MODULE 16
STORM SPOTTERS

OBJECTIVES

Upon completion of this module, the student will be able to

1) Recognize the contribution storm spotters make to the NWS warning system
2) Describe, in general terms, the organization of a typical spotter group
3) Define some of the common terms used by storm spotters

STORM SPOTTERS - THEIR CONTRIBUTIONS

Thus far in this course, you have learned a great deal about the NWS's high-technology remote sensing devices. The weather satellites, WSR-88D, sounding equipment, and analysis tools enable us to view the atmosphere in a way never before possible. Our improved forecasts are reflective of these improvements in our ability to see the atmosphere. However, when severe weather moves into an area, the NWS often relies on one of its oldest observation tools to help track these storms. This tool is the trained storm spotter.

On literally countless occasions, storm spotters have performed in heroic roles during times of hazardous weather. Their visual observations of tornadoes, floods, and storm structure have helped the NWS issue timely and accurate warnings. An example of their work took place on May 7, 1995. A supercell storm moved into south-central Oklahoma from northern Texas. The storm produced a strong (F3 on the Fujita scale) tornado which was on the ground for 44 miles. Armed with WSR-88D data and spotter reports from near the storm, the NWS Forecast Office in Norman, OK issued a Tornado Warning for the Ardmore vicinity over 40 minutes before the storm arrived. The tornado heavily damaged the western sections of Ardmore, but *no deaths or injuries resulted*.

CONTENT OF SPOTTER GROUPS

Spotter groups contain people of many different types. Composition of a spotter group depends mainly on the resources available to the group. Many successful spotter groups consist of **amateur radio operators**, or "hams". Hams usually possess a reliable communications network and a strong sense of civic duty. Their network may already be geared for emergency operations and thus may easily accommodate spotter traffic. **Law enforcement** (i.e., Sheriff, Police, DPS) and **fire personnel** also comprise many spotter groups in the area. While their communications systems and civic duty are as well-established as with amateur radio personnel, other duties such as traffic control and rescue operations may prohibit their participation as dedicated storm spotters.

In less-populated areas, **city and county workers** such as utility linemen and highway crews may serve as spotters. Besides having other official duties, these groups' communications networks may not be as advanced as other groups. Finally, in sparsely-populated areas, members of the **general public** may be called upon to serve in informal spotter groups. While the sense of civic duty may be as strong as with any other group, formal communications will be a hindrance to these groups.

ACTIVATION AND DUTIES

Most spotter groups have similar activation procedures when storms threaten an area. The activation may be handled by the county **Emergency Management Coordinator** or by the NWS. Most groups have various levels of activation, depending on the threat posed by the storms and the amount of lead time before the storms move into the area. For example, spotter groups may undergo a "partial activation" if storms threaten only a small part of a county or if lead time is short. More complete activations would be required if the storms posed a serious threat to life and property and/or if sufficient time is available to completely bring the network on line.

Spotter groups are often subdivided into two categories: point spotters and mobile spotters. **Mobile spotters** usually make their observations from vehicles and move along with a storm as it moves through the group's area of responsibility. The goal of mobile spotters is to make their observations from about 3 miles southeast or south of the storm. Mobile spotters are more likely to get in position to observe the cloud structures and features associated with severe storms. However, mobile spotters are less likely to make actual "ground truth" reports of severe weather (hail size, wind speed).

On the other hand, **point spotters** make their observations from a fixed, safe location. Since they are not mobile, they are less likely to view storms from the preferred angle discussed above. However, since point spotters are in safe locations, they may be able to make more reliable ground truth reports of hail size, rainfall rate, and wind speed.

REPORTING CRITERIA

Spotter reporting criteria are based on the NWS severe weather criteria as described in Module 1. However, groups may refine the criteria for their local areas. In an attempt to regulate the flow of reports to and from the spotters, groups may define a priority system for their reports. A typical priority system is shown below.

Urgent Priority - tornado, funnel cloud, flash flooding, rotating wall cloud
These are items which constitute a serious threat to life and property. These are also conditions which would require activation of the Emergency Alert System (formerly the Emergency Broadcast System) to notify people in the storm's path.

Spotter reports of a tornado or funnel cloud warrant the issuance of a Tornado Warning, if none is in effect. If a warning has already been issued, then a short Severe Weather Statement should be issued updating the location and movement of the event. Flash flood reports require the

issuance of a Flash Flood Warning or an Urban Flood Statement, depending on the extent of the flooding. Rotating wall cloud reports should trigger the issuance of a Tornado Warning if the wall cloud is persistent and persistently rotating. If not, then a Severe Thunderstorm Warning may be sufficient.

High Priority - hail > golfball size, wind > 70 mph
These are events which signify a significant severe storm. While a storm with these events may not produce a tornado, it will pose a considerable threat to people and property in its path. Spotter reports of these events require the issuance of a Severe Thunderstorm Warning or a Severe Weather Statement.

Medium Priority - hail > dime size, wind > 58 mph, rainfall > ½ inch, non-rotating wall cloud
The hail and wind criteria represent the minimum severe thunderstorm criteria. The rainfall and wall cloud criteria suggest the potential for flooding or severe weather, respectively. The hail and wind reports warrant the issuance of a Severe Thunderstorm Warning. The rainfall and wall cloud reports should focus the forecaster's attention on these storms, but no immediate action is necessary.

Low Priority - hail < dime size, wind > 40 mph, heavy rain, other cloud features
These items, while not directly suggestive of severe weather, do indicate storms with above-average intensity. They help NWS forecasters and spotters isolate stronger storms which may have the potential to produce severe weather, but no warnings or statements are immediately necessary.