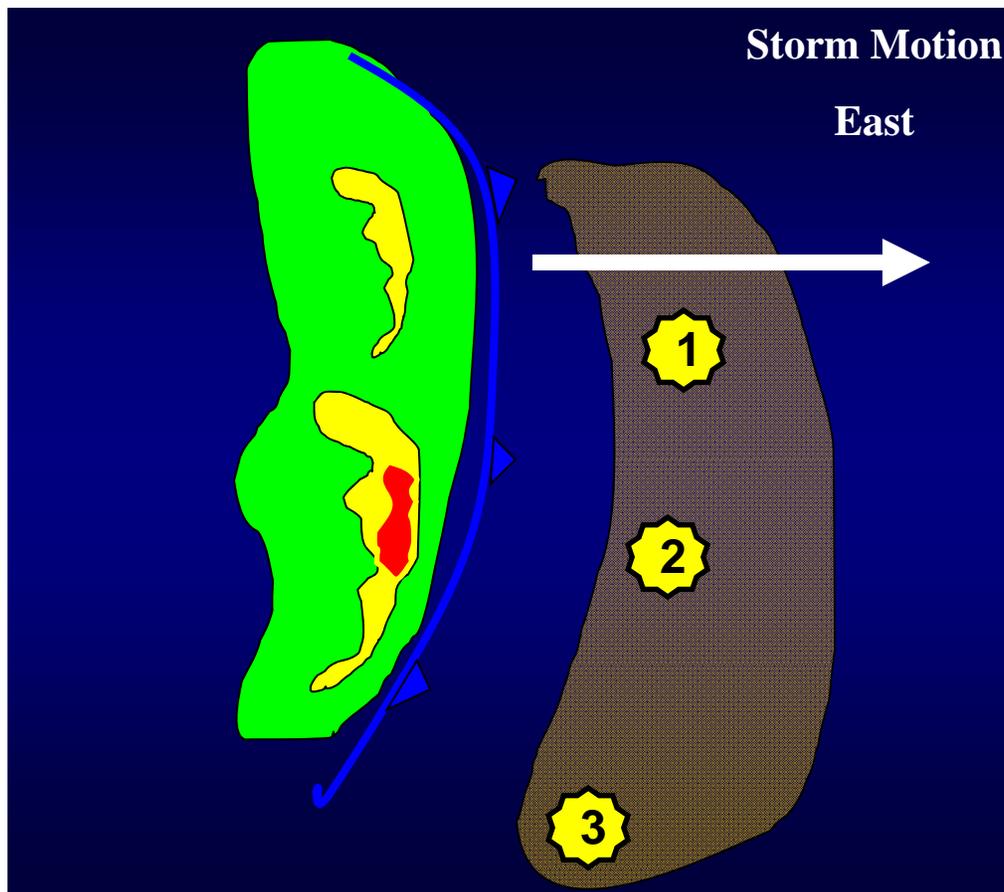


Positioning

**Spotter Positioning and Views
for each storm type**



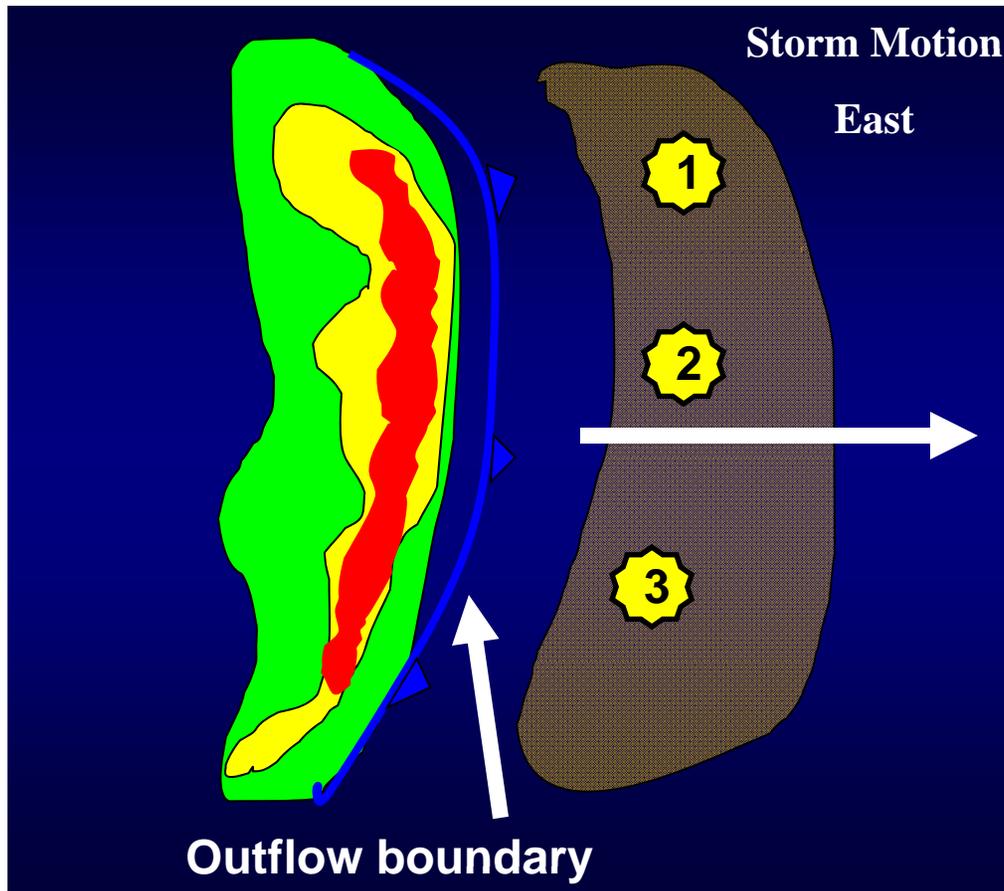
Spotter Positioning (Multicell Cluster Storms)



