Calvert County

Auxiliary Communications Services

Severe Weather Spotting and Amateur Radio

15 March 2023

Topics of discussion:

-Need for Severe Weather Spotters

-“Ground Truth” and why it’s important

-Amateur Radio and Severe Weather Spotting

-How does Amateur Radio Help

-Key Components

-Frequencies specific to us

-Net Activation Example

-Tips for Spotters

-Other means of reporting Severe Weather

-Training opportunities

Why do we need Severe Weather spotters?

Trained Severe Weather Spotters exist to provide ***"ground truth"*** and damage assessments to Forecasters, Emergency Responders, Government Officials, and News Media to help alert citizens and communities to potential and/or existing weather emergencies and aide in recovery efforts

Ground Truth:

Ground truth is the current active conditions in a particular locale

Forecasters rely on radar, satellite imagery, and other scientific data generated in settings ***often away from where the severe weather is occurring***

Spotters “bring” those current active conditions to the forecasters

Ham Radio and Severe Weather Spotting:

Since the beginning of the Skywarn program in the early 1970's, ham radio has been an important part. It has allowed spotters to report severe weather conditions over large areas when other forms of communications have been lost. Even with modern communications devices and networks, forecasters today, rely heavily on ham operators and their use "nets" to gather facts regarding local conditions that helps ensure the public can receive advanced warning and be prepared before, during, and after weather emergencies

How does amateur radio help?

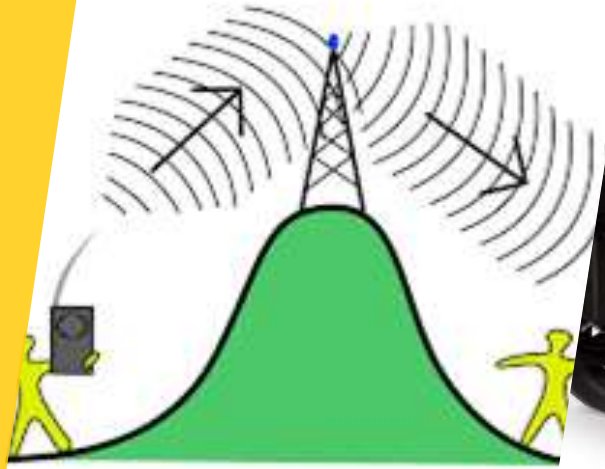
Quite simply because:

-It’s reliable

-Provides good coverage

-It offers the ability to hear other spotters

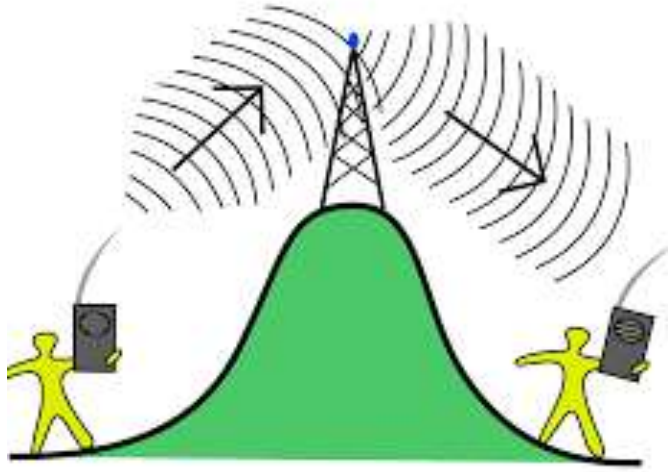
-Can be up and running quickly



Reliability:

-When severe weather renders other forms of communication inoperable, the ability of radio transmissions to travel is not lost

-Most of today's repeater systems and home stations incorporate some form of emergency power



Coverage:

-Even in simplex mode, amateur radios generally have higher power outputs than other forms of radio communication thus increasing coverage

-Repeater systems and HF “nets” broaden the coverage area significantly

Ability to hear other spotters:

-When we can hear other spotters, we can reduce redundant reports and thus reduce or eliminate unnecessary radio traffic and reports

-We can preplan ahead of incoming severe weather

-Monitor and react to other spotters calls for assistance

Can be up and running quickly:

-The use of fixed stations, handheld or HTs, and mobile transceivers, allow for rapid deployment/use

-Radio transmissions can often be completed faster than phone/electronic communications

-Following severe weather, radio “stations” can be up and running long before cellular and internet networks are back online

Components and Infrastructure:

- Licensed radio operators
- Proper spotter training
- Reliable radio equipment
- Net Control Station/Liaison Station
- Link with agencies/organizations involved
- Desire to participate
- Weather related equipment(optional)

Licensed Radio Operators:

-Licensed operators are the “eyes” of the operation. They provide the ground truth, in real time, for those who rely on situational reports for forecasting and decision making

Proper spotter training:

-Knowing what to look for and how to report it streamlines the operation and ensures the necessary information gets to decision makers

-Aides in strengthening our preparation for these events and our situational awareness

-Helps ensure we can accomplish our objective efficiently and **SAFELY**

Reliable equipment:

-We are only as good as our equipment!

