G0365: WEM: Partnerships for Creating and Maintaining Spotter Groups

Student Manual
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Unit 1: Spotter Groups and Their Value to Emergency Management
Welcome and Opening Remarks

This workshop will enable you and your local NWS Warning Coordination Meteorologist (WCM) to work together to create a new spotter group in your community or to improve the operations of an existing spotter group for the benefit of the local community.
You will develop and take back with you specific ideas for strengthening the partnership between you and your WCM to improve the integrated warning process in your community.
Visual 1: A Cooperative Effort

40 minutes [not including breaks]

A Cooperative Effort

The National Weather Service (NWS) and the Federal Emergency Management Agency (FEMA) developed this workshop jointly, with input from members of the International Association of Emergency Managers (IAEM), to help improve situational awareness during incidents through the implementation of volunteer hazardous weather and flood spotters.

This training workshop is one of several joint educational initiatives between FEMA and NWS.
Visual 2: Administrative

- Emergency exits
- Restrooms
- Electronic devices
- Procedures for questions
- Evaluation forms
- Course materials
Visual 3: Overview of the Student Manual

- Your Student Manual contains copies of the visuals, important content, activity worksheets, and room for you to take notes.
- The appendix provides a list of resources for more information after the workshop.
Visual 4: The EM-NWS Partnership

The Partnership Between Emergency Management and the National Weather Service Image Description

Graphic representing the concepts that at the local level, the local emergency manager works with the local National Weather Service Warning Coordination Meteorologist. At the State level State Emergency Management Agency works with the NWS WFO Warning Coordination Meteorologist. At the Federal Level FEMA, IAEM, and NEMA works with NWS Headquarters and National WCM.

The Partnership Between Emergency Management and the National Weather Service

In order to be effective, the partnership between the emergency management community and the NWS must exist at the local, state, Tribal and Federal levels.

At the local level, this working collaboration takes place between the local emergency manager (EM) and the local NWS WCM.
At the state level, this working collaboration takes place between the state emergency management agency and the WCM located in the Weather Forecast Office (WFO) that serves as the state liaison office. Typically, this is the NWS WFO that is geographically located closest to the state capitol.

Lastly, at the Federal level, the NWS works directly with FEMA, the International Association of Emergency Managers (IAEM), and the National Emergency Management Association (NEMA) on national plans and policies, mitigation and preparedness initiatives, and the operational response to and recovery from major incidents.
Visual 5: Your Link to the NWS: The Warning Coordination Meteorologist

WCMs are located nationwide at:

- 122 WFOs
- 6 NWS Regional HQs
- NWC National Centers
- NWS HQ

Plus: Service Coordination Hydrologists in 13 River Forecast Centers

Your Link to the NWS: The Warning Coordination Meteorologist

The WCM serves as the principle interface between his/her Weather Forecast Office (WFO) and the users of the warnings, forecasts, and services of that office. The strength of the NWS is the local community presence of its 122 WFOs.

The WCM is your link to the NWS. The WCM is there to help EMs with public awareness campaigns, planning and exercise support, operational response coordination, and other emergency management functions.

- There are 122 WCMs throughout the country, one at each WFO.
- There are WCM positions at each of the six NWS Regional Headquarters.
- There are also WCM (or WCM-like) positions at NWS National Centers, including the National Hurricane Center, the Storm Prediction Center, the Space Weather Prediction Center, the Hydrometeorological Prediction Center, and the Tsunami Warning Centers.
- There is a National WCM position at NWS Headquarters that works directly with FEMA, IAEM, NEMA, and other national partners.
- There are also Service Coordination Hydrologists (SCHs) located in the 13 River Forecast Centers. They serve as the POC for floodplain managers and other water resource officials.
Visual 6: Overview of Spotter Groups

- Act as the eyes of NWS and local EM
- Provide specific information on local weather conditions
- May be mobile or fixed

Overview of Spotter Groups

Spotter groups, like the NWS SKYWARN® network of volunteer weather spotters, are the “eyes” of the NWS and the local emergency manager when potentially hazardous weather develops.

The spotter’s role is to observe and provide specific eyewitness information on local weather conditions through the appropriate reporting channel.

The spotter must know the local chain of command, which varies depending on the group’s structure and organization.

Spotters may be mobile or fixed.

- Mobile spotters use portable communications equipment and travel to observe weather.
- Fixed spotters observe weather conditions from a specific site, such as their residence or place of work.

Even with greater advances in technology, spotters will continue to be needed to relay “ground-truth” information to the NWS and emergency managers. Through confirmation of the threat, spotter reports enhance public response.
Creating and maintaining a spotter group is important for the community’s safety and protection, but it is too big a job for one organization (or person) to handle alone.
Throughout this workshop, we are stressing the importance of the WCM and EM working together.
The NWS, the EM, and America’s Weather and Climate Industry form an Integrated Warning Team. The weather spotter is a key member of the team.
Visual 8: Activity 1.1: Introductions

Tell the class:

1. Your name
2. Organization
3. Experience with spotters
4. The weather term that best describes you

Activity 1.1: Introductions

**Purpose:** To help you get to know and begin to relate to one another.
Visual 9: Workshop Goal

Work with the appropriate WCM to:

- Create a new spotter group in your community

OR

- Improve the operations of an existing spotter group

Workshop Goal

- After completing this workshop you should work with your local WCM to:
  - Create a new spotter group in your community
  
  OR

  - Improve the operations of existing spotter groups

- This workshop will give you the necessary awareness and the tools to work jointly with your WCM to strengthen the local spotter network, and ultimately, to enhance the safety of each member of the local community.

- Each of the four units of this course has several objectives.
  - These describe what you should be able to do once the unit is finished.
  - Here are the objectives for Unit 1.
Visual 10: Workshop Objectives

- Describe the importance of spotter groups as an integral part of emergency management
- Explain the need for spotters to complement NWS technology
- List factors leading to the success of the spotter program

Workshop Objectives

At the conclusion of this unit, you will be able to:

1. Describe the importance of spotters as an integral part of emergency management.
2. Explain the need for spotters to complement NWS technology.
3. List factors leading to the success of a local spotter program.
Visual 11: Units of Instruction

Unit 1 – Spotter Groups and Their Place in Emergency Management
Unit 2 – Creating Spotter Groups
Unit 3 – Maintaining Spotter Groups
Unit 4 – Making the Partnership Work

Workshop Overview

- This workshop offers plenty of opportunity for you to interact with and learn from each other as well as from the instructor(s).
- Following is a list of the rest of the units and a brief description of their contents.
- Unit 2: Creating Spotter Groups We will discuss different approaches for creating spotter groups and cover a list of considerations for operating a group. We will also talk about recruiting spotters.
- Unit 3: Maintaining Spotter Groups We will discuss the training needed for spotter group members and how to maintain interest in serving as a spotter.
- Unit 4: Making the Partnership Work This is your opportunity to share with fellow participants and get feedback on your specific ideas for building and/or strengthening the local emergency management/NWS partnership.
SKYWARN spotters are not by definition “Storm Chasers.” While their functions and methods are similar, the spotter stays close to home and usually has ties to a local agency. Storm chasers often cover hundreds of miles a day. The term storm chaser covers a wide variety of people. Some are meteorologists doing specific research or are gathering basic information (like video) for training and comparison to radar data. Others chase storms to provide live information for the media, and others simply do it for the thrill.

Safety is the top priority for the SKYWARN Weather Spotter program. The NWS does not encourage its SKYWARN weather spotters to engage in storm chasing. However, the NWS does recognize that SKYWARN spotters engaged in mobile activities, may encounter severe weather and should be alert to rapidly changing weather conditions that could impact personal safety.

Storm spotting and storm chasing are dangerous and should not be done without proper training, experience and equipment.

Source: NWS SKYWARN (https://www.weather.gov/skywarn/)
(Retrieved February 3, 2015.)
Visual 13: What do spotters report?

What do spotters report?
Types of Weather and Weather Impacts Reported by Spotters

- Tornadoes
- Flash Flooding
- Mud slides/debris flows/ice jams
- Wall Clouds
- Funnel Clouds
- Lightning (damage or injuries)
- Winter Weather
- Damaging Winds
- Hail
- Marine Hazards
  - Waterspouts
  - Squall lines
  - Heavy freezing spray
  - Wave heights and winds that differ significantly from forecasted conditions
  - Hydrometeorological phenomena that are not in the current marine forecast, e.g., thunderstorms, dense fog
  - Waves greater than twice the size of surrounding waves
  - Tsunami inundation and any damage
- Coastal Flooding
- Lakeshore Flooding
- High Surf and Rip Currents
- Dense fog: visibility ¼ mile or less
- Dust storms: visibility ¼ mile or less
- Volcanic ash accumulation and any damage
- Any injuries or fatalities as a direct result of weather
Visual 14: Hazardous Weather in the U.S.

