NWS Cleveland Skywarn Operator Manual

Cleveland Weather Personnel

Coordinators

The coordinators of Cleveland Weather Skywarn are in charge of the Backbone. This includes the responsibilities of staffing the NWS station, training potential volunteers for Backbone operations, working with NWS administrators and Skywarn coordinators to ensure smooth operations and relations with NWS staff, and directing the operations of the Backbone.

Team Leaders

The team leader position is one that is offered by the coordinators to NWS volunteers who have displayed above average dedication to the program and have demonstrated proactive leadership ability, maturity, attitude and professionalism in the performance of their duties. Team leaders have the responsibilities of being role models to other operators, and for providing leadership in the absence of a coordinator. They generally do not assign volunteers to respond to NWS Cleveland. However, they do take a leadership role in the operation of an activation. In order to be eligible for this position, a volunteer should have served a minimum of forty hours over at least two years, with at least ten hours in the last year at NWS Cleveland. This includes time as a TBCS. Appointment is on an as-needed basis by coordinator selection.

Weather Service Operators

The Weather Service Operator (WSO) is the volunteer that performs one or more of several functions at NWS Cleveland, depending on the staffing for a given day. These positions include Backbone Control Operator, the Skywarn-Forecaster Liaison, the Backbone Control Operation Assistant.

The Backbone Control Operator (BCO) is the net control operator for the Backbone. This station is located at NWS Cleveland, and is staffed by a trained and registered amateur that has been directed by the Cleveland Weather Skywarn coordinator to go to NWS Cleveland. The BCO runs the Backbone as a closed and directed net, and is in control of the Backbone operation, subject to the direction of the coordinator and the forecasters.

The BCO provides outgoing information to the districts, such as warnings and watches issued by NWS Cleveland. Other outgoing information from the BCO includes regular radar and forecast updates, important conditional developments as directed by the forecasters, as well as pertinent operational information. The BCO records reports from the districts.

The Backbone Control Station Assistant (BCSA) assists the BCO in any needed manner to maintain smooth Backbone control. Usually, the main responsibility of the BCSA is completing the Storm Report Logs. However, responsibilities may also include answering telephone calls for Skywarn.

They will also be responsible for maintain the flow of information between the BCO and the forecasters. This includes informing the BCO when the issuance of warnings is imminent, and providing hardcopies of warnings and watches. Also, they deliver pertinent reports of weather and related information directly to the forecasters as needed.

Many times, just one or two people cover all of these positions. When there is additional staff at NWS, the PlC will divide the positions as needed. If there are two people present, one person should be the BCO, and the other should be the SFL. If there are three people present, the third person should be a BCSA. All present should rotate through the positions on a timely basis. The BCO can place people specifically if it would benefit the operation or for training purposes. The BCO should ensure that the other operators are completing their responsibilities properly.

Temporary Backbone Control Station

There will be times we need for the Backbone, but due to circumstances, no one will be available to go to NWS, or there will be an unusually long delay in getting someone there. In this case, the coordinator may assign a Temporary Backbone Control Station (TBCS) to fill in until the NWS can be staffed. This person must contact NWS Cleveland via telephone to relay gathered reports and to get information.

There are times that the need for Skywarn is expected to be a short duration. A TBCS will be established rather than taking the time to staff NWS Cleveland. This allows the Skywarn network to operate.

In this case the person operating as the TBCS has the same responsibilities as the BCO. When serving as a TBCS, please pass your service times and storm reports to the coordinators as soon as possible. The proper identification for the TBCS is "(your call sign) for Cleveland Weather". The TBCS will stay in touch with the forecasters via telephone. Also, the forecasters may turn on the Backbone radio and listen to the net.

District Personnel

District Coordinators

District coordinators are each in charge of their district's net. Their functions are determined locally, but in nearly all cases include: staffing the District Liaison Station, training potential volunteers for Backbone operations, coordinating with other districts and NWS Cleveland to ensure smooth operations

District Liaison Stations

District Liaison Stations (DLSs) pass traffic back and forth between the BCO at Cleveland Weather and the districts. Cleveland Weather Skywarn and the districts share responsibility for training DLS operators. This training manual and associated class constitute the training from Cleveland Weather Skywarn. The districts are also responsible for training of the DLSs.

Local Liaison Stations

Local Liaison Stations (LLSs) are generally trained by district and local coordinators to pass traffic between the local and the district nets. They serve a function as the DLS.

