



ARES COMMUNICATOR

Information for Scott County Amateurs



April, 2008

Accurate, Reliable Emergency Communications

Volume 8, Number 4

Celebrate World Amateur Radio Day

Each year on the anniversary of its founding, April 18, the International Amateur Radio Union (IARU) marks World Amateur Radio Day <<http://www.iaru.org/rel030418.html>>. On this, the 83rd anniversary of its inaugural meeting in Paris, the IARU dedicates World Amateur Radio Day to the radio amateurs, educators and administrators who use Amateur Radio to support technology education in the classroom.

To call attention to the occasion, ARRL staffers activated W1AW in the CQ WPX SSB Contest using the IARU club call sign NU1AW. By celebrating the event, staffers hope to provide an opportunity for hams worldwide to put NU1AW in their logs, chase the WPX award and learn about HF propagation as the world turns through day and night not once, but twice! Springtime propagation near the equinox is enhanced on the HF bands, even during the Solar Cycle minimum, so it's worth taking a listen even if the HF bands have been quiet lately.

This year's theme for World Amateur Radio Day is "Amateur Radio: A Foundation of Technical Knowledge." What better way to express the theme than by engaging in one of the largest international radiosporting events. ARRL Contest Branch Manager Sean Kutzko, KX9X, said, "If you haven't tried HF contesting or the WPX contest, the general format is to exchange a signal report (a simple '59' will do nicely) and a serial number (the number of the contact in the contest for you). The contest Web site spells out the way to compute your score, but the fun of this contest is to contact as many different prefixes as possible. For example, NU1AW counts as the NU1 prefix and KX9X counts as KX9. If you're new to HF, your prefix might be one sought

Amateur Radio Day cont'd col. 2

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

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after by those calling CQ! The WPX contest also features a 'Rookie' category for new radiosport folk, so be sure to send in your log as described by the rules — it's easy!"

World Amateur Radio Day is also an opportunity for publicizing Amateur Radio to the interested public that may not be familiar with ham radio activities. Radiosport is an excellent way to introduce our service to teachers and students, as well. Competitive activities are an important focus for students to take the opportunity to ask questions about how signals get "from here to there" while watching hams make rapid-fire contacts around the world or even making a contact or two themselves, Kutzko said.

BREAK - OVER

ARES Activities

Weekly Net Monday 7 PM 146.535 mhz (s)
Breakfast Saturday, April 12th

SELECTED TRAFFIC NETS

Designator	Freq.	Local Times	
MN Phone	3.860Mhz	Noon, 5:30pm	Daily
MN CW	3.605Mhz	6:30pm, 9:50pm	Daily
ARES			
Scott ARES	146.535 S	7:00pm	Monday
Carver ARES	147.165+	8:30pm	Sunday
Bloomington	147.090+	9:00pm	Sunday
Neighboring Nets			
North Dakota	3.937Mhz	6:30pm	Daily
South Dakota	3.870Mhz	6:00pm	Daily
Wisconsin	3.985Mhz	5:30pm	Daily

American Heart Assn Heartsaver AED Adult/Child with Infant CPR April 12

The Heartsaver AED Course teaches CPR, AED use, relief of choking in adults and children, and infant CPR and relief of choking, and the use of barrier devices for all ages. This is a great opportunity for Scott County ARES members to increase the margin of safety for themselves and others. Sign up soon; space is limited. All participants will receive an AHA Heartsaver AED Course Completion Card.

Location: near Hwy 35W and Hwy 280.

Offered in one of two sessions:

Saturday, April 12, from 8:00 a.m. until 12:00

OR

Saturday, April 12, from 1:00-5:00 p.m.

