

Skywarn

Skywarn is the National Weather Service (NWS) program of trained volunteer severe weather spotters. Skywarn volunteers support their local community and government by providing the NWS with timely and accurate severe weather reports. These reports, when integrated with modern NWS technology, are used to inform communities of the proper actions to take as severe weather threatens. Skywarn, formed in the mid 1970s, has historically provided critical severe weather information to the NWS in time to get the appropriate warnings issued. Thus the key focus of the Skywarn program is to save lives and property through the use of the observations and reports of trained volunteers.

Anyone is welcome to participate. Public safety workers (police, fire, EMS) and radio operators (both amateurs and *REACT* members) are actively recruited to participate in the Skywarn program both due to their demonstrated interest in public service and their ability to report observations by radio rather than having to rely on the telephone system which often fails in exactly the circumstances when Skywarn is needed.

REACT operators' participation in the Skywarn program is formally acknowledged and encouraged in a Memorandum of Understanding (MOU) between *REACT* International and the NWS (see Appendix E). This agreement indicates that *REACT* will encourage its local Teams to provide the NWS with spotters and communicators as requested by the NWS during times of severe weather. A similar MOU between the NWS and the ARRL covers amateur radio participation in the Skywarn program.

Why Skywarn?

The NWS's mission is to protect lives and property. When weather conditions are favorable for severe thunderstorms or tornadoes to develop, a severe thunderstorm or tornado *watch* is issued. A severe thunderstorm or tornado *warning* is issued when severe weather has been reported by a Skywarn spotter or indicated by Doppler radar. Skywarn volunteers become the NWS and local Emergency Management eyes and ears, helping to provide better weather warning services.

The Skywarn program originated before the latest Doppler radar systems. Earlier radar systems had a very limited capability to identify severe weather and no real ability to tell the difference between a severe thunderstorm and a tornado. Modern Doppler radar has greatly improved the capability to identify potentially dangerous weather, but even the best radar cannot distinguish between a potential threat and an immediate danger as well as a *trained* human spotter. Despite the elaborate radar and forecasting equipment at the National Weather Service, they are only able to determine the potential for severe weather. They rely on reports from emergency services personnel and the public to specifically identify actual severe weather.

Accurate and reliable information from the general public is difficult to obtain. Severe weather is complicated and confusing. The NWS has found that only regular training of weather spotters improves the quality of information. The NWS collaborates with *REACT*, amateur radio organizations, and others to put together training programs. The NWS brings its weather knowledge, *REACT* and the Amateur Radio Service bring their expertise in emergency communications, and together they work with local government.

Trained Skywarn observers provide the Weather Service with accurate and timely reports from radio equipped cars and homes. The NWS is most interested in severe weather reports. Severe weather includes flash flooding, hail, damaging winds, a wall cloud (which is the area of a thunderstorm where a tornado could form), and a tornado funnel. If the NWS confirms severe weather with radar and other available information, it then notifies local authorities who then can activate sirens or other community warning systems. The news media will also receive notification so they can make reports on local broadcast stations.

Skywarn volunteers donate thousands of hours and the use of their own personal radio equipment and vehicles to give their communities advance warning of life-threatening weather. Since the NWS instituted the Skywarn program, there has been a significant decrease in the death rate due to tornadoes and other severe weather.

Who Will Activate Skywarn?

The NWS and/or the local emergency management authorities may activate the Skywarn net whenever there is a threat of severe weather or the NWS issues a severe thunderstorm or tornado watch. In this case information may be relayed through amateur radio repeaters. Localized events may be phoned directly to the NWS and/or local emergency management.

The actual details of implementing the Skywarn program are handled locally in each community. In areas with a local NWS office, usually the NWS acts as the lead agency activating the Skywarn program and taking reports directly from trained spotters. In areas without a local NWS office, this role is usually handled by the local emergency management agency. Since each NWS office and each City or County EMA operates their own program independently, those programs will vary greatly from one community to another. In some communities, the local emergency management agency routinely activates Skywarn for all weather watches; in other communities Skywarn is activated only when a specific weather threat is observed or expected. In some areas trained spotters are issued a "Spotter Number" or other designation by the agency that conducted the training. In other communities the program is much less formal.

Where Will Skywarn Observations Be Taken?

Reports will be submitted wherever a spotter observes reportable conditions.

Skywarn reports are relayed from on the road, while at work, or at your home.

