

The Gateway Amateur Radio Club

Weather Reporting Net

Need and Opportunity

During outbreaks of severe weather, Doppler radar provides valuable information about conditions aloft but cannot measure actual conditions on the ground. Information reported by local weather observers provides a valuable supplement to radar data for those in the local area, especially local agencies responsible for protecting life and property.

Members of the Gateway Amateur Radio Club (GARC) reside at locations across the county and are able to collect and report valuable weather information to local and regional agencies. They also have the unique capability of being able share and report that information by amateur radio if conventional communication methods fail during a weather event.

Purposes

1. The primary purpose of the GARC weather reporting net is to collect and compile reports of current local weather observations and report them to the:
 - a. White County Emergency Operations Center (EOC) so they can be accessible to first responders and other local agencies
 - b. National Weather Service (NWS) Forecast Office at Peachtree City, Georgia (NWS-PTC)
2. A secondary purpose is to make the information available to local broadcast media, radio amateurs, and others in the local area who are able to receive transmissions of the club's VHF repeater.

Principles

1. GARC members should give top priority to their personal safety and are discouraged from venturing out into storms to serve as weather reporters. Doing so could put the member at risk and interfere with public safety personnel. The club is not liable for actions of individual weather reporters.
2. Reports of weather conditions are to be collected primarily for the benefit and use of the White County EOC, the NWS-PTC Forecast Office, other public agencies, local communication media, and radio amateurs in the area.
3. Local weather net operations should be kept as simple as possible and consistent with the club's available human and technological resources.
4. Any licensed amateur radio operators in the local area, not just GARC members, are encouraged to participate.
5. Under FCC rules and ARRL guidelines, amateur radio operators are not required to provide emergency communications. Participation is strictly voluntary.

Leadership and Roles

1. A group of four to six club members, known as the net control station (NCS) Pool, are identified by the club membership and work together to ensure that a net control operator is available whenever net activation is requested or needed. The net control operator or an assistant uses the White County's webEOC system to record weather observations quickly and accurately so they become available promptly.

NOTE: The county's Web-based system allows NCS Pool members to enter weather observations into a standard Skywarn Spotter Report form using a Web browser and makes the information immediately accessible to all county agencies, the National Weather Service, and, optionally, agencies in other counties or at the state level. Access to and training in use of the webEOC system is provided by the White County EOC Director.

2. All club members and other local amateurs are encouraged to observe and report current weather conditions when the GARC weather net has been activated. Their roles are:
 - a. to monitor the club's VHF repeater and other sources of information, such as NOAA weather radio, the White County phone/text alert system, and WX Warn or other computer software to become aware when potentially hazardous weather is expected
 - b. to log into the GARC weather reporting net and report observations of the weather at their location, supplying the information called for by the webEOC reporting form (see the section entitled "Reporting").
3. One club member is designated as Net Manager. That individual can be one of the club officers or a volunteer member. The Net Manager provides basic coordination for the weather reporting effort. Responsibilities include:
 - a. maintaining a current list of members and others who have volunteered to serve as weather reporters, along with their contact information
 - b. sharing that list with all participants
 - c. providing names of NCS Pool operators and their contact information to the EOC Director
 - d. ensuring that NCS Pool operators and volunteer weather reporters are provided with training and information about how to report weather observations correctly.
4. If conventional methods for communicating with the White County EOC are not operational, a volunteer will be needed to go to the EOC—if it is safe to do so — and operate the GARC radios to receive information and relay it to the EOC Director and his staff. That individual can be recruited by the NCS Pool members from among all participants.

Activation and Termination

1. The GARC weather reporting net will be activated at the discretion of any member of the NCS Pool upon receipt of a request from the Director of the White County Office of Emergency Management. It may also be activated by any member of the NCS Pool when, in his or her estimation, the weather situation warrants it without a specific request by the EOC Director.
2. When the EOC Director deems net activation to be necessary, he or she will seek to contact any one of the NCS Pool members by telephone or other available means. The first NCS Pool member reached confirms the contact and alerts the other available pool members by telephone or VHF repeater. Those members then confer immediately via the VHF repeater regarding activation. If activation is timely and warranted, they agree upon one member to initiate the net and another to serve as assistant and backup operator.
3. The pool member designated as net control operator then:
 - a. notifies GARC volunteer weather observers via the club's VHF repeater
 - b. Initiates the weather reporting net on the VHF repeater .
4. When it appears that the threat of severe weather has passed, the GARC net control operator will inform the EOC Director that the weather reporting net is planning to deactivate. If the EOC Director has information suggesting a need to continue the net, they will discuss the situation and reach a mutually agreeable decision. The GARC leader will make the final decision based on the perceived need and the interests of the club members.

Operations

1. When the NCS Pool members agree upon activation, the designated control operator immediately initiates the net on the 2-meter repeater following a prepared script.
2. The NCS Pool member designated as assistant/backup operator participates in the net and records weather data reports in the webEOC system. He or she also stands by to take over control of the net if the main operator becomes unable to conduct the net.
3. The net will be initiated as a directed net by the designated net control operator. (See Appendix A for procedural details.) As each station calls in, that station will be recognized and asked to report weather conditions at the station's location. The net control assistant enters that information into the webEOC form.
4. After initial reports have been received and recorded, the net will remain active and stations can call in at will to provide further information as conditions at their location change.
5. Data entered into the webEOC system will be immediately available to the NWS office at Peachtree City (NWS-PTC), making it unnecessary for net members to report that information separately by telephone or web.