- Spotter #1 – signs of downbursts, heavy rain
- Spotter #2 – signs of downbursts, hail, heavy rain
- Spotter #3 – tornadoes along flanking cloud line to SW
- ALL Spotters – be ready to move indoors or east quickly!



Spotter Positioning (Squall Line Storms)



Outflow boundary

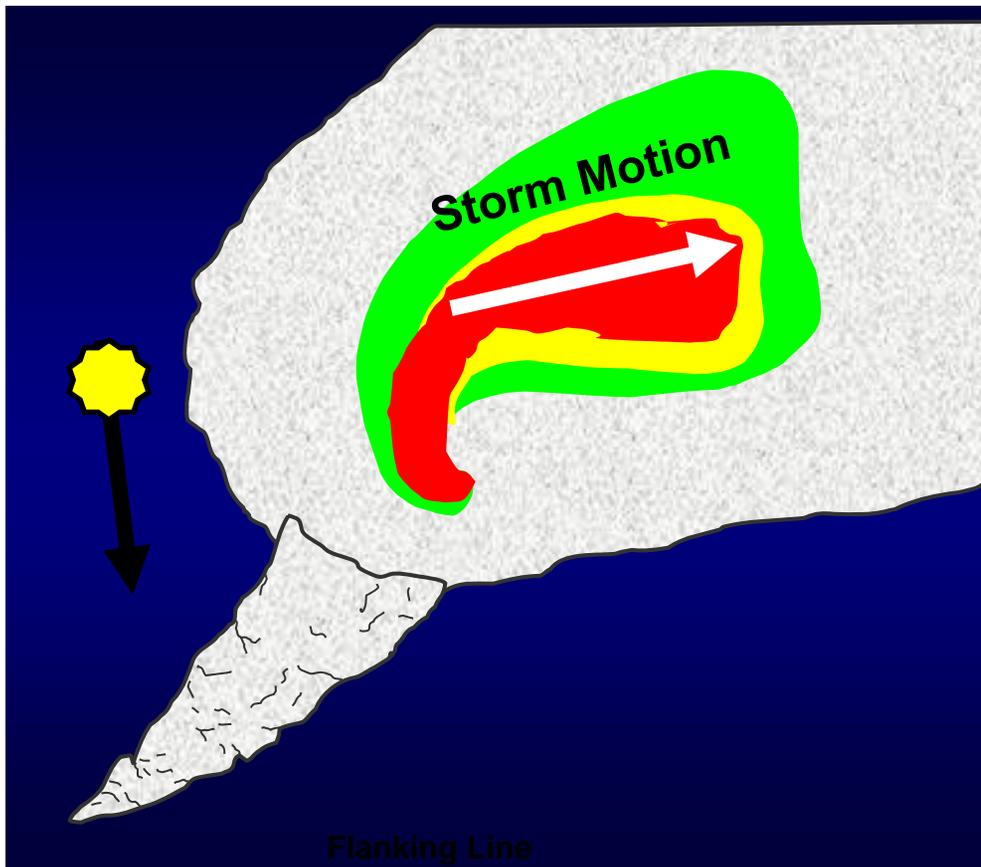
Best Viewing Area (in brown)

- **ALL Spotters:**

1. Notice the depth of the shelf cloud
2. Signs of high wind, or tornadoes on leading edge
3. Hail and heavy rain
4. Gustnadoes with outflow boundary
5. Be ready to move indoors, or to the east quickly!



