RCA AMATEUR RADIO CLUB

FEBRUARY, 2008 **MONTHLY NEWSLETTER** INDIANAPOLIS, IN

THE NEXT MEETING OF THE **RCA AMATEUR RADIO CLUB** WILL BE
TUESDAY, FEBRUARY 5th, 6:30 PM AT THE G.T. SOUTH'S,
5711 E. 71st STREET, INDIANAPOLIS, IN

RCA ARC NEWS

Because of the New Year's holiday, we had no January meeting.

2008 MARION COUNTY SEVERE WEATHER SEMINAR: This year's Marion County Severe Weather Seminar will be held on Saturday, Feb. 16, starting at 9:00 AM at the the Training Center (meeting place of the Indianapolis Radio Club), 2820 N. Meridian St. All are welcome to attend. You don't need to be a resident of Marion County or a member of any particular group. Free! For more information, as well as other weather related information, go to http://indyhams.org/seg/skywarn.

For more in-depth severe training see the article below.

2008 CENTRAL INDIANA SEVERE WEATHER SYMPOSIUM: Register Now: 2008 Central Indiana Severe Weather Symposium 2008 Central Indiana Severe Weather Symposium.

2008 brings the next installment of the Central Indiana Severe Weather Symposium, an all day session geared towards providing more advanced information for spotters. The 2008 symposium will be held on Saturday, March 1st, 2008, from 8:00 am to 4:00 pm, at the Valle Vista Conference Center, 755 East Main Street, Greenwood, Indiana, and is cosponsored by the Central Indiana Chapter of the American Meteorological Society and National Weather Service Indianapolis. Symposium planning is still ongoing, so check back at this website for updated information as the symposium date approaches.

Confirmed speakers as of this time include:

Dan McCarthy Meteorologist-in-Charge, NWS Indianapolis
Dave Tucek Warning Coordination Meteorologist, NWS Indianapolis
John Kwiatkowski Science and Operations Officer, NWS Indianapolis
Paul Sirvatka Professor of Meteorology, College of DuPage
Angela Buchman Broadcast Meteorologist, WISH-TV 8
Bill Gosnell Emergency Manager, Delaware County, Indiana
Logan Johnson Meteorologist, NWS Indianapolis
Joseph Nield Meteorologist, NWS Indianapolis

A student poster presentation is also planned for the symposium. Students presenting posters will be able to register at a discounted rate. Student registrations must be accompanied by a copy of your valid student ID.

Please visit http://tinyurl.com/2vga8x for more information and registration forms.

LUNAR ECHO EXPERIMENT – If you didn't hear the Lunar Echo Experiment on Jan 18-19, here is a short video made by WA9SRA using the FLEX-5000A SDR displaying the transitted signals and echos simultaneously on the panadapter and waterfall displays. Remember, the format was as follows… The HAARP transmitter transmitted for two seconds

then was off for three seconds to listen for the lunar echo. This cycle was repeated every five seconds for one hour. Big file: http://support.flex-radio.com/Downloads.aspx?id=204

HAMFESTS; EVENTS

Feb 16	Marion Co. Severe Weather Seminar, 2820 N. Meridian, 9:00 AM
Feb 23	Cabin Fever Hamfest LaPorte, Amateur Radio Club http://www.k9jsi.org/
Mar 8	Terre Haute Hamfest, Vigo Co. Fairgrounds http://w9uuu.org/
Mar 29	Columbus Hamfest, http://www.qsl.net/carc
Apr 20	North Central Indiana Hamfest, http://www.ncihamfest.com/
May 16-18	Dayton Hamvention, http://www.hamvention.org/
June 28-29	Field Day
July 12	Indianapolis Hamfest, http://www.indyhamfest.com/
Aug 17	TARA Hamfest, Lafayette, IN http://w9reg.org/hamfest/index.htm
Nov 15-16	Fort Wayne Hamfest & Computer Expo. http://www.fortwaynehamfest.com/

MOTOROLA COMPLETES TENDER OFFER FOR YAESU'S PARENT COMPANY

On Wednesday, January 16, Motorola announced that its subsidiary, MI, Inc, has successfully completed its tender offer to acquire a controlling interest in Vertex Standard, parent company of Yaesu. The tender offer period expired on January 15 with approximately 5.4 million shares tendered and accepted. On November 5, 2007, Motorola launched the tender offer, in cooperation with Tokogiken (a privately held Japanese company controlled by Vertex Standard's president and CEO Jun Hasegawa) with the intention of forming a joint venture to develop and sell Vertex Standard products and develop select Motorola products. All regulatory clearances required for the completion of the transaction have been obtained.