Net Control Station/Liaison Station:

-Net Control will be responsible for functions such as bringing the net up, maintaining control of the net, logging check-ins, receiving reports, relaying pertinent info to spotters, checking status and welfare of spotters, and closing the net when appropriate

Net Control Station/Liaison Station: (cont.)

-If resources permit, it’s wise to have a back-up net control station

-Liaison station will be responsible for functions such as monitoring the reports coming into the net, relaying reports to proper agencies/organizations, acting as back-up net control if needed, and routing emergency and priority communications to proper authorities

-***When possible***, try to situate net control and liaison stations outside the effected area yet close enough to permit operating in simplex mode if needed

Link with agencies/ organizations involved:

-Radio

-Phone

-Email

-Social Media

-Web Based

Desire to get involved:

-Service is why our group exists!

-If we want Amateur Radio to continue to be seen as a service, not just a hobby, we must get involved and be ready to perform that service

Weather related equipment: (optional)

Frequencies specific to us:

Primary-

K3CAL 146.985/444.950 linked repeater system

Back-up-

In the event the repeater goes down, we will use the output frequency of the 2-meter repeater(146.985 Simplex)

Net Activation:

"This is _____ Net Control for SKYWARN in contact with the National Weather Service in Sterling, Virginia."

"All SKYWARN spotters are requested to check their systems and back up systems at this time. SKYWARN HAS BEEN ACTIVATED. All amateurs are encouraged to call SKYWARN with reports of severe weather".

"When calling SKYWARN Net Control.. .please give your callsign, Spotter ID if you have one, and indicate the exact location where severe weather is occurring. This includes city AND state, nearest town, road, or intersection. Please do not use landmarks. Major roadways are OK."

Net Activation(cont.):

“The National Weather Service is looking for reports of the following:

1. Tornadoes, funnel clouds, or rotating wall clouds
2. Hail (please give the size as compared to US currency)
3. Wind gusts in excess of 50 miles per hour
4. Flooding of streams, creeks, or rivers
5. Roads, or streets made impassable due to water
6. An inch or more of rain accumulation (estimated or measured in rain gauge)
7. Any damage by wind or lightning
8. Downed trees, large branches, or power lines”

Net Activation(cont.):

“Please do not call SKYWARN if there is no severe weather occurring in your area. Any station wishing to check into the net, please call now.”

For more examples and information:

www.wx4lwx.org

National Capitol Area Skywarn Support Group

Tips for Spotters:

-Check into the net with your callsign, spotter I.D. if you have one(example CT140), and approximate location

-Once checked in, ensure that you are acknowledged then maintain radio silence unless called by NCS

-When reporting, use the abbreviation T.L.C.S. (Time Location Condition and Source-not necessarily in that order)and state if the condition is observed or measured/scattered or covering the ground/continuing or momentary

Tips for Spotters(Cont.):

-Call NCS only if you have a report to give, change locations, or have ***emergency*** and/or ***priority*** traffic

-Emergency is an ***immediate*** threat to life or property, priority is ***possible or potential*** threat to life or property

-Try to maintain at least two(2) methods of communications(fixed station and HT/mobile radio and HT)

-Maintain adequate back-up power for all forms

-Maintain adequate resources for an extended time(food, water, batteries, etc.)

Tips for Spotters(Cont.):

-If mobile spotting, have an adequate supply of fuel(full tank) and proper safety equipment to include a First Aid kit, flashlight, flares, yellow marking tape, etc.

-Take photos to document damage for later reporting(damage reporting happens when the emergency aspect is over)

-Be descriptive in damage reports(size and direction of broken trees/power poles/etc., amount of damage to structures

-Be sure to report blocked roads, streets, and thoroughfares

Tips for Spotters(Cont.):

Most importantly—

-Your safety comes before the need to make a report. Do what is necessary to protect yourself first!

-Maintain situational awareness- continually evaluate the current conditions

-Always have a “Plan B”

-Be ready to change plans at a moments notice

-Notify NCS of any change so they can keep track of you

Other Means Of Reporting Severe Weather:

Phone-

Directly to NWS, Gov't. Agencies, and News Outlets

NWS Balt/Wash Forecast Office: 800-253-7091

Other Means of Reporting Severe Weather(Cont.)