Spotter View: Supercell Flanking Line

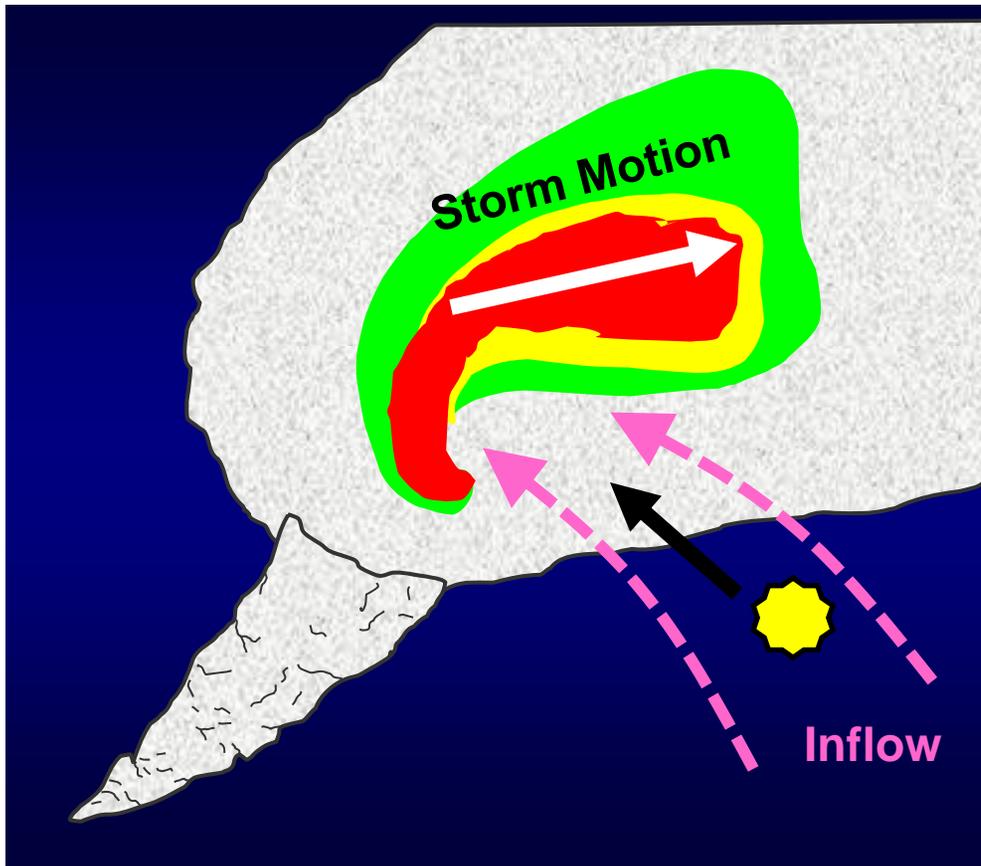


Looking South-southeast

**Flanking line south of the main updraft tower
Indicates