Starting on January 22, Motorola will have a total ownership stake of approximately 78 percent of Vertex Standard on a fully diluted basis (excluding certain stock acquisition rights that are scheduled to be cancelled), following the settlement of the tender offer for approximately 12 billion Yen (almost $112 million US dollars) in cash. Through a subsequent restructuring process, Motorola will own 80 percent of Vertex Standard, while Tokogiken will retain a 20 percent stake.

"We are extremely pleased to team with Motorola, a global technology leader that has been a leading provider and pioneer in 2-way radio communication solutions," Hasegawa said. "With Motorola, Vertex Standard will be stronger and better positioned to deliver new and innovative 2-way radio solutions for professionals and consumers."

Dennis Motschenbacher, K7BV, Yaesu's Executive Vice President for Amateur Radio Sales in North America, told the ARRL that he sees the joint venture of Vertex Standard and Motorola as "a very good thing for Amateur Radio in general and Yaesu customers in particular. I hope our loyal customers will readily see this business venture for what it is, an opportunity to make a solid 50-plus year old Yaesu company even stronger and more formidable than is already the case. There is absolutely no reason to have the slightest concern about equipment warranties and the continuation of support for our products. I am really excited to see what the joint engineering capabilities of these two huge communications companies will bring in the way of new technology advancement for the Amateur Radio Service." –ARRL Letter

AIR FORCE ADDS MORE REPEATERS TO CALIFORNIA PAVE PAWS PROBLEM LIST

A second round of testing by US Air Force engineers has resulted in the identification of an additional seventy-five 70 cm repeaters in Northern California that must adjust their operations to eliminate harmful interference to the PAVE PAWS Updated Early Warning Radar (UEWR) located at Beale Air Force Base near Sacramento. As a result of these additions, new strategies for handling the situation are being put into place by the ARRL and the FCC.

"While ARRL knew that there was the possibility of additional repeaters being added in the follow-up list of those requiring mitigation, we are surprised by the large number of additions to the list," said ARRL Regulatory Information Manager Dan Henderson, N1ND. "After our discussions with FCC officials, they are becoming actively involved in ensuring that the correct repeaters have been identified and that the mitigation being required is what is actually needed to resolve the ongoing problem in each case."

Henderson continued: "From the discussions with the Air Force, it is clear that the PAVE PAWS issue is going to be a continuing process. The ARRL needs to be involved since there can be additional repeaters identified as the Department of Defense continues testing at their radar sites."

To expedite any new mitigation actions needed due to the enlarged list, the FCC has now taken on the lead role of making initial contact with the owners of these newly identified repeaters. "The FCC has asked the ARRL to continue its work of aiding affected repeater owners with suggested mitigation actions," Henderson stated. "However, since any mandatory enforcement action would have to come from the FCC, it makes sense for them to take the lead at this point in time."

The ARRL will continue to provide information to individual repeater owners on specific mitigation techniques as well as information to the general amateur population. "We are committed to continuing to work with the Department of Defense, FCC and the Amateur Radio community to meet the amateurs' responsibilities as secondary users. But we are not an enforcement agency. Our goal to ensure that the impact on amateurs in the 70 cm band is the least possible, consistent with those responsibilities," Henderson said.

A teleconference was held between representatives of the DoD, FCC and ARRL on Thursday, January 17 to assess the status of the repeaters on the initial DoD list, as well as discuss the strategies for working with repeater owners on the new, second, follow-up DoD list as quickly as possible.

During this conference call, Riley Hollingsworth of the FCC confirmed he had been in contact with repeater owners from the first DoD list who had not indicated their compliance with mitigation numbers provided by the ARRL in early Fall 2007. Hollingsworth reported he has had a positive response from each owner with whom he had spoken so far. There were several who had to be contacted via regular mail (instead of e-mail or telephone) who have not yet responded.