Email-

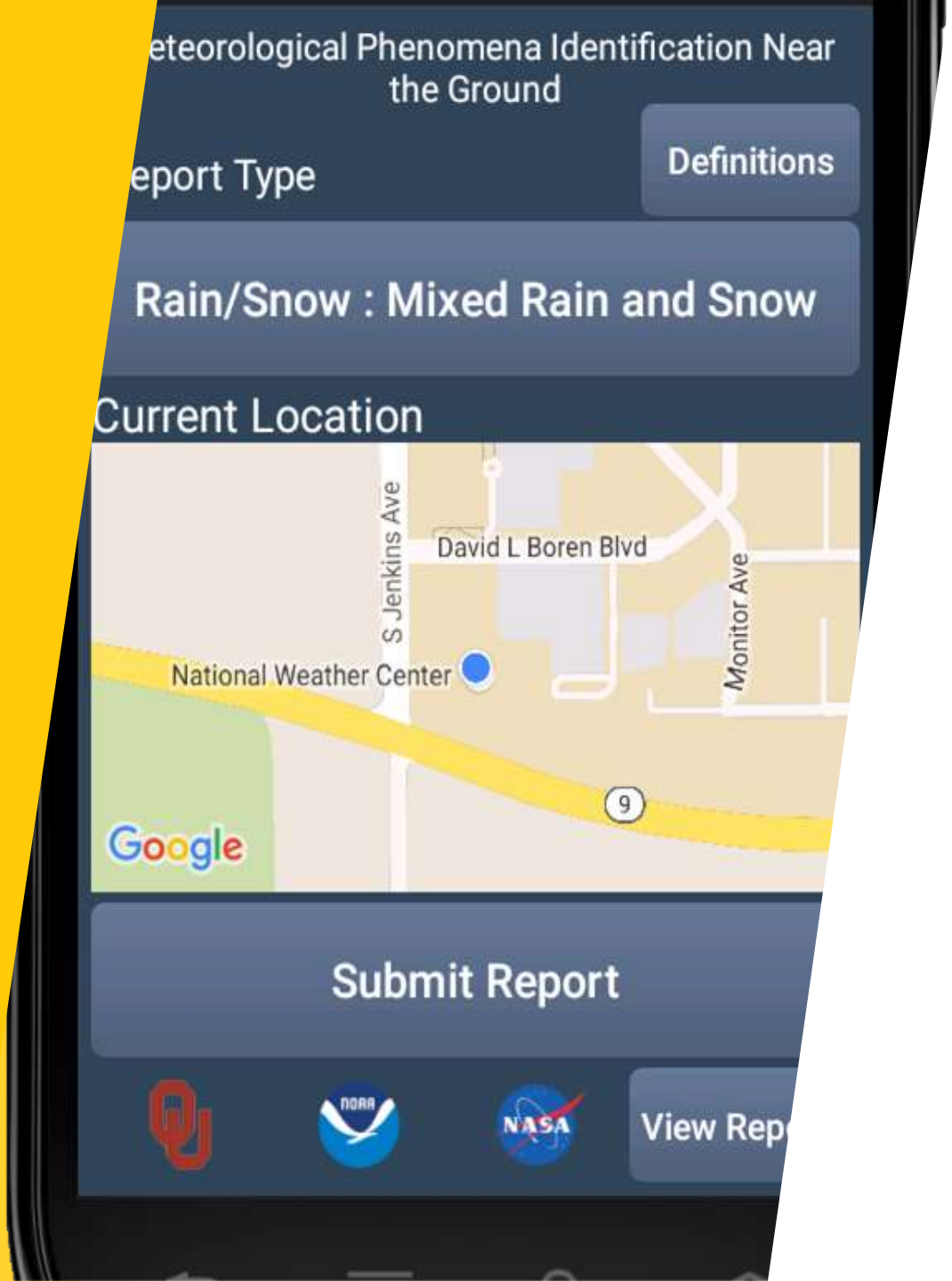
Many Forecasters and News Outlets have the ability toreceive reports via email if conditions permit

NWS: lwx-report@noaa.gov

Other Means of Reporting Severe Weather(Cont.)

Social Media-

As phones and devices have become our predominant means of communication, many agencies and gov’ts. have adapted social media as a means to report emergencies, severe weather etc.



Other Means of Reporting Severe Weather(Cont.)

Web Based-

Apps/programs such as mPING and Spotter Network offer real time online weather reporting formats which can be submitted via the internet using GPS

Search for apps at your carrier's "store"

Training opportunities:

Skywarn Program-

Offered by the National Weather Service

Taught by staff meteorologists from the Baltimore-Washington Forecast Office in Sterling VA.

In Person and Web Based Available

Join NWS_BaltWash SKYWARN® (weather.gov)

NWS Baltimore/Washington SKYWARN® (weather.gov)

Ham Radio Program (weather.gov)

Training Opportunities: (Cont.)

Spotter Network-

Web Based in conjunction with Comet Education

https://www.spotternetwork.org

Training Opportunities: (Cont.)

JetStream-

Online “School for Weather” developed by the NWS

Intended to help educators, emergency managers, and anyone interested in learning more about weather and weather safety

JetStream (weather.gov)

Questions,
Comments,
Concerns,
Ideas,
and/or
Gripes?