



ARES COMMUNICATOR

Information for Scott County Amateurs



November, 2013

Accurate, Reliable Emergency Communications for our Community

Volume 13, Number 11

Oregon EM Needs More Hams!

What about Minnesota?

ARRL Letter

Oregon Public Broadcasting reports that when Oregon's Office of Emergency Management coordinated the largest-ever test of the state's emergency communications network, it found that some regions need more radio amateurs. "While the exercise was considered a success, it also shed light on one of the system's vulnerabilities — a lack of qualified Amateur Radio operators east of the Cascades," the OPB story by David Nogueras said. The exercise scenario over the weekend of November 2-3 was a crippling cyber attack on the power grid that takes out telephone and Internet access. In such situations, emergency planners "have identified Amateur Radio as the fallback method of communication," the OPB story said.

The broadcast story pointed out that while Oregon has some 700 ARES volunteers, most are in Western Oregon. Morrow, Grant, and Jefferson counties have no volunteers, however, and other counties have just one. "If we don't have active amateurs who know what to do in that kind of a situation and are part of the county organization, then we may not have any communications in those counties, and that's a real concern," Fred Molesworth, AF7S, with the Oregon Office of Emergency Management, told Oregon Public Radio (and ARES/RACES Emergency Coordinator for the OEM unit). He asked would-be volunteers to contact the Oregon Office of Emergency Management.

Oregon ARRL Section Emergency Coordinator Vince Van Der Hyde, K7VV, said Oregon has ARES/RACES groups in about 25 of the state's 36 counties, and is trying to build groups in the counties with very low amateur populations. He says local radio clubs are natural places to look. "But, we are beginning to think that we should look more and more at those who are

Hams Needed *cont'd on page 2*

The ARES COMMUNICATOR is published for the benefit of Amateur Radio Operators in Scott County and other interested individuals.

EDITOR: Bob Reid, Scott County Emergency Coordinator

Snail Mail: 13600 Princeton Circle
Savage, MN. 55378

E-Mail: N0BHC@aol.com

Phone: Home 952-894-5178 Portable 612-280-9328

The Call!

The voice on the phone message tells you the ARES phone tree has been activated and a resource net is active on the simplex frequency. You are asked to check in ASAP!

You check the frequency as soon as you can get the radio turned on. NECOS tells you ARES assistance has been requested in preparation for an impending storm.

NECOS assigns you to establish voice and digital communications between a shelter and the County EOC in Shakopee. Your tactical call will be Papa Lima One (PL1). You are instructed to meet a patrol car on the corner of 160th Street and Fish Point Rd. in Prior Lake. NECOS asks that you check back with the resource net when you are underway and provide your vehicle license number for police verification.

What do you do next? Where is your Go Kit? What is your plan to establish communications? Do you have a current copy of the ARES Alert Plan?

These are all topics ARES members need to seriously consider. The weekly training net is a good place to discuss the details of deployment. Check in on the action and add your experience and ideas to the group.

ARES emergency communications isn't a spectator sport!

BREAK - OVER

ARES Activities

Weekly Net Monday 7 PM 146.535 mhz (s)

Breakfast Saturday, November 9th

Digital Monday, November 11th

ARES Nets

MN ARES Phone Net

6:00PM Sunday Freq: 3.860 mhz

ARRL MN Phone Net

12:00p, 5:30p CST Daily Freq: 3.860 mhz

ARRL MN CW Net

6:30p, 9:50p CST Daily Freq: 3.568 mhz

NETS WITH OUR NEIGHBORS

North Dakota: Daily 3.937 mhz 6:30pm

South Dakota: Daily 3.860 mhz 6:00pm

Wisconsin: Daily 3.985 mhz 5:30pm

Iowa: Daily 3.970 mhz 12:30/5:30pm

Test Your NIMS Knowledge

This month we will continue our review of ICS-700a: National Incident Management System (NIMS) An Introduction. Check your recall of the course material with this question.

In an Incident Command System organization, the term “General Staff” refers to:

- A. Generalists who are assigned to support Section Chiefs with functions such as administrative matters and documentation of incident events.
- B. A person assigned by a cooperating agency or nongovernmental/private organization who has been delegated authority to make decisions affecting that agency’s or organization’s participation in incident management activities.
- C. Any combination of personnel resources assembled to support a specific mission or operational need with common communications and a designated leader.
- D. Incident management personnel organized according to function (i.e., Operations Section Chief, Planning Section Chief, Logistics Section Chief, and Finance/Administration Section Chief) and who report directly to the Incident Commander.