Cost: \$30.00 (or less, based on break even costs)

Registration and fee due by Thursday, April 10

Register by email: jeff_isk@msn.com



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Lightning Facts

- Lightning causes an average of 80 fatalities and 300 injuries each year.
- Lightning occurs in all thunderstorms; each year lightning strikes the Earth 20 million times.
- The energy from one lightning flash could light a 100-watt light bulb for more than 3 months.
- Most lightning fatalities and injuries occur when people are caught outdoors in the summer months during the afternoon and evening.
- Lightning can occur from cloud-to-cloud, within a cloud, cloud-to-ground, or cloud-to-air.
- Many fires in the western United States and Alaska are started by lightning.
- The air near a lightning strike is heated to 50,000°F *hotter than the surface of the sun!* The rapid heating and cooling of the air near the lightning channel causes a shock wave that results in thunder.



April Events 2008

- 6th Butch Cassidy B'day
- 12th ARES Breakfast
- 13th Thomas Jefferson B'day
- 18th World Amateur Radio Day
- 22th Lyrids Meteor Shower
- 25th Arbor Day



Attention Woodworkers Trouble in the Woods

Reported by: Rob Johnstone, *Woodworker's Journal*
<http://www.woodworkersjournal.com>

Mpls, MN April 1, 2008 Many of you know that I am concerned with the future of woodworking. In that regard, I have some troubling news to report.

As some of you may know, a beetle causes the much valued bird's-eye figure in hard and soft maple lumber. The bug in question is the Kentucky curved carapace beetle (*Ignus veritas curvatus tata*). Ordinarily the relationship between humans and the beetle is benign; in fact, the beetles ordinarily do not interact with humans. Instead, the bugs drill their sharp carapaces into the bark of maple trees and inject them with a solution that causes maple sap (also desired for maple syrup production) to flow — they have a bug's equivalent of a sweet tooth. This chemical causes the wood to dimple into what woodworkers know as the bird's-eye figure.

Recently, a change occurred in the beetle's behavior. A couple of years ago, as hikers, campers and other outdoor-minded folks started crossing large parts of the heart of the maple tree range, the Kentucky beetles started confusing people with maple trees. As they twisted their sharp-edged carapaces into unsuspecting folks, the fluid that flowed was not sap, but blood.

Why this dramatic change in bug behavior? The answer is hard to believe.

"We've traced the cause back to breakfast cereal," said Cody Lewcypher, director of "The" Ohio State University forestry research department. Ms. Lewcypher, located at the Quaking Bottoms regional campus, claims that as ethanol production overtook the majority of corn production, corn syrup, the predominant sweetener in the boxed cereal industry, became too expensive for most producers. Two other events combined to cause this tragedy. First, fiscal years '06 and '07 were banner years for domestic maple syrup production. By a remarkable coincidence, they were also the years that tons of inexpensive Asian maple syrup were dumped into the U.S. market. Just as unexpected events combined to cause the tragic molasses flood of 1915, the overabundance of cheap maple syrup gave the cereal producers just the right incentive to replace corn syrup with maple syrup. As healthy-eating outdoorsy folks went into the woods and began to exercise, their perspiration apparently resembled maple tree transpiration ... causing the beetles to attack.

cont'd col. 2

Tornado Myths and Truths

MYTH - Areas near lakes, rivers, and mountains are safe from tornadoes.

TRUTH - No place is safe from tornadoes. A tornado near Yellowstone National Park left a path of destruction up and down a 10,000 foot mountain.

MYTH - The low pressure with a tornado causes buildings to "explode" as the tornado passes overhead.

TRUTH - Violent winds and debris slamming into buildings cause most structural damage.

MYTH - Windows should be opened before a tornado approaches to equalize pressure and minimize damage.

TRUTH - Leave the windows alone. The most important action is to immediately go to a safe shelter.

MYTH - If you are driving and a tornado is sighted, you should turn and drive at right angles to the storm.

TRUTH - The best thing to do is to seek the best available shelter. Many people are injured or killed when remaining in their vehicles.

MYTH - People caught in the open should seek shelter under highway overpasses.

TRUTH - Take shelter in a sturdy reinforced building if at all possible. Overpasses, ditches, and culverts may provide limited protection from a tornado, but your risk will be greatly reduced by moving inside a strong building.

