Willits Amateur Radio Society

The objectives of the Willits Amateur Radio Society are:

- to promote interest in fellowship and fun in Amateur Radio;
- to further the cooperation between Mendocino County Amateur Radio Operators;
- to provide emergency or public service communications when normal means of communications are disrupted;
- to advance the state of the Amateur Radio art through individual and collective research;
- to conduct programs and activities so as to increase the general interest and welfare of Amateur Radio in the community including classes and testing;
- to support lawful, responsible conduct by its members and the amateur fraternity in general.

WARS OFFICERS for 2008

PRESIDENT: Tim Hanna, WB9NJS
SECRETARY: John Lemmer, W6FQX
TREASURER: Dean Durbin, KE6COB
WEBMASTER: Danny Richardson, K6MHE
TRUSTEE OF W6MMM, Tim Hanna, WB9NJS
NEWSLETTER EDITOR: John Lemmer, W6FQX

WEB PAGE: http://www.k6mhe.com/wars
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The Willits Amateur Radio Society meets at 7:00 PM on the **fourth** Monday (not the last Monday) of each month except for December. The normal meeting location is the Brooktrails Fire Station on Birch Street in Brooktrails.

There is a weekly informal breakfast meeting held every Tuesday morning starting at 9 AM at Perko's Restaurant in Willits.

On the coast, there is also a weekly Koffee Klatch starting at 10:30 AM on Tuesdays at the Tradewinds Restaurant in Fort Bragg and a informal breakfast meeting held every Friday starting at 8:30 AM at Denny's Restaurant in Fort Bragg.

From the prez – April 2008

Due to Tim's out of state work assignment, he was not able to prepare his column in time for the webmaster to post this newsletter on the web site before he left the area. This newsletter was posted on Sunday, April 20.

Tim did suggest that the meeting on April 28 be a junk box swap night in which attendees could bring treasures from their personal junk box that they no longer wanted. You can give your goodies to another or even swap for what you want.

LAST MEETING

The last regular meeting was held on March 24 , 2008. The program was a presentation by our own Danny Richardson, K6MHE, about HF baluns – what they are, how they work, and when they don't do what they are expected to do.

Danny has tested a number of commercial and home made baluns using some specialized test equipment. What was the most surprising result is that the commonly used W2AU type voltage mode balun fails miserably in blocking the flow of unbalanced RF currents from flowing along the outer surface of a coaxial cable shield connected to a nominally balanced antenna.

The results of Danny's investigations were that current mode baluns such as the W2DU type or simply ferrite cores applied to the coaxial cable near the antenna connection were much more effective in blocking the unbalanced current flow and subsequent distortion of the antenna pattern. Slip on and clamp on ferrite cores are effective at the higher frequencies but the lower frequencies might need multiple turns of the coaxial cable through large diameter toroidal cores.

WARS members may want to go to the Members Only section of the web site and check out the papers that Danny has posted there for more information. You will need the members only password to access these papers.

NEXT MEETING

The next regular meeting of the Willits Amateur Radio Society will be held on Monday, April 28 starting at 7 PM in the Brooktrails fire station. The program will be a hands-on presentation by our own Janet Rayner, KI6FRT, and practice session on How to Draw.

This will be a lesson taking about an hour using graphite pencils and ordinary paper teaching the students how to observe an object and transfer an image to paper.

Janet has taught this technique to multiple groups, both adult and child, and has found that everybody was interested. Janet is an accomplished artist. To see some of her work, go to www.janetrayner.com. This is a change from the usual technical or operating programs but promises to be an entertaining session.

TEST SESSIONS

To locate posted test sessions, go to http://www.arrl.org/arrlvec/examsearch.phtml and enter your ZIP code and mileage radius for which you are interested in traveling to.

To schedule a test session in the Willits area, please contact Jay Haegele, K6AFL, using the contact button on the WARS web site. If a group of 5 or more wish to be tested, Jay can arrange that.

NETS

A number of communities have been holding a weekly local net. Here is a listing of what is known at this time:

Albion	Monday	3:00 PM	147.570 Simplex
Brooktrails	Wednesday	7:15 PM	146.580 Simplex
Hopland	Wednesday	7:00 PM	146.430 Simplex
North Coast	Wednesday	7:00 PM	146.520 Simplex
Gualala/Point Arena	Tuesday	7:00 PM	147.825/146.610 Linked
Piercy/S. Humboldt Co.	Monday	7:00 PM	146.790/146.940 Linked
Redwood Valley/Ukiah	Wednesday	6:00 PM	146.490 Simplex
Willits	Wednesday	7:00 PM	146.460 Simplex

All stations within the range of the net control station are invited to check in either on a regular basis via roll call or as a visitor. Net control duties usually rotate among the regular participants. The use of simplex frequencies for local operations is being emphasized in order to reserve the repeater facilities for wider area communications in the event of a major disaster.

