



ARES COMMUNICATOR

Information for Scott County Amateurs



January, 2006

Accurate, Reliable Emergency Communications

Volume 6, Number 1

ICOM D - STAR DIGITAL SYSTEM at ARRL HQ.

Thanks to the generosity of Icom, MFJ and NCG (Comet), the ARRL has embarked on a project to learn firsthand what D-Star digital technology has to offer and to assess its capabilities in a real-world Amateur Radio environment. Icom, so far the only ham radio manufacturer offering D-Star equipment, has donated a D-Star voice repeater, data repeater and controller to W1AW. Eight model ID-1 D-Star 10 W mobile transceivers are on loan from the manufacturer. You can find out more about D-Star at the ARRL website at <http://www.arrrl.org/FandES/field/regulations/techchar/>

MFJ donated an MFJ-1532N Pulsar, which is serving as the transmitting antenna, while NCG contributed a pair of Comet GP21 antennas to receive digital data and voice for the 1.2 GHz (23 cm) multipurpose D-Star system. The antennas have been installed on two of the W1AW antenna support structures.

Although still in the early phase, the project plans to exercise the technology's digital voice and data capabilities as well as its capability to become part of a wider D-Star digital repeater network via an Internet gateway.

Icom Amateur Products Division Manager Ray Novak, N9JA, says the D-Star standard, first published four years ago, resulted from government-funded research in Japan administered by the Japan Amateur Radio League (JARL) to investigate Amateur Radio digital technologies. Novak emphasizes that D-Star is an open protocol that's available for implementation by anyone, and Icom is working with other manufacturers to get more D-Star compatible gear on the market.

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

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Reader submissions encouraged!

2006 Resolutions!

- # 1 - More Fun
- # 2 - Get Smarter

These two resolutions seem like great objectives and safe enough. I especially like the "More fun" item so let's start with that. Maybe you haven't thought of emergency communications as fun before, but take another look.



One fun aspect of an ARES exercise is the opportunity to take to the field and set up a station in new surroundings. We get the opportunity to test our radio skills and solve problems using the materials at hand. Let's put those skills to use in our weekly training net. The resolution is to have one station in the weekly net set up a portable station from a site we might be called upon to activate during an emergency. There are many potential locations so we shouldn't exhaust the list. One obvious location is the County Government Center, just stay out of the new jail! Don't forget St. Francis Hospital. There is a City government building located in each city along with multiple fire stations and probably a maintenance or public

Resolutions cont'd pg. 3

ARES Activities

Weekly Net Monday 7 PM 146.535 mhz (s)
Breakfast Saturday January 14th

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
Neighboring Nets			
North Dakota	3.937Mhz	6:30pm	Daily
South Dakota	3.870Mhz	6:00pm	Daily
Wisconsin	3.985Mhz	5:30pm	Daily

D-Star *cont'd from pg. 1*

“Amateur Radio is again out there in the forefront of technology,” Novak says. Although he concedes there’s a steep learning curve ahead, he predicts Amateur Radio users will invent new ways to put D-Star technology to work as they get better acquainted with its possibilities.

At this stage, the D-Star 23-cm repeater is up and running in digital voice mode, and ARRL Web and Software Development Manager Jon Bloom, KE3Z, has been working to interface the D-Star system with a Linux server, which will serve as an Internet gateway, to check out that aspect of the system.

Novak says the digital voice stream can simultaneously handle voice at 3600 bps with error correction and data at up to 1200 bps. Since a D-Star voice signal occupies only 6.25 kHz, Novak says, the potential is there to make more efficient use of available spectrum on 2 meters by squeezing up to four D-Star repeaters into the same space as two analog channels. New repeater modules are in development for 2 meters and 70 cm.

Working through a D-Star repeater is a bit different than using an analog repeater. Your call sign is the key to a D-Star system, since it’s incorporated into every transmission you make. “Because of D-Star’s call sign-routed system,” Novak explained, “registered users are able to cross-communicate with stations registered on another network’s D-Star repeater, wherever it may be.”