Event Liaison Stations

If there are large events occurring within the CWA that have many people in attendance, Event Liaison Stations (ELSs) may be established to cover those events. These liaisons will generally be Registered Backbone Operators who are connected to the safety teams responsible for covering the event. The purpose of the ELS is not to pass reports to NWS Cleveland, but rather to make requests on the behalves of event officials and to provide a contact for traffic outbound from NWS Cleveland to ensure that the large body of exposed people has gotten the message.

ELSs are necessary because they provide service to large numbers people that are otherwise unprotected and have no other way of rapidly obtaining urgent weather information. Unprotected people do not have the benefit of ready shelter, and therefore also require maximized lead-time to seek shelter.

The district coordinators in conjunction with the event coordinators should establish ELSs when they know that there may be a weather-related safety issue. If a district intends to establish such a station, they must coordinate their effort with Cleveland Weather Skywarn coordinators.

District Configuration

NWS Cleveland is interested in preserving previously established, strong working relationships within Skywarn. They have requested that all local nets within its County Warning Area (CWA) work in groupings that are closely centered around the old NWS offices' CWAs. This district concept provides a more reliable and effective service. The district system was adopted by NWS Cleveland based on unanimous consensus by the Skywarn Coordinators' Group.

The districts are:
- District 1: Lucas, Wood, Hancock, Ottawa, Sandusky, Seneca & Wyandot Counties in Ohio

- District 2: Erie, Huron, Lorain, Medina and Cuyahoga Counties in Ohio

- District 3: Richland, Crawford, Marion, Morrow and Knox Counties in Ohio

- District 4: Ashland, Wayne, Holmes, Summit and Stark Counties in Ohio

- District 5: Lake, Geauga, Ashtabula, Trumbull, Portage and Mahoning Counties in Ohio

- District 6: Erie and Crawford Counties in Pennsylvania

This system provides many inherent backups to assist in times of need. If a local net goes offline, spotters can report to the nearest county nets or if required, directly to their district net. Their district net would already be up, and ready to accept spotter reports until their net came back online.

In times of staffing/manpower shortages, or temporary or persistent equipment problems, districts have a pool of shared resources from which to draw. Manpower can be "loaned" more easily due to the increased number of people available within a group of counties. There are also a provision for spotters that are in a county that does not have its local net activated for any number of reasons (e.g., failure, staffing, difficulty, etc.) These spotters can pass their reports on a neighboring local net or on the district net. DLSs can be drawn from all counties within a given district, allowing for backup if one of the counties in the district has been disabled.

Counties possessing strong local nets are grouped with counties having newly-formed local nets. In many cases, these stronger programs can act as a "Big Brother" for and help jump-start the younger nets. They assist counties without local nets, for example by sending their spotters into those counties to gather reports. Also, for counties that either can't get on the Backbone, extra personnel are available to listen in to those local nets to gather reports. Counties within any given district are still free to establish and structure any number of local nets that they want. However, it is strongly recommended that each local net has a liaison to the district net, and that each county in the entire district has coverage at some level.

Most of the major population centers in the CWA have large areas to the west built into their districts. Most often, this provides an increased lead-time to a greater number of people from within. The exception to this is Toledo. Its location at the far west portion of the CWA prevents building an area to the west without exceeding the CWA boundaries. Fortunately, the district that contains Toledo has a strong working relationship with the adjacent counties to the west.

The number of stations, and therefore the amount of traffic, on the Backbone has been reduced. Therefore, the repeater sees less wear and tear and reduces maintenance costs. Skywarn is by far the most prolific user of F2, having more than tripled the repeater's duty cycle since 1993. This is an important consideration, as there are few Skywarn users providing for the repeater's upkeep. This also means that in the event of a Backbone failure a maximum of six stations must find alternative methods to get into NWS.

Traffic Passing

Passing Skywarn traffic starts with the most important people in the whole Skywarn community, the spotters. Doppler radar is a great tool, but it has its limitations. One of the most important is that as you move away from the radar antenna, the effective beam height increases due to the curvature of the earth. Therefore, it cannot see as close to the ground in Fremont as it can in North Ridgeville. Spotters put themselves out in the weather, to provide the eyes and ears of the National Weather Service. Without the spotters to provide information, the forecasters would be limited in the amount of data that they receive.