Check next month's ARES Communicator for the solution

Hams Needed - cont'd from page 1

already involved in disaster related work and then recruit them into Amateur Radio,” he added, such as those on CERT teams.

Van Der Hyde said ARES/RACES also sponsors a Hamfair flea market each October, and this year, for the first time, it was expanded into a disaster preparedness fair, with a series of seminars on both amateur and non-amateur disaster-related training, operations and equipment. “It appears to have gone well, and we’ll expand that program in October 2014,” Van Der Hyde said.

“We’re also pushing an individual training program for operators and a county unit certification program for each county ARES/RACES group,” Van Der Hyde added. “All of which will take years to accomplish!”

BREAK - OVER

October NIMS Knowledge Solution

Unified Command:

- B. Enables all agencies with responsibility to manage an incident together by establishing a common set of incident objectives and strategies.

BREAK - OVER



Happy Thanksgiving

Scott County ARES Contacts

Emergency Coordinator
Bob Reid N0BHC
13600 Princeton Circle
Savage, MN 55378
952-894-5178
N0BHC@arrl.net

Asst. Emergency Coordinator
Bob Minor W0NFE
5210 West 141st Street
Savage, MN 55378
952-894-2657
W0NFE@arrl.net

Asst Emergency Coordinator
Daniel Vande Vusse N0PI
5722 West 141st Street
Savage, MN 55378
952-440-1878
N0PI@arrl.net



Bread Slicers

While snooping through the flea market at a Hamfest it is not unusual to see an assortment of ‘bread slicers’ for sale. These often become part of an antenna system or a homebrew transmatch.

One enterprising ham has developed the process of fabricating these large variable capacitors and has posted a couple of videos showing the technique. These are some impressive caps!

Here are the links to a selection of the videos:

www.youtube.com/watch?v=thw0RLOh6zM

www.youtube.com/watch?v=fV-FWFQO6As

www.youtube.com/watch?v=dmZxgmalP9g

That’s the line-up of .5-25KV Butterfly Capacitors by VA6POP (See now why they got the nickname bread slicers?)

BREAK - OVER

United States Citizenship!

Have you ever thought about your United States citizenship? Probably not since that Civics course a long time ago! Foreigners who want to become a United States Citizen must pass a short exam that covers some key concepts important to America. Test your knowledge on the citizenship test.

Check next month for the answer to this month's question.

5. How many justices are on the Supreme Court?

- A eight (8)
- B nine (9)
- C twelve (12)
- D seven (7)
- E six (6)

October Citizenship Exam Answer

4. What do we call the first ten amendments to the Constitution?

- B. the Bill of Rights

BREAK - OVER

DXActivity

Afghanistan

KF7WNL, Edward, has been deployed to Kabul, Afghanistan and will be QRV as T6EC until April 2014. He has an Elecraft KX3 and Wouxun KGUV6D into an MFJ 1899T and Buddistick running 10 watts. He's expecting delivery of an Elecraft 100 watt amp soon. Plans are to be QRV on 7 through 144 MHz on PSK31, CW (QRS), SSB, RTTY and he is now learning JT65 and JT9. QSL direct to KF7WNL, LoTW and eQSL.

T6MH - AFGHANISTAN - Mike has been heard running PSK on 21.071.4 MHz around 0623Z, and on 14.070.8 MHz at 1130Z and then on 21.071.1 at 1245Z. He uses HRD and displays on his <http://www.qrz.com/db/T6MH> webpage when he is "On The Air". QSL via W2GR.

Southern Sudan

Z81X Group - Upon their arrival they will team up with Z81B and Z81D and start doing two projects simultaneously. They will set up their low-band antenna field and start a series of workshops for the government of South Sudan.

At least on one station should be operational by late Friday evening, Nov. 15th. Their selected low-band operating frequencies are 1826.5 KHz and 3523 KHz.

On the other house-hold bands 7MHz thru 28MHz you can find them at suitable portions of those bands. Check Internet spotting for current frequencies.

cont'd col. 2

Take a Dip in the General Pool

Time to test your knowledge of the information covered by the General Class license exam. Each month we'll take a look at a selection from the question pool. Here is this month's sample:

1. What is the most common frequency shift for RTTY emissions in the amateur HF bands?

- A. 85 Hz
- B. 170 Hz
- C. 425 Hz
- D. 850 Hz

2. What does the abbreviation "MFSK" stand for?

- A. Manual Frequency Shift Keying
- B. Multi (or Multiple) Frequency Shift Keying
- C. Manual Frequency Sideband Keying
- D. Multi (or Multiple) Frequency Sideband Keying

3. Which of the following amateur radio HF frequencies are least reliable for long distance communications during periods of low solar activity?

