

# **Columbia/Montour SKYWARN Procedures and Protocols**

**CMARC 147.225 Repeater  
PL TONE 85.4**

**145.130 Repeater  
Backup PL TONE 77.0**

**NWS Phone: 800-697-0010**

## **Definitions and Procedures for Local Area Weather Nets**

**“Weather Alert” (Alert Level 3)** is activated when the NWS has forecast the threat of Severe Weather in the area. This would include; severe storms, damaging winds and/or large hail. The repeater remains open for normal traffic and periodic updates on the weather will be provided by NCS.

Announce the following: **There is a special weather statement from the NWS. (Read the special weather statement). Updates will be announced as received from the NWS. Please resume normal repeater traffic.**

**“Weather Watch” (Alert Level 2)** is activated when the NWS has issued a Watch Box which includes our area, or our area is in the path of known Severe Weather. This would include such events as; Tornado and Severe Thunderstorm Watches as well as wind and hail events. The repeater remains open for normal use. However, be sure to allow pauses in your transmissions to allow for updates or for stations needing to report a weather event.

Announce the following: **Our area is in a \_\_\_\_\_ watch. (Read the watch from the NWS). Resume normal repeater traffic but leave longer pauses for weather related updates.**

**“Weather Warning” (Alert Level 1)** is activated when the NWS has issued a Severe Weather Warning for our coverage area, or reports meeting the criteria for Severe Weather have been received by NCS. A full Net is activated at this time and the repeater is restricted to reports meeting Severe.

Announce the following: **We are now at Alert Level 1. Our area is under a \_\_\_\_\_ Warning. All traffic on this repeater is restricted to reports of severe weather and any emergency traffic until further notice. If you have a report of severe weather, transmit your call sign to be recognized. This is a directed net. (Read the NWS warning then stand-by for traffic)**

When a SKYWARN net is activated the NCS should ask if someone on the net can act as a backup NCS, in case the NCS is unable to continue as NCS. If the backup NCS must take over they should ask for someone to be backup NCS.

### **SPOTTER SAFETY**

Individual spotters are responsible for their own safety at all times. Weather spotting can be a very dangerous activity and we do not encourage risk taking. Mobile spotters do so at their own discretion. As with any other activity, you are ultimately responsible for your safety and actions. Being mobile during severe weather leaves spotters vulnerable to the weather conditions with little or no shelter available as well as limited visibility to other drivers. Do not become a hazard for others using the road and follow all traffic laws. Always have an escape route planned in advance. **IF YOU CHOOSE TO BE A MOBILE SPOTTER, YOU DO SO AT YOUR OWN RISK!!!** We don't need your statistic if it causes you to become one!

## **SEVERE WEATHER REPORTING CRITERIA**

### **GENERAL REPORTS**

General reports are to be given at the request of the NCS. General reports should be kept brief and include a summary of weather conditions at the Reporting Station's location. When making your general report, speak slowly and provide your report in a concise, clear manner using the proper reporting procedure. The NCS will provide periodic updates and indications of when conditions are expected to reach our coverage area.

### **SEVERE WEATHER REPORTING CRITERIA**

The conditions in **RED** text (numbered 1 through 7) normally trigger or verify a warning (also called "Severe Conditions.") The conditions in **BROWN** text (numbered 8 through 13), although important, are considered residual (also called "Non-Severe Conditions.") Conditions numbered 1 - 7 are to be reported immediately using voice channels. Conditions numbered 8 - 13 should be reported using digital modes unless directed otherwise.

**IMPORTANT NOTES!** The meteorologists may require reports for conditions that are not usually considered severe or may not even be on this list. This need will be conveyed as required.