For more info see: <http://www.spc.noaa.gov/faq/tornado/index.html>

Answers for the March ICS Quiz

At which incident facility are resources kept to support incident operations if a Base is not accessible to all resources?

- Incident Command Post
- Camp
- Helibase
- Staging Area

"This is not the first time healthy eating and exercise have led to tragic results," said Ima Plumper, spokesperson for the Syrup Producers of America Zoological Organization (SPAZO). "This is not our problem."

As a result, SPAZO is calling for increased insecticide use to solve the bug attacks. But without the beetles, there will be no more bird's-eye maple.

I'll keep you posted.

ARES Toolbox

NBEMS is the new tool

Our objective as ARES volunteers is to provide our served agency with accurate, rapid communications. The information we may be asked to transmit from one location to another may vary a great deal in complexity, length, and confidentiality.

These message characteristics were identified in ARECC level 1 in five major categories: Single versus Multiple Destinations, Precision, Complexity, Timeliness, and Priority. The various combinations of these message characteristics point to a preferred communications mode.

When you have a limited number of communications tools in the toolbox, your options are limited. When your only tool is a hammer, everything looks like a nail!

We have VHF/UHF FM voice as our primary mode for initial communications. This is great for handling short, urgent tactical communications during the initial stages of an emergency.

Once the initial flurry of information exchange slows, the communications change in complexity, timeliness, and precision. These factors may not be best suited to voice communications.

We have a digital mode in the toolbox, PSK31 with DigiPan software. This mode is useful for real-time, keyboard to keyboard communications among multiple locations. PSK31 does offer some degree of privacy because it is a digital mode. One drawback of basic PSK31 is that it does not provide a great deal of error correction.

There is a new communications tool on the scene called Narrow Band Emergency Messaging System (NBEMS) that provides additional communications tools. NBEMS is a digital mode, based on PSK31, however it is a station to station communications method that includes error correction and the transmission speed is adaptable to communications conditions.

NBEMS is a soundcard mode which means all that is required as far as hardware is a computer, interface, and transceiver. The computer can be the most basic laptop you can find. Does the computer run at least windows

98? Chances are you are all set. The interface is the same interface used with PSK31 and DigiPan. Oh, and also like DigiPan, the software is available at no cost to the amateur radio community.

Scott ARES is going to be adding the NBEMS tool to the toolbox over the next couple of months. The place to have your questions answered and practice using both NBEMS and PSK31 is on the weekly net every Monday night.

The Monday evening net will be set up to discuss questions with interfacing, configuration, and software installation on our usual frequency. There will be another station available to provide transmit / receive practice on a second frequency.

Here are the sites for downloading DigiPan and NBEMS software packages: DigiPan - <http://home.comcast.net/~hteller/digipan/>, and NBEMS - <http://w1hkj.com/NBEMS/>.

Let's get started. Download the software, install the programs on your laptop, or other computer, and let's start having some fun with this new mode! Don't forget you can use PSK31 on HF. PSK31 on HF takes place on upper sideband. A good place to look for signals is near 14.070 MHz.

Now when we are asked to send a high precision, complex, priority message, with NBEMS it is no problem! Remember, if you plan for problems, they cease to be problems and become merely a part of the plan.

BREAK - OVER



How far away is the Thunderstorm?

Count the number of seconds between a flash of lightning and the next clap of thunder. Divide this number by 5 to determine the distance to the lightning in miles.