There is also a county-wide net at 7:30 PM on Wednesdays using the linked facilities of the 147.390 repeater on Laughlin Ridge, the 145.430 repeater on Cahto Peak near Laytonville, and the 145.470 repeater on Sanel Mountain near Hopland. The initial roll call for this net is for the net control operators of the various communities although there is usually an open call following the initial roll call. Net control duties for this net are rotated between the various communities participating.

All of these nets are organized under the auspices of the Mendocino County Amateur Radio Communications Service (McARCS), an association of amateur operators

interested in preparing for communications in the aftermath of a disaster. There is a new web site for McARCS. Please check out http://mcarcs.org.

2008 CALENDER OF EVENTS

Here are some of the interesting events in ham radio this year. Check out the web sites listed for more information.

If you know of some more interesting events, please communicate that to the editor of this newsletter.

MONTH/DATE	EVENT	CONTACT or INFO .
May 3	VOMARC Hamfest, Sonoma	www.vomarc.org/
May 16-18	Dayton Hamvention, OH	www.hamvention.org
May 31	Fresno Hamfest, Fresno	www.w6to.com/
June 7-8	SF Section Conv., Ferndale	www.humboldt-arc.org
June 6-8	VHF Contest from Walker Ridge	WB9NJS
June 28-29	Field Day	Open
July ?	WARS Picnic	Open
August 30	W6OMF Hamfest, Vacaville	www.qrz.com/W6OMF
September 12-14	SW Div. Convention, Mesa, AZ	www.azhamcom.org
September 12-14	VHF Contest from Walker Ridge	WB9NJS

PUBLIC SERVICE OPPORTUNITIES

Here are some of the public service communications opportunities in the upcoming months in Sonoma and Mendocino Counties:

You might want to put these events on your calendar and plan on participating. Please contact Craig Gaevert, K6XLT, at 545-4133 or cgarch@sonic.net for more information on the Sonoma County events. The Sonoma County Radio Amateurs (SCRA) club is coordinating the ham radio communications for these events in Sonoma County.

May 3, Wine Country Century
This is a bicycle ride (not a race) with some 2500 riders covering various courses of 35 miles, 100k, 100 miles, and 200k respectively -- rider's choice at registration time. Start and finish at the Wells Fargo Center for the Arts north of Santa Rosa. Start time 6:30 AM for the longest route. SCRA gets a donation for providing radio communications. Google "Wine County Century" for more information.

May 4, MS walk in downtown Santa Rosa
I have no information about this event.

May 10 Human Race
This event is occurring in many cities on this date.
This volunteer organization fund raising event also is occurring in Ukiah and is being coordinated by North County Opportunities. For information on participating on this 5k/10k walk or run event, contact Christine Dektor, KI6ISH in Ukiah at cdektor@ncoinc.org or 467-3200. Last year several Mendocino County hams participated in this event by passing status traffic on various runners and walkers that needed assistance.

June 21 The Terrible Two
According to the SCRA newsletter, "(if you only work one event a year, this is the one)" This is a 200 mile bicycle ride starting in Sebastopol, going through Santa Rosa and east into the Napa valley and back, up to the Russian River near Cazadero and back to Sebastopol. 5:30 AM start, finish 11 PM. SCRA gets a donation for providing radio communications. Google "The Terrible Two" to get all the details.

August 23, The YWCA Ride
This ride of 10k, 50k or 100k (rider's choice) is a fund raiser for the Sonoma County YWCA. As with many of these rides, the riders get a BBQ lunch out of the contributed funds and entry fees. A Google search of "The YWCA Ride" yields only sketchy information about the 2008 ride but there is more information about the 2007 ride.

September 13-14, Waves to Wine.
Another bicycle ride. This is a two day bike ride from AT&T park in San Francisco to Sonoma County (with an overnight festival) ending up in Sonoma. Two legs, each of 75 miles. This is a fund raiser for MS. Google "Waves to Wine" for more information.

BUY, SELL, TRADE, OR GIVE AWAY

This space can be made available for your ham radio related equipment that you wish to transfer ownership to another. Please provide your ad as a Word or compatible format as an attachment to an email to the editor of this newsletter,

CONTRIBUTIONS WANTED

If you have written an article relating on any way to ham radio and are looking for a publisher, please submit it to the editor of this newsletter. Just send it as an email attachment in a Word or compatible format. (I can open nearly all modern word processing programs but may have to edit some of them into a Word format.)

If you have run across a published article in another medium that you think should be published here, let me know. We may have to obtain permission to publish it but this is generally not a problem for ham radio related publications.

REALLY BIG ANTENNAS

Do you judge an antenna by its physical size, by the number of elements, by the effective signal gain, or by the effective capture area? Any of these are useful but here are the facts on a number of really big antennas.

DSIF

At the start of the US space program in the late 1950s, the largest antennas used were in what was known then as the Deep Space Instrumentation Facility. This was a series of three steerable parabolic dish antennas at Goldstone Dry Lake near Barstow California, a similar dish near Madrid Spain, and