In some communities, the Skywarn program includes assigned locations for some observers. Other communities rely entirely on wherever the spotters happen to be. In such communities, some spotters may choose to find a better vantage point to observe approaching weather. In any case, it is important not to jeopardize your own safety while participating in Skywarn.

How Do I Join Skywarn?

The key to joining Skywarn is to participate in the training. Classes for spotters are normally presented several times each year, usually just before the beginning of the local “severe weather season.” In some communities only a basic level spotter class is offered; in other communities more advanced training is available for those who have already completed the basic level training.

Nearly all *REACT* Teams actively participate in the Skywarn program either directly with a local NWS office or through their local emergency management agency. Check with your Team officers for more information about Skywarn Storm Spotter training and other Skywarn activities in your area.

For additional information on Skywarn, contact the National Weather Service Forecast Office serving your area. Trained spotters who want to review their training should refer to the Skywarn Spotter Guide and other materials available from your nearest NWS office or local emergency management agency.

A Basic Spotter's Field Guide can be downloaded from the NWS website at <http://www.crh.noaa.gov/images/pah/pdf/basicspotterguide.pdf>

A Spotter's Field Guide may also be downloaded from the NWS web site at <http://www.srh.weather.gov/jetstream/downloads/spottersguide.pdf>

And an Advanced Spotter's Field Guide can be downloaded from the NWS website at http://www.crh.noaa.gov/images/lmk/spotter_reference/advanced_spotters_field_guide.pdf

Online training and information about local classroom training are both available at <https://www.skywarn.org/training/>

Additional online courses are available via the University Corporation for Atmospheric Research (UCAR) COMET Program at <https://www.comet.ucar.edu/>

These courses can be completed at your own pace, and serve as an excellent supplement to training offered by the NWS:

Skywarn Spotter Training

https://www.meted.ucar.edu/training_course.php?id=23

Role of the Skywarn Spotter

https://www.meted.ucar.edu/training_module.php?id=817

Skywarn Spotter Convective Basics

https://www.meted.ucar.edu/training_module.php?id=816

Responding to Skywarn Activations

Skywarn radio net participation is serious business. We must perform certain tasks to ensure that the operation runs smoothly and only necessary information is brought to the net.

Checking into the Net

When checking into a Skywarn net, the NCS only needs the following information: Your callsign, location, and whether you have severe weather at your location. If you do not have severe weather at your location, simply state “Nothing to report.” Here is an example: “This is K4XXX, Richard Avenue and Old Circle Road, nothing to report.” This gives the NCS all the information he or she needs.

Note that there are times when you should not even check into the Skywarn net *at all* if you have nothing to report. If the net is actively taking reports of current severe weather and damage, do not check in with a “nothing to report.” Just stand-by and listen to the net. Once the immediate reports are taken and traffic slows a little, the NCS will probably call for additional check-ins. It is also possible (although unlikely) that the NCS may call looking for a report from the area where you are located. If the NCS asks, “Do we have any report from the Mission Hills area?” and you are in Mission Hills, *then* you would respond; otherwise don’t interrupt a busy Skywarn net *just* to check in.

What To Report and What *Not* To Report

The mission of Skywarn is to take reports of severe weather to the NWS so they can warn the public. If the weather phenomena is not severe, the NWS does not need or want the information, and will not act upon it if they receive it. The same applies to the NCS of the Skywarn net. With such a clearly defined mission, reporting any other information is not necessary, and ties up the frequency. The primary rule in any formal Skywarn net is to pass *only* severe weather information or emergency traffic. During a formal Skywarn net it is important to only transmit what is necessary, and in the briefest manner possible. There may be many other operators needing to report emergency traffic.

Transmit only if you have a report of any of the following:

- Tornado
- Funnel cloud
- Wall cloud with or without rotation (usually only reports of rotation will be taken to the NWS, however the Skywarn NCS needs to know about any wall cloud.)
- Winds above 55 miles per hour. Refer to a wind chart such as the one in the Field Spotter Quick Reference Guide.
- Hail, dime size (3/4 inch) or above
- Flash or urban flooding. This does not include large amounts of water running in ditches nor slight to moderate ponding of water on the roadways unless it poses a serious traffic accident hazard. If the water is collecting a little in a low spot in a field, that is also ponding.
- Severe damage not previous reported.