Severe Conditions - to be reported **immediately** using voice channels (in order of importance:)

1. Tornado or Waterspout

2. Funnel Clouds

3. Wall Clouds (indicate if it is rotating)

4. Heavy Damage

-- Loss of roofing material, large tree branches broken, some large trees uprooted

-- Mobile homes flipped to side or flipped over, bent light poles

-- Large roof sections removed, collapsed light poles

-- Home walls collapsed, partial destruction of masonry walls and strip malls

-- destruction of homes/shopping malls, steel buildings deformed

5. High Winds - 58mph or higher, (indicate if measured or estimated, but measured is preferred)

Straight-line Wind Gust Estimates

**Severe.** 58-74 mph

Large limbs break; shallow rooted trees pushed over. Semi-trucks overturned. More significant damage to old / weak structures. Shingles, awnings removed from houses; damage to chimneys and antennas; mobile homes, carports incur minor structural damage; large billboard signs may be toppled.

**Hurricane force.** 75-89 mph

Widespread tree damage (trees either broken or uprooted). Mobile homes may incur more significant structural damage; be pushed off foundations or overturned. Roofs may be partially peeled off industrial/ commercial/warehouse buildings. Some minor roof damage to homes. Weak or open structures (e.g. farm buildings, airplane hangars) may be severely damaged.

**Significant severe.** 90+ mph

Groves of trees flattened. Mobile homes severely damaged; moderate roof damage to homes. Roofs partially peeled off homes and buildings. Barns and sheds completely demolished.

6. Large Hail – 1 inch or greater (indicate if measured or estimated, but measured is always preferred)

7. Flooding / Flash Flooding

- Major Structural Damage / Evacuations
- River Banks Broken, Water Out of Bank
- Roads , Bridges, or Railroads Washed Out

Non-Severe Conditions - to be reported via digital modes (Winlink, e-mail, eSpotter) unless directed otherwise (in order of importance:)

8. Small Hail – less than ¾ inch (indicate if measured or estimated, but measured is always preferred)

9. Minor damage to

- Buildings (number, size, and extent)
- Trees (health of tree, size, number of limbs)
- Roads (type)
- Power Lines (due directly to weather conditions)

10. Minor, inconvenient urban / small stream flooding

- non-life-threatening / non-damaging water over curb
- some water out of banks –
- some water on the roads

11. Visibility - less than 1/2 mile (indicate if due to precipitation or blowing dirt)

12. Rainfall amounts equal to or exceeding the rate of 1" per hour measured over at least 15 minutes (i.e. a rate greater than 1/4" per 15 minutes)

-- If possible, indicate start time and end time of measurement (i. e., "measured between 11:05am and 11:25am")

13. Straight Line Winds 40 to 57 mph (indicate if measured or estimated)

Reports are needed at all times, prior, during and after a Severe Weather Watch or Warning has been issued. "After the fact" reports can be e-mailed to Net Control or forwarded by another means.

### **Using the T-L-C-S Format**

All reports of severe weather should be made using the T-L-C-S format. What is T-L-C-S you may ask? It is simply Time, Location, Condition, Source. When reports are made in the proper format it greatly improves the efficiency of the passing of information at all levels of the reporting system. Uniformity also simplifies the duties of all parties involved.

Therefore, please familiarize yourself with the proper location of your reporting point(s) ahead of time and learn to use the T-L-C-S reporting format to your advantage.

#### **TIME**

**To the nearest time you observed the event. Not the time it was relayed!**

#### **LOCATION**

**Within your county determine how far you are from your city reporting point.**

Do this for home, work and frequented mobile locations. (IE if you are 1.2 miles SSW of the Bloomsburg PA) GPS Coordinates are also accepted for this purpose.

#### **CONDITION**

**Describe what you saw/experienced.**

Example: Measured winds of 68 mph, 3 feet of water flooding Hwy 151, Rotating wall cloud, large groves of mature trees leveled, 1.5 inch hail measured, etc.

#### **SOURCE of Report**

For our purposes this must be your ham radio call.