Annual averages:
- 100,000 thunderstorms
- 5,000 floods
- 1,300 tornadoes
- 6 Atlantic hurricanes
- 600 fatalities
- $14B in losses

Overview of Hazardous Weather in the United States

The United States experiences more severe weather than any other nation. Our weather creates many hazards that you, as responders, need to be able to recognize and respond to appropriately. Of all Presidentially declared disasters, over 95% are weather related. The number of Federally declared disasters set a new record in 2011, with 99.

The numbers shown on the visual are annual averages. The graphic shows severe weather reports for 2011.

Weather kills, especially when your citizens do not have sufficient warning to take action. The NWS and FEMA are working together to provide you with an understanding of weather and flood hazards and how you can be better prepared.

In this workshop, we are going to talk about the critical roles spotters play in providing actual weather data that can help emergency managers and the NWS make decisions necessary to save lives and property.

Source: FEMA Disaster (http://www.fema.gov/disasters/grid/year)
Examples of Conditions That Spotters Report

The following examples show how valuable spotters are to the NWS, EM and the community during all types of hazardous weather and flooding.
As you consider each example, think about how spotters could play a role in your community.
Visual 16: Severe Thunderstorms

Include at least one of the following:

- Hail one inch or larger
- Wind gusts of 58 mph (50 knots) or more
- Occurrence of a tornado

Severe Thunderstorms

- One of the main ways that spotters help their communities is by observing and reporting severe thunderstorms.
- Severe thunderstorms, as defined by the NWS, include at least one of the following:
  - Hail that is 1 inch or larger
  - Wind gusts of 58 mph (50 knots) or more
  - Occurrence of a tornado
Visual 17: Thunderstorm Hazards Reported by Spotters

- Tornadoes
- Funnel clouds
- Wall clouds
- Damaging winds
- Hail
- Lightning (damage or injuries)

Thunderstorm Hazards Reported by Spotters

NWS provides detailed training that enables spotters to detect the various hazards associated with thunderstorms.
Visual 18: Thunderstorm Hazards: Tornadoes, Wall Clouds, and Funnel Clouds

Spotters provide:
- Real-time ground truth verification
- Tracking information
- Visual data that Doppler radar may not detect

Thunderstorm Hazards: Tornadoes, Wall Clouds, and Funnel Clouds

Tornadoes
Spotters often provide real-time ground truth verification and tracking information for would-be killer tornadoes.

Spotter reports of tornadoes are integral to the successful warning for this hazard.
- Advances in Doppler radar, such as dual-polarized (dual-pol) technology, have given NWS a viable means for detecting tornadic circulations.
- However, there are many instances where radar is limited and trained spotters remain invaluable to their detection.
Visual 19: What are some of the limitations that Doppler radar has in detecting tornadoes?

What are some of the limitations that Doppler radar has in detecting tornadoes?
Visual 20: Thunderstorm Hazards: Damaging Winds

Spotters report:
- Estimated or measured wind speeds
- Damages

High winds can cause billions of dollars in property damage each year.

Thunderstorm Hazards: Damaging Winds

Damaging Winds

- High winds cause millions—and often billions—of dollars in property damage each year. Storms often topple large trees and damage mobile homes, causing deaths and injuries.
- Roof cover damage is present in 85 to 95 percent of wind-related insured property losses each year.
- Spotters report estimated or measured wind speeds and any damage that occurred.
Hail and Lightning Impacts in the U.S. Each Year

- $1 billion in insured losses
- $1.3 billion in crop losses
- 50–60 deaths
- 400 injuries
- $1+ billion in insured losses

Hail photo courtesy of NOAA

Thunderstorm Hazards: Hail and Lightning

Hail and Lightning

- Hail causes an estimated $1 billion in insured property losses and $1.3 billion in crop losses in the U.S. each year. Spotters report hail occurrence and are trained to estimate its size.
- Lightning detectors show an average of about 20 million cloud-to-ground flashes per year across the U.S., resulting in nearly 60 deaths and 400 injuries.
- Spotters are asked to convey any lightning damage or injuries in their area. For emergency situations when someone is injured, spotters should call 911 first.
Visual 22: Winter Weather Reported by Spotters

- Freezing rain/ice accumulation
- Snow accumulation
- Blizzard conditions
- Dangerous wind chill
- Flooding caused by ice jams, coastal storms, and snow melt
- Avalanches

Winter Weather

- Spotters contribute to the Disaster Declarations process with their reports on winter storm conditions such as snow and ice accumulation.
- They are often your only real-time information source for localized winter hazards such as ice jams and blizzard conditions. Blizzards are officially defined as winds 35 mph or more AND visibilities reduced to ¼ mile or less in blowing and falling snow for a minimum of 3 hours.
- Reports on avalanches are conveyed by the NWS to the local/state agencies that warn for and respond to this hazard (e.g., the U.S. Forest Service, State Departments of Transportation, etc.).
Visual 23: Visibility Restrictions Reported by Spotters

- Dense fog
- Dust storms
- Dense smoke
- Volcanic ash

Visibility Restrictions

- Spotters are trained to observe and report when visibility conditions become hazardous. In addition to winter weather mentioned previously, spotters also help with dense fog, dust storms, and dense smoke—hazards that often cause massive vehicle pile-ups.
- Volcanic ash is a rare hazard, but where this is relevant, spotters can report on its occurrence in a similar way that they would report snow—visibility reductions and ash accumulations.
Visual 24: Flooding Reported by Spotters

- Flash floods, including dam/levee failures
- Coastal and lakeshore flooding
- River flooding

Flooding

- Spotters can give life-saving warning lead time when a flash flood threatens.
- In coastal communities, spotters add critical information on coastal storms and related flooding.
- Coastal NWS offices encourage spotters in small communities to report hazardous weather and damage done by coastal storms as it is occurring, especially wind and flood damage.
- Spotters can provide critical information on water levels, dam and levee conditions, and the impacts during riverine flooding.
Visual 25: Marine Weather Reported by Spotters

- Waterspouts
- Squall lines
- Heavy freezing spray
- Wave heights and winds that differ significantly from forecasted conditions
- Hydrometeorological phenomena not in current marine forecast
- Waves greater than twice the size of surrounding waves
- Tsunami inundation and damage

Marine Weather Hazards

- Coastal communities have mariners that work or recreate on the open waters. Weather is critical to any operations on the open waters.
- NWS coastal offices have expanded the traditional spotter program to enlist mariners in reporting hazardous weather conditions.
- Tsunamis are a rare event often caused by undersea earthquakes. Coastal spotters can assist the Integrated Warning Team (EMs, NWS, and America’s Weather and Climate Industry) with reports of tsunami inundation and damage.
Visual 26: Case Study Example: Michigan Tornado

- SKYWARN spotter reported a rotating wall cloud
- EOC activated outdoor warning sirens
- 15 minutes later, EF3 tornado touched down
  - On the ground 30 minutes, 7 ½ miles
  - Damaged 200 homes
  - Destroyed 20 homes
  - No fatalities or serious injuries

Case Study Examples

Example #1: Michigan Tornado

On the afternoon of March 15, 2012, with severe thunderstorms predicted for the Dexter, Michigan, area, the SKYWARN spotter network was activated. A trained weather spotter and ham radio operator, seeing on radar a storm cell not too far from his home, notified the Emergency Operations Center (EOC) that he would check it out. He drove north until he spotted a wall cloud, and he could see that it was beginning to rotate. Stopping his vehicle at a safe distance from the rotation to observe, he reported it to the EOC. Another spotter, stationed on the other side of the cell, was asked to verify the report. Upon confirmation of a strong rotation, the EOC activated the outdoor warning sirens and coordinated warning messages to the county. Less than 15 minutes after the sirens sounded, a tornado touched down and stayed on the ground for a full half-hour, creating a path of destruction more than 7 ½ miles long. More than 200 homes were damaged by the EF-3 tornado, and at least 20 were destroyed, yet not a single life was lost, and no serious injuries were reported. Early warning, which gave people time to seek shelter, was credited for saving lives that day.
Visual 27: Case Study Example: NM Flash Flood

- NWS issued flash flood watch
- Storm stalled over the hills
- Spotters reported water and debris moving quickly downstream
- Flash flood warning issued immediately
  - Flood crest swept through town
  - Washed out two major bridges
  - No fatalities or injuries

Case Study Example: NM Flash Flood

Example #2: Southwest New Mexico Flash Flooding

After analyzing the morning weather maps, the NWS issued a flash flood watch for two large counties in southwest New Mexico. In New Mexico, it only takes two inches of rain on any given day to cause a dry arroyo to change into a raging waterway. On this day, all indications were that two inches or more could fall from any thunderstorm that developed over the Gila Mountains.