The path that reports take to get from the spotters to the forecasters at NWS Cleveland is determined by local and district nets. Spotters look at the weather using all their tools, and pass reports to local nets, which act as data collection points. For the most part, local nets discuss many aspects of the storm, such as gust front arrival, as well as tornadoes and hail. This is so that people living in the area who are listening to their local net can hear exactly what is going on around them so they can be properly prepared. Local nets also pass information coming out of their NWS office and other local public safety agencies to their spotters. This is the type of localized service the aptly named "local net" provides.

District nets act as data collection points from the local nets. They collect the information from their local nets via LLSs. The district nets also provide warning and watch information as well as other information from the NWS and other public safety agencies back to the local nets. They also deploy the DLSs.

Once weather traffic reaches the point where it is ready to be passed on the Backbone, Cleveland Weather Skywarn takes over and determines how the information gets to the forecasters. Cleveland Weather Skywarn operates the Backbone and staffs the NWS radio station.

The Backbone is the final data collection point, serving the district nets. It collects data from the districts via DLSs. The BCO records and passes this information to the NWS forecasters. The BCO also provides advisories, watches and warnings, along with other pertinent information, to the district nets. There is no direct Backbone interaction with spotters or local nets: the Backbone is transparent to both.

SMART and F2

Generally, spotters report to their local nets on repeaters found in the two-meter amateur band. Local nets report to district nets on two-meters as well. The districts report to NWS Cleveland on a wide-area six-meter repeater owned and operated by the Six-Meter Amateur Repeater Team (SMART). SMART has graciously donated the use of its repeater for Backbone operations.

The SMART "F2" repeater is a closed, very high profile, extremely wide-coverage multiple input repeater. It consists of a 1,450-Watt primary transmitter located in Geauga County, a 600-Watt battery-operated primary transmitter, and a 70-Watt battery-operated secondary backup transmitter (which is actually the exciter for the 600 Watt transmitter). It has fourteen receive input sites scattered across northern Ohio and northwestern Pennsylvania. The system was originally built about thirty years ago to provide an avenue for communications professionals to experiment with repeater systems. The regular users of the repeater are amateurs who pursue careers in technical, electronic and commercial two-way radio service fields. The repeater was designed for use with 100-Watt mobile commercial radios and discussions are limited to those technical in nature.

Many people mistakenly refer to F2 as "The Backbone". This is not the case. The NWS Cleveland Skywarn Backbone conducts its primary operations on the F2 repeater system. This does NOT imply ownership of the repeater by NWS Cleveland or Skywarn. Use of the F2 repeater system, when needed, has been donated to Skywarn. Skywarn is a guest of SMART.

Just because F2 is available to Skywarn for its Backbone operations, this does NOT imply that Skywarn operators are welcomed onto the system when the Backbone has shut down. Generally, users of the system are technical contributors and use late model quality brand name commercial radios with a sensitive receiver and a minimum transmitter output of 100 Watts, which promotes maximum use of the system. In some cases, very substantial contributions to Skywarn have also been recognized. Unauthorized simplex or repeater links to F2 are prohibited. Any questions regarding F2 should be directed to Bill Hess K8SGX, the owner and operator of the system.

When in operation, the Backbone is a CLOSED and DIRECTED net. Only those that have completed this training, and subsequently registered with Cleveland Weather Skywarn will be allowed to participate. Each district is allowed one DLS at a time. Please do not transmit unless you are the recognized, registered DLS for your district.

Weather Traffic

Weather traffic is subdivided into three categories: emergency, priority and routine. Emergency traffic comes before priority and routine traffic in all cases. Priority traffic comes before routine traffic in all cases, but never before emergency traffic. Routine traffic never comes before any other traffic. When exchanging traffic, remember that this is just a way to determine which reports come first. The Backbone will NEVER say that they are only taking emergency traffic. All the traffic on the Backbone is important to the operation, and it will all be passed. However, some traffic will be taken first due to its time-valued nature.

Remember that the Backbone operation is to be transparent to the local-level nets. Do not call local nets on the Backbone with any information. WSOs will not contact any local nets on behalf of NWS Cleveland in any manner, except for in an emergency.

Routine Traffic

Routine traffic is traffic that is not critical to the safety of life and property. When a large amount of similar pieces of routine traffic are to be passed, it is prudent to give them together as a trend of information for a larger area. Examples of routine traffic include, but are not limited to:

> Reports of near-severe weather, including:
> - · Hail, less than half-inch, including so-called "pea-sized" hail.
> - · Winds between 40 and 50 mph.
> - · Measured rainfall over a measured period of time.
> - · Old reports of storm damage.

Outbound NWS products, including:
- · Watches.
- · Advisories.
- · Warnings for counties in neighboring CWAs.

