

NOVEMBER 2004

THE MONTHLY NEWSLETTER of the SANTA CRUZ COUNTY AMATEUR RADIO CLUB

SHORT SKIP



High Speed Multi-Media Radio for Amateurs

A very extensive technical article on this topic appeared in the current issue of QEX magazine based on the research of a working group formed by the ARRL in 2002. The heading of the article reads as follows. "Readily available computer oriented Wi-Fi equipment can be used to form the basis for high speed data transport at 2.4 GHz and above."

High Speed Multi-Media (HSMM) is a form of packet radio that starts at speeds of 56 kbps and may extend up to 5000 times faster than conventional packet radio. This capability makes possible digital video, voice, data and text operating under Part 97 amateur licence rules. There are many new and traditional applications including emergency services support, shared broadband internet access and remote control of remote sites like K6BJ and N6IJ.

This is an evolving field and initial HSMM research has focused on the use of inexpensive commercial off-the-shelf IEEE 802.11 products to establish area-wide network configurations. The prospect of introducing such capabilities in this area of the Central Coast is appealing as it would add a new dimension to amateur operations. To gain the most advantage, some technical, operational and product selection factors will need coordinating and accordingly the topic of HSMM will be discussed at upcoming CAKE meetings. Every effort will be made to involve our sister clubs SLVARC, MBARA and UCSC.

Stay tuned, or much better still, be part of the action. Make CAKE part of your regular diet.

—Ron W6W0

WinLink Demo

While not using 802.11x exactly, one already useful idea is to use amateur radio to send .JPG image files and other binary attachments to email.

At <http://winlink.org/features.htm> I read:

The primary purpose of the Winlink 2000 network system is to assist the mobile or remotely located user, and to provide emergency email capabilities to community agencies. Because of this, WL2K supports a clean simple interface to the Internet SMTP e-mail system. Using its own B2F format, any message sent or received may include multiple recipients and multiple binary attachments.

Several types of more specific info are available at <http://winlink.org/Emergency.htm> Hope this helps. 73, Cap KE6AFE

P.S. Winlink was successfully demonstrated in San Diego just this last Saturday! Howard VE3GFW/K6 wrote:

Successful Winlink Demo - San Diego ARES Roundup

Bud Semon, N7CW, Harvey Hiller, K6QK (of the San Diego DX Club) and I (of the Coronado Emergency Radio Operators Inc.) put on a field demonstration of Winlink 2000 to the public at the San Diego ARES Roundup at Hilltop Community Park in Rancho Panasquitos on Oct 30.

Harvey Hiller brought his marvellous mobile 55 foot crank up tower and trailer on which are erected a 3 element tribander for HF and a J-pole for 2M.

Bud Semon's Winlink configuration consisted of a Yaesu FT-100 All Band Transceiver, a PK-232 TNC and a 100 MHz Portable computer. Bud used the beam for 20M HF Factor I and the J Pole for VHF Packet. Bud had both Paclink and Airmail on his computer as he transmitted both on HF and VHF.

I was originally going use an IC-706 MKIIG, but as it is installed in my SUV and it was easier to demo to a group with the radios on

a Table than from the SUV, I decided at the last minute to use a VHF radio instead. My Winlink configuration consisted Icom IC-2720H, RigExpert USB with integrated Sound-card emulation Interface ["I AM NOT USING A TNC"] Dell 600 Mhz Portable running Windows 2000 Professional, USB Cable from Dell to Rigexpert, DB25 to Din6 Cable from RigExpert to IC-2720H, AGWPE Pro. ... It has much better controls to tweak the timing and sound interface and easier to set up than the free version. Paclink Version 0.2.13. I used a mag mount 5/8 whip for 2M.. and let Bud use the more sophisticated antenna system.

So that we could demo a real multicomputer network in the field all sending and receiving email over one Ham Radio, we also connected an 8 Port Ethernet Switch and a couple of extra 1.3 GHz Portable Dell computers. [Huge overkill] Included erecting the mobile tower, assembling the beam and turning on Harvey's mobile generator, the entire system -4 computers and networks took less than an hour to set up.

For VHF, Bud and I connected through VHF Packet at 1200 Baud over W6IM-1 at 145.010 in San Diego. For HF, Bud connected through a PMBO in Washington State on 20M.

Bud and I were able to demonstrate several operational modes.. we sent emails using VHF to VHF Telpac links ... VHF Telpac to HF PMBO links. I had a Blackberry with me and we sent email back and forth to it. as well. The systems worked flawlessly.

The main point of the demonstration was how quick and easy it was to set up a Winlink 2000 system in the field and MORE IMPORTANT... how easy it was for users with no experience to use it... People only had to sit at a computer, and send an email over a familiar client, Outlook Express.... WITH NO SPECIAL TRAINING...Everyone marvelled at the incredible ease of use.. Several commented at how useful Winlink would have been during last year's fire storms. One suggested that we could have set up a network of computers in shelters so people could send emails to family and friends that they were still alive and well.