You would, however, report any true emergency situations such as an injury accident, fire, serious personal injury, or any situation involving serious threat of injury or death, or serious felony crime.

Gray Areas: There are many other important incidents that may or may not need to be brought to the net. If the net is very busy and you have doubt, wait until the emergency traffic slows down before transmitting. (Example: There is a non-injury accident while someone is reporting a tornado. Clearly, the information regarding the tornado is much more important.) However, if the net is slow and little information is being passed, ask the NCS if they can take a non-emergency report. Use discretion on incidents like this.

What *Not* To Report:

- Lightning - It is a normal part of thunderstorms (but do report damage caused by a lightning strike)
- Rain - It is a normal part of thunderstorms. Only report flooding
- Winds less than 55 mph. (Refer to a wind chart)
- News reports, information heard on the scanner, warnings, or watches. This information has already been reported to the appropriate agencies and does not need to be reported again. If watches or warnings need to be transmitted, it will be left to net control, or a station appointed by net control.
- Anything that does not pertain to the net or radio's role in it

How To Prevent Those Types of Reports

Frequently, there are operators who are not familiar with the Skywarn program, or have not participated in many emergency nets, that check into a Skywarn Net. These operators have the best of intentions and try very hard to help. However, if they have very little knowledge of the operating procedures, they often report too much and often the wrong information. This can cause disruption to the net by tying up the frequency and preventing important traffic from being passed.

There are three ways to prevent this from taking place. First, it is the responsibility of the NCS to clear the air during the net if unimportant traffic is taking place. This is a very delicate thing to do at times. The NCS has to get a person to stop transmitting without making that person feel they are not helpful. It is very hard to teach in the heat of the moment, so patience is very important.

Second, get these operators involved in the program and enrolled in training classes. This is the best option, but sometimes a difficult task. They don't want to get very involved, but they want to help. If you hear an operator reporting the wrong type of information and you know them, take a moment and call them on the phone (*not on the radio*) and explain the situation to them as a friend.

Lastly and most effectively, teach by example. New radio operators look to more seasoned operators to see how they should conduct themselves on the air. If you are an experienced operator, avoid making unneeded reports. The fewer unneeded reports heard on the air, the less habitual it will become to others.

Using the Internet:

The Internet is a valuable resource for gathering information. It needs to be used with caution and only for reference. Much of the information on the Web is timestamped. Make sure that what you are looking at is current. Since the advent of the WorldWide Web, many weather watchers have spent a little too much time looking at the Internet and reporting it. This distracts everyone from paying attention to the sky. If your group is going to use the Internet to gather information, appoint one person to that duty, and let them decide what is truly important to report to the NCS.

Asking for Information

Do not check into a formal Skywarn net to ask what the weather is. Take a few moments and listen to net activity. Asking for the weather takes airtime and distracts the net. If you need more information, consult your favorite radio station. Net control will alert the net if there is a severe weather warning for the local area. This is a hard habit for many people to break.

Safety Information:

Safety must always be the primary concern. Storm spotting, as we all know, can be and is a hazardous activity. There are a number of threats to storm spotters. Some are obvious, some not. These hazards can be divided into four main categories: Travel, Storm, Situational, and Aftermath.

Travel Hazards

Travel hazards often present more of a danger to spotters than any storm phenomena. This is not to discount the power of a bolt of lightning or a tornado, but the act of driving during a severe weather event is probably one of the most overlooked hazards when spotting. Please make sure you and your vehicle are in good condition to go. Most importantly, obey all traffic laws. Let's face it, there is a lot of adrenaline flowing through your system as you cruise into an area where there is an approaching severe thunderstorm. You are excited, and your mind will tend to race about everything that you have learned in Skywarn classes, or things you have seen in the movies, or on The Weather Channel.

The first order of business is *slow down!* Maybe you have forgotten, but would you like to see a few of the hazards you are presented with, or could be presented with while driving during a storm spotting activation?

- Wet roadways
- Limited visibility
- High wind
- High noise levels
- Debris on the road
- Large hail
- Flying debris
- Flash flooding
- Tornadoes

These, along with everyday hazards we have become accustomed to like traffic, other drivers driving poorly, potholes, and even pedestrian traffic all add up to one large list of hazards for the storm spotter. Hazards don't care that you are helping the National Weather Service provide warning for the public. They do not care that you are assisting other disaster preparedness and/or relief agencies. Your chances in the field are all a matter of statistics. If you proceed with caution and observe common sense and safety rules, you will be on the winning side of the statistics. This is not intended to scare you, but if you are not prepared for what you are getting yourself into fear may not necessarily be a bad thing.