Outbound Doppler radar-indicated information, including:
- · Information regarding gust front location and intensity.
- · Information regarding maximum expected hail size.
- · Location and movement of non-severe weather phenomena.

Operational traffic, including:
- · Operational status of NOAA Weather Radio Transmitters.
- · Operational status of the Backbone.
- · Operational statuses of districts, including "all clear" traffic.

Priority Traffic

Priority traffic is traffic that concerns the immediate safety of life and property. Priority traffic includes only:

Reports of SEVERE WEATHER, including ONLY reports of the following:
- · Hail, half-inch or larger not relating to tornadoes or tornado genesis.
- · Winds in excess of 50 mph.
- · Flooding in progress storm-related damage.

NWS warnings for counties in the NWS Cleveland CWA:
- · Severe Thunderstorm Warning.
- · Flash Flood/Flood Warning Special Marine Warning.

Outgoing NWS warnings for counties bordering the NWS Cleveland CWA:
- . Tornado Warning.

Outgoing Doppler radar-indicated information including the following:
- · Downburst.
- · Expected occurrences of hail, ¾" or larger.
- · Extremely intense areas of precipitation.
- · Any significant storm features observed by forecasters.
- · Indicated precipitation that could result in flooding.
- · Any other indicators of the occurrence of the severe weather items.

Notice that storm damage is considered a priority report. Some may argue this status, but remember, NWS uses storm damage information to issue warnings for the same storm as it moves into the next county(ies). It also helps to let others know what may be in store for them so they can prepare themselves for its arrival.

Emergency Traffic

Emergency traffic concerns the immediate safety of life and property, but it also has the quality of being extremely time-sensitive. Emergency traffic generally only concerns tornadoes and their formation. Despite the very different structural differences between waterspouts, cold-air funnels and tornadoes, for Backbone purposes they will be treated all as the same thing. It is not our job to sort these differences out; rather it is the forecasters'. Emergency traffic includes only:

Reports of SEVERE WEATHER, including reports of the following:
- · Tornadoes, including waterspouts and cold-air funnels.
- · Funnel Clouds.
- · Debris Clouds.
- · Wall Clouds.
- · Hail, half-inch or larger during a Tornado Watch, Warning, or when there have been reports of rotation in the area.
- · Tornado-related storm damage.

Outbound NWS warning products for counties in the NWS Cleveland CWA Tornado Warning.

Outbound Doppler radar-indicated information including the following (see the glossary for definitions):
- · Possible tornadoes.
- · Mesocyclones.
- · Significant rotation.

Winter Weather Traffic

In the winter, NWS Cleveland requires reports of winter weather phenomena, and the outlying nets require additional weather information. These reports are used like their spring/summer counterparts to verify existing warnings and assist in the issuance of new warnings. Because winter weather is generally less time-valued than spring/summer weather, and also because roads are more treacherous in the winter, NWS Cleveland may not be staffed. In these cases, DLSs should check for a TBCS. If there is no TBCS use the telephone or other means to contact NWS Cleveland.

Routine Traffic

Reports of significant winter weather including, but not limited to:
- · Properly measured snow depth with time of measurement County Sheriff-issued.
- · Snow Emergencies, as known.

Priority Traffic

Reports of severe winter weather, including reports of the following:
- · Thundersnow (see glossary).
- · Freezing rain and/or drizzle.
- · Ice accumulation equal to or greater than 3/4 inch.
- · Sleet (ice pellets and/or snow grains).
- · Sleet accumulation equal to or greater than 3/4 inch.
- · Measured snow depth increasing rapidly (at more than 1/2 inch per hour).
- · Rain/drizzle changing to freezing rain/drizzle, sleet or snow or a mixture.
- · Freezing rain/drizzle, sleet or snow changing to rain/drizzle or a mixture.
- · Visibility less than 3/4 mile in snow, blowing snow and/or sleet.
- · Sustained or gusty winds over 50 mph.
- · Continual gusty winds over 40 mph for an hour or more.
- · Six inches accumulation of snow in 24 hours.
- · Six inches of lake-enhanced snow in 12 hours.

NWS warning products for counties in the NWS Cleveland CWA:
- · Winter Storm Warning.
- · Blizzard Warning.
- · Heavy Snow Warning.
- · Ice Storm Warning.
- · Lake Snow Warning.
- · High Wind Warning.

Unacceptable Traffic

Unacceptable traffic is traffic that shall not be passed on the Backbone.