the storm has plenty of moisture & instability**



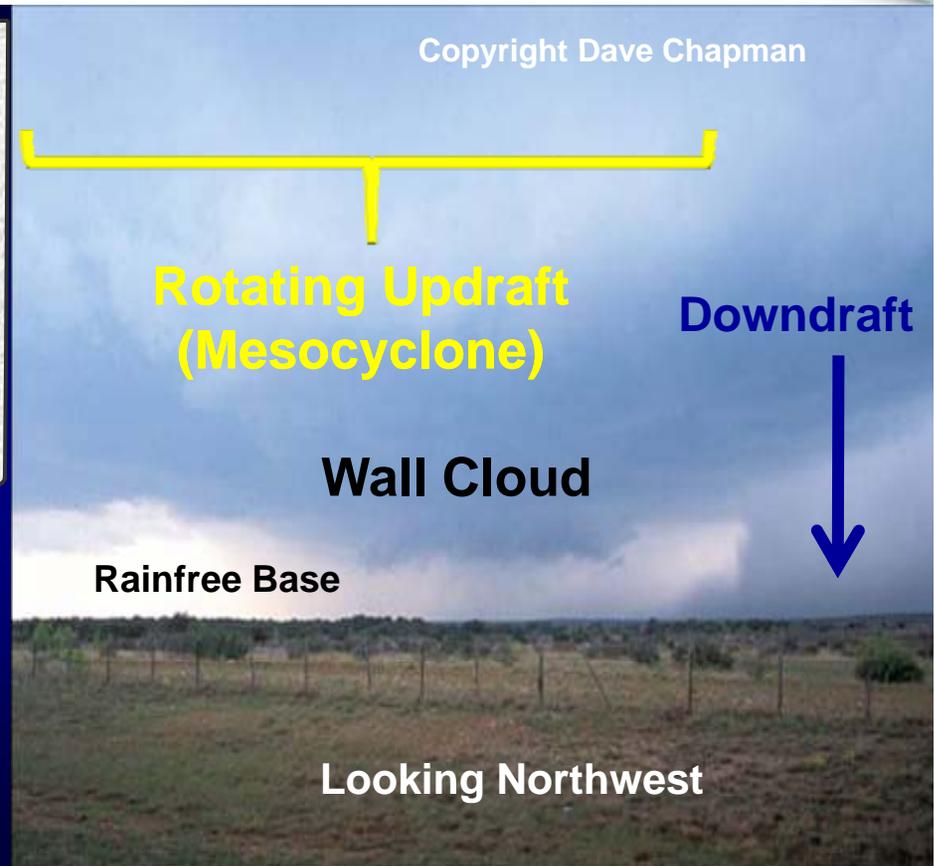
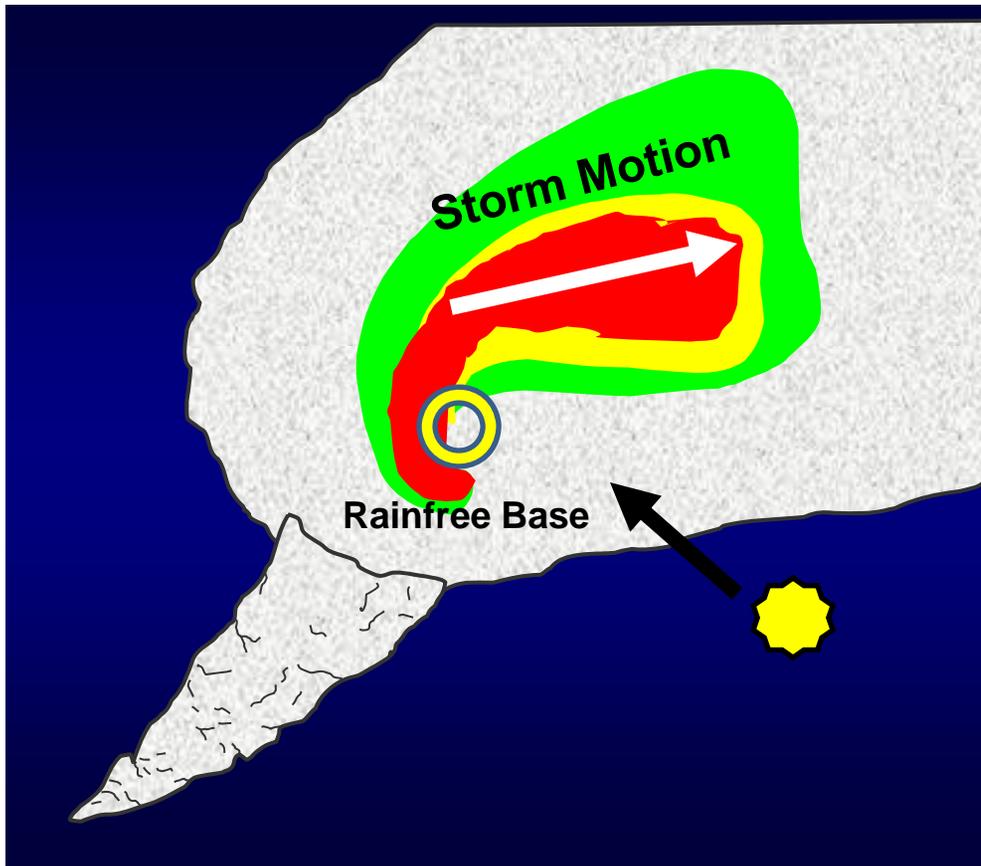
Spotter View: Supercell Inflow



