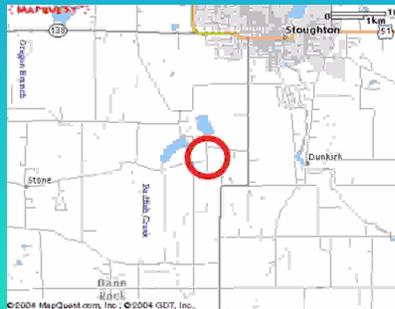


Advanced Spotter Training 2009

Lesson 8: Individual Spotter Skills



From Last Time

- We discussed the formation, evolution, structure, and varieties of tornadoes.

This Time

- **This time we will discuss your personal safety in the field.**
- **We will discuss how to make severe weather reports.**
- **We will discuss how to be ready for severe weather.**

Homework Review

Go over the homework problems from last time:

- Describe what a tornado is.
- Determine three criteria for whether something is a tornado.
- Describe two ways that tornadoes can form.
- What is a multivortex tornado?
- How is the enhanced Fujita scale limited?

Homework Review *(continued)*

- Draw a diagram of each type of thunderstorm that we have discussed. Speculate about where to look for tornadoes for each.
- Why is a gustnado not a tornado. Is this a realistic distinction?

An Important Note!

AS SEVERE WEATHER SPOTTERS YOU AND ONLY YOU ARE RESPONSIBLE FOR YOUR SAFETY!!! SPOTTING IS VERY DANGEROUS, AND YOU SHOULD NOT ENTER INTO THIS LIGHTLY! YOU ARE VOLUNTEERING FOR A DANGEROUS ACTIVITY WITH NO GUARANTEE OF SAFETY OR COMPENSATION! WE APPRECIATE YOUR INTEREST AND THE SACRIFICE OF YOUR TIME AND EFFORTS, WE DO NOT WANT YOU TO SACRIFICE ANYTHING ELSE...

Being a Static Spotter

- The good points of being static are that you are likely in a strong building (and are thus relatively safe) and you can develop tools for spotting from your specific location.
- The bad part of being static is that you have no chance to go after a storm nearby and you have no way of escaping if things get really bad.

Static Spotter Lightning Safety

- Lightning can fry your electronics, radios, and phone.
- It can take you right out of the game.
- Every year we can count on having the network go down twice due to power failures or having the radio repeater taken off-line.

Static Spotter Lightning Safety ***(continued)***

- **If you are going to be spotting from home, get an Uninterruptible Power Supply (UPS), this will allow you to continue to function (hopefully) until the power failure has passed.**

Static Spotter Safety in High Winds/Tornadoes

- This represents the least likely threat, but also the most deadly.
- There are three rules for tornado/wind safety which sound funny, but are really pretty good:
 - ▶ You don't want anything to fall on you. If the wind enters your home, it is possible for the roof to collapse. Make sure you have a place to go, with strong overhead cover, where you can avoid this.

Static Spotter Safety in High Winds/Tornadoes *(continued)*

- ▶ **You don't want anything flying to hit you. Put as many walls between you and the wind as possible. If you can go underground, this is good protection, but beware: Such shelters can act as "shot-traps" and debris can collect there (since it is out of the wind).**
- ▶ **You don't want to do any flying yourself. In the case of tornadoes try to prevent any air from getting under you.**

Static Spotter Safety in Flash Floods

- Flash floods can take out your house, but you will usually have enough warning to get away.
- Seek high ground whenever possible.
- If it seems likely that flooding will occur, stay out of the basement!

Personal Safety During Mobile Spotting

- The good points of mobile spotting are the ability to intercept storms and the ability to escape if things get bad.
- The bad point is that the level of risk is higher.
- You must not only be aware of what the storm is doing, you must also be aware of the traffic situation (and under conditions of low visibility, high stress, and danger).

Personal Safety During Mobile Spotting *(Continued)*

- The possibility of a traffic accident is always present.
- You must also be aware that when you stop to make observations, you could be hit by passing vehicles.
- You must always be ready to escape if the need arises, always plan an escape route!
- Stay away from highway overpasses!!!