Reports of non-severe weather inbound to Cleveland Weather:
- Lightning (unless it is snowing).
- Estimated rainfall, snowfall, or snow depth.
- Gust front arrival.
- Winds below 40 mph.
- Sunshine.

Details of certain operational items:
- Discussion of the status of the Doppler radar (see below)

Non-operational traffic:
- Idle chatter not pertaining to the operation of the Backbone.
- Communications with any BOZO interfering with the Backbone (see above).
- Communications with unauthorized stations (see above).

Poor communications:
- False or misleading communications.
- Discourteous or unprofessional communications.
- Arguments or airing of policy disagreements.
- Long-winded communications.
- Use of jargon.
- Gibberish.
- Failure to follow proper information flow guidelines.
- Communications that do not follow FCC regulations for amateur radio operations.

Short-circuited reports:
- Reports directly on Backbone from spotters.
- Reports directly on Backbone from local nets.

Local Storm Report Logs

WSOs will log all appropriate incoming reports on official NWS Local Storm Report Logs. These must be complete and neat, as these become part of the official records that NWS maintains. There are four columns on the Log. The first Column is "Time Reported". Fill in the time the report came in to NWS in 24-hour formal. The next column is "Location". In this column, insert the location including intersection, city and county of occurrence. The next column is "Time of Occurrence", in which you log the time that the event occurred in 24-hour format. The next column is "Report", in which you place a complete description of the event that occurred. The last column is "Source", in which you insert the number of the district or the name of any other reporting source. Be sure to complete the date, page number (in "page x of y" format) and signature spaces on the top and bottom of the sheet. Also, feel free to use more than one line for a report if necessary. When you fill up the first page, go on to a new one.

To complete these logs, it is important for all stations on the Backbone to remember that reports of severe and near-severe weather have a decreased value unless they are complete. Complete reports are those that include all of the information necessary for the report to have maximum value to the NWS forecasters. Be sure to collect and pass all information listed in the next section to ensure the passage of complete reports. Those taking reports should prompt the person giving the report to obtain this information when it is missing.

Reports of Weather Phenomena

For all reports you will need to know when, where and from whom. "When" generally includes a beginning time and ending time of occurrence. "Where" generally includes the county, the city, town, village or township, and a major intersection of State Routes, US Routes and/or Interstates. Other major roads can be used, but the numbered routes are preferred, as these will most likely appear on the maps in use by the forecasters. When reporting from residential side streets, instead of giving the residential street names, try to give a distance and direction from an intersection of the numbered routes. Also, when giving information on extent of area affected, use borders made up of numbered routes. It is also important to list the source of your information as well. Be sure to record YOUR DIRECT SOURCE, not any sources above it. This is so we can get questions answered directly by the person that gave you the information that was copied. Additional information needed for each type of weather phenomenon or storm damage is listed below. Other weather and/or damage should be reported as judgment dictates, with similar information attached.

Tornadoes, Waterspouts, Cold-air Funnels, Funnel Clouds, Debris Clouds, Wall Clouds:
- Direction of movement.
- Speed of movement.
- Is it touching the ground?
- Is there a debris cloud?
- Is it rotating?

Hail, half-inch or larger:
- · Coin-related size.

Winds in excess of 50 mph:
- · Direction.
- · Speed.
- · Were the winds gusts or sustained? Measured or estimated?

Flooding in progress Extent and depth:

- · Does the flooded area normally flood? Is the depth increasing, decreasing or neither?

Measured precipitation:
- · Type of precipitation occurring.
- · Measured amount of precipitation Measured time period associated, if applicable.

Freezing rain, sleet, or changing winter weather:
- · Type of weather occurring.
- · What is it changing to?
- · Depth of frozen precipitation or ice Measured amount of liquid precipitation.

Snow depth increasing rapidly:
- · Time of last measurement.
- · Time of last measurement.
- · Last measured depth Current measured depth.

Reports of Storm Damage

As above, for all reports you will need to know when, where and from whom. Since there may be many reports of the same type of damage in an area, please give numerous similar reports as a general trend of storm damage in the area. For example, if a DLS has thirteen reports of ten-inch diameter healthy trees twisted, they shouldn't pass all thirteen reports separately to NWS Cleveland. They should tell NWS Cleveland that they have thirteen reports of ten-inch diameter healthy trees twisted.

Exchanging reports of storm-related damage is not as objective as exchanging reports of weather. Many different items can be damaged by severe weather. Listed below is the more significant items commonly damaged severe weather. For other storm-damaged items, use your judgment concerning what information to include.