- A. 3.5 MHz and lower
- B. 7 MHz
- C. 10 MHz
- D. 21 MHz and higher

BREAK - OVER

(Check next month's issue of the ARES Communicator for the answer.)

October General Pool Answers

1. Which of the following describes Baudot code?

- C. A 5-bit code, with additional start and stop bits

2. In what segment of the 20 meter band are most PSK31 operations commonly found?

- D. Below the RTTY segment, near 14.070 MHz

3. Approximately how long does it take the increased ultraviolet and X-ray radiation from solar flares to affect radio-wave propagation on the Earth?

- C. 8 minutes

BREAK - OVER



DX Info *cont'd from col. 1*

As the operation will be running for two-weeks, SSB operation on low-bands will come on-line later during the stay - specifically during the 2nd weekend with CQWW on CW. During the contest there may be as many as three single-band stations activated. OQRS is functional at Z81X at QRZ.com.

BREAK - OVER

First Ham Disaster Message

March, 1913

During the March 1913 flood in Columbus, Ohio — a catastrophe that killed nearly 100 people — Herbert Akerberg was a 15-year-old Hilltop resident. He used his home radio transmitter — the second established in Columbus — to send SOS calls.

“SOS Hilltop Business Men’s Association wants city to send boats,” Akerberg, a West High School student, tapped out in Morse code the afternoon of March 26, 1913. “Supplies will last until about tomorrow. Men are hanging on trees. Send supplies. Water is receding. Try and get us water and gas. People are suffering. Send this to Mayor (George J.) Karb at once. SOS.”

During the flood, the Scioto River raged through Downtown, taking out bridges, inundating Franklinton and isolating the Hilltop by sweeping away telephone and telegraph lines.



Rescue boats float past the Columbus Heating & Ventilating Co. during the March 1913 flood

In his 1925 *History of Ohio*, C. B. Galbreath wrote: “For about three days and nights, practically continuously for seventy-two hours, young Akerberg remained on duty at his radio set, in communication with the radio station on top of the Huntington Bank Building, sending messages to the mayor and keeping the public advised as to the conditions on the devastated West Side. “Many messages were sent to the friends and relatives of those in the devastated district.

He kept this constant vigil during heavy downpours of rain and at intervals waded in water up to his knees to the doorsteps of adjoining houses to get information to communicate to the city. His services were highly commended by the city authorities, and his achievement widely heralded over the country as a new contribution to the comparatively new science of radio.”

As an adult, Akerberg served with the Army Signal Corps in World War I and directed the building of Avery & Loeb Electric Co.’s WPAL Columbus radio station in 1923. In 1929, he joined the fledgling Columbia Broadcasting System and helped build out its radio and television networks.

Times have changed, but amateur radio thrives in Columbus. The city is home to more than 1,500 licensed ham radio operators.

BREAK - OVER

NBEMS Current Versions

The current version of the Fldigi manual is available at NBEMS Info page at www.scottares.org. Look under the 'Help Sheets' heading.

Be sure to check to make sure you have the current software on your thumb drive.

Now is a good time to check to your digital software to make sure you are running the newest versions. You can find the most recent versions posted at both: www.w1hkj.com/download.html and <http://www.scottares.org/NBEMS.htm>

Here are the most recent releases as of October 5, 2013.

Software	Version
Fldigi	3.21.76
Flwrap	1.3.4
Flmsg	1.1.32
Flamp	2.1.01

The Monday evening training net is a great place to have your digi questions answered and problems solved! Join the Scott ARES group on 146.535 MHz simplex at 7:00pm on Monday evenings.

BREAK - OVER



Formal Traffic Handling

Part 3 of a Series

Message Address, Text, and Signature

The Address

The Address section of the formal written traffic format that contains the information needed to deliver the message. Formal traffic to be delivered within the emergency net should contain the name of the individual receiving the message along with some identification of their location. For example, a shelter manager needs to send information to a manager at the EOC. The address of the message would include the following;

To: Joe Bagodonuts

Supply Coordinator

Red Cross Minneapolis Operations Center

This address contains all the information a station would need to call the net control station (NECOS) and list "1 Priority for Red Cross Minneapolis Operation Center." The NECOS would then route the traffic to the station in the net located at the Red Cross Minneapolis Operation Center. The majority of formal emergency traffic is delivered verbally directly to the addressee of their designated representative.