**Strong inflow suggests
a strong updraft**



Spotter View: Supercell updraft

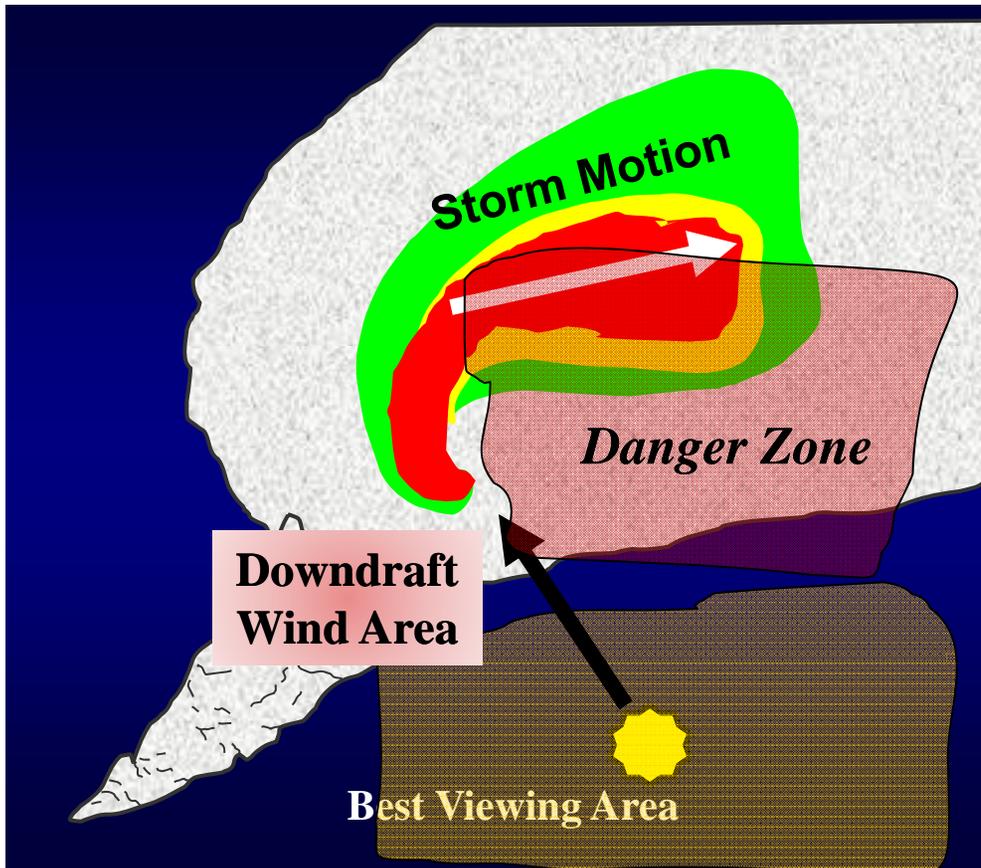


Rotating updraft & wall cloud development



Classic Supercell Tornado

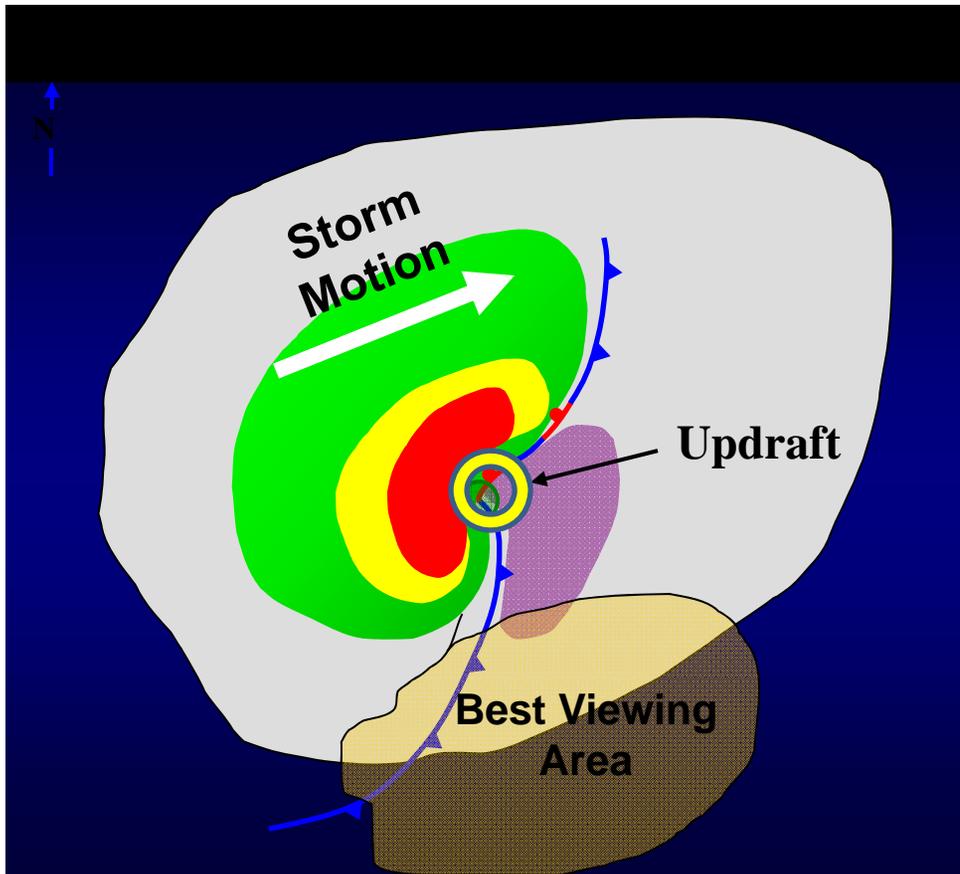
Spotter Positioning



**Stay southeast to south
of the updraft and
wall cloud**



Spotter Positioning: HP Supercell



Copyright John Davies

**Positioning for "HP"
Supercells – Stay away
from heavy rain and
rotating updraft area !!**



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Lincoln, IL



Night Spotting

**Spotting at night is
very dangerous!**

This should only be done
from a safe shelter.

Mobile spotters should
only attempt this if they
have communications with
someone who knows their
position and if a shelter is
nearby.





Weather Threats to Spotters

- a. Lightning**
- b. Severe Wind and Hail**
- c. Flooding**
- d. Tornadoes**



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Lincoln, IL



Lightning Safety



© Paul M. Hadfield



Lightning Safety

Safe Locations

- **Secure building with windows & doors closed**
- **A hard topped auto with the windows closed**





Lightning Safety

Un-safe Locations

- Anywhere outdoors – *especially* near trees or tall objects
- Buildings with large open doors – or, no walls
- An auto with open windows





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Lightning Safety

**Don't return
outdoors too soon!**

**Intense lightning
can occur many
miles away from
the storm – in areas
with NO rain!**





Lightning Safety

Two Steps...

1. **Go indoors**
IMMEDIATELY
when you hear
thunder, or see
lightning strike
2. **Stay in safe shelter**
for 30 minutes after
the last rumble
of thunder





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Lincoln, IL



High Wind & Hail Safety



Photo by Paul Hadfield



Photo by Kevin Osborne



High Wind Safety

- **Indoors**
Stay away from windows and doors
Be alert for falling trees or tree limbs
- **Outdoors**
Get indoors, if you can!
In an auto, slow down and find a safe place to pull off – away from trees and power lines



Photo by Ron Handke



High Wind Safety – in a vehicle

Video

- **In a vehicle:**
 - Keep a firm grip on steering wheel
 - Point vehicle toward direction wind is blowing
 - Be aware of trees & power poles





Hail Safety

- Mainly a threat to spotters in autos
- Golf ball sized hail or larger will damage car windows – which could injure you
- Remember:
 - Large hail = Intense Updrafts
 - Intense Updrafts = Higher TORNADO Potential