Trees or limbs:
- Snapped, twisted or uprooted?
- Diameter of the tree/limb at the break.
- Healthy or dead at the break?
- Number of trees affected.

Structures:
- · Type and extent of damage.
- · Type of structure.
- · Inhabited or not.
- · Number of similar structures affected.

Vehicles:
- · Type of vehicle.
- · Number of similar vehicles affected.

Injuries/Deaths:
- · Type of injury.
- · What caused the injury whether the party is alive or not.

Working at NWS Cleveland

Staffing

It is Cleveland Weather Skywarn policy that a trained amateur radio operator will staff NWS Cleveland when severe weather threatens northern Ohio or northwestern Pennsylvania or when a Severe Thunderstorm or Tornado Watch has been issued for any portion of the CWA. Keep an eye on the weather and an ear to the weather information sources. If you notice that severe weather is possible within the CWA or a Watch has been issued and you are available to work at NWS Cleveland, please contact the backbone coordinator. Please note that just because you call doesn't mean you will be asked to work that day. However, great effort is made to get all that call a shift. In fact, the backbone coordinators generally call those that called them first. The job is not glamorous, but it is rewarding. Shifts will sometimes last eight hours and beyond, sometimes they will last only one. Your flexibility is greatly appreciated, and above average dedication will be recognized. If you are farther away and can't drive to NWS Cleveland but can help your district, contact your district coordinators and let them know. I'm sure that they would appreciate the help.

All volunteers should realize that it could take a long time to staff the station at NWS Cleveland. This period of time can be two hours or longer, depending on the time of day and the weather. Sometimes a TBCS can be found, sometimes not. Fortunately, the NWS forecasters understand this and generally give the coordinators plenty of lead-time.

As previously mentioned, the WSO is directed to go to NWS Cleveland by one of the coordinators of Cleveland Weather Skywarn. ABSOLUTELY NEVER report to NWS Cleveland if the backbone coordinator hasn't explicitly directed you to do so. The National Weather Service is a federal facility, and there are many security measures in place.

Directions to NWS Cleveland

From the south:

> Take 1-71 North or 1-77 North to 1-480 West. Get off 1-480 West at Grayton Road. Turn right onto Grayton Road.

From the east:

> Take 1-480 West to Grayton Road. Turn right onto Grayton Road. From the west:

> Take 1-480 East to Grayton Road. Turn right onto Grayton Road. From Grayton Road:

> Take Grayton Road to Brookpark Road. Turn right onto Brookpark Road. Turn left, at the third traffic light, onto West Hanger Drive. West Hanger Drive will take you around the perimeter of the airport. Proceed straight over the taxiway. DO NOT TURN ONTO THE TAXIWAY FOR ANY REASON! Continue until you reach the first opening, after the radar tower, in the fence on the left-hand side of the road. Turn in and park your vehicle.

While enroute to NWS Cleveland, if there is another operator there already, you can communicate with them on 146.415 simplex, with PL 110.9. This is known as "Channel 14", from the high-band radio at NWS. Please keep in mind, though, that the high-band radio backs up the low-band radio, and NWS may be temporarily unavailable on Channel 14. Also, you may not be in range of NWS until you are close. If you cannot reach NWS on Channel 14, check in on the Backbone. In either case, please remember to use your tactical callsign.

Responsibilities

When arriving at NWS Cleveland, go to the glass double doors located on the northwest corner (left-hand corner looking from the parking lot) of the building. Use the local telephone to call up to the NWS office. Tell them your name and that you are with Skywarn. They will provide you access to the building. Once you make it into the office, complete the following as appropriate:

- Introduce yourself to the NWS staff, and ask that they page the spotters to advise them that NWS Cleveland is staffed.
- Turn on the six-meter radio.

- Turn on a two-meter radio and place it on Channel 14.
- Announce that the NWS station is in operation using the opening script.
- Write the date, your name, your call and the time in the logbook.
- Ask the forecasters for a current description of the weather situation.
- Gather all currently active warnings, watches and advisories, and pass them to the districts.
- Change the computer to the radar input.
- Give any pertinent operational information.
- Take and log any incoming reports.
- Pass reports to forecasters.