Formal message traffic, usually health and welfare messages, addressed to individuals outside the emergency net would be routed to the NTS (National Traffic System) through a liaison station and be delivered to the addressee. Because Health and Welfare messages are generally delivered by telephone the address information must include an accurate telephone number. Remember in an emergency situation, health and welfare traffic is handles only when there is no higher priority traffic (EMERGENCY or priority precedence.)

Message Text

The Text is the next portion of the formal written traffic format we'll examine. The text follows the Address and is preceded by the proword BREAK. The message text must be brief and accurately convey the intent of the individual originating the message. The message text is limited to a maximum of 25 words, including punctuation. The message text is ended with the proword BREAK. All the words, numbers, and punctuation between the two prowords BREAK are considered the message text. The Check is a count of words, numbers, and punctuation between the "BREAKS".

The information for the message text generally comes in the form of a request from a Served Agency official. For example, the shelter manager might stick his head in the door while going past and say, "We are getting low on generator fuel. Better get another tank set up for delivery. Oh, are they sending you some help?"

That is sure important information but not in a form you could transmit to another station. Your next step is to compose a message that is short and to the point. "Send gas" would be short but you might want to include a little more information!

Once you have written the message text on a radiogram form you would run it by the manager for his okay.

The following is an example of a message text;

```
BREAK  
NEED TWO OPERATORS AND TEN  
GALLONS GENERATOR FUEL XRAY ADVISE  
DELIVERY TIME  
BREAK
```

This sample message would have a check of 12. Notice the proword XRAY is used to represent the punctuation in the text and is counted in the check. Next month we'll take a more detailed look at the message text.

Signature

The signature is an optional part of the message. However, during emergencies, requests for material or personnel generally require the signature of the official in charge. An example would be a shelter manager's request for additional supplies due to an increase in the number of shelter clients. The signature would most likely contain the individual's title as well. For example; Fernando Lamas, Dry Gulch Shelter Manager. This example signature would be transmitted after the prowords BREAK at the end of the text. You would transmit; "BREAK signed Fernando Lamas, Dry Gulch Shelter Manager, BREAK, No More, OVER. The prowords BREAK after the signer's title marks the end of the message. The phrase "No More OVER" tells the receiving station that the entire message has been transmitted and the sending station is waiting for the receiver to ROGER the message or ask for fills.

Next month in part four of the series we will take a look at ARRL emergency text messages.

BREAK - OVER

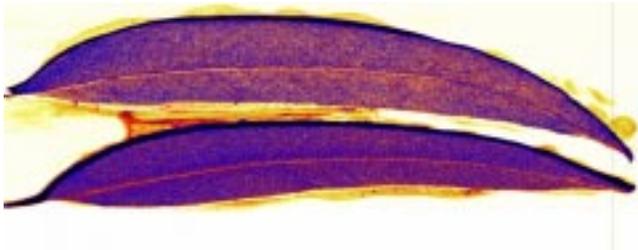


Rake in the Savings!

“Gold leaf” trees discovered in the Australian outback

Scientists from Australia’s Commonwealth Scientific and Industrial Research Organisation (CSIRO) have discovered that eucalyptus trees in the Australian outback are drawing up gold particles from deep underground through their root system and depositing the precious metal in their leaves and branches. Rather than being a new source of “gold leaf,” the discovery could provide a cheaper, more environmentally friendly way to uncover valuable gold ore deposits.

Using the science organization’s Maia detector for x-ray elemental imaging at the Australian Synchrotron, the researchers



Eucalyptus leaves showing traces of different minerals including gold.

were able to produce images that clearly showed deposits of gold and other metals in the structure of Eucalyptus leaves from the Kalgoorlie region of Western Australia that would have been untraceable using other methods.

“The eucalypt acts as a hydraulic pump – its roots extend tens of meters into the ground and draw up water containing the gold. As the gold is likely to be toxic to the plant, it’s moved to the leaves and branches where it can be released or shed to the ground,” says CSIRO geochemist Dr Mel Lintern.

Because the leaf-bound “nuggets” are only about one-fifth the diameter of a human hair, prospectors aren’t going to turn a profit by collecting leaf litter. Dr Lintern told ABC News that it would take the gold from 500 big eucalyptus trees growing directly over a gold deposit to produce a gold wedding ring. However, because eucalypt trees are so common across Australia, the discovery could provide mining companies with a cheaper and less environmentally damaging exploration approach than drilling.

“By sampling and analyzing vegetation for traces of minerals, we may get an idea of what’s happening below the surface without the need to drill,” says Dr Lintern. “It’s a more targeted way of searching for minerals that reduces costs and impact on the environment.”

The x-ray imaging technique also revealed the presence of other metals in the leaves, which opens up the potential for the technique to be used to detect deposits of metals such as zinc and copper, the researchers say.