BREAK - OVER



SOUNDCARD MODE BASICS

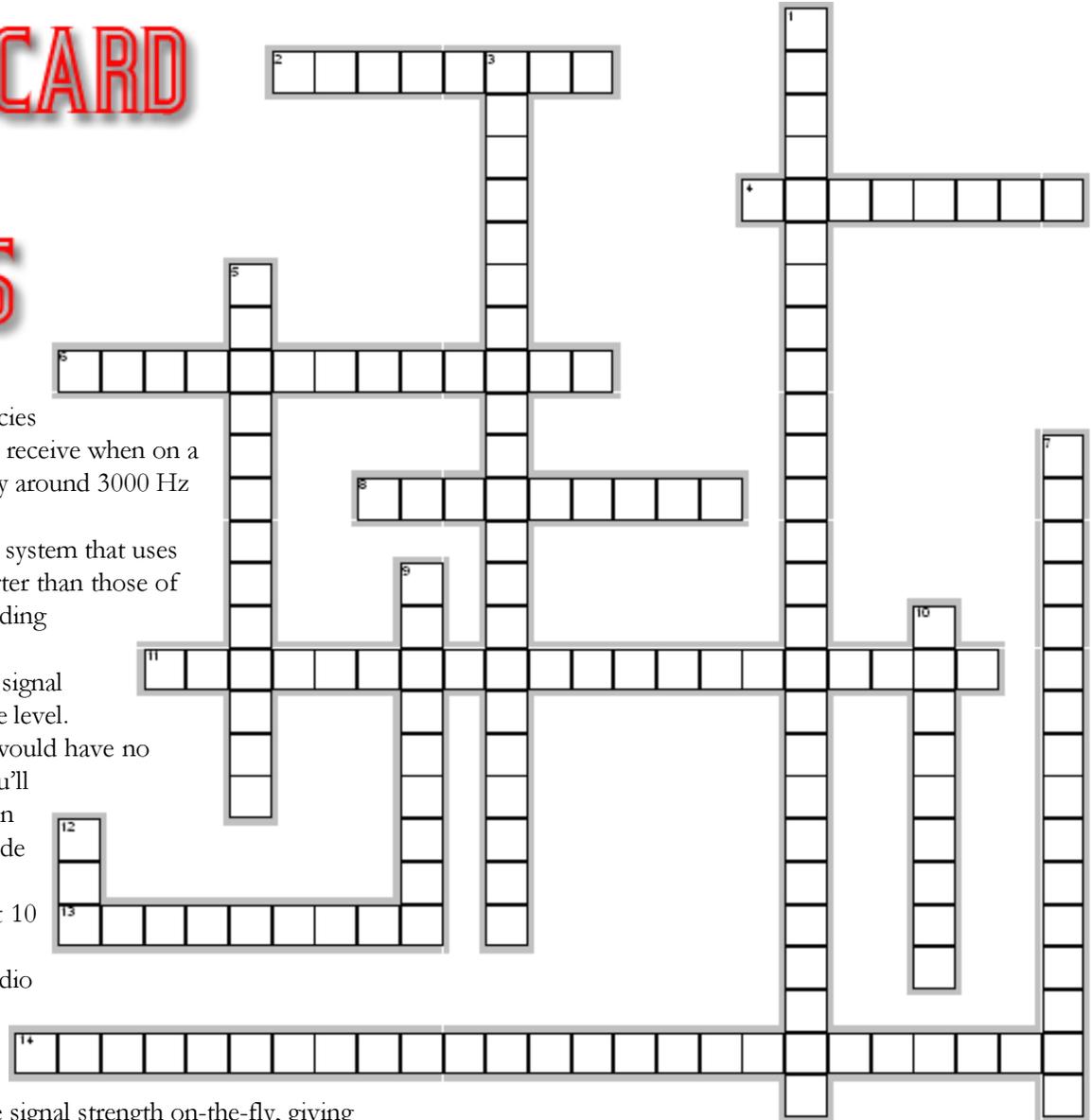
Across

2. The range of frequencies that your transceiver can receive when on a single frequency; typically around 3000 Hz wide.
4. A streamlined coding system that uses letter codes that are shorter than those of the ASCII or Baudot coding systems
6. A comparison of the signal levels to the relative noise level. Ideally, a perfect signal would have no noise, but realistically, you'll want this ratio well within the tolerances of the mode you're using. PSK31 tolerates a ratio of about 10 dB.
8. A visual display of radio signals (and other sounds) found on the tuned frequency.
11. The ability to reduce signal strength on-the-fly, giving you more level audio reception on stronger stations.
13. Turning the volume of your radio up so high that you risk damage to the sound card, or cause signal "splatter." Similar to maintaining your ALC levels.
14. The ratio, in dB, used to determine the quality of your transmission. Unwanted modulation products or signals will reduce this level. More power does not mean better copy!