Storm Hazards

Storm hazards are the most obvious hazards we think of. Heavy rain, high winds, lightning, and tornadoes are what we are expected to see. Combine these hazards with the normal everyday hazards of being out of our home and rule number one for weather spotters should be: *Never go alone!*

Because we are *not* "storm chasers" we can do a lot more planning about spotting locations. How should you pick a good location? Just pay attention while you are driving about your normal daily business. Pay attention to the view when you get out of the maze of downtown. After a while, you will have seen many places around the county with a good view in a particular direction. Mark them on a map if you like.

After finding sites with a view, evaluate them for safety. Does the site have a lot of utility lines running overhead? Does it have more than one escape route? Is it prone to standing water or flooding? Is sitting in your car at that site going to endanger you because of traffic? Most importantly, is there nearby shelter? Never leave yourself in a location where you cannot find shelter within a few seconds to a minute.

Situational Hazards

Situational hazards are really a combination of other hazards. However, they are important to mention. One of the most common situational hazards often encountered is, "Who the heck are you, and what are you doing here?" Weather spotters have encountered this response from citizens and law enforcement officers.

Avoiding situational hazards is mostly a matter of common sense and respect. Just because you are a volunteer for any one of a number of agencies, you do not have a license to behave in a socially unacceptable manner. A police officer is not going to care that you are trying to get a better view of a storm if you are going 80 miles per hour. Think before pulling off the side of the road. Are you clear of the lane of travel? Are you blocking the view of an intersection? Never make yourself a traffic hazard. Another good rule of thumb is to make sure everyone can see you.

Never trespass on private property. Respect the rights of property owners while going about your activities. If in rural areas, do not block their driveway, drive on their grass, or do anything that will damage someone's property. You are not authorized to do that, and if you do, you bear sole responsibility.

From time to time, you will encounter a spotter from another agency. Volunteer firefighters, rescue squad members, emergency management agency personnel, or any number of spotters may be out in the field for any of a number of reasons. Each reports to their agency, giving their control points requested information. “Share the road” as it were with these personnel. We are all on the same team, even though we may be talking to different agencies. Be professional and be a team player. Always carry your *REACT* and Skywarn identification with you. This will help to prevent many common misunderstandings. If confronted by a law enforcement officer, having agency and organizational identification will save you a lot of trouble explaining why you are sitting outside during a severe storm.

The final situational hazard a spotter can face is forgetting who they are and their role in spotting. While you are out in the field, you are a representative of *REACT*. Your conduct reflects on not only *REACT*, but also any other agency for whom *REACT* is providing communications. Please remember this. It has taken a lot of time and effort on the part of many people to establish and maintain a good relationship with the community, the various agencies, and local governments. Be professional, and realize that those relationships are very important to all of us. Think before you jump.

Aftermath Hazards

If you are a storm spotter for a few years, you occasionally will get caught in the aftermath of a severe storm or tornado. If you have not been instructed to be there by an official agency and do not personally have business being there, get out of the area immediately. Disaster scenes are no place for onlookers. If you are in such an area after a storm, immediately leave the area. If you do not exit the area promptly, you may very well find yourself in trouble. While leaving, request instructions from the organization or agency you are representing.

If you are asked to go to a disaster area to assist in relief communications for a served agency, remember that you are there for disaster relief, not emergency service. You are *not* authorized to use sirens or signal lights. You do not need to be the first person on the scene and, in the real world, you don't want to be. Most of the relief agencies will need time to get their operations organized and won't be ready for you for a reasonable amount of time, anyway.

After a disaster, residents of an affected area are especially suspicious of outsiders, and are often very sensitive to conversations. Respect their time of trouble by not discussing aspects of the disaster with them unless you have reason. Many weather spotters have found that residents do not respect the fact that you are a storm spotter after their house has been leveled by a tornado. If you are in the area for disaster relief efforts, that is all anyone needs to know.

There are inherent hazards to disaster scenes you must be aware of. You may encounter debris, hazardous materials, broken water and sewer lines, leaking gas lines, downed electric wires, and other unexpected hazards. Practice extreme care in everything you do. Stay in contact with the agency you are assisting and never leave the area where you are expected to be without notifying your organization's control officer.