The CSIRO team has published details of their discovery in the journal *Nature Communications*.

BREAK - OVER

DX Best Practices

Best Practices for Courteous and Efficient DXing

The challenge of making contact with hams in far-away exotic locations is the most exciting facet of amateur radio for the avid DX’er. When hundreds, maybe thousands, of stations located world-wide calling a single operator, chaos can prevail! This can lead to frustration and bad behavior by some operators.

This can be prevented to some extent by operators observing some basic Best Practices for operators chasing the contact with that exotic location. The folks at DX University, www.dxuniversity.com, have developed a top ten list of best practices.

These common sense practices if practiced by the majority of stations would make the DX pursuit more enjoyable for all. The DX University has also compiled a list of Best Practices for DX Operators to make those contacts as efficiently as possible and control the chaos.

Here are the list of Best Practices for DX’ers:

1. Know the DX callsign and the location of the pileup by listening carefully to the DX station and the pileup before calling.
2. Beware of erroneous spots: Copy the DX station’s call sign yourself.
3. Be careful never to transmit on the DX frequency – learn how to use your radio properly.
4. Never interfere with an existing exchange of information
5. Always send your full callsign.
6. Call once and then listen. Then call again, if appropriate. Try not to call during an existing QSO.
7. Respond only if the DX operator calls you. One letter or number of your call is NOT enough reason to call.
8. If the DX operator has sent your call correctly, do not repeat it unless required by licensing regulations.
9. Do not call if the DX operator asks for other geographic areas.
10. To encourage the most courteous and efficient operation, operate in the way that you would expect others to operate.

BREAK - OVER



“Courage is the first of the human qualities because it is a quality which guarantees all the others.”

Winston Churchill

The Print in Printed Circuit

New technique using a desktop printer

Researchers at Georgia Tech have developed a new technique to print advanced, ink-based electrical circuitry on a desktop printer. Using about US\$300 worth of off-the-shelf equipment, the researchers were able to print arbitrary-shaped circuits on resin-coated paper, PET film, and glossy photo paper with silver nanoparticle ink. Printing circuits isn't entirely new, but the team's technique makes the process faster and cheaper.

Initiated by the University of Tokyo and with Microsoft Research contributing to the concept, Georgia Tech took the reigns of the project building on its materials and circuit design expertise previously seen in the creation of paper-based sensors for explosives. The team was able to print ink-based circuits in as little as 60 seconds.



Silver nanoparticle ink is injected into ink cartridges for an off-the-shelf printer to create cheap, foldable circuitry

"We believe there is an opportunity to introduce a new approach to the rapid prototyping of fully custom-printed circuits," says Gregory Abowd, Regents' Professor in Georgia Tech's School of Interactive Computing. "The tools needed to create electronic circuitry are now at the point where anyone can afford to experiment. This is probably more true with professionals at the moment than it is for everyday consumers." Abowd said he believes the research will directly impact professionals and university researchers who want to experiment with novel forms of interactive electronics.

The technique is meant to be accessible to makers and DIYers, as well. "Ink cost is \$200 per a bottle (100 ml), the printer is about \$80, and empty cartridges are \$10 or so," Kawahara explains. A bottle of the ink, available from Mitsubishi Imaging (<http://www.mitsubishiimaging.com/digital-imaging-diamond-jet-NANOINK.html>) covers more than 10 m², which the researchers say is as good as particle-free silver ink, which

requires more complex machinery to get the ink on paper. The technique is not compatible with canvas cloths and magnet sheets.

The printed circuits can be attached to electrical designs and components using conductive double-sided tape or silver epoxy adhesive. The researchers demonstrated the quality of their printed circuit by attaching a capacitive ribbon containing their inkjet-printed circuits to a glass. After connecting the contoured circuitry to a microcontroller, they were able to measure the liquid contents of the glass.

The fabrication techniques are explained in a paper (<http://dl.acm.org/citation.cfm?id=2493486>) published by the researchers, and all of the supplies are off-the-shelf.

BREAK - OVER

Q: Why couldn't the pirates play cards?



A: The Captain was standing on the deck!



ARES Breakfast
Saturday November 9th
7:30AM
Perkins Restaurant
Savage, MN

NECOS Schedule November 2013

4 Nov	KC0YHH Tony
11 Nov	N0PI Dan
18 Nov	W0NFE Bob
25 Nov	KB0FH Bob
2 Dec	KD0UWZ Chad
9 Dec	KC0YHH Tony
16 Dec	N0PI Dan
23 Dec	W0NFE Bob
30 Dec	KB0FH Bob