Novak says the 1.2 GHz D-Star system’s high-speed (128 kbps) data capability is another exciting feature. With the Ethernet jack on the Icom ID-1 transceiver, you now have the functionality of an ISDN (integrated services digital network) line available in your vehicle,” Novak said.

“We’ll have to find new ways of using this technology,” he continued. “That will be where ham radio changes. This opens up an unbelievable array of features for repeater systems—including graphics, schedules, tables, photos, you name it!”

BREAK - OVER



If you are a Firefox browser user you can now have the current HF propagation conditions listed in your web browser status bar. If you haven’t tried Firefox, the latest version, ver. 1.5, is available for download at <http://www.mozilla.com>. Firefox is a pleasant alternative to Internet Explorer with fewer security problems.

The browser extension that performs this bit of propagation information magic is called Propfire and is available for download at <http://www.n0hr.com/Propfire.htm>. The tiny window updates the propagation conditions with data that is retrieved from the NOAA website and is periodically updated in your browser as you surf the web. Additionally, by right-clicking on the Propfire values, a menu will appear. From the menu, you can display the latest full WWV report. Just like other Firefox extensions, it will NOT operate with Internet Explorer.

You can find out more information on propagation on the ARRL website at <http://www.arrl.org/tis/info/propagation.html>

BREAK - OVER

Contest Calendar – January 06

January 2006

- Kid’s Day Contest
1800Z-2400Z, Jan 8
- Hunting Lions in the Air Contest
0000Z, Jan 14 to 2400Z, Jan 15
- 070 Club PSKFest
0000Z-2400Z, Jan 14
- North American QSO Party, CW
1800Z, Jan 14 to 0600Z, Jan 15
- North American QSO Party, SSB
1800Z, Jan 21 to 0600Z, Jan 22
- ARRL January VHF Sweepstakes
1900Z, Jan 21 to 0400Z, Jan 23
- CQ 160-Meter Contest, CW
0000Z, Jan 28 to 2359Z, Jan 29

February, 2006

- Vermont QSO Party
0000Z, Feb 4 to 2400Z, Feb 5
- 10-10 Int. Winter Contest, SSB
0001Z, Feb 4 to 2359Z, Feb 5

Minnesota QSO Party

- 1400Z-2400Z, Feb 4

Resolutions *cont'd from pg. 1*

works building as well. Then we have the school buildings, High School, Junior High, and Elementary. All these possibilities and we haven't even begun to look at the list of possible Red Cross shelters and service centers. These sites should provide enough fun for starters.

Okay, how about getting smarter? This one sounds like it could be some work. Well, this resolution will take some time but we aren't talking about weeks just, a couple of hours per course. We all know that to keep up with changing conditions, training is an essential part of ARES. Since the 911 terrorist attacks there have been many changes in emergency response action plans. Knowing how the Incident Command System functions is now a basic requirement for participating in any emergency response. ARES members who cannot demonstrate they know how the ICS operates may not even be allowed in the EOC during an operation.

Fortunately acquiring the knowledge about the ICS is very easy. You spend three to four hours completing two on-line courses and you have met the qualifications. There are no textbooks to buy and you don't even have to leave the house! You will find everything you need available on-line. Simply follow the directions and you will be a cyber-scholar in no time. The FEMA Independent Study Program homepage is located at <http://training.fema.gov/EMIWeb/IS/crslst.asp>. You will find many emergency preparedness courses listed here. Scroll down to ICS 100.

ICS 100 is titled "Introduction to the Incident Command System". The course introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. This course describes the history, features and principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and the National Incident Management System (NIMS).

While most emergency situations are handled locally, when there's a major incident help may be needed from other jurisdictions, the state and the federal government. NIMS was developed so responders from different jurisdictions and disciplines can work together better to respond to natural disasters and emergencies, including acts of terrorism. The second course you need to take is IS-700, titled "National Incident Management System (NIMS), An Introduction." This course introduces NIMS and takes approximately three hours to complete. It

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License Course Offered in February

This is a great opportunity for anyone you know who may be interested in becoming an Amateur Radio Operator. The Amateur Radio Association of Bloomington and the Bloomington Communications Group are offering a "crash course" for a Technician License in February.