Down

1. Much like the familiar "RST" reports, using a 599-type reporting scheme. Instead of "Tone" (Morse code), use "Quality." 95%+ readable, with a very strong waterfall trace and a clean (no splatter) signal would warrant a 599 report.
3. A voltage adjustment or reading, indicating your transmit signal levels. This level control is designed to control voice and carrier signal levels, not digital modes.
5. A suppression of signals received. You'll often see a noise

- level reduction, with a minor sacrifice to the desired signal reception.
7. A form of modulation that shifts the phase of the transmit signal in order to carry more information. PSK31 is a digital mode, created in the 1990s by Peter Martinez, G3PLX, which has a 31.25 Hz bandwidth on your waterfall display
9. The total time during a transmission period that the transmitter is delivering power to the antenna. Transmitting at a 100% duty cycle indicates that you are using 100% of your radio's power, 100% of the time.
10. piece of hardware in your computer that acts as an analog-to-digital or digital-to-analog converter of audio frequency signals. A microphone input is often included.
12. An oscillator whose frequency is controlled by varying the value of either the capacitance or inductance of its tuned circuit.



March Crossword Solution

Across

1. WATCH—An NWS product indicating that a particular hazard is possible, i.e., that conditions are more favorable than usual for its occurrence. This is a recommendation for planning, preparation, and increased awareness
6. RAINFREEBASE—A dark, horizontal cloud base with no visible precipitation beneath it. It typically marks the location of the thunderstorm updraft. Tornadoes may develop from wall clouds attached to this area.
7. ROLLCLOUD—A low, horizontal tube-shaped arcus cloud associated with a thunderstorm gust front (or sometimes with a cold front). These clouds are relatively rare; they are completely detached from the thunderstorm base or other cloud features, thus differentiating them from the more familiar shelf clouds.
9. MICROBURST—A small, concentrated downburst affecting an area less than 4 kilometers (about 2.5 miles) across. These are rather short-lived (5 minutes or so), but on rare occasions they have been known to last up to 6 times that long.
11. DEWPOINT—A measure of atmospheric moisture. It is the temperature to which air must be cooled in order to reach saturation (assuming air pressure and moisture content are constant).
12. FRONT—A boundary or transition zone between two air masses of different density, and thus (usually) of different temperature.
13. MAMMATUS—Rounded, smooth, sack-like protrusions hanging from the underside of a cloud (usually a thunderstorm anvil). These clouds often accompany severe thunderstorms, but do not produce severe weather
14. SCUD—Small, ragged, low cloud fragments that are unattached to a larger cloud base and often seen with and behind cold fronts and thunderstorm gust fronts. Such clouds generally are associated with cool moist air, such as thunderstorm outflow.
16. GUSTFRONT—The leading edge of gusty surface winds from thunderstorm downdrafts; sometimes associated with a shelf cloud or roll cloud.
17. UPDRAFT—A small-scale current of rising air. If the air is sufficiently moist, then the moisture condenses to become a cumulus cloud or an individual tower of a towering cumulus.
18. ACCESSORYCLOUD—A cloud which is dependent on a larger cloud system for development and continuance. Roll clouds, shelf clouds, and wall clouds are examples.