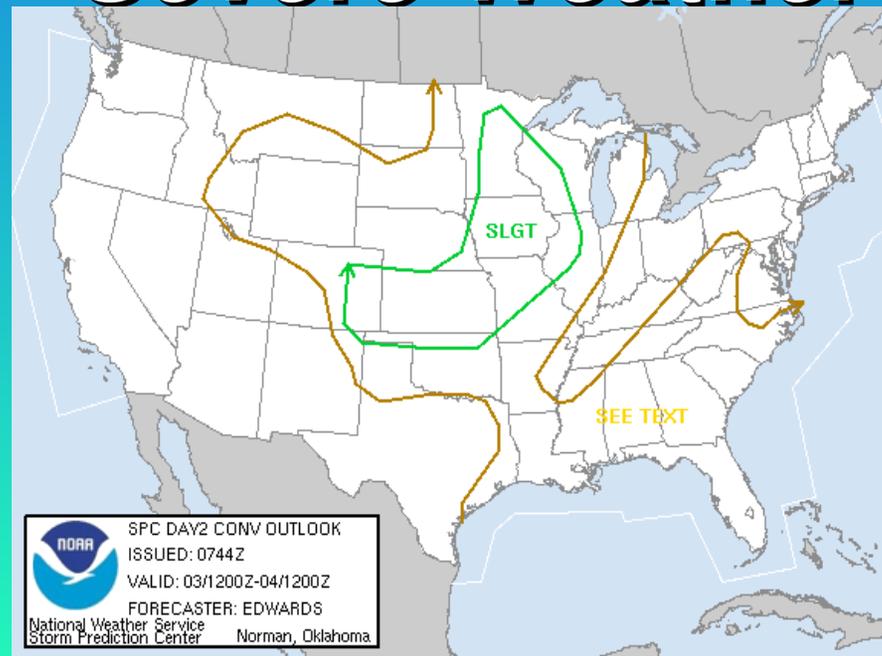
First Discussion!

- Contemplate ways of making your spotting activities safer.



Section 2

Being Ready, and Reporting Severe Weather



During Severe Weather Season You Should:

- **Check the SPC (Storm Prediction Center) Convective Outlook daily.**
- **If there is a chance of severe weather in your location, then you must pay very close attention to the particulars of the Outlook. The Outlook will change throughout the day and keep track of those changes.**
- **Compare what you read with what you have learned in this course.**

During Severe Weather Season You Should: *(continued)*

- **Check out the day 2, day 3, and extended outlooks too.**
- **These will let you know ahead of time if there are likely to be any organized severe weather events in your area.**
- **Have a storm kit with everything you need for spotting in it. This could include (but is not limited to) binoculars, cell phone, radio, maps, camera, video camera, film, etc.**

During Severe Weather Season You Should: *(continued)*

- **If you think severe weather might be a threat, make arrangements to be available during the time which the threat is in place whenever possible.**
- **Be aware of changing conditions.**
- **Pay particularly close attention to watches and warnings issued for areas near you.**

During Severe Weather Season You Should: *(continued)*

- **Make sure that you know the difference between a watch (where conditions are favorable for severe weather) and warnings (where severe weather is occurring or is imminent).**

How to Report Severe Weather

- When you make a report to the 911 center you must identify yourself by name, that you are a trained spotter, where you are calling from, what your report is, when the event took place, and your best estimate of where the event is (if it is not in your current location).
- Do not waste their time with extraneous detail.

How to Report Severe Weather *(continued)*

- **Answer any questions they ask.**
- **Make sure to request that they pass on your report to the NWS.**
- **If you have the unlisted phone number of the NWS, call them and give them your report, as specified above.**
- **If you are part of a group, follow the procedures established by the group.**

Second Discussion!

- Think about how you will prepare for storms on a daily basis.



Section 3

Spotter Skills



Things to Do Before You Need Them

If you are static:

- **Have a storm plan so that you know where to spot from.**
- **Have a card listing the distances to landmarks from your location, this will help in making distance estimates.**
- **Know your sight lines and blind spots.**
- **Try to figure out how to safely overcome these, if possible.**

Things to Do Before You Need Them *(continued)*

If you are mobile:

- Try to locate good spotter positions throughout the area ahead of time.
- Look for good escape routes, good visibility, and possible shelter.
- Come up with a card listing the distances to landmarks from your various spotter positions, these will help in making distance estimates.