6. If life-threatening conditions, such as a tornado on the ground, rotating funnel cloud, dangerous flooding of roadways, or bridge failures are observed, observers should report that information immediately to the local 911 operator, to the National Weather Service's Forecast Office in Peachtree City (1-866-763-4466), and then as soon thereafter as possible via the GARC weather reporting net.
7. If the club's VHF repeater becomes inoperative, the net will be conducted on the repeater output frequency (146.910 MHz) using FM simplex mode or on the GARC 443.550 MHz repeater if it is still operational.
8. In the unlikely situation that web access becomes unavailable, an effort will be made to identify a GARC member to go to the EOC radio room — if it is safe to do so — to receive information via the VHF repeater and relay it to the EOC Director.
9. Any GARC member or local amateur can use the club's repeater to conduct an informal net or roundtable to share local weather information when the repeater is not needed for the club's formal weather net. However, the club's authorized weather reporting net takes precedence. If the repeater is in use at the time of net activation, any amateurs using the repeater at the time will be asked to take part in the formal net operation. Stations wishing to continue informal operations will be asked to shift to the UHF repeater or to simplex mode on another frequency.

Reporting

Stations participating in the GARC weather reporting net should report only the information required to complete the Skywarn Spotter Report form used in the webEOC system. That information should be reported in the following order:

1. Skywarn Number (if any)
2. Telephone number
3. Amateur radio callsign
4. Weather observations:
 - a. Tornado (yes/no)
 - b. Funnel cloud (yes/no)
 - c. Hail — size if occurring (see estimation chart in Appendix B)
 - d. High winds — wind speed in MPH (see estimation chart in Appendix B.)
 - e. Rain — amount in inches since beginning of storm
 - f. Snow — amount in inches on the ground
 - g. Ice — amount in fractions of an inch on the ground
5. Station Location
 - a. Street or road and house number
 - b. Nearest city

Preparedness and Training

The GARC weather net leader or a designated volunteer conducts weather net practice sessions at least four times a year (more often when the net is first established) to ensure that all participants understand how to follow net operating procedures and to allow them to test the operation of their equipment. The practice nets will be conducted as formal directed nets following steps 1 through 5 in Appendix A. A portion of each practice net will be conducted in simplex mode to ensure that all stations are familiar with simplex operation and are able to use it in case of repeater failure.

Stations planning to take part in the weather reporting net will be provided with a simple set of instructions about the items of weather information to report along with estimation methods for hail size and wind speed.

NCS Pool operators should periodically run tests to determine which stations they are able to hear and contact via simplex mode on the VHF repeater output frequency so they can anticipate the need for relaying if the repeater fails.

Club members and especially those in the net control operator pool are encouraged to develop an emergency power source that enables them to operate their radios and their Internet modems and routers for at least 4 hours when transceivers are operated at a duty cycle of 30% transmitting and 70% receiving.

Net participants are also encouraged to devise an antenna system that offers some measure of protection from static discharges that may occur during lightning storms, as it will be necessary to operate at such times if the net is to be fully effective.

Appendix A: Net Procedure

The net control operator follows these steps in opening and conducting the weather reporting net:

1. Ensure that the repeater is not in use or ask those using it to participate in the weather reporting net or move to another repeater or frequency
2. Recite a preamble explaining the purpose and procedures of the net. Remind stations to supply only the information required for the webEOC form and avoid extraneous information or comments. Remind stations that they should check out if they need to leave the net.
3. Invite stations to check into the net, giving their name, callsign, and location, and indicating whether they have any "traffic" (weather conditions to report).
4. Acknowledge each station that checks in, add the station to the list of participants, and ask the operator to report the weather conditions at the station location. The assistant/backup operator, if available, immediately enters the information in the webEOC form.
5. Ask the station operator to stand by and call for additional stations to check in.
6. Repeat the process until there are no further check-ins. Then announce that the net will now operate on an informal basis, and ask stations to recheck whenever they have new or changed weather conditions at their location to report. Allow stations to pass information to each other.
7. If the situation warrants, the net control operator can return to formal directed net operation at any time.

Appendix B: Estimating Hail Size and Wind Speed

Hail size in inches can be estimated by comparing it to the following objects:

| | |
|--------------------|----------------------|
| Pea — 0.25 | Ping-pong ball — 1.5 |
| Marble — 0.5 | Golf ball — 1.75 |
| Mothball — 0.5 | Pool ball — 2.00 |
| Penny — 0.75 | Hen egg — 2.00 |
| Dime — 0.75 | Tennis ball — 2.50 |
| Nickel — 0.88 | Baseball — 2.76 |
| Quarter — 1.00 | Softball — 4.00 |
| Half dollar — 1.25 | Grapefruit — 4.50 |

Wind speed in miles per hour (MPH) can be estimated by observing the following effects:

| | |
|--------|--|
| 25–31 | Large branches in motion; whistling in telephone wires |
| 32–38 | Whole trees in motion |
| 39–54 | Twigs break off of trees; wind impedes walking |
| 55–72 | Damage to chimneys and TV antennas; shallow-rooted trees pushed over |
| 73–112 | Surfaces peeled off of roofs; windows broken; trailer houses (i.e., mobile homes) overturned |
| 113+ | Roofs torn off houses, weak buildings and trailer houses destroyed; large trees uprooted |