A weekend technician class will be held at the Bloomington Civic Plaza on February 17 through February 19th, 2006. This will be a Friday evening, Saturday, and Sunday class followed by a VE session. "Now You're Talking" will be the course book and can be purchased through the ARRL (www.arrl.org/catalog) or Radio City, (2663 County Road I, Mounds View, MN. 55112, phone 763-786-4475 or 1-800-426-2891). If you plan to attend the course, please notify Bob Schwartz, KT0T, soon to reserve your seat. Civic Plaza is located just west of I-35W on 98th St. Email Bob at kt0t@arrl.net or call him at 952-944-5731.



Resolutions *cont'd from col. 1*

explains the purpose, principles, key components and benefits of NIMS.

Once you have the on-line education process figured out you may want to take a look at another course, IS-275. This course is titled "The EOC's Role in Community Preparedness, Response and Recovery Activities." The goal of this independent study course is to provide the reader with the understanding of the vital role an Emergency Operations Center (EOC) plays in the overall community's preparedness, response, and recovery activities.

With these three courses under your belt, and the certificates to prove it, you should be ready to contribute to an emergency response in our community.

BREAK - OVER

Extra # 2

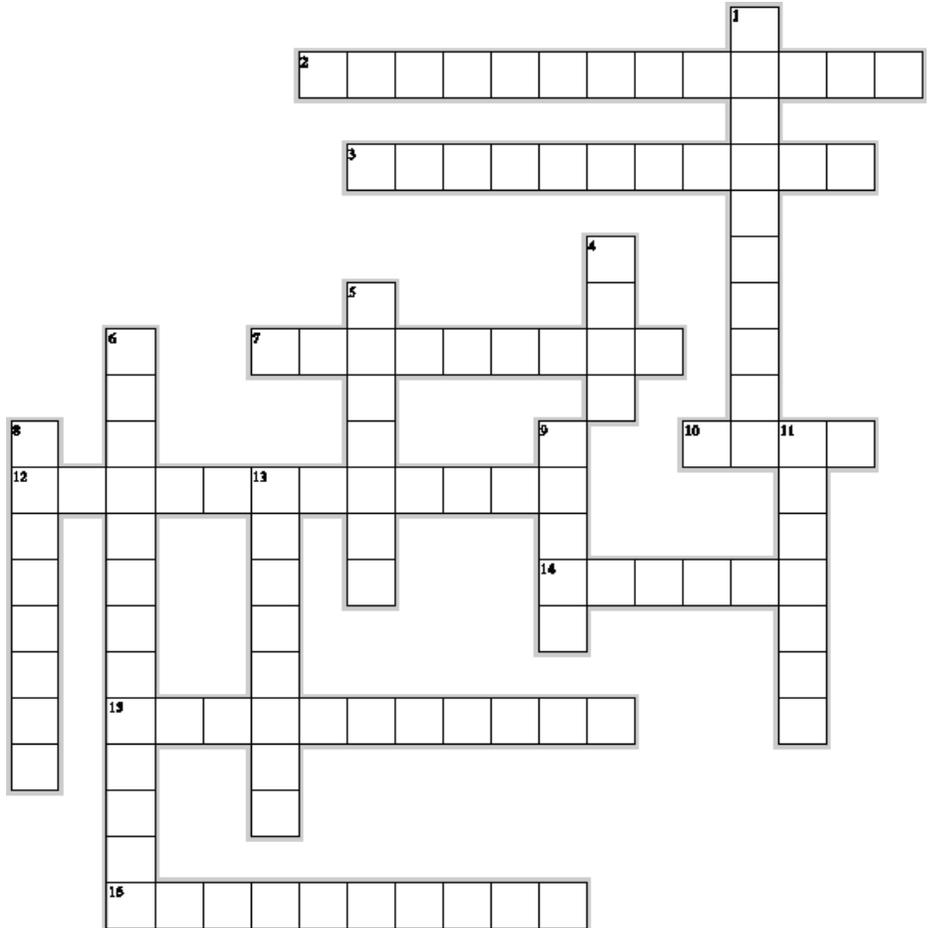
This is the second of a series of crosswords based on the Extra Class license.