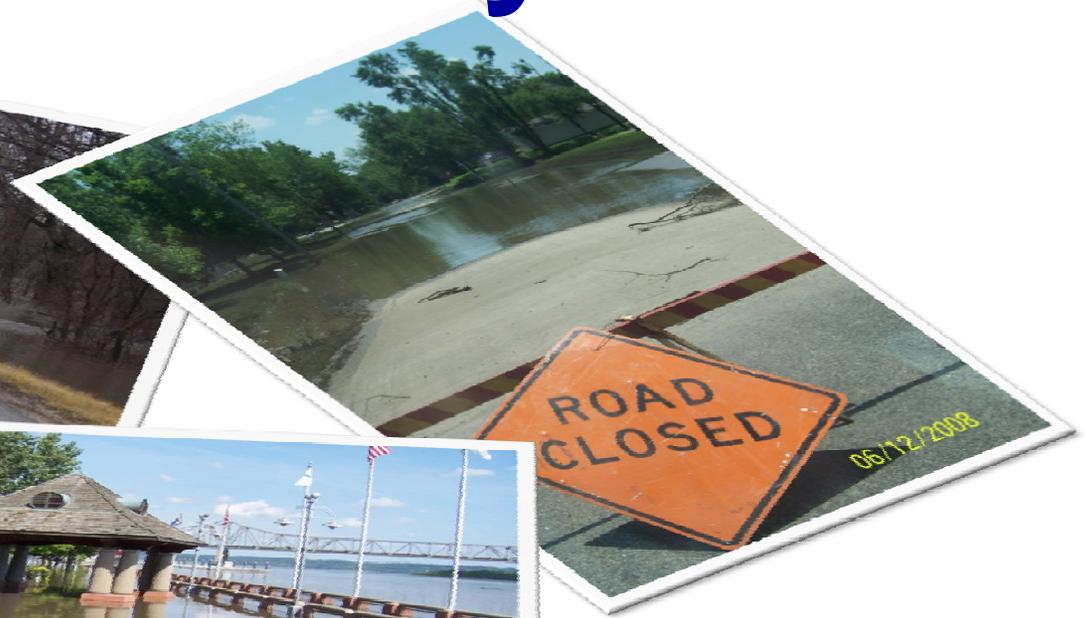




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Flood Safety





Flood Safety

- **Flooding is the #1 storm related killer, mainly in vehicles**
- **Most flash floods occur at NIGHT in Illinois**
 - **Peak time is 1:00 AM**

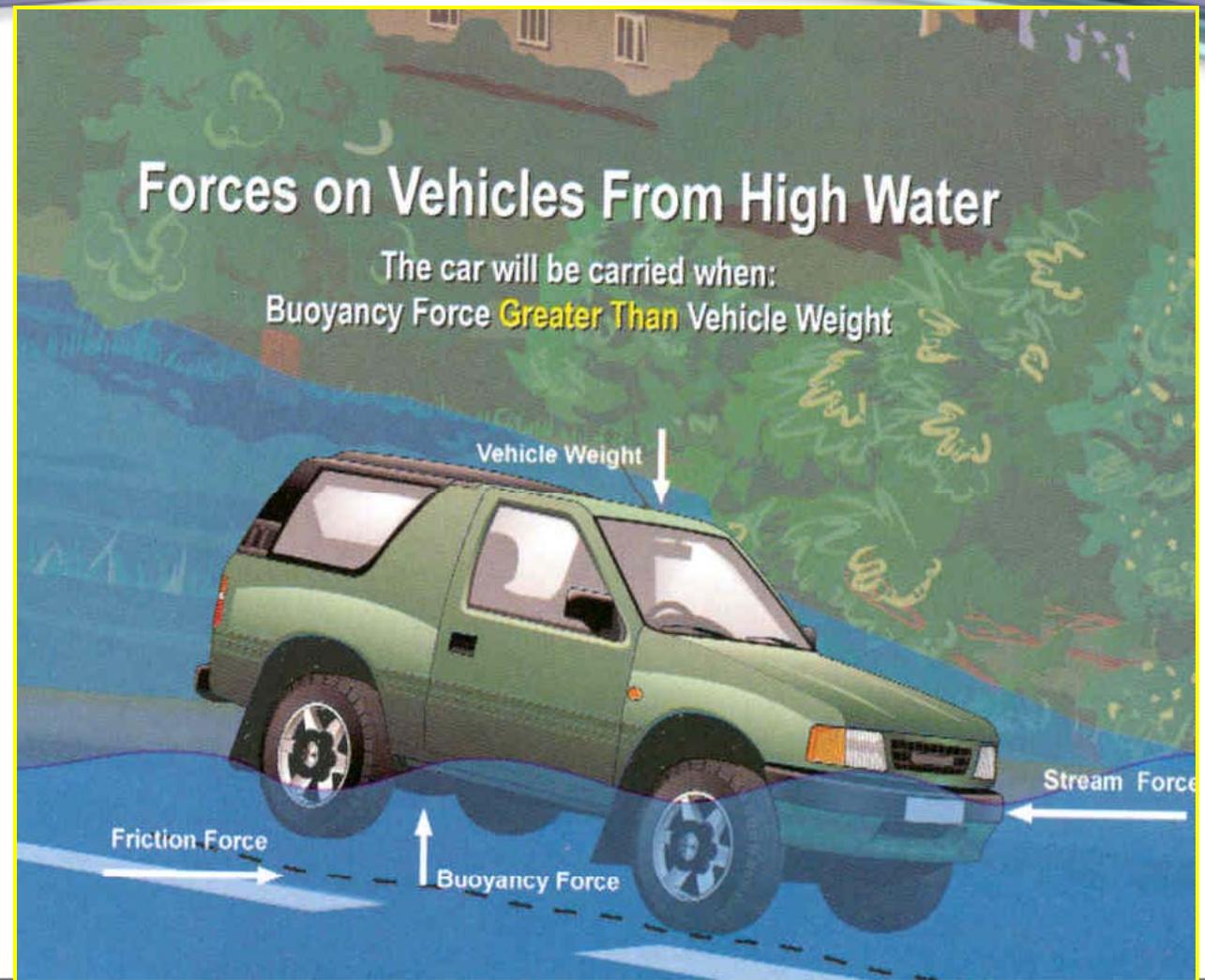


Photo by John Smith



Forces on Vehicles From Water

It only takes
18" – 24" of
water to
cause an
auto to float
or to push it
off of the
road