Some Specific Things to Look For (And Where to Look for More Information)

Here are some specific things to look for that indicate how strong a thunderstorm is in the distance:

- **Watch for hard-looking cauliflower-type cloud tops, these represent active convection and they point out where ascending cloud towers can be found.**

Some Specific Things to Look For (And Where to Look for More Information) (*continued*)

- Watch for cloud matter being pushed up above the top of the thunderstorm anvil. This will often be in the form of a pile or dome of cloud matter. This is called an *overshooting top* and represents the location of the strongest updrafts (the cloud matter is being driven through the jet stream).

Some Specific Things to Look For (And Where to Look for More Information) (*continued*)

- Look for an anvil that extends backwards into the jet stream, this is called a *back-sheared* or just a *backing* anvil. Here the updraft is strong enough to push cloud matter into the oncoming jet stream.

Some Specific Things to Look For (And Where to Look for More Information) (*continued*)

- Look for mid-level moisture streaming into the storm in the form of flat ribbons of cloud entering the thunderstorm column. Such a ribbon is sometimes called a *beaver-tail* (since it is often wide and flat). This indicates a source of additional warm-moist air entering the storm.

Some Specific Things to Look For (And Where to Look for More Information) *(continued)*

Here are some things that will become visible when only a few miles away from the storm:

- **Identify the outflow region (you will likely see a shelf cloud or a roll cloud, or even strong winds kicking up dirt).**
- **You are in outflow if you face the storm and are getting hit in the face by cool wind.**

Some Specific Things to Look For (And Where to Look for More Information) *(continued)*

- **Identify where you think the inflow region will be located. You are in inflow when the wind hits you in the back while facing the storm.**
- **Figure out which direction the storm is moving in.**
- **If mobile, try to get to the inflow region.**
- **Identify the updraft base of the storm.**

Some Specific Things to Look For (And Where to Look for More Information) *(continued)*

- **Sometimes this will be the dark, rain-free base.**
- **In HP-type storms you may not have a recognizable rain-free base.**
- **Look for low-level inflow in the form of cloud ribbons (beaver-tails).**
- **Note where such inflow intersects with an existing updraft.**

Some Specific Things to Look For (And Where to Look for More Information) *(continued)*

- **This is likely a dangerous place to be.**
- **Look for a distinct lowering of the updraft base that keeps its position with respect to the precipitation core of the storm. This feature will often tilt downward towards the rain and may have a tail leading from the rain into the cloud feature.**

Some Specific Things to Look For (And Where to Look for More Information) (*continued*)

- Occasionally such features will rotate slowly. This feature is called a *wall-cloud*. This signifies the strongest updraft, and thus the most dangerous part of the storm in terms of tornadoes.
- Watch for debris at the ground level rotating in tight clouds. This could be a developing tornado.
- Watch for powerline flashes.

Some Specific Things to Look For (And Where to Look for More Information) *(continued)*

- **This is an indication of strong winds, and could tell you that a tornado is present.**
- **Listen for the sound of a waterfall (or, I suppose, a freight train). This is the sound that strong winds make, and it could be a tornado.**

Some Specific Things to Look For (And Where to Look for More Information) *(continued)*

- **There are many places to get more information: Do a Google search for tornado, spotter, storms, etc.**
- **Get some books on meteorology.**
- **I highly recommend acquiring a library of storm videos (either your own, or purchased) and study them!**
- **When studying these videos look for the features mentioned above.**

Final Discussion!

- Discuss the finer details of the things to look for when spotting. What was not covered?



Homework Due Next Week

- **Develop a storm plan for your home.**
- **Make up a storm kit (First Aid kit, weather radio, blankets, bottled water, canned and dried food, any medication you take, etc.) and make sure there is enough for three days.**
- **Locate sources of weather information.**
- **List several sources you can consult to determine if severe weather is possible in your area on a day-to-day basis.**

Homework Due Next Week

(continued)

- Develop a spotter kit as outlined above.
- Determine what you intend to bring with you.
- Find, or draw, pictures of each of the storm features mentioned.
- Explain their significance.