The NWS had trained rainfall observers (spotters) throughout the state. One husband/wife team lived near the town of Gila, and had been reporting to the NWS for many years. They heard the flash flood watch and kept a careful eye on the billowing clouds outside. A few hours later, they realized that one thunderstorm had been sitting over the hills to their north for quite some time. Knowing their area well, they hopped in the car and drove up the valley toward the storm. As they got toward the upper end of the canyon, they saw a wall of water and debris moving downstream. They quickly turned around, raced back to their house, and called the NWS. A flash flood warning was issued immediately for that particular canyon valley. The flood crest swept down into the town of Gila, washing out two major bridges and isolating the road to Gila National Park. The warning, however, was received before the flood waters hit, and no one was killed or injured.
Visual 28: Case Study Example: NC Flash Flood

- Isolated thunderstorm posed no apparent threat
- 8 ½ inches of rain fell quickly in mountainous terrain
- SKYWARN spotter reported a “wall of water”
- Flash flood warnings issued
  - 5,000+ people evacuated from 7 campgrounds
  - Water reached 25 feet high at times
  - No fatalities or injuries

“Without the SKYWARN spotter making the first report, we would have still been counting bodies.”

Officer-in-Charge, WFO

Case Study Example: NC Flash Flood

Example #3: North Carolina Flash Flooding

An isolated thunderstorm was relatively stationary over the headwaters of Raven Fork on the Cherokee Indian Reservation in western North Carolina. Radar indicated only moderate rain for most of the 3-hour time frame. The thunderstorm appeared to pose no great risk; however, an estimated 8.5 inches of rain fell in a rocky and steep mountainous terrain. The initial report (from a SKYWARN spotter) of a “wall of water” was called to the 911 dispatch center. The report was relayed to the local WFO within moments. Flash flood warnings were issued within 4 minutes of the original report.

More than 5,000 people were evacuated from 7 campgrounds in less than 45 minutes. Based on damage observed in a survey conducted during the next few days, the “wall of water” at times was 25 feet high. Amazingly, there were no fatalities or injuries from this potentially devastating flash flood event. The WFO was awarded the Department of Commerce Bronze Medal for “issuing timely warnings...saving hundreds of lives.” According to Ron Jones, Official-in-Charge of the local NWS office WFO, “Without the SKYWARN spotter making the first report, we would have still been counting bodies.”
Visual 29: Spotters: Key to Successful Warning Systems

- Spotters can be the difference between anticipating and reacting to hazardous weather
- Spotters are crucial despite the latest NWS technology

Spotters: Key to Successful Warning Systems

In short, trained spotters can make the difference between anticipating hazardous weather—and responding proactively—and reacting to it after the fact.

No matter how advanced technology becomes, spotters are a crucial part of information dissemination and warning coordination.
Visual 30: Activity 1.2: SKYWARN Spotter Success Story

1. Read the spotter success story
2. Discuss the questions with your table group
3. Record your answers
4. Be prepared to share your responses

Activity 1.2: SKYWARN Spotter Success Story

**Purpose:** To determine the most important factors contributing to the success of a successful spotter network or operation, based on case study information.

**Directions:**

1. Read through the spotter success story.
2. Then, working with members of your small group, discuss your responses to the questions listed in your Student Manual.
3. List your findings on easel chart paper 4
4. Choose a spokesperson to give a brief report to the rest of the class.
Activity 1.2: SKYWARN Spotter Success Story

The Integrated Warning Team at Work in the Central Shenandoah Valley, Virginia (Widespread Flooding)

The weather reporter at Channel 3 in Harrisonburg invited all of his weather spotters to a SKYWARN class instructed by and coordinated with the NWS. Channel 3 sponsored the class by making arrangements at a local hotel for a classroom, providing audiovisual equipment, and serving refreshments. Channel 3 also announced the upcoming class and did a story on the SKYWARN program. It was a good public service story for them, and their observers became better trained.

A few people attending the class were amateur radio operators. A few months later, they indicated that a large group of their members wanted to be SKYWARN spotters and that their club would host a class. They announced the class in their club newsletter and the NWS announced it on NOAA Weather Radio. These two classes certified about 70 new spotters.

About nine months later, FEMA, NWS, and state and county agencies in Virginia were involved in a large hurricane exercise. SKYWARN amateur radio was activated as part of the exercise to pass severe weather reports and act as backup communications between Emergency Operations Centers (EOCs) and the NWS in the event of widespread communication loss. Rockingham County and the City of Harrisonburg allowed the trained SKYWARN spotters, who were also Amateur Radio Emergency Services (ARES) trained “hams” (amateur radio operators) into their EOC for the first time ever to test their participation. The exercise went extremely well with hams providing both two-way voice communication and hard copy flood statements using packet radio. The emergency management coordinator was so impressed that he allowed the amateur radio people to place a permanent antenna at the EOC for future real-time activations.

The real-time disaster came only one month later with flooding rains. The NWS issued flood/flash flood watches for a large portion of western Virginia. The NWS activated the SKYWARN network. The Rockingham County amateur radio spotters organized and set up a communications link into the EOC and between the EOC and NWS. The NWS fed its rain and flood expectations to the county with quick updates through the hams. The county began making preparations. As the rain intensified, the spotters fed rainfall reports back through the EOC in Harrisonburg and on to the forecast office in Sterling. With the EOC’s assistance, mobile spotters were organized and sent out to check stream and river heights and report back.

By listening to the radio net, the NWS could receive the reports simultaneously with the EOC. At the EOC, as decisions were needed, they could ask questions through the link to the NWS.

NWS forecasters quickly realized that a mountain ridge was blocking the radar beam from seeing most of the rainfall over the central Shenandoah Valley. While rain gage and spotter reports indicated that a couple inches of rain had now fallen and streams were rising, radar showed only a trace of rain, if any, on that side of the ridge. Flash flood warnings and updating statements were issued based on the spotter reports that came in via the amateur radio network and on the telephone. Channel 3 in Harrisonburg received the NWS products over a wire service and NOAA Weather Radio and kept the public apprised of the storm and areas that were being evacuated or roads that were closed due to high water.
The NWS was able to issue timely and accurate warnings and statements. In addition to the flash flooding, the numerous rainfall reports from throughout the basin allowed an accurate forecast of the eventual flood crest on the Shenandoah River. Up to eight inches of rain fell that night, but Rockingham County was well prepared and responded quickly to the emergency. There were no deaths or serious injuries in the county.

1. What are the most important factors leading to the success of the operation described in the story?

   Answers may include:

   - Spotters were well-trained
   - Communication capabilities
   - Involvement of amateur radio club
   - Good publicity/advertising to build a robust group
   - Inclusion of spotters in exercises
   - Inter-agency and multi-level cooperation
   - Relationships built prior to an emergency

1. What lessons from this story could your community apply to create or maintain a successful spotter program and improve warning coordination?

   Answers will vary.
Visual 31: Summary

- Spotters are an integral part of emergency management and warning coordination
- Technology cannot do it all
- Cooperation between EM and NWS is vital

Next, we will talk about how emergency managers can help create and involve spotter groups in every community.
Unit 2 : Creating Spotter Groups
Overview

Creating spotter groups is an essential part of managing local emergencies. They can help provide essential information to help protect your community.
Visual 1: Objectives

- Describe advantages and disadvantages of different ways spotter groups could be organized
- Explain specific actions to increase an emergency manager’s involvement in operating a spotter group
- List operational considerations for spotter group planning
- Explain methods for recruiting potential spotters
Visual 2: Spotter Group Creation and Organization

Affects operations, such as:
- Which organizations get the reports
- How quickly they are received by the ultimate user, the public
- Whether timely and consistent warnings can be issued

Spotter Group Creation and Organization

- The way the local spotter group has been created and organized will affect all its operations, especially:
  - Which organizations get the reports
  - How quickly they are received by the ultimate user, the public
- Spotter reports must be received by user agencies quickly so timely warnings can be issued and response operations activated.
Visual 3: Ways of Organizing Spotter Groups

Spotter groups may be coordinated through:

- Local NWS office
- Local emergency management
- Collaborative effort between the NWS and local emergency management
- America’s Weather and Climate Industry

Ways of Organizing Spotter Groups

Potential ways of organizing spotter groups:

1. Spotter groups may be coordinated through the local NWS office.
   - The WCM or designee creates, operates, and maintains SKYWARN group.
   - All spotter reports are received by NWS and relayed to emergency management.
     - This is common in counties with part-time EM programs.
     - NWSChat is an example of a situational awareness tool where the NWS shares weather spotter reports with EMs and the news media near real-time.

2. Spotter groups may be coordinated through local emergency management.
   - EM creates, operates, and maintains its own spotter network.
   - All spotter reports received by emergency management and passed on to the NWS.
     - This is common in counties with strong EM programs outside vicinity of NWS office.
     - EMs can make instant decisions to activate local warning system (e.g., sirens, radio networks, automated notification systems) based on spotter reports.
     - EMs should always pass significant spotter reports on to NWS.
     - EMs may make decisions not based on meteorological information and radar imagery.
     - NWS needs to help provide training or at least some of the training materials.