Across

2. The product of the RMS current and voltage values in a circuit without consideration of the phase angle between them.
3. The technique of inserting a coil at the bottom of an electrically short vertical antenna in order to cancel the capacitive resistance of the antenna producing a resonant antenna system.
7. An imaginary radiator in free space that radiates equally in all directions. It is used as a reference to compare the gain of various real antennas.
10. A measure of voltage on an AC waveform taken from the centerline and the maximum positive or negative level.
12. An amateur station located on, or within 50 km of the earth's surface intended for communications with space stations.
14. An antenna with two elements in a straight line that are fed in the center. Usually operated at half-wave resonance.
15. A radio direction finding antenna consisting of two vertical elements fed 180 degrees apart and capable of being rotated.
16. The smallest input signal that can be just detected above the receiver internal noise.

Down

1. A simple piece of test equipment used to indicate high or low logic states (voltage levels) in digital-electronic circuits.
4. An increase in the effective power radiated by an antenna in a certain desired direction. This is at the expense of power radiated in other directions.
5. A bias voltage applied across a semiconductor junction so that it will tend to produce current.
6. The process by which the Volunteer Examiner Coordinator certifies that their Volunteer Examiners are qualified to administer Amateur Radio license exams.
8. Describes the polarization of an electromagnetic wave in which the electric field is perpendicular to the



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Earth's surface.

9. The terminal that connects to the positive supply lead for current to flow through a device.
11. An electric circuit designed specifically to radiate the energy applied to it in the form of electromagnetic waves.
13. Emissions that are not a part of the desired signal and occur on frequencies outside the necessary bandwidth of a transmission, the level of which may be reduced without affecting the information being transmitted.



December Crossword Solution

Across

2. **DIELECTRIC**—an insulating material. A medium in which it is possible to maintain an electrical field with little or no additional direct-current energy supplied after the field has been supplied.
6. **LOADING COIL**—An inductor that is inserted in an antenna element or transmission line for the purpose of producing a resonant system at a specific frequency.
7. **ABSORPTION**—The loss of energy from an electromagnetic wave as it travels through any material.
9. **BALANCED**—modulator - A circuit used in a single-sideband suppressed-carrier transmitter to combine a voice signal and an RF signal.
11. **CAPTURE**—An effect especially noticed with FM and PM systems whereby the strongest signal to reach the demodulator is the one to be received.
12. **ALTERNATOR WHINE**—A common form of conducted interference typified by an audio tone being induced onto the received or transmitted signal. The pitch varies with alternator speed.
14. **TOROID**—A coil wound on a donut-shaped ferrite or powdered-iron core.
16. **EIRP**—A measure of power radiated from an antenna system. It takes into account transmitter output power, feed-line losses and other system losses, and antenna gain compared to an isotropic radiator.
17. **DELTA MATCH**—A method for impedance matching between an open-wire transmission line and a half-wave radiator that is not split at the center. The feed-line wires are fanned out to attach to the antenna symmetrically around the center point.
18. **FREQUENCY**—The number of complete cycles of a wave occurring in a unit of time.
19. **NEUTRALIZATION**—Feeding part of the output signal from an amplifier back to the input so it arrives out of phase with the input signal. This negative feedback counters the effect of positive feedback caused by coupling between the input and output circuits in the amplifier.

Down

1. **ADMITTANCE**—The reciprocal of impedance, often used to aid the solution of a parallel-circuit impedance calculation.
3. **BLOCKING**—A receiver condition in which reception of a desired weak signal is prevented because of a nearby, unwanted strong signal.
4. **BAUD**—A unit of signaling speed equal to the number of discrete conditions or events, or events per second.
5. **CIRCULATOR**—A passive device with three or more ports or input/output terminals. It can be used to combine the output from several transmitters to one antenna.
8. **DOPPLER SHIFT**—A change in observed frequency of a

Kids Day on the Radio

Sunday January 8th

The first running of Kids Day 2006 begins Sunday, January 8, at 1800 UTC and continues until 2400 UTC with no limit on operating time (the second Kids Day will be Saturday, June 17). Kids Day provides a terrific opportunity to show youngsters what Amateur Radio is all about—and that includes its role in emergency communication. ARRL Education and Technology Program Coordinator Mark Spencer, WA8SME, says Kids Day can be a great opportunity to spark change and get kids and families thinking about emergency preparedness.