Down

1. WALLCLOUD—A localized, persistent, often abrupt lowering from a rain-free base. These clouds can range from a fraction of a mile up to nearly five miles in diameter, and normally are found on the south or southwest (inflow) side of the thunderstorm.
2. DEBRISCLOUD—A rotating “cloud” of dust or other material, near or on the ground, often appearing beneath a condensation funnel and surrounding the base of a tornado.
3. JETSTREAM—Relatively strong winds concentrated in a narrow stream in the atmosphere, normally referring to horizontal, high-altitude winds. The position and orientation of jet streams vary from day to day.
4. SEVERETHUNDERSTORM—A thunderstorm which produces tornadoes, hail 0.75 inches or more in diameter, or winds of 50 knots (58 mph) or more. Structural wind damage may imply the occurrence of a this storm.
5. COLDAIRFUNNEL—A funnel cloud or (rarely) a small, relatively weak tornado that can develop from a small shower or thunderstorm when the air aloft is unusually cold. They are much less violent than other types of tornadoes.
8. DOWNBURST—A strong downdraft resulting in an outward burst of damaging winds on or near the ground. These winds can produce damage similar to a strong tornado.
10. TORNADO—A violently rotating column of air in contact with the ground and extending from the base of a thunderstorm.
15. BOWECHO—A radar echo which is linear but bent outward. Damaging straight-line winds often occur near the “crest” or center of a this echo. Areas of circulation also can develop at either end of this echo, which sometimes can lead to tornado formation.



“Fear is an insidious virus. Given a breeding place in our minds, it will permeate the whole body and eat away our spirit and block the forward path of our endeavors.”

James F. Bell, founder of General Mills

Antenna Worms Enhance Performance of Radial Fields

From The Handiham World Weekly E-Letter
April 1, 2008

April 1, 2008 - Omaha, Nebraska: Dr. Scott of Omaha University's Physics Department announced today the results of a five-year study of the relationship between native Nebraskan earthworms living in the soil surrounding high-frequency antenna installations and antenna performance.

"Most people have no idea that Nebraskan worms are unique in their affinity for strong RF fields", mused Dr. Scott. "Your standard run-of-the-mill annelid (worm) isn't too excited about RF, and strong fields may actually cause them some distress. But the Nebraskan *Lumbricus Radiofrequencus*, as we call it, actually likes RF fields."

In a study that included hundreds of ham radio operators throughout the plains of Nebraska and Kansas as well as western Iowa, a positive correlation was noted between worm population density and RF density in the vicinity of vertical antenna installations. This resulted in more frequent DX contacts by study participants whose radial fields were "seeded" with Nebraskan worms at least one season prior to the study period.

"We think that the tunneling and mineral secretions of *Lumbricus Radiofrequencus* in the vicinity of the radials enhances ground conductivity, thus reducing I squared R losses in the soil near the feedpoint. It's like a silver-plated radial field", added Dr. Scott.

Antenna worms are expected to be commercially available just in time for solar cycle 24 from:
Antenna Worm Institute, 1 April Circle, Scottsbluff, NE 69361

How Lightning Forms

Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas. Rising and descending air within a thunderstorm separates these positive and negative charges. Water and ice particles also affect charge distribution. A cloud-to-ground lightning strike begins as an invisible channel of electrically charged air moving from the cloud toward the ground. When one channel nears an object on the ground, a powerful surge of electricity from the ground moves upward to the clouds and produces the visible lightning strike.

BREAK - OVER

On-line Resources for ARES Ops

- Scott County ARES <www.scottares.org>
- Metro Skywarn <www.metrokywarn.org>
- FEMA National Incident Management System: <<http://www.fema.gov/nims/>>
- IARU Emergency Communications: <<http://www.iaru.org/emergency/>>
- IARU Region 2 Emergency Communications: <<http://www.iaru-r2emcor.net>>

Major Amateur Radio Emergency Communications Nets:

- Hurricane Watch Net: <<http://www.hwn.org/>>
- Maritime Mobile Service Net: <<http://www.mmsn.org/>>
- Salvation Army (SATERN) Net: <<http://www.satarn.org>>
- Waterway Net: <<http://www.waterwayradio.net/>>
- VoIP SKYWARN/Hurricane Net: <<http://www.voipwx.net/>>



"The most wasted of all days is one without laughter."

e.e. cummings



ARES Breakfast

Saturday April 12th
7:30AM
Perkins Restaurant
Savage, MN

NECOS Schedule - April 2008

7 Apr	KB0FH Bob
14 Apr	KC0YHH Tony
21 Apr	N0PI Dan
28 Apr	W0NFE Bob
5 May	KB0FH Bob