3. Spotter groups may be organized through a collaborative effort between the NWS and local emergency management.
   - EM and WCM share responsibility for creating, operating, and maintaining a spotter network.
   - Spotters’ reports may be received by emergency management and NWS simultaneously.
   - Local EM and NWS officials can coordinate and issue a uniform warning.

4. Spotter groups may be organized by America’s Weather and Climate Industry.
   - Spotters work for local television or radio stations, or other private weather/climate-related companies or industries.
- Data is reported back to a single station, company, or industry.
- The information may or may not be shared with local officials and NWS office.
Visual 4: Factors that Influence the Best Approach

- Strength of local EM organization / NWS office
- Existing relationship between the two
- Support or constraints from community decision makers
- Level of public knowledge about hazardous weather and flooding
- Time since last community disaster or potential disaster
The weather spotter is a key member of the warning team, no matter how the spotter group is organized.

The Integrated Warning Team

Remember, the EM works with the NWS and America’s Weather and Climate Industry to form an Integrated Warning Team.
Visual 6: Ways WCM and EM Can Work Together

Hail and Lightning Impacts in the U.S. Each Year

Spotter
- Recruitment
- Contact
- Training
- Activation
- Reports
- Maintaining interest

Ways to Work Together

Now let’s talk about how that team can become a reality within six major areas of spotter programs.

Each action we list increases the involvement of the emergency manager in organizing and operating the spotter group.
Visual 7: Recruitment

How can the Emergency Manager be involved in spotter recruitment?

- Coordinate with WCM
- Recruit spotters for your area of responsibility
Visual 8: Contact

How can the Emergency Manager be involved in maintaining contact with spotters?

Contact

- The EM can:
  - Know who the spotters are in your jurisdiction.
  - Help determine activity level of existing spotters and keep spotter lists current.
    - Should they be kept on the spotter list?
    - Have they moved?
    - Are they willing to be called at odd hours?
    - Which spotters are more reliable than others?
  - Maintain regular contact by attending or providing spotter training, sponsoring group socials or award presentations, social networking, etc.
Visual 9: Training

How can the Emergency Manager be involved in spotter training?
Visual 10: Activation

How can spotters be activated?
Visual 11: Reports

How can the Emergency Manager help make the most of spotter reports?
Visual 12: Maintaining Interest

How can the Emergency Manager be involved in maintaining interest among spotters?

Maintaining Interest

- The EM can:
  - Help in the promotion of the spotter groups in the jurisdiction (e.g., social networking, media interviews, awareness campaigns, newsletters).
    - Arrange to feature spotters in local publications.
    - Arrange for other types of recognitions (e.g., letters of thanks and recognition for local or state leaders).
    - Conduct spotter group socials, picnics, award presentations, etc.
  - Engage the spotter groups by including them as volunteers in community preparedness campaigns and outreach.
  - Provide NOAA Weather Radio receivers, ham radio equipment (or locations to install repeaters), or other communication resources to local spotter groups.
Activity 2.1: Operational Considerations for Spotter Groups

1. Refer to your planning guide or annex for spotter groups
2. Determine which elements in the checklist are addressed
3. Be prepared to share your results

Activity 2.1: Operational Considerations for Spotter Groups

**Purpose:** To analyze elements of a planning guide or annex outlining spotter group policies and procedures against a checklist of operational considerations.

**Directions:**

- Now that you have decided whether the NWS or the EM will take the lead in creating the spotter group, or if you will jointly take the lead, you need to determine what to include in a plan outlining what the spotter group will do and how it will operate.
- As with any plan, you will need to test it during drills and full-scale exercises and incorporate any lessons learned.
- Any effective plan is modified and updated continually to meet the changing needs of the community and the spotter group itself.
  
  a. For this activity, you will need to refer to the planning guide or annex you were asked to bring with you to class, outlining what a spotter group will do and how it will operate.
  
  b. Working individually or with other members of your jurisdiction, determine which elements in the checklist that follows have been addressed in your community’s planning guide or annex and place a check in the table for that element.
  
  c. You will have 30 minutes to analyze your planning guide. If working as a group, choose a spokesperson to report your group’s findings to the class on the following questions:
    
    a. What elements were missing from the planning guide you analyzed?
    b. What elements would you add to the checklist?
# ACTIVITY 2.1: OPERATIONAL CONSIDERATIONS FOR SPOTTER GROUPS

<table>
<thead>
<tr>
<th>CATEGORY &amp; ELEMENT</th>
<th>PRESENT?</th>
<th>COMMENTS/NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for notifying spotters that a network is needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for notifying net control operator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for self-activating local spotter networks when fast-moving hazardous weather occurs</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>REPORT CONTROL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria for reporting different types of weather (e.g., only report hail at least the size of a dime)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special means for trained spotters to identify themselves on spotter net</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-written scripts for reporting various types of hazardous weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assignment of a person to screen spotter reports before notifying WCM or EM, preventing information overload</td>
<td></td>
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<tr>
<td>Clear reporting channels for all spotters and any relay nets (or subnets)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATEGORY &amp; ELEMENT</td>
<td>PRESENT?</td>
<td>COMMENTS/NOTES</td>
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<tr>
<td>-----------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Method for limiting false or inaccurate reports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for distinguishing between pre-impact severe weather spotting and reports of impacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for deploying mobile spotters to the appropriate location</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EQUIPMENT AVAILABLE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requirement for spotters to have access to primary and backup reporting equipment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedures for switching to backup communication system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Means of communicating with EM agency (if that is not the primary reporting location)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Means of communicating with any other applicable agencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STAFFING THE SPOTTER NET</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for calculating optimal number of spotters needed on net for various types of weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for determining total number of spotters needed in spotter group (to provide redundancy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision for enough net control operators to coordinate spotter net</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATEGORY &amp; ELEMENT</td>
<td>PRESENT?</td>
<td>COMMENTS/NOTES</td>
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<tr>
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<tr>
<td>around the clock, if necessary for long-term events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for incorporating lessons learned from exercises into plan/procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRAINING AND EXERCISES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for training spotters (basic and advanced)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring program – pairing experienced spotters with new spotters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety training – how to deliver information without placing themselves in jeopardy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision for exercising plan or standard operating procedures at least annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for incorporating lessons learned from exercises into plan/procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOLLOW-UP AFTER ACTIVATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for accounting for safety and location of all spotters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision for debriefing/critiquing spotters and net control operator performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATEGORY &amp; ELEMENT</td>
<td>PRESENT?</td>
<td>COMMENTS/NOTES</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td>Method for providing additional training/information to spotters before next activation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedures for press briefing or other public affairs events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method for recognizing spotter efforts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Visual 14: Recruiting Spotters

What are some qualities or characteristics you need to have among members of a spotter group?

Recruiting Spotters

What are some of the qualities or characteristics that you will need to have among members of a spotter group?
Visual 15: Recruiting Spotters

- The most effective spotters may not possess all of the “ideal spotter” characteristics.
- Use a position description to:
  - Clarify expectations
  - Increase professionalism of group
  - Make effective operation easier

Recruiting Spotters

- The most effective spotters may or may not possess all of these characteristics.
- Use a position description to ensure that the spotters understand what is expected of them. The position description may be modified to suit your local needs.
- A position description also:
  - Increases the professionalism of a group and its members
  - Makes it easier to operate effectively
- Keep in mind that the more spotters you have, the more planning you must do to develop an efficient communication system so that NWS and EM officials aren’t bogged down by noncritical information.
Visual 16: Benefits of Approaching Existing Groups

- Saves time and effort
- Organizational structure already in place
- Personal relationships already established

Benefits of Approaching Existing Groups

- If groups with the right interests and skills already exist in your community, it is better to approach the group’s members together.
  - This approach saves time and effort.
  - The group already has an organizational structure in place.
  - Members have worked out personal relationships.
- To approach an existing group successfully, you need to know the interests and motivations of the group.
  - If you want to involve amateur radio clubs, then make serving in a spotter group a challenge as well as a partnership.
  - If you want to involve corporation/company employees, then appeal to their reputation or position in the community.
Visual 17: How to Approach Existing Groups

Appeal to the interests and motivations of the group:

- Challenge?
- Reputation?
- Service?
Visual 18: Activity 2.2: Approaching Existing Groups

Time:
10 minutes

Activity 2.2: Approaching Existing Groups

1. In the left column of the worksheet, list existing groups to approach for spotters
2. In the right column, briefly describe the best way to approach people and motivate them
3. Be prepared to share your responses

Activity 2.2: Approaching Existing Groups

**Purpose:** To list pre-existing groups to approach for potential spotters and determine factors that might motivate them to serve.