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Lincoln, IL



Flooding Can Wash Roads Away



Road Collapse in Arkansas, June 2008



Jasper County, IL June 2008



National Weather Service
Lincoln, IL



Flooding Can Wash Roads Away



Photo by

Near Geneseo, IL

May 13, 2010



Flood Safety

- ✓ **Never cross a water covered road in a vehicle**
- ✓ **Never walk into a flooded area**
- ✓ **Do not allow kids to play in or near flooded roads, creeks or streams**





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Tornado Safety

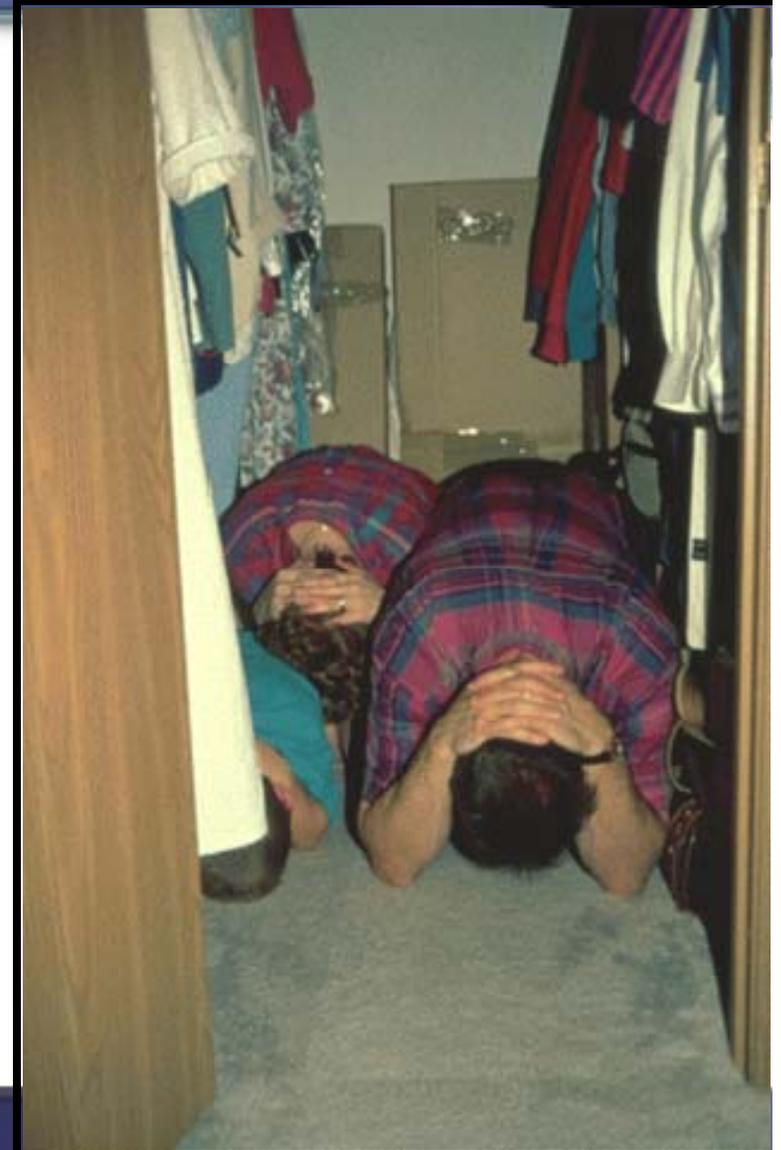


Jarrold Cook
Near Yates City, IL
6/5/2010



Tornado Safety

- **Whether indoors or outdoors: Flying & Falling debris is the BIGGEST tornado HAZARD**
 - **Get in: STURDY shelter**
 - **Get down: Lowest floor away from windows**
 - **Cover up: Minimizes your risk of injury from debris**





Tornado Safety - outdoors

- **PREFERRED:**
Get out of autos and go to a safe shelter
- **LAST RESORT:**
If no shelter is available lie flat in a ditch to protect yourself
- **Do NOT go under a highway bridge**





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Autos vs. Tornadoes



Car crushed by large tree limb
1 injured
Lake Petersburg, IL 12/31/10



Bus blown off road by tornado
6 injured
Roscoe, IL 11/22/10



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SPOTTER REPORTS



If you think a tornado is developing...