Hollingsworth also planned to start making contact with the owners of repeaters on the second list and begin the process towards amateur compliance within a short period of time. "Once a repeater owner has been contacted, the ARRL is ready to support their efforts in meeting the mitigation requirement," said Ed Hare, W1RFI, ARRL Laboratory Manager.

ARRL General Counsel Chris Imlay, W3KD, pointed out that any specific enforcement

action or shut-down order from the FCC involving amateurs also provides for due process in those proceedings. He emphasized that even though amateurs have a secondary allocation status in the band, the DoD has the burden of proving that specific repeaters are causing harmful interference on a case-by-case basis. -- ARRL Letter

THE SECRET HISTORY OF SILICON VALLEY ON YOUTUBE

[Editor's note: If you were an EE student in the 1960s, Terman is probably a familiar name to you. If you're a history buff, or just have an interest in radio and electronics, there is stuff here which you probably didn't know.]

This 56 minute video covers Radar systems of World War 2 through to spy satellites of the 60's and describes how Radio Ham Fred Terman and Stanford University worked with government agencies (including the CIA and NSA) to help build the Silicon Valley we know today.

When Allied bombers flew over Europe they faced the Nazi Integrated Air Defence Network. This network had Early Warning Radar systems such as Mammut (130 MHz) and Wasserman (250 MHz) along with Wurzburg radar controlled Anti-Aircraft guns. These resulted in heavy losses to Allied bombers.

But it wasn't just bombers the Allies flew over Europe, in 1942 they were flying aircraft packed with receivers covering 50 MHz to 3 GHz.

The video includes Black and White clips showing the aircraft at that time.

As a boy, Fred Terman's favorite hobby had been **Amateur Radio** which led him directly into electrical engineering. He held the call signs 6FT and 6AE.

His early interest in radio proved useful when during the war he headed Harvard Radio Research Laboratory (HRRL) which developed electronic warfare techniques.

When the war ended Fred Terman set up the Electronics Research Laboratory (ERL) at Stanford followed by the Applied Electronics Laboratory (AEL) for classified research programmes. These later merged to form the Systems Engineering Laboratory (SEL).

Among the useful snippets of information are that the U2 Spy Planes were packed with radio equipment operating at up to 40 GHz and Moonbounce was used to catalogue Soviet radar frequencies in the cold war.

This enthralling presentation is given by Steve Blank and you can watch the Google Tech Talk video - The Secret History of Silicon Valley at http://youtube.com/watch?v=hFSPHfZQpIQ -- Southgate ARC

ARRL FOUNDATION SCHOLARSHIP APPLICATIONS DUE FEBRUARY 1

The deadline for ARRL Foundation scholarship applications is February 1, 2008. Applications must be postmarked on or before February 1 and must include the student's most recent transcript. The Foundation continues to grow every year as new awards are added -- four new scholarships have been added for 2008. This year, the Foundation expects to award up to 60 general scholarships ranging in amounts from $500 to $2500.

The most prestigious Foundation scholarship is the William R. Goldfarb Memorial Scholarship, awarded to one high school senior each year. After the student has received all financial aid he or she is qualified for, other scholarships and awards and family contributions, the Goldfarb Scholarship will cover any remaining expenses (room and board, tuition, fees and books) for a four-year undergraduate curriculum at an accredited university in one of the following courses of study: business-related computers, medical or nursing fields, engineering or sciences. This award to an active radio amateur is based on outstanding qualifications, need and other funding sources. The Goldfarb Scholarship is the result of a generous endowment from the late William Goldfarb, N2ITP. Before his death in 1997, Goldfarb set up a scholarship endowment of close to $1 million in memory of his parents, Albert and Dorothy Goldfarb. The 2007 recipient was Andrea Hartlage, KG4IUM, of Grayson, Georgia http://www.arrl.org/news/stories/2007/04/12/101/. Hartlage, majoring in aerospace engineering, is in her freshman year at Georgia Tech.

All the information about the ARRL Scholarships for FCC licensed radio amateurs, including descriptions, application forms and instructions, can be found on the ARRL Foundation Web site http://www.arrlf.org/. –ARRL Letter

CYCLE 24 HERE, EXPERTS SAY

With the appearance of Sunspot 981 -- a high-latitude, reversed polarity sunspot -- on Friday, January 4, experts at NASA and the National Oceanic and Atmospheric Administration (NOAA) said that Cycle 24 is now here. "This sunspot is like the first robin of spring," said solar physicist Douglas Biesecker of the Space Weather Prediction Center (SWPC), part of NOAA. "In this case, it's an early omen of solar storms that will gradually increase over the next few years."

Solar physicist David Hathaway of NASA's Marshall Space Flight Center in Huntsville, Alabama concurred, saying that new solar cycles begin with a "modest knot" of magnetism, like the one that appeared on December 11 on the east limb of the Sun: "That patch of magnetism could be a sign of the next solar cycle. New solar cycles always begin with a high-latitude, reversed polarity sunspot." The region of magnetism that appeared back in December achieved high latitude (24 degrees North) and was magnetically reversed, but no supporting sunspot appeared until 25 days later.

Reversed polarity describes a sunspot with opposite magnetic polarity compared to sunspots from the previous solar cycle. High-latitude refers to the Sun's grid of latitude and longitude. Old-cycle spots congregate near the Sun's equator; new-cycle spots appear higher, around 25 or 30 degrees latitude. Sunspot 981's high-latitude location at 27 degrees North and its negative polarity leading to the right in the Northern Hemisphere are clear-cut signs of a new solar cycle, according to NOAA experts. The first active regions and sunspots of a new solar cycle can emerge at high latitudes while those from the previous cycle continue to form closer to the equator.

According to NASA's Tony Phillips, many forecasters believe Solar Cycle 24 will be big and intense. "Solar cycles usually take a few years to build to a frenzy and Cycle 24 will be no exception. We still have some quiet times ahead," says Hathaway. --ARRL Letter

NEW EMCOMM SOFTWARE FOR WINDOWS NOW AVAILABLE FOR BETA TESTING

The NarrowBand Emergency Messaging System (NBEMS) development team announced earlier this week that a Windows NBEMS software suite for beta testing is now available. NBEMS for Windows is a suite of software programs designed for point-to-point, error-free emergency messaging up to or over 100 miles distant.

According to developers Skip Teller, KH6TY and Dave Freese, W1HKJ, the NBEMS system is designed primarily for use on VHF and up, or on HF with Near Vertical Incidence Skywave (NVIS) antennas. The system uses the computer soundcard as the modem. Other than a simple interface connection between the computer and transceiver, no additional hardware is needed. Composing and sending emergency messages on NBEMS is no more difficult than sending e-mail via the Internet. All forwarding is done by stations manned by live operators on both ends who can confirm that a frequency is clear locally, or negotiate a frequency change to avoid causing interference.

The NBEMS software can also be used for daily casual communications on PSK31, PSK63, RTTY or MFSK16 and is capable of sending flawless, high resolution, passport photo-sized color images in less than 10 minutes over any path that can sustain PSK250 without excessive repeats.

Radio amateurs are invited to participate in the beta test of the NBEMS. The NBEMS suite can be downloaded for beta testing from the NBEMS Web site http://w1hkj.com/NBEMS/. Send comments and bug reports via e-mail mailto:kh6ty@comcast.net. --ARRL Letter

SATELLITE SERVES AS VOICE REPEATER -- UPLINKS ON FM, DOWNLINKS ON SIDEBAND

Launched in January 1990, AMSAT-OSCAR 16 (AO-16) -- a digital satellite -- has been unavailable for use while the command team dealt with a serious computer problem. The satellite has since been recovered, and is now a voice repeater, at least for an unspecified "test period" using FM voice on the uplink, but transmits DSB voice on the downlink (best received on SSB).

Since AO-16 was recovered approximately six months ago, the command team -- Bruce Rahn, WB9ANQ, Jim White, WD0E, and Mark Hammond, N8MH -- attempted to reload the satellite software almost a dozen times without success. The team performed a series of memory tests that pointed toward a hardware failure that prevented the spacecraft software from restarting successfully.

AMSAT Vice President of Operations Drew Glasbrenner, KO4MA, said, "After concluding that the spacecraft computer system was damaged, and as discussions about decommissioning were taking place, Jim recalled a series of low-level commands that Tom Clark, K3IO, included in the spacecraft design during construction. One of these commands allows an uplink receiver to be directly tied to a downlink transmitter. The twist is that the uplink is regular FM, but the downlink via the BPSK transmitter is DSB (Double Sideband). Mark placed the satellite in this mode early this week and did some testing."

Glasbrenner said the satellite hears very well; the reduced bandwidth by using either USB or LSB on the ground station receiver "allows for a very robust downlink. Tuning the downlink is just like on a linear transponder, meaning it is tight and with fast Doppler. Uplink tuning is not required, just as with the FM mode V/U satellites. My personal observations include

being able to access and hear the satellite within one degree of the horizon, much lower than any other current bird for my location [in Florida]. This should be an easy satellite with omni antennas and a 70 cm preamp."

Glasbrenner said that he would like to open the satellite to general use for a test period. The uplink is 145.920 FM, and the downlink is 437.026 SSB +/- Doppler shift. He asks that users restrict their uplink power to a reasonable power level, and do not transmit without being able to hear the downlink; all general single-channel guidelines apply. Please submit reports via e-mail <ao16@amsat.org>. "Enjoy this bird's new life!"
Glasbrenner said. --ARRL Letter

OREGON GOVERNOR ALLOCATES $250,000 FOR DIGITAL COMMUNICATIONS NETWORK

The State of Oregon's Office of Emergency Management (OEM) received $250,000 from Governor Ted Kulongoski's Strategic Reserve Fund to further develop and enhance a statewide Amateur Radio digital communications network, announced ARRL Oregon Section Manager Bonnie Altus, AB7ZQ.

"This network, the Oregon ARES Digital Network (OADN), already uses a combination of different radio equipment and spectrum segments, computers and the Internet to provide a robust backup communications system in times of disaster. With its enhancements, all Oregon counties will be able to communicate with the state OEM," she said. "In December, this system proved its usefulness in the storms and floods by utilizing Winlink stations in Lincoln and Clatsop Counties to communicate with OEM. Early in that activation, the OEM's Amateur Radio Unit found they were not able to keep up with maintaining a complete log of communications when using voice communications, but Winlink activities maintained an automatic log for them."

According to Altus, the primary purpose of the OADN is to provide back-up digital communications capabilities between county Emergency Operations Centers and Oregon Emergency Management and other state agencies in Salem, in the event that normal communications systems fail in an emergency.

During the December storms, Amateur Radio operators were there to help. After a visit to one of the severely affected towns, Governor Kulongoski said, "I'm going to tell you who the heroes were from the very beginning of this...the ham radio operators. These people just came in and actually provided a tremendous communication link to us." Oregon's OEM said the radio operators were "tireless in their efforts to keep the systems connected. When even state police had difficulty reaching some of their own troops, ham radio worked, setting up networks so emergency officials could communicate and relaying lists of supplies needed in stricken areas."

Through an Intergovernmental Agreement between the individual county Emergency Managers and Oregon's Office of Emergency Management, ARES/RACES groups in each county will be responsible for installation, maintenance and operation the network. --ARRL Letter

SHORTS

JET PROPULSION LAB'S AMATEUR RADIO CLUB MARKS 50 YEARS IN SPACE: Launch of the "Explorer 1" satellite on January 31, 1958 marked the dawn of the Space Age for the United States, as well as the beginning of the Jet Propulsion Laboratory's exploration of space. To celebrate the 50th anniversary of this historic event, the JPL Amateur Radio Club will be operating W6VIO from 1600 UTC January 28-0400 UTC February 4 using the following frequencies: 3.535, 7.035, 7.185, 14.035, 14.240, 21.035 and 21.285 MHz. An "Explorer I" commemorative QSL card will be available.

QSL to JPL ARC, PO Box 820, La Canada, CA 91012-0820. More information is available on W6VIO's Web site https://pitfall.org/jplarc/Station/ExplorerIAnniversary.

NEW AMATEUR EXTRA CLASS QUESTION POOL RELEASED: The National Conference of Volunteer Examiner Coordinators (NCVEC) has released a new pool of 741 questions and 12 graphics http://www.ncvec.org/page.php?id=338 for the Amateur Extra class license. This pool will become effective for examinations given on or after July 1, 2008, and should be in service until June 30, 2012. It can be downloaded from the NCVEC Web site in Word, PDF or RTF formats. If you have any questions concerning the new Amateur Extra question pool, please contact the NCVEC's Question Pool Committee via e-mail mailto:qpc@ncvec.org. –ARRL Letter

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