**Directions:**
1. As a table group, list existing groups to approach for spotters in the left column of the table.
2. In the right column, briefly describe the best way to approach people in these groups and motivate them to volunteer.
3. The first row is filled out as a sample.
4. Be prepared to share your responses.
Activity 2.2: Approaching Existing Groups

<table>
<thead>
<tr>
<th>EXISTING GROUPS TO APPROACH</th>
<th>WHAT’S IN IT FOR THE GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Sample: Mobile home park managers</em></td>
<td><em>Sample: Educate them about the safety/security of knowing what to do during hazardous weather and make them a part of the information loop.</em></td>
</tr>
</tbody>
</table>

Handout 2.1: Sample SKYWARN Spotter Position Description

- Trained to observe special weather conditions by NWS SKYWARN program
  - Can describe the life cycle of a thunderstorm
  - Can name and recognize the basic elements of ordinary thunderstorms and supercells: rain-free base, wall cloud, tail cloud, precipitation area, gust front, etc.
- Reports severe weather conditions to the WCM or the EOC, if it has been activated, or to the appropriate reporting channel
  - Knows the criteria of what severe weather events or flooding to report
  - Knows alternative reporting methods
  - Has a list of names and telephone numbers for key contacts on hand
• Can to operate a motor vehicle and has a valid driver’s license (if not a stationary spotter)
• Can be reached by some telecommunications system (radio, amateur radio, mobile phone, etc.)
• Is familiar with the Local Emergency Operations Plan and with the area of operation
• Is available on a 24-hour basis and can activate on short notice
  • Lets the Emergency Manager or WCM know when he/she can’t report for duty
• Maintains current training
  • Does not unduly place self in jeopardy in order to observe/report information
  • Knows safety precautions in lightning strike area (stay in vehicle or indoors)
Visual 19: Finding Local Amateur Radio Clubs

Amateur radio clubs are great resources for finding potential weather spotters. To look for ham radio operators in your area, visit the following sites:


As we discussed in the previous unit, it is not necessary for spotters to also be amateur radio operators; however, having spotters who can relay weather conditions even when traditional means of communication fail is certainly a benefit.
Handout 2.2: Potential Resources For Recruiting Spotters

<table>
<thead>
<tr>
<th>Airport authority</th>
<th>Mine operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amateur Radio Emergency Service (ARES)</td>
<td>Marina operations</td>
</tr>
<tr>
<td>Amateur Radio Relay League (ARRL)</td>
<td>Mobile home park managers</td>
</tr>
<tr>
<td>ATV/off-road vehicle/snowmobile clubs</td>
<td>Mosquito control</td>
</tr>
<tr>
<td>Cable television installers</td>
<td>Neighborhood watch</td>
</tr>
<tr>
<td>Churches and synagogues</td>
<td>Nursing homes</td>
</tr>
<tr>
<td>Community co-op service</td>
<td>Postal workers</td>
</tr>
<tr>
<td>Condo associations</td>
<td>Private security companies</td>
</tr>
<tr>
<td>Corporation/company employees</td>
<td>Parks and recreation</td>
</tr>
<tr>
<td>Development authority</td>
<td>Public works department</td>
</tr>
<tr>
<td>Environmental health</td>
<td>Radio Amateur Civil Emergency Service (RACES)</td>
</tr>
<tr>
<td>Experimental aircraft association</td>
<td>REACT International (Radio Emergency Associated Communications Teams)</td>
</tr>
<tr>
<td>Federal agencies*</td>
<td>Sanitation workers</td>
</tr>
<tr>
<td>Fire rescue (volunteer and career)</td>
<td>Road and bridge department crews</td>
</tr>
<tr>
<td>Flood control management agencies</td>
<td>School board</td>
</tr>
<tr>
<td>Golf course management</td>
<td>School employees</td>
</tr>
<tr>
<td>Homeowner associations</td>
<td>Transit company</td>
</tr>
<tr>
<td>Hospitals</td>
<td>Universities</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Landfill</td>
<td>U.S. Coast Guard auxiliary</td>
</tr>
<tr>
<td>Law enforcement (state, county, or local)</td>
<td>Utility departments and companies</td>
</tr>
<tr>
<td>Local Council of Governments</td>
<td>Yachting clubs</td>
</tr>
<tr>
<td>Local government building department</td>
<td>Zoning departments</td>
</tr>
</tbody>
</table>

*Especially local offices of land management agencies such as the Bureau of Land Management, U.S. Forest Service, Bureau of Indian Affairs, National Park Service, U.S. Geological Survey, Bureau of Reclamation, dam operators*
Visual 20: How to Recruit Individuals

- Advertise over social media or through local media partners
- Hold a recruitment drive
- Place recruitment notices at gathering spots

How to Recruit Individuals

- Advertise available positions over social media or through your local media partners.
- Hold a recruitment drive.
  - Ask the president or chair of an organization or agency to assist you in recruiting spotters.
  - Leverage weather awareness week campaigns or national preparedness month (September).
  - If possible, provide an incentive for participation.
- In rural areas, place a recruitment notice at a local gathering spot, such as:
  - Post office
  - Community center
Visual 21: Summary

- Collaborative organization of spotters is usually most effective
- Consider what will work in your community
- Identify existing groups to approach and ways to motivate them

Summary

- Spotter groups are organized in one of the following ways:
  - Coordinated through the NWS
  - Coordinated through local emergency management
  - Coordinated through America’s Weather and Climate Industry
  - The result of a collaborative effort between the NWS and local emergency management with cooperation from the media to disseminate the information
- Typically, the collaborative effort is the most effective.
- The following factors may influence which type of structure will work best in your community.
  - Strength of the local emergency management organization
  - Frequency of hazardous weather and flooding
  - Relationship between the media and the local NWS office
  - Relationship between the NWS and the local emergency manager
- Before you take steps to create a spotter group, consider what will work for the conditions in your own community.
- Identify the pre-existing groups in your community that you can approach and ways you may be able to motivate them to volunteer.

Next, we will discuss the training needed for spotter group members and how to maintain interest in serving as a spotter.
Unit 3 : Maintaining Spotter Groups
Overview

Now that you understand how important spotter groups are to emergency management and how to create those groups, it is time to take a look at how to maintain interest in your local spotter group.
Visual 1: Objectives

At the conclusion of this unit, you will be able to:

- List best practices for conducting the first group meeting for new spotters
- Describe the training that should be provided for each local group
- List methods for maintaining interest among members of a spotter group
Visual 2: Conducting the First Spotter Group Meeting

What are some best practices you can share for meeting with a spotter group for the first time?

Conducting the First Spotter Group Meeting

Knowing the importance of first impressions, think about how you going to interact with your new spotters and what you will say at your first meeting.
Visual 3: Sample Agenda for Conducting the First Spotter Group Meeting

- Introductions and thanks for interest
- Video or other overview of spotters
- Why spotters are needed
- Overview of how emergency management works and how spotters fit into the process
- Questions
- Next steps
Visual 4: Spotter Training

[Online COMET/MetEd course](https://www.meted.ucar.edu/training_course.php?id=23)

- Other training from WCM/WFO
- Jurisdiction-specific training

Spotter Training

- After you have recruited and welcomed spotters, they must be trained.

[SKYWARN spotter training](https://www.meted.ucar.edu/training_course.php?id=23) that provides a good introduction on safety and thunderstorms is available online from COMET and MetEd.

- Additional training on other natural hazards that impact your region should be available from the WCM or other official from the local Weather Forecast Office (WFO).
- Furthermore, you can provide jurisdiction-specific training.
Visual 5: What Should Spotter Training Include?

- SKYWARN background
- Severe storms and other hazards
- Weather terminology
- NWS Products
- Standard Operating Procedures (SOPs)
  - Events to report
  - Reporting methods
  - Other
- General safety

Refer participants to the list of resources in the appendix for more information about SKYWARN training.

What Should Spotter Training Include?

- Spotters must also be trained in the standard operations procedures of the group to which they belong. This training will address the following:
  - Types of events to be reported
    - For example, during hazardous weather, spotters should report winds in excess of 58 mph, large trees blown down, nickel-sized hail or greater, etc.
  - Methods for filing reports
    - To whom to report
    - Whether to use radio, call the NWS office directly (and what telephone number to use), use online reporting, or call the emergency manager
Visual 6: Other Training to Consider

- In-depth safety training
- Emergency management courses
- Refresher training
- Damage assessment training

Other Training to Consider

- Other types of training spotters may have include:
  - Spotter safety training, to include more in-depth information about how they should protect themselves, such as ACES:
    - Awareness
    - Communication
    - Escape routes
    - Safe zones
  - Emergency management courses
  - Refresher training
  - Damage assessment training (if they will be activated for local damage assessment) and SOPs
Visual 7: Do you keep a record of the training each member of the spotter group has completed? Why or why not?