Ask Yourself:

- **Am I in the right place in the storm and will I be safe?**
- **Can I see any rotation?**
- **Do I see debris or powerline flashes?**
- **If you're not sure, don't report right away...keep watching**





What To Report - URGENT

- Tornadoes

- Is it still in sight or has it dissipated?
- Any damage?
- How long was it on the ground?
- Give **FREQUENT updates!**



Photo by Harmony & Matt Goodrum
Near East Lynn, IL 6/21/10



What To Report - URGENT

- **Wall Clouds**
- **Funnel Clouds**
 - Is there rotation?
 - How long has the rotation been present?
 - **Give FREQUENT updates!**



Photo by Jarrod Cook

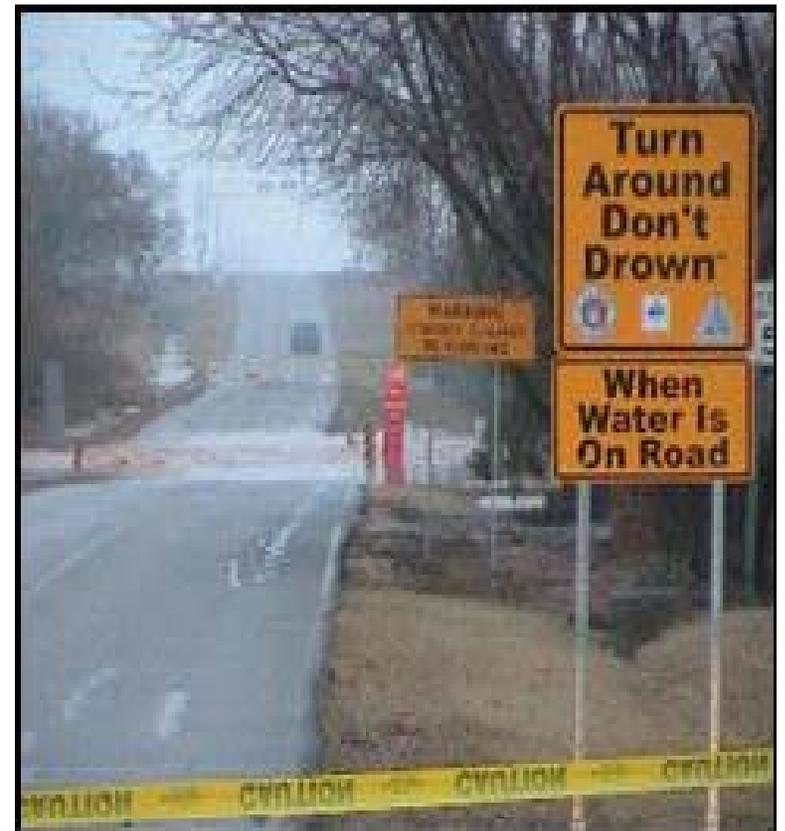


Photo by Mark Sefried



What To Report - URGENT

- **Flash Flooding**
 - Which roads, creeks or streams are affected?
 - How deep is the water?
 - Is the water flowing or ponded?
 - Is the area prone to flooding?





What To Report

High Wind or Wind Damage

- Report 40 mph+
- Wind Damage
 - Trees or tree limbs down
 - Power lines or poles down
 - Damage to buildings

Speed	Effects
25 – 30 mph	Large branches in motion
30 – 40 mph	Whole Trees in motion
40 – 55 mph	Small tree branches break
55 – 70 mph	Large branches break Shallow rooted trees blown down
70 – 110 mph	Shingle damage Windows break Some trees down Sheds damaged
110 mph +	Roofs lifted off Trailers & sheds destroyed Most trees down



What To Report

- **Wind / Wind Damage**
 - Estimated or measured wind?
 - Is the building well built? What was damaged? (roof, walls...)
 - Size of limbs. Were they healthy or rotted?



Photo by Roger Look



What To Report

Hail – Report all sizes!

Report size of hail with
respect to coins



or

Common objects

or

Exact
measurements!



Retrieved 5/
3 miles south of New Berlin or
8 miles north of Caruthers Rd.

06/01/2008



Hail

- NWS issues warnings for hail 1" or larger – **BUT** report hail of all sizes
- **Keep in mind: VERY strong updrafts produce the largest hail – and often, tornadoes**

Descriptor	Size
Pea	1/4"
Small Marble	1/2"
Penny	3/4"
Nickel	7/8"
Quarter	1"
Half Dollar	1 1/4"
Walnut	1 1/2"
Golf Ball	1 3/4"
Tennis Ball	2 1/2"
Baseball	2 3/4"
Grapefruit	4"
Softball	4 1/2"



Reporting: When and Where

Time

Report the time the event occurred.



Locations

Report your position, AND the direction & distance of the feature.

Use well known roads or landmarks.



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Lincoln, IL



Severe Weather Reporting

**Follow the
reporting rules of
your area!**

**Contact the local
EMA / ESDA
or 9-1-1 dispatch
center**

URGENT





Steps to Effective Spotting



1. Spot Safely

- This **MUST** come first!

2. Be Ready to Spot

- Prepare, Remember basics of t-storms



3. Report Efficiently

- During and after the storm!



4. Keep Learning

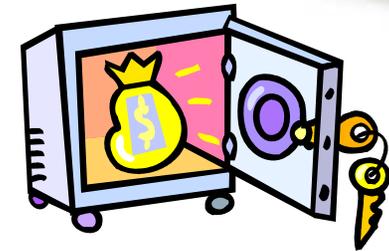
- Attend training annually in or near your area



Importance of spotter reports

Repeated...

- Timely spotter reports provide valuable ground truth information
- Real-time reports:
 - **Help with NWS warning decisions**
 - Mass dissemination to public through local media, Internet & alerting systems
 - **Assist with Local warnings**
 - Siren activation
 - **Response by the public is much better when warnings/updates include spotter reports**





National Weather Service
Lincoln, IL



FOR MORE INFORMATION

On the Internet:

www.weather.gov/Lincoln