## **SEVERE WEATHER REPORTING PROCEDURE**

The following procedure is to be followed when making a Weather Report during any weather event on any frequency in Central PA, including the 147.225 repeater for the CMARC SkyWarn Program. **The use of standard phonetics is strongly encouraged.**

1. Station calling: {"Call sign + Event"}
2. Net Control: {"(Call sign), go ahead"}
3. Station calling: {"Time, location, condition" (TLC)}
4. Net Control: {"Roger, all locations"}

### **Example:**

1. Calling Station: **"WB3 Alpha Bravo Echo -- HAIL"**
2. NCS: "WB9ABE, Go ahead" or "Alpha Bravo Echo, Go ahead"
3. Calling Station: **"At 4:30 PM, 1.1 mile Bloomsburg PA Columbia County, (Hwys 42 & Millville RD), Measured 1" hail"**
4. NCS: "ABE, I have your report of 1" measured hail 1.1 mile Bloomsburg, Thank you"

Your Transmission is now completed, but be available for follow up information, as requested by the Net Control.

### **Important points to remember when making a report;**

1. **Be sure of your observation (use measured reports when available).**
2. **Take a moment to formulate your report before keying the mic. (Be sure you have all the required information).**
3. **Be sure to include the type of event you are reporting during your initial contact. This helps NCS prioritize reports that may come in at the same time. (Example "WB3 Alpha Bravo Echo -- Hail")**
4. **If mobile, know your location at all times. This is as much for your own safety as it is for reporting accuracy.**
5. **Speak slowly and clearly. Remember the NCS and Relay Stations need to copy the information. Accuracy first, speed second.**

**6. We need and want your reports! Don't be shy if you observe weather meeting the criteria; report it! Without the spotter, the Net is non-existent.**

\*\* It is important that your reports follow the event criteria as requested by the NCS. General criteria reports are "normally" allowed during an Alert or Watch, but not allowed during a Warning unless requested by the NCS. Secondary sources, i.e. scanners, TV, broadcast radio, are not allowed at any time; only reports you witness personally or reports that are being relayed from another Amateur Radio Operator to the Net. \*\*

## **REPORTING LOCATION**

**All Severe Weather reports relayed to the NWS meteorologists at the State College Weather Forecast Office by Amateur Radio Operators will utilize the following standards to describe the location of the weather event.**

This format is used because radar information in NWS warnings and associated follow-up statements is based on distance from the center of cities / villages. In addition, post-storm information written in the Local Storm Reports sent to all media outlets and 'StormData' publications use this notation.

**DISTANCE** (in tenths of a mile) from the recognized **center** of a city / village (not the edge or limits of the city / village). This may be an intersection of major roads considered the center, or a cluster of administrative buildings.

Cities that can be used are found on the State of PA road map. The report shall also be referenced with one of 16 compass points (N, NNE, NE, ENE... E, ESE, SE, SSE... S, SSW, SW, WSW... W, WNW, NW, NNW).

## **HAIL REPORTS**

Ideally, ALL HAIL REPORTS SHOULD BE MEASUREMENTS, regardless of the fact that it was an estimate or measurement of size. Sending a report with a specific numerical size leaves no room for confusion. Consider the following example;

" We have marble sized hail at..."

Since marbles come in different sizes this report would require a clarification. A better approach would be to have a hail size conversion chart, or a ruler or calipers with the Spotter and at the Relaying Station(s).

**When measuring hailstones, do so only when it is safe to gather them.** Measure the stone along its longest axis; i.e., if a stone measures 2 x 3 inches, report it as 3 inch hail. If the hail covers the ground in sufficient quantities and depth, report that as well. If you observe real time large hail damage, report it immediately, along with injuries or other significant damage.

Most people tend to over estimate hailstone sizes, and this condition is worse during night spotting. When making estimates keep in mind... as the distance between you and the stone increases, YOUR accuracy decreases!

ALL reports should be qualified as either "MEASURED" or "ESTIMATED", in inches. The following Hail size conversion chart will assist you in estimating the actual size of hailstones.