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CLUB MEETING FRIDAY NOV. 19, 7:30 P.M.



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Greetings once again. The session today was in many respects quite special. We were very pleased to welcome new participants Julie KC6DLE, Frank N6FW from the SLVARC, Barry K3KOA, Rod KQ6F, Don W6IBN and Steve Davis a senior officer from the USFS.

The session started in our normal, dare I say, "wild manner" Ron provided a mystery object and it was not long before it was decided it comprised two tuned cavities. The bonus question was what is the frequency of these cavities. Estimates ranged from a low of 100 MHz to lower microwaves. My guess would be somewhere between. Incidentally this object would make an excellent lamp base, silver plated and all.

Dave W8FLL demonstrated a cold soldering tool, more like a miniature welder. On balance I think I will stay conventional. Dave. Pat once again showed us the \$3:00 multi-meter available from Harbour Freight. Makes you wonder what the mark-up on this item might be. Pictures of a 50 KW antenna tuner were circulated and it was not disclosed which ham runs this power level.

Cap mentioned a software package for creating and editing pdfs called pdf995

The focus topic for the day was the use of 802.xx Wi-Fi technology and a reasonable

question is "What has this to do with Ham Radio?" Unlicensed Part 15 users share part of the 2.4 GHz amateur band with us as licensed Part 97 users and perhaps more significantly the ARRL sees the use of Commercial Off The Shelf (COTS) products as a starting point for the development of amateur High Speed Multi Media networks for the future. Ron passed out copies of an article that appears in the current edition of QEX. A good url for more info is <www.ceitron.com/mvus/hsmm1003.html> We considered a variety of antennas useable at 2.4 GHz.

An exciting opportunity for us has emerged from the visit to CSUMB yesterday by Jim N1IPP, Barry K3KOA, Pat AA6EG and Ron W6WO. The session was the Wireless Community & Mobile User Conference. Attendance was well over 100. We introduced ourselves to Arlene Krebs, Director Wireless Education and Technology Center and spent a considerable time with John Ittelson K6JCI who is in charge of their idea-lab. John is a member of MBARA. It was an exhilarating conversation because it became clear that they want to develop a wireless backbone and see collaboration with amateurs as the way to do that under Part 97 rules. We came up with the idea of a joint workshop to explore what we have to offer one-another and have decided that this should become our CAKE meeting scheduled for 10:00 November 20th. Directions and agenda details will follow. I would like to give John an indication of how many will attend as I understand he will provide lunch. Let me hear from you. A visit to N6IJ can no doubt be arranged for the afternoon

So as not to burden all members an email list will be compiled for future messages on 802.xx topics. I will assume regular CAKE consumers will be included. If you have not already done so and want to be on it please get in touch with Ron W6WO. By the same token if I include anyone who does not need to be involved, be sure to let me know.

Steve told us that the fire towers were no longer required for forest management but if they can provide other forms of valuable public services they may be retained instead of being dismantled. We told Steve that we could envision them being used for remote unattended, solar-powered wireless repeaters to support various research and emergency activities. Our club should consider writing to Steve to record our interest.

BTW the 3rd anniversary of CAKE arrives in a couple of weeks time.

— 73 Ron, W6WO

802.11—HP WREN

For those who like me may be beginning to sit up and smell the roses about the ARRL HSM project I strongly recommend browsing the general description of the High Performance Wireless Research and Education Network. <http://hpwren.ucsd.edu/info/images/baker.doc>.

I note that HPWREN is using 802.11 modulation in the 2.4 GHz band. This band is being shared by unlicensed Part 15 users and ourselves as Part 97 users. According to the recent QEX article we as licensed users can operate with higher power levels than unlicensed users.

Clearly there will come a time when coordination between users of the spectrum will be required for peaceful coexistence. I did not find detail about the HPWREN power levels or channel usage and it would be interesting to know if and how coordination with Amateurs is taking place in the San Diego area.

We may see networks like HP WREN in this area sooner rather than later.

Do any of you have contacts in the SD area who might know how they are dealing with questions of spectrum use ?

Just a reminder that we will begin discussions on the use of 802.XX at our CAKE meeting on Saturday. Especially welcome are those with 802.XX experience.

—73 Ron, W6WO

WinLink Demo cont.

Our Demo went from 8 AM to 2 PM. We had a constant flow on very interested visitors, some of whom had driven hundreds of miles just to see Winlink 2000 in operation. We had visits from several Served Agencies..and at least two Agencies decided on the spot that they wanted Winlink systems.. One even went so far as to state that since the local San Diego ARES had shown no leadership, that they would put it in on their own Winlink systems and when San Diego ARES finally stopped objecting to Winlink that they might even invite ARES to operate their systems.