“While you are coaching the youngsters who visit your shack—and their parents too—on how to make contacts and new friends via ham radio during Kids Day, why not take a few moments to ask them about their family’s plans to deal with emergency challenges? Why not use the opportunities offered by Kids Day to show the youth in your neighborhood that ham radio can be loads of fun, and that ham radio is a way that they can contribute something very valuable to their communities?”

Call “CQ Kids Day.” The suggested exchange for Kids Day contacts is first name, age, location and favorite color. It’s okay to work the same station more than once if the operator has changed. Suggested frequencies are 14.270-14.300, 21.380-21.400 and 28.350-28.400 MHz. Contacts via VHF repeaters are okay too, with permission from the repeater owner. Observe third-party traffic restrictions when making DX QSOs.

All participants are eligible to receive a colorful certificate, which becomes the youngster’s personalized “sales brochure” for ham radio. The League asks everyone taking part in Kids Day to complete a short survey and post comments afterward. Doing this provides access to download the certificate page, or participants can send a 9x12 self-addressed, stamped envelope to Boring Amateur Radio Club, PO Box 1357, Boring, OR 97009.

BREAK - OVER



signal, as compared with the transmitted frequency, caused by satellite movement toward or away from you.

10. **EQUINOX**—One of two spots on the orbital path of the Earth around the sun, at which the Earth crosses a horizontal plane extending through the equator of the sun.
13. **TELEMETRY**—A one-way transmission of measurements at a distance from the measuring instrument.
15. **PHOTOCELL**—A solid-state device in which the voltage and current-conducting characteristics change as the amount of light striking the device changes.

BREAK - OVER

Quick Training Tips

How to be an Ecom Lid

Lid (lid) n 1. A removable cover for a hollow receptacle. 2. An eyelid. 3. An untrained or inconsiderate radio operator who disregards operating procedure.

Let's see how a person goes about becoming a Lid as described in the third definition. Anyone aspiring to be a Lid already knows that the only reason other people turn on their radio is for the opportunity to hear the Lid speak.



Now, a few pointers on how to hone your skills and become a superior Lid.

First, ignore the instructions of the NECOS when checking in to the net. What could he have to say that is more important than your presence on the net?

Second, when you check in make sure to announce that you are checking in "One for the count". That way everyone will know that you cannot possibly benefit from any training that occurs during the net and are there only to provide others with the privilege of listening to you.

Third, be sure to announce "Back to Net" when you have finished your speech. Surely if you didn't provide this specific instruction the NECOS wouldn't know that they are free to resume their duty for maintaining efficiency and discipline on the net.

Forth, prowords are for other people. Your operating cannot be restricted by using OVER or OUT. After all, didn't you just announce that control went "Back to net!"

Fifth, don't bother to ask permission to secure from a directed net. Once you have completed your magnificent remarks what else remains to be said that is worth listening to anyway? Just flip the switch and walk away. Those operating procedures are for other operators who aren't as skilled as you.

If you follow these five easy pointers you will be almost guaranteed first class Lid status on any directed net. What happens to Lids? Well, at our house Lids hit the recycling bin and are never heard from again once they have served

their purpose.

What! Do Lids have a purpose? Yes, they serve as an example to show how a single individual who does not follow the same procedures as other net participants can disrupt the efficient operation of a net and contribute to errors in communications. So, next time you run across some Lid behavior, just ask yourself what can of worms we opened by tolerating this type of operation in the net.

Try to constantly improve your personal operating habits so you don't find yourself in the recycle bin.

BREAK - OVER



Breakfast
Saturday January 14th
7:30AM
Perkins Restaurant
Savage, MN

NECOS Schedule - January 2006

2 Jan KB0FH Bob
9 Jan AB0YQ Steve
16 Jan K0KTW Pat
23 Jan N0PI Dan
30 Jan W0NFE Bob