After completing this opening checklist, you are responsible for the following until the Backbone stands down:

- Pass all new warnings, watches and advisories to districts.
- Give regular radar and forecast updates every fifteen minutes.
- Give any pertinent operational information as it arises.
- Take and log any incoming reports.
- Pass reports to forecasters.
- Make sure to identify the station regularly. The proper method is by saying W8CLE Cleveland Weather.
- Activate links to District 1 or District 6 when warnings or other priority traffic needs to be routed to either and they aren't already up.
- DO NOT recognize any local nets or spotters attempting to check in. refer them to their local or district nets.
- DO NOT mess around with any of the equipment in the office, and do not snoop around.
- If you must leave the radio for any reason (e.g., bathroom breaks, letting other people in), appoint a TBCS (if possible), advise the Backbone, keep your time away short and advise the Backbone when you return.
- Remember to remain calm...take a deep breath if you have to...don' t1 get excited Give out more information than you take in!

When shutting down the station for the day, complete this checklist:

- Announce on the Backbone that you are closing down the station, using the closing script Disable any links that were activated by Cleveland Weather during the activation Answer any calls after announcing that you are closing down the station.
- Make sure that your storm report log sheets are complete, and pass them to the Lead Meteorologist.
- Clean up after you yourself. Throw away trash and straighten out the cubicle.
- Enter the time in the log book.
- Turn off all equipment.
- Let everyone know that you are leaving.
- Make sure that the door you leave through locks behind you (IMPORTANT: leave through a door that leads to the parking lot; picking a door leading to the airfield will set off alarms).

Scripts

In order to standardize some important communications, BCSs and TBCSs should read from the following scripts when appropriate.

Bringingup the Backbone NWS Cleveland:

> "Attention all districts. This is Cleveland Weather, in service. Do any districts have emergency or priority traffic?"

> If no stations respond, then read:

> "(24-hour time), W8CLE ".

TBCS:

> "Attention all districts. This is (your callsign) for Cleveland Weather, in service. Do any districts have emergency or priority traffic?"

If no stations respond, then read.

"(24-hour time), (your callsign)".

Reading NWS-issued products

One of the benefits Skywarn reaps from having a station at NWS is that the forecasters are nearby and Skywarn gets the longest heads-up of anyone. It is important to pass this along all the way down the net to the spotters, who need as much heads-up as possible to keep themselves safe. Therefore, when you find out that the forecasters are typing out a warning, call the district that it affects and let them know that the forecasters are "currently typing" a warning, and that there will be "more to follow".

When you get the hardcopy of the warning, call the district directly to read the product, and wait for them to answer. If the product is for more than one district, call all affected districts, and wait for all to answer. If for all districts, say "Attention all districts" before going right in to read the product. Never say 'all districts please stand by for a warning". This wastes time and passes zero information. Always include the names of the affected counties when issuing an "all districts" announcement.

"At (issuance time), NWS (office) issued a (product name) for (counties) in (region, state), valid until (expiration time)".

"(Read history paragraph of product)".

"Cities in the path of this storm include (read cities from product)" Repeat the first line.

"(24-hour time),(your W8CLE)".

When reading the warning, be sure to take all information exactly as it appears on the printout of the product (do not include the last "canned" paragraph in warnings).

Going Off the Air

NWS Cleveland:

"Attention all districts. This is Cleveland Weather. At this time (read description of situation). Therefore, we will be securing our operation. We would like to thank all stations for their participation, and especially Cleveland Weather for the use of this station and SMART for the use of this repeater. (24-hour time), W8CLE".

TBCS:

"Attention all districts. This is (your call) for Cleveland Weather. At this time (read description of situation). Therefore, we will be securing our operation. We would like to thank all stations for their participation, and especially SMART for the use of this repeater. (24-hour time), (your FCC station callsign)".

Giving Updates

Giving updates is one of the most important duties of the Weather Service Operator. Without them, the stations down the line derive no real personal benefit in being linked to NWS Cleveland. As such, updates should be given at least every 15 minutes. If the districts are not receiving regular updates from Cleveland Weather, they should courteously prompt the BCO for them.

Should not be done

Discuss what the radar is showing. Speculation from the districts of the radar pictures and their meanings must not be discussed on the Backbone. The radar at the NWS is constantly being monitored and is much more complete than any available from another source.

Warning, Watch and Advisory Product Updates

Generally, it is good WSO practice to keep abreast of the issuances and expirations, cancellations, extensions, and/or variations of warning, watch and advisory products so that this information can be passed to the districts.

Forecast Updates

WSOs should be getting forecast information from the forecasters and including it in their updates.

All Clear Updates

WSOs should advise the appropriate District(s) when severe weather no longer threatens one of their counties.