<table>
<thead>
<tr>
<th>Discussion Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you keep a record of the training each member of the spotter group has completed?</td>
</tr>
<tr>
<td>Why or why not?</td>
</tr>
</tbody>
</table>
Visual 8: Maintaining Interest

Spotters need to:

- Feel like they are making a contribution
- Use their skills doing meaningful work
- Have clear direction with frequent communication
- Be adequately trained and refreshed
- Have opportunities for growth and change
- Be recognized for their efforts

Maintaining Interest

- You needed a spotter network, and you’ve recruited and trained volunteers to fill that network. You’ve got what you want. But have you met their needs?
- Spotters who are content with their work and feel like they are making a contribution will continue to volunteer.
- Spotters who are not using their skills or who have poor direction will lose interest and leave the network.
- General points about keeping spotters interested:
  - Ensure they feel unique and important
  - Offer meaningful work and involve them in other activities
  - State clearly what you expect; use accurate and specific position descriptions
  - Communicate frequently
  - Train adequately; offer advanced and refresher training
  - Offer opportunities for growth and change, with roles of increasing responsibilities
  - Recognize them for their efforts
Visual 9: Activity 3.1: How to Maintain Interest Among Spotters

Time:

25 minutes

Activity 3.1: How to Maintain Interest Among Spotters

1. With your group, brainstorm a list of ways to keep volunteers interested during long periods of inactivity
2. Be prepared to share your responses

Activity 3.1: How to Maintain Interest Among Spotters

**Purpose:** To generate ideas about how to keep spotters interested and trained in needed skills, especially when long periods of mild weather and no weather-related emergencies occur.

**Directions:**

1. Working with your group, take 10 minutes to brainstorm a list of ways you can keep volunteers interested in the spotter group for long periods of inactivity, focusing in on specific methods that will be useful in your own community.
2. Use an easel chart to record your answers
3. Be prepared to share your responses with the class.
Visual 10:  How much responsibility do you have for keeping spotters interested in participating?

<table>
<thead>
<tr>
<th>Discussion Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much responsibility do you have for keeping spotters interested in participating?</td>
</tr>
</tbody>
</table>
Visual 11: How much responsibility and accountability do the spotters have for maintaining their own group?

How much responsibility and accountability do the spotters have for maintaining their own group?

Discussion Question
Visual 12: How do you work as partners in this regard?

<table>
<thead>
<tr>
<th>Discussion Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you work as partners in this regard?</td>
</tr>
</tbody>
</table>
Visual 13: Methods for Maintaining Interest

- State clear expectations
- Communicate frequently
- Offer opportunities for growth and change
- Offer meaningful work
- Train adequately
- Give recognition

Methods for Maintaining Interest

Some ways to keep spotters engaged and provide recognition are to:

- State clear expectations
  - Provide a position description.
  - Give them feedback on their performance and show them their reports make a difference.
- Communicate frequently
  - Make spotter newsletters personal (co-signed and/or co-written by WCM and EM, if possible).
  - Post current information on social media sites and a central bulletin board.
  - Hold regular meetings.
- Offer opportunities for growth and change
  - Include spotter groups in Critical Incident Stress Debriefings or hold special critiques/debriefings for them.
  - Include volunteers in other emergency management meetings.
  - Promote teamwork.
- Offer meaningful work
  - Consider having spotter groups perform other roles, such as securing the outer perimeter at a HazMat spill, providing snow depth or road condition reports, or working with the NWS’ Cooperative Observer Program, etc.
  - Arrange for spotters to present programs on weather preparedness in outreach school programs.
  - Involve spotters in special events in the community.
- Train adequately
  - Orient each person adequately.
  - Provide advanced training, including refresher training.
  - Recruit spotters for FEMA field and resident courses.
  - Offer complimentary training sessions, such as first aid and CPR.
  - Involve spotter groups in drills, especially EM and NWS drills and exercises.
- Give recognition
• Recognize volunteers annually (e.g., NWS SKYWARN Recognition Day (http://www.wrh.noaa.gov/mtr/hamradio/) and after special events.
• Sponsor an “end of season” spotter banquet or picnic with a group picture.
• Arrange for political official—mayor, Governor, or member of Congress—to sign a proclamation or thank you letter (you provide first draft with meaningful details).
• Ask a member of Congress to read a letter of commendation for the spotter group into the Congressional Record.
• Take spotter groups through the forecast office for a tour.

Other ideas

• You may find more ideas for generating interest of volunteers in the EMI IS244 course, Developing and Managing Volunteers.
Visual 14: Unit 3 Summary

In establishing a spotter group, you should plan how to:

• Conduct the first meeting
• Set up standard operating procedures
• Ensure adequate training opportunities
• Continue to recognize and motivate spotters
Handout 3.1: How to Maintain Interest Among Spotters

State Clear Expectations
- Provide a position description.
- Give them feedback on their performance and show them their reports make a difference.

Communicate Frequently
- Make spotter newsletters personal (co-signed and/or co-written by WCM and EM, if possible).
- Post current information on social media sites and a central bulletin board.
- Hold regular meetings.

Offer Opportunities For Growth and Change
- Include spotter groups in Critical Incident Stress Debriefings or hold special critiques/debriefings for them.
- Include volunteers in other emergency management meetings.
- Promote teamwork.

Offer Meaningful Work
- Consider having spotter groups perform other roles, such as securing the outer perimeter at a HazMat spill, providing snow depth or road condition reports, or working with the Cooperative Observer Program, etc.
- Arrange for spotters to present programs on weather preparedness in outreach school programs.
- Involve spotters in special events in the community.

Train Adequately
- Orient each person adequately.
- Provide advanced and refresher training.
- Recruit spotters for FEMA field and resident courses.
- Offer complimentary training sessions, such as first aid and CPR.
- Involve spotter groups in drills, especially EM and NWS drills and exercises.

Give Recognition
Recognize volunteers annually (e.g., NWS SKYWARN Recognition Day (http://www.wrh.noaa.gov/mtr/hamradio/) and after special events.
- Sponsor an “end of season” spotter banquet or picnic with a group picture.
- Arrange for political official—mayor, Governor, or member of Congress—to sign a proclamation or thank you letter (you provide first draft with meaningful details).
- Ask a member of Congress to read a letter of commendation for the spotter group into the Congressional Record.
- Take spotter groups through the forecast office for a tour.

Other Ideas
You may find more ideas for generating interest of volunteers in the EMI IS244 course, Developing and Managing Volunteers.
Unit 4: Making the Partnership Work
Overview

Spotter programs provide valuable information in every community they work in. Throughout this workshop, you have exchanged experiences and ideas on how to effectively utilize spotters in your community. During this unit, you will begin to develop an action plan to implement these ideas.
Visual 1: Objectives

Formulate ideas for creating or improving spotter groups in the local community
Visual 2: Activity 4.1: Sharing Ideas for the Partnership 1/2

Time:

25 minutes

Activity 4.1: Sharing Ideas for the Partnership

1. On the worksheet, write a brief description of improvements you hope to make and what you need from the local WCM
2. Discuss your ideas with your table group
3. As a group, choose a few of the best ideas to share with the class

Activity 4.1: Sharing Ideas for the Partnership

Purpose: To create an informal action plan for making improvements to the spotter program in the community, to share those ideas, and to get feedback.

Directions:

1. Turn to page SM-5 in your Student Manual and complete a brief description of the improvements you hope to make and/or the information or resources you need from the local WCM.
2. You may share your ideas and ask for feedback from others in your small group.
Activity 4.1: Sharing Ideas for the Partnership

Program Development Strategy for Creating or Improving a Spotter Group

How I intend to work with my local WCM to build a partnership to create and/or improve the operations of an existing spotter group in my community:

_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

I need the following items, advice, or materials from my WCM or Meteorologist-in-Charge to help me implement my plan:

_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

Signature                                                  Date

Complete this section if submitting a copy of the strategy to your instructor:

Name
_____________________________________________________________________________
Title
_____________________________________________________________________________
Email
_____________________________________________________________________________
Phone
_____________________________________________________________________________
Handout 4.1: Program Development Strategy For Creating or Improving A Spotter Group (Follow-Up)

Email this form to your instructor by this date: ________________________________

Instructor’s Email Address:
____________________________________________________________

Name ___________________________________________________________

Title ___________________________________________________________

Street Address ___________________________________________________

City ___________________ State _______________ Zip Code _______________

Phone Number _______________ Date I attended workshop _______________

I have accomplished the following steps:
____ I use a Spotter Position Description with each of my volunteers.
____ I have increased the pool of volunteer spotters.
____ The spotter group has addressed satisfactorily each one of the operational considerations discussed during the workshop.
____ We now have a program to recognize volunteers, train them adequately, and offer them meaningful work and opportunities for growth and change. They are clear on what we expect from them and we communicate frequently.