## **HAIL SIZE CONVERSION CHART**

<u>What You See</u>	Estimated Report Size
Pea	¼"
Marble	½"
Penny/Dime	¾"
Mothball/Nickel	7/8"
Quarter	1"
Half Dollar	1.25"
Ping Pong Ball	1.5"
Golf ball	1.75"
Hen Egg	2.0"
Tennis Ball	2.5"
Baseball	2.75"
Tea Cup	3.0"
Grapefruit	4.0"
Softball	4.5"

Anything in red will trigger a Warning. Remember to consider your observations carefully and objectively, **and then make your report in inches**, NOT IN REFERENCE TO ANY OBJECT.

## **WIND SPEED REPORTS**

Without a fixed or portable wind speed indicator (anemometer) it is sometimes difficult to accurately judge wind speed. In a worst case event when the storm spotter has little or no training on wind estimates, he should describe/report the winds effects on man-made or natural objects: "A 12 inch tree trunk has been broken, 8 inch tree limbs are across the road, numerous electric poles have been



snapped, a 4 foot brick chimney has been toppled, metal garbage cans are airborne, the 10 X 16 foot highway billboard has been toppled”, etc.

All wind speed reports should be qualified, that is they are either an **ESTIMATE** of speed, or an actual **MEASUREMENT** of speed. If wind direction is requested, remember the direction is FROM which way the winds are blowing.

Storm Spotters must also keep in mind that during a Severe Weather Event, Stress, Excitement, and Tension levels are running high. This is called the SET effect, and it can alter your logic and reasoning abilities. Because of it's presence it is often very easy to over estimate wind speed reports...

A wind gust of 40 MPH on a fair weather day will not cause any great concern, and may in fact feel rather pleasant. However, this same wind gust, when experienced during severe weather may seem like 55-65 MPH because of the SET effect.

When in doubt about your estimate, re-think it and try to remain calm and objective. Our goal is to pass real time observation in an organized procedure, with accuracy, speed and professionalism.

### **NCS Procedure**

We all have our own personalities and style in running a Net, and with that in mind, the procedures for NCS are flexible. NCS is an extremely important role, however it should be comfortable enough that anyone will participate without the fear of doing something wrong. It is assumed that mistakes do and will happen, but the greater good of the mission takes precedence and participation is key to the safety of our observers and the general public.

This does NOT mean you can do whatever you want. We still need to follow standard EMCOM training and adhere to certain standards of conduct. The information provided below is intended to be a guideline for all NCS operators.

#### **Net Operation suggested outline**

Gather info and get ready to operate as NCS. Place repeater tail message in proper mode. Give opening announcement and reason for net. Take check-ins and keep log of participants. Info announcements as necessary until Warning is issued. Change repeater tail message when necessary. Watch to Warning for example. Assign relay operator. Take reports and relay by appropriate method. Critical info (severe criteria) via radio. Non-critical via e-spotter or electronic means. Return repeater to normal mode after event. Wrap up statement. Thank all participants.

Info to be tracked for each event is:

Net start time

Number of participants

Number of reports taken

Net secure time

Record of who was NCS and Relay operator

### **Relay Operator**

The most critical part of severe weather operations is the link between the local net and the offices at the National Weather Service in State College. The whole principal of our operations is to get critical information from spotters to the meteorologists that issue warnings for our area. Information gathered but not sent to where it needs to go is not very useful.

As a NCS you need to appoint someone to fill this position. The relay operator needs to have a strong clear signal into one of the three repeaters used to relay traffic. These relays are called the backbone and are used for transferring information to and from the State College office. These repeaters are not used for direct reporting of events except in cases of emergency.

### **Check-out/switching Relay Operators**

NWS State College does not control local net operations. A relay operator can check in or out whenever they see fit. If you have to leave you can do so at any time. NWS will only control their operations and will notify all operators when they secure operations at NWS State College. They do however, request you inform them when you switch operators or check-out.

To contact NWS State College by phone: 800-697-0010