Backbone Links

The Backbone Control Operator has the ability to activate two local links to the Backbone. Currently, these links are in District 1 and District 6. To activate one of these links, merely turn the selector knob to either "Toledo" for District 1 or "PA" for District 6. Then, key up on the Backbone, say "Cleveland Weather with tones", unkey, and before the repeater drops, push and hold the toggle switch on the box up until the lighted red LED goes out. Repeat this procedure as necessary. When completed, key up and say W8CLE. To deactivate a link, perform the same steps, but instead of pushing and holding the toggle switch in the up position, push and hold it in the down position. If a link was enabled during any activation, WSOs MUST disable the link before closing down the station.

Computer

The computer is new for 2000. It has been graciously been provided by NWS Cleveland for use at the Cleveland Weather station. On it there are several software packages, including paging software, a package that reads warning, watch and advisory products as well as provides satellite information..

Please note that the computer belongs to the U.S. Government. Unauthorized operations (copying software, downloading *anything* without prior permission, hacking, etc.) will result in termination of registration and can result in federal prosecution.

Telephones

The telephones at NWS are not to be used for long-distance personal calls. They are to be used for NWS business and occasionally for local personal calls. To make a call, select one of the outside lines by pushing a white button with a 4-digit line number beginning with "237". When you hear the dial tone, dial a "9" and then the telephone number.

Those in districts that must call NWS Cleveland: please ask for the Skywarn Desk.

When a telephone call for Skywarn comes into NWS Cleveland, it will be answered by one of the staff. They will place the call on hold for Skywarn, and tell you that "you have a call on (some number)". Go to a telephone, pick up the handset, push a medium grey-colored button that contains the number as stated.. This will connect you to your call.

Please note: the telephone numbers in use at NWS Cleveland are NOT to be given out to anyone!

Doppler Repeater Monitor

The NWS has provided Skywarn with a 17-inch color monitor that repeats whatever is showing on the right-hand screen of the Doppler radar Principle User Processor (PUP). Most forecasters generally keep a current radar loop on this screen, so it a very useful tool for Skywarn.

Warnview

Warnview is a computer application developed by forecasters at NWS Wilmington, Ohio. Basically, it reads the data from NWS computers and automatically updates a display of active warnings in the CWA and some surrounding counties. On the right side of the screen is a list of the active warnings. While very convenient, it is subject to an occasional missed update and should not be relied upon as a definitive source of warning status.

Skywarn coordinators from nearly every local and district net and also the Backbone. It meets at least quarterly at NWS Cleveland. To see who represents your area, refer to the Coordinators' Group Roster in the appendix. Please feel free to contact your coordinators with any concerns about Skywarn you would to like to see addressed.

Wednesday Night Net

The Coordinators' Group runs a weekly net on Wednesday nights at 9:00 PM for the purposes of passing Skywarn-related traffic and for the testing of radio equipment. Once you are a registered Backbone operator, you are eligible to check into this net and also to serve as the BCS. If you are interested in acing as a net control station for the Wednesday night net, contact one of the coordinators or team leaders. Registered Backbone Operators that perform as the BCS for the Wednesday Night Net are asked to read the script as it was written to promote a standard of repetitive professionalism.

Some operators have the idea that is important to make sure you can reliably reach the repeater by kerchunking it prior to the net. One of the reasons that the Wednesday Night Net is in place is to test radio equipment. Kerchunking the repeater before the net provides no information back to the kerchunker, except that a signal has reached the repeater. If an operator checks into the net and has poor signal quality, or is not heard, there is much more feedback available to the operator from net control. Kerchunking is illegal (it is an unidentified, one-way transmission per FCC regulations), it is poor amateur operating practice and is annoying and abusive to the repeater. For these reasons, any operator caught kerchunking the repeater will be removed from the Backbone Operator's Registry.

It is also important to try to check in even if you don't think you can reach the repeater reliably. This can help to track down problems within the system. It can also give the owner and operators of the repeater a better idea of the coverage of the repeater.

Statewide Tornado Drills

Every year, the State of Ohio and the State of Pennsylvania each perform statewide tornado drills. During these drills, public safety agencies at all levels of government participate to refine their responses. NWS Cleveland Skywarn also participates. The Backbone is brought up and check-ins are taken from the districts. Local nets also come up and take check-ins. After check-ins stop coming in, the local nets report the number of check-ins they've had to their respective district nets. The DLSs report this information to NWS Cleveland via the Backbone. This is a good time to practice backup paths, etc.