I need the following items, advice, or materials from my WCM or Meteorologist-in-Charge to help me continue to improve the operations of the spotter group:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Visual 3: Course Goal

To enable you to work with the local WCM to:

- Create a new spotter group in your community OR
- Improve the operations of an existing spotter group

Course Goal

This workshop was designed to enable you to work with your local WCM to either create a new spotter group in your community or improve the operations of an existing spotter group.
Visual 4: Discussion Question: How has this workshop better prepared you to work jointly with the WCM to strengthen the spotter network and, ultimately, to enhance safety in your community?

<table>
<thead>
<tr>
<th>Discussion Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How has this workshop better prepared you to:</td>
</tr>
<tr>
<td>• Work jointly with the WCM?</td>
</tr>
<tr>
<td>• Create or strengthen a spotter network?</td>
</tr>
<tr>
<td>• Enhance safety in your community?</td>
</tr>
</tbody>
</table>
Visual 5: Topics

In this workshop, we discussed how to:

- Create and organize a spotter group
- Address operational considerations and procedures
- Recruit and motivate volunteer spotters
- Conduct the first meeting
- Maintain interest of volunteers
- Make the partnership work in your community through your Program Development Strategy
Visual 6: Objectives Review: Unit 1

How do spotters fit into the emergency management community?
With all the NWS technology, why do we need spotters?
What are some factors that lead to a successful local spotter program?
Visual 7: Objectives Review: Unit 2

What are some advantages and disadvantages of the different ways spotter groups can be organized?

How can/should the emergency manager be involved with operating a spotter group?

What are some operational considerations for spotter group planning?

What are some methods for recruiting potential spotters?
Visual 8: Objectives Review: Unit 3

What are some best practices for conducting the first group meeting for new spotters?

What kinds of training will spotters need and how can they get it?

How can you help maintain interest among spotter group members?
Visual 9: Objectives Review: Unit 4

What ideas do you have for creating or improving spotter groups in your local jurisdiction?

How will you implement these ideas?
Visual 10: Key Points

Remember:

- Spotters are an integral part of the emergency management community.
- Spotters complement the NWS technology.
- Responsibilities of spotters and spotter groups include providing accurate and timely information while maintaining their own safety.
- Emergency managers can help keep spotters engaged and ensure adequate training for them.
Visual 11: Review of Expectations

Have your course expectations been met?
What questions do you have?
Visual 12: Evaluation and Course Closing

- Final Exam
- Course Evaluations
- Certificates

Evaluation

- It’s very important to complete this sheet.
- Written comments are very helpful.
APPENDIX: Resources
Table of Contents

NOAA/NWS Resources
FEMA Resources
Training Resources
Amateur Radio Clubs
Examples of Spotter Recognition
Other Resources

Note:
FEMA EMI has provided this list of resources to provide information related to creating and maintaining spotter groups.

EMI does not guarantee that outside websites and non-government documents listed in this Appendix comply with the accessibility requirements of Section 508 of the Rehabilitation Act.

This Appendix may contain URLs that were valid when originally published but now link to sites or pages that no longer exist.
NOAA/NWS Resources

Citizen Scientist: Cooperative Observer and Spotter Programs
(https://www.weather.gov/media/ffc/c_scientist.pdf)
This two-page document provides an overview of SKYWARN Spotters and Cooperative
Observers, including who is eligible and how to get involved.

Comprehensive Glossary of Weather Terms for Spotters
(https://www.weather.gov/oun/spotterglossary)
This glossary contains weather-related terms that may be either heard or used by local severe
storm spotters or spotter groups.

eSpotter (https://www.weather.gov/chs/skywarn)
eSpotter is a system to facilitate the submission of spotter reports online.

HazCollect (https://www.weather.gov/hazcollect/)
HazCollect is the NWS’s All-Hazards Emergency Message Collection System, a comprehensive
national solution for the centralized collection and efficient distribution of Non-Weather
Emergency Messages (NWEMs).

Local SKYWARN Groups (https://www.skywarn.org/local-groups/)
This website has an interactive map to help you find SKYWARN groups in your area.

NOAA Social Media (http://www.noaa.gov/socialmedia/)
This page links to the social media tools in use by NOAA.

NOAA Weather Radio (NWR) (http://www.weather.gov/nwr/)
This page contains information about the NWR, a nationwide network of radio stations
broadcasting continuous weather information directly from the nearest NWS office.

NOAA’s National Climatic Data Center (NCDC) (http://www.ncdc.noaa.gov/)
The NCDC maintains the world’s largest climate data archive and provides climatological
services and data.

NWS Local Contact Information (https://www.weather.gov/stormready/contact)
An interactive map provides contact information for local Weather Forecast Offices and Warning
Coordination Meteorologists. Click your state, and then click on the city name to link to the
WFO home page or click the email address to reach your NWS contact.

NWS Organization (https://www.weather.gov/organization/)
This page links to the various NWS national and regional support centers.

NWS Products and Services Reference Guidebook
This 134-page document serves as a reference guide and information manual of the products and
services provided by the NWS on a national basis. From this site, you may read the guidebook
online or download it in portable document format (pdf).

NWS SKYWARN (http://www.nws.noaa.gov/skywarn/)
This NWS page provides information about the SKYWARN® program.

**NWS Weather Spotter’s Field Guide**

This 72-page document is a valuable resource published by the U.S. Department of Commerce/NOAA/NWS provides information about the spotter’s role, reporting procedures, safety tips, thunderstorm basics, tornado formation, and Doppler radar.

**NWS Policy on the SKYWARN Weather Spotter Program**

This document provides a comprehensive overview of how the NWS manages and implements the SKYWARN program in collaboration with its partners.

**NWSChat** ([https://nwschat.weather.gov/](https://nwschat.weather.gov/))

NWSChat is an instant messaging program used by NWS operational personnel to share critical warning decision expertise and significant weather information.


This poster provides a quick reference to different types of clouds, including photos, descriptions, and weather symbols.

**StormReady** ([https://www.weather.gov/stormready/](https://www.weather.gov/stormready/))

This site contains information about the StormReady program, which recognizes communities for severe weather preparedness efforts.
FEMA Resources

This website provides an overview of the Integrated Public Alert and Warning System (IPAWS), a modernization and integration of the nation’s alert and warning infrastructure.

*Ready.gov* (http://www.ready.gov)
This is a national public service advertising campaign designed to educate and empower Americans to prepare for and respond to emergencies including natural and man-made disasters.

This website contains a list of Frequently Asked Questions (FAQs) about Wireless Emergency Alert (WEA) messages.
Training Resources

FEMA Emergency Management Institute (EMI) (https://training.fema.gov/emi.aspx)
EMI offers hundreds of training opportunities for emergency managers and others involved in emergency management. Training delivery formats include online courses and a variety of onsite and offsite classroom training options.

The following online courses may be of particular interest:

- **IS-244.b: Developing and Managing Volunteers** (https://training.fema.gov/is/courseoverview.aspx?code=IS-244.b)

Also check with your state training office about the following classroom classes:

- G0251: Amateur Radio Resources
- G0272: Warning Coordination
- G0271: Hazardous Weather and Flooding Preparedness
- G0288: Local Volunteer and Donations Management

JetStream: Online School for Weather (https://www.weather.gov/jetstream/)
JetStream is the NWS’s online weather school. The site is designed for educators, emergency managers, or anyone interested in learning about weather and weather safety.

Local Storm Spotter Training (https://www.weather.gov/stormready/)
Click your state on the interactive map, and then click on the city name to link to the WFO home page. From there, look for a link for Spotters on the left menu to find out about training opportunities in your area.

SKYWARN Educational Information (https://www.skywarn.org/online-training/)
This site contains links to educational resources for learning more about severe weather, NOAA Weather Radio, tornadoes, and more.

SKYWARN Storm Spotter Training (https://www.meted.ucar.edu/training_course.php?id=23)
The SKYWARN Spotter Training Course is offered by the COMET® Program as part of its educational partnership with the NWS. This free online course includes two core topics: Role of the SKYWARN Spotter and SKYWARN Spotter Convective Basics
Amateur Radio Clubs

**Amateur Radio Relay League (ARRL): Find a Club** ([http://www.arrl.org/find-a-club](http://www.arrl.org/find-a-club))

Search for ARRL affiliated clubs by keyword, zip code, city, or other options. In addition, ARRL recommends its publication, [Storm Spotting and Amateur Radio](http://www.arrl.org/storm-spotting-and-amateur-radio), as a resource for amateur radio operators seeking more information about severe weather and SKYWARN. The book can be purchased from the AARL online store.


This site provides listings of amateur radio clubs in the United States, by state, as well as locations of repeaters and dealers.