I have to thank Tuck Miller, NZ6T, ARRL Vice Director, for showing leadership by coming up with the last minute idea to include Winlink in the Roundup .

Even though we had less than a week to prepare it went flawlessly. That alone says a lot for the simplicity and ease of use of Winlink.

RF SAFETY

Many thanks to Ron, W6WO for the presentation on RF safety to the Santa Cruz County Amateur Radio Club (and the link to <http://n5xu.ae.utexas.edu/rfsafety/>, which provides a very official-looking and persuasive document to show interested neighbors and friends their estimated RF power density exposure in your shack, or their home, and how that relates to Maximum Permissible Exposures.)

A second, but no less interesting, observation was noted in page 2 of Ron's handout ("Is Amateur Radio Hazardous to Our Health?," by Dr Ivan Shulman, MD, and reprinted from Oct 1989 QST.).

I had heard the claims of excess mortality from multiple myeloma and non-Hodgkin's type lymphomas in RF technicians and operators...(conclusions befuddled by contaminating variables such as PCB's, solder fumes, toxic chemicals etc.)

However, the following came as something of a surprise. Because not everyone had access to the reprint (or made it through that far) I append the following paragraph. (Italics and Caps are mine):

" No other cause of death was noted to be higher than normal in the amateur population, and in fact, several important and common causes of death were LESS than what would be expected from the population as a whole. Deaths due to **CANCER OF THE PANCREAS, AND THE LUNG**, as well as **ALL DEATHS DUE TO RESPIRATORY DISEASES (PNEUMONIA, ASTHMA, EMPHYSEMA), CIRCULATORY DISEASES** (those of the heart and blood vessels) and **ACCIDENTS** were less in amateurs as a group than in the overall population. It was even suggested that there are fewer cigarette smokers among members of the American Radio Relay League than in the general US population as a whole."

Perhaps the less-smoking thing is because hams, by and large, are frugal types, and it is common knowledge that nicotine stains lower the resale value of our rigs. The accident thing is probably because we understand better than most the real risk of falls and make it a habit to "Buckle Up." However, as a trained epidemiologist (UCLA School of Public Health, 1979) the other findings are intriguing. Lung cancer, heart attack, vascular disease, emphysema, and pneumonia, are some pretty heavy hit-



By Art Lee WF6P

CHATTER

Antenna grounding time again! Black clouds rolling across the sky at high speed are something to look for. Of course at night, they are tough to see. I'm getting good at remembering to flip that antenna switch after shutting down the rig. Don't you hate to leap out of bed before dawn when you hear an ominous rumble and rush to the switch, only to realize it's the garbage truck making its rounds. Then you remember that you already put the switch in the ground position the previous night. Ah, climbing back into the warm feathers is comfortable.

Got a call from Dave Rawley, N6RZ, offering four 12 volt batteries. The price was right, free. Dave was getting rid of them as he is converting to gel cell batteries. I put the word out over the K6BJ reflector to call him at 426-6691 if you wanted to pick them up. It is always handy to have a good power source when PG&E crews are trying to restore downed power lines during a winter storm. When Lloyd Cabral left for his new QTH in Hilo, Hawaii, he couldn't take them with him. Dave said they were discarded by the telephone company and salvaged by Lloyd, but they were in good condition.

I have been enjoying the monthly CAKE meetings. Lotsa tech talk mixed in with good old coffee drinking and breakfasting at GiGi's cafe. There is always an interest-

ters when it comes to things most people would rather not have; and it isn't easy to show that an activity (or medicine for that matter) is "good" for you. Not even the newest high-tech medicines (or herbs, or vitamins, or jogging) can claim all that, but now apparently Kenwood, I-Com, Yaesu and Elecraft can. In trying to document how hazardous our hobby is, it appears at first glance that the opposite has been accomplished.

—73 de Barry NR6S

ing show-and-tell project for us to pass around and discuss. The meetings are social in nature and quite different than our SCCARC meetings. Ron, W6WO, takes notes and ensures that everyone is greeted and has an opportunity to participate. Keep up the good work, Ron.

Leon Fletcher, AA6ZG, and I had lunch at the Crow's Nest last week. A 50 foot wooden sloop was tied up at the fuel dock. The skipper was single-handing and told Leon that he put in to our harbor to get some sleep. His crewmember cancelled on him in Washington state, and being alone, he had no sleep for the past 3 days at sea. The boat was a Hunter and built in 1942. It was in great shape, new sails, rigging, and "we counted" five anchors. I didn't get a chance to talk to the skipper but we did not see any ham antennas on board. If I were single-handing, I'd really want ham gear so I could talk to people. His destination was the Caribbean, via the Panama Canal. The next day when I went to interview the skipper, he and his boat were gone. A person can get mighty tired at sea. Once I fell asleep while standing up!

Was talking to Terry Parks, N6NUN, yesterday. He is using software enabling him to talk over his computer and hit repeaters all over the world. He talked to a ham in London over their local repeater. This technology has been around for a while, and the software is free. Maybe this will be a good topic of discussion at the next CAKE meeting?

Thanks Cap, KE6AFE, for listing your home phone number as a contact for ham radio emergency purposes. (See page 14 of the Emergency Watch: The official emergency preparedness guide for Santa Cruz County.)

License Study Guides Needed

We have recently been asked to assist a prospective ham obtain a licence and would like to make available a copy of a Gordon West or ARRL study guide.

Please step forward and offer any such publications for entry level or more advanced licenses so that the club can provide them to deserving cases.

Please let Cap KE6AFE, know what you have to offer.

SCCARC Board - 2004

President	Vic Linderholm	AE6ID	476-5567
Vice President	Scott King	AH6KL	688-2296
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	David Shoaf	KG6IRW	462-4605
	Rich Wadsworth	KF6QKI	722-7005
K6BJ Trustee	Royce Krilanovich	AC6Z	475-4798

MONTEREY BAY ACTIVITY

- SCCARC Repeaters: K6BJ 146.790- PL 94.8 Santa Cruz (linked w/Watsonville full time)
 K16EH 147.945- PL 94.8 Watsonville (linked w/Santa Cruz full time)
 K6BJ 440.925+ PL 123.0 Santa Cruz
 • SCCARC Net Monday 7:30 PM 146.79- /147.945- /440.925+ linked
 • SCCARC 10 Meter Net 28.308 MHz USB Monday 7:00 PM
- SLVARC Repeater WR6AOK 147.120+ PL 94.8 Ben Lomond
 • SLVARC Net Thursday 7:30 PM
- LPRC Repeater WR6ABD 146.640-(PL 162.2)
 • LPRC Net Tuesday 8:00 PM
- NPSARC Repeater K6LY 146.97- PL 94.8 Naval Post Graduate School, Monterey
 • NPSARC Net Wednesday at 8 PM on K6LY/R
 52.8 MHz (PL-114.8) Sunday 8:00 PM
- 6 Meter Local Net
 ARES Nets
 • SC ARES Tuesday 7:15 PM K6BJ 146.790-(PL 94.8)
 • SLV ARES Tuesday 7:00 PM W6JWS 146.745-(PL 94.8) & WR6AOK 147.120+(PL 94.8) on alternate Tuesdays
 • South County ARES Tuesday 7:15 PM K6RMW 147.00+ (PL 94.8)
 • LP ARES Tuesday 7:15 PM AE6KE 146.385- (PL 98.4) & AB6VS 440550+ (PL 94.8) linked
 • SC County ARES Tuesday 7:30 PM 146.79- / 147.945- / 440.925+ / 147.180+ (all PL 94.8) (linked)
 • Monterey ARES Net Wednesday 7:30 PM K6LY 146.970- (PL 94.9)

FOR MORE INFO SEE: <http://www.k6bj.org/freq.html>

SCCARC Calendar of Events

ARES Statewide Hospital Drill	Thursday	Nov 18
SCCARC Board Meeting 6:30	Friday	Nov 19
SCCARC Meeting	Friday	Nov 19
Short Skip Deadline	Friday	Jan 7
SCCARC Meeting	Friday	Jan 21

MONTHLY MEETINGS.

The SCCARC Meets at 7:30 PM, on the **THIRD FRIDAY** of the each month (except December). Meetings are at Dominican Hospital, 1555 Soquel Drive, Santa Cruz.

SCCARC Website at - www.k6bj.org

CLUB E-MAIL: yourcall@k6bj.org

INTERESTING SITES

Earthquakes	http://quake.wr.usgs.gov/recenteqs/Quakes/nc51151992.htm
RF Exposure calculator	http://n5xu.ae.utexas.edu/rfsafety/
Project Oscar	http://www.projectoscar.net/beacon.php
WiFi HPWREN network	http://www.npaci.edu/online/v6.25/hpwren.landsat.html
Winlink 2000 network	http://winlink.org/features.htm



SANTA CRUZ COUNTY AMATEUR RADIO CLUB
 P.O. BOX 238
 SANTA CRUZ, CA 95061-0238

SCCARC Meeting: Nov 19, 7:30PM

Election of Club Officers and Board Members

Holiday Lunch December 11 at Marie Callender's



Mystery Object—What is it? How much did it cost (new)?
 Send your reply to W6WO

First Class