**Where Are All the Hams?** ([http://hams.mapmash.com/hammap.php](http://hams.mapmash.com/hammap.php))

Search for amateur radio operators (hams) by call sign, state, or zip code.
Examples of Spotter Recognition

By the County
(http://www.co.stearns.mn.us/Community/CountyNews/RecentNewsandPressReleases/newsid874/358)

Meredith Lindrud of St. Joseph, Minnesota, received the Stearns County Volunteer of the Year Award.

By the State

Barry Baldwin of Columbus, Nebraska, received the 2012 Lt. Governor’s Be Prepared Award, sponsored by the Nebraska Citizen Corps Program and the Nebraska Emergency Management Agency.


New England Weather Spotters Receive Award as Severe Weather Comes Calling

This page of the Maine-ly Weather newsletter for the NWS office in Caribou, Maine, highlights local Cooperative Observers and Volunteer Spotters.

Daniel Gropper, from Vienna, Virginia, was recognized as an Environmental Hero by NOAA, due to his work with the SKYWARN program.
Other Resources

This four-page document was developed by the Workgroup for Warning Sirens in 2011 to establish common guidelines for activation of outdoor warning sirens in the U.S.

**Chaser Education Links** ([http://www.chasereducationlinks.blogspot.com](http://www.chasereducationlinks.blogspot.com))
This website contains an extensive list of links that may be of interest to spotters.

This two-page document outlines the credentialing policy for storm spotters in the State of Nebraska. This link is provided as a sample.

**International Association of Emergency Managers (IAEM)** ([http://www.iaem.com](http://www.iaem.com))
IAEM is a nonprofit educational organization dedicated to promoting the goals of saving lives and protecting property during emergencies and disasters.

NEMA is a nonprofit association that enhances public safety by improving the nation’s ability to prepare for, respond to, and recover from emergencies, disasters, and threats.

**SKYWARN** ([https://www.weather.gov/skywarn/](https://www.weather.gov/skywarn/))
The National SKYWARN website contains many useful resources.

**Spotter Network** ([http://www.spotternetwork.org](http://www.spotternetwork.org))
This site provides position data of spotters and chasers for coordinating and reporting.

**StormTrack Technical Library** ([https://stormtrack.org/community/](https://stormtrack.org/community/))
This is a large collection of information that may be of interest to storm spotters.

**The Weather Prediction** ([http://www.theweatherprediction.com](http://www.theweatherprediction.com))
This website provides weather prediction education resources, including weather and forecasting explanations, study guides, quizzes, and more.
Handouts
Table of Contents

Handout 2.1: Sample SKYWARN Spotter Position Description
Handout 2.2: Potential Resources for Recruiting Spotters
Handout 3.1: How to Maintain Interest Among Spotters
Handout 4.1: Program Development Strategy for Creating or Improving a Spotter Group (Follow-up)
Handout 2.1: Sample SKYWARN Spotter Position

Description

- Trained to observe special weather conditions by NWS SKYWARN program
  - Can describe the life cycle of a thunderstorm
  - Can name and recognize the basic elements of ordinary thunderstorms and supercells: rain-free base, wall cloud, tail cloud, precipitation area, gust front, etc.
- Reports severe weather conditions to the WCM or the EOC, if it has been activated, or to the appropriate reporting channel
  - Knows the criteria of what severe weather events or flooding to report
  - Knows alternative reporting methods
  - Has a list of names and telephone numbers for key contacts on hand
  - Can operate a motor vehicle, has a valid driver’s license, and drives safely (if not a stationary spotter)
- Can be reached by some telecommunications system (radio, amateur radio, mobile phone, etc.)
- Is familiar with the Local Emergency Operations Plan and with the area of operation
- Is available on a 24-hour basis and can activate on short notice
  - Lets the Emergency Manager or WCM know when he/she can’t report for duty
- Maintains current training
  - Does not unduly place self in jeopardy in order to observe/report information
  - Knows safety precautions in lightning strike area (stay in vehicle or indoors)
### Handout 2.2: Potential Resources For Recruiting Spotters

<table>
<thead>
<tr>
<th>Airport authority</th>
<th>Mine operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amateur Radio Emergency Service (ARES)</td>
<td>Marina operations</td>
</tr>
<tr>
<td>Amateur Radio Relay League (ARRL)</td>
<td>Mobile home park managers</td>
</tr>
<tr>
<td>ATV/off-road vehicle/snowmobile clubs</td>
<td>Mosquito control</td>
</tr>
<tr>
<td>Cable television installers</td>
<td>Neighborhood watch</td>
</tr>
<tr>
<td>Churches and synagogues</td>
<td>Nursing homes</td>
</tr>
<tr>
<td>Community co-op service</td>
<td>Postal workers</td>
</tr>
<tr>
<td>Condo associations</td>
<td>Private security companies</td>
</tr>
<tr>
<td>Corporation/company employees</td>
<td>Parks and recreation</td>
</tr>
<tr>
<td>Development authority</td>
<td>Public works department</td>
</tr>
<tr>
<td>Environmental health</td>
<td>Radio Amateur Civil Emergency Service (RACES)</td>
</tr>
<tr>
<td>Experimental aircraft association</td>
<td>REACT International (Radio Emergency Associated Communications Teams)</td>
</tr>
<tr>
<td>Federal agencies*</td>
<td>Sanitation workers</td>
</tr>
<tr>
<td>Fire rescue (volunteer and career)</td>
<td>Road and bridge department crews</td>
</tr>
<tr>
<td>Flood control management agencies</td>
<td>School board</td>
</tr>
<tr>
<td>Golf course management</td>
<td>School employees</td>
</tr>
<tr>
<td>Homeowner associations</td>
<td>Transit company</td>
</tr>
<tr>
<td>Hospitals</td>
<td>Universities</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Landfill</td>
<td>U.S. Coast Guard auxiliary</td>
</tr>
<tr>
<td>Law enforcement (state, county, or local)</td>
<td>Utility departments and companies</td>
</tr>
<tr>
<td>Local Council of Governments</td>
<td>Yachting clubs</td>
</tr>
<tr>
<td>Local government building department</td>
<td>Zoning departments</td>
</tr>
</tbody>
</table>

*Especially local offices of land management agencies such as the Bureau of Land Management, U.S. Forest Service, Bureau of Indian Affairs, National Park Service, U.S. Geological Survey, Bureau of Reclamation, dam operators*
Handout 3.1: How to Maintain Interest Among Spotters

State Clear Expectations
- Provide a position description.
- Give them feedback on their performance and show them their reports make a difference.

Communicate Frequently
- Make spotter newsletters personal (co-signed and/or co-written by WCM and EM, if possible).
- Post current information on social media sites and a central bulletin board.
- Hold regular meetings.

Offer Opportunities For Growth and Change
- Include spotter groups in Critical Incident Stress Debriefings or hold special critiques/debriefings for them.
- Include volunteers in other emergency management meetings.
- Promote teamwork.

Offer Meaningful Work
- Consider having spotter groups perform other roles, such as securing the outer perimeter at a HazMat spill, providing snow depth or road condition reports, or working with the Cooperative Observer Program, etc.
- Arrange for spotters to present programs on weather preparedness in outreach school programs.
- Involve spotters in special events in the community.

Train Adequately
- Orient each person adequately.
- Provide advanced and refresher training.
- Recruit spotters for FEMA field and resident courses.
- Offer complimentary training sessions, such as first aid and CPR.
- Involve spotter groups in drills, especially EM and NWS drills and exercises.

Give Recognition
Recognize volunteers annually (e.g., NWS SKYWARN Recognition Day (http://www.wrh.noaa.gov/mtr/hamradio/) and after special events.
- Sponsor an “end of season” spotter banquet or picnic with a group picture.
- Arrange for political official—mayor, Governor, or member of Congress—to sign a proclamation or thank you letter (you provide first draft with meaningful details).
- Ask a member of Congress to read a letter of commendation for the spotter group into the Congressional Record.
- Take spotter groups through the forecast office for a tour.

Other Ideas
You may find more ideas for generating interest of volunteers in the EMI IS244 course, Developing and Managing Volunteers.
Handout 4.1: Program Development Strategy For Creating or Improving A Spotter Group (Follow-Up)

Email this form to your instructor by this date: ________________________________

Instructor’s Email Address:

Name ___________________________________________________________
Title ___________________________________________________________
Street Address ___________________________________________________
City___________________ State___________________ Zip Code_____________
Phone Number___________________ Date I attended workshop ______________

I have accomplished the following steps:

_____ I use a Spotter Position Description with each of my volunteers.
_____ I have increased the pool of volunteer spotters.
_____ The spotter group has addressed satisfactorily each one of the operational considerations discussed during the workshop.
_____ We now have a program to recognize volunteers, train them adequately, and offer them meaningful work and opportunities for growth and change. They are clear on what we expect from them and we communicate frequently.

I need the following items, advice, or materials from my WCM or Meteorologist-in-Charge to help me continue to improve the operations of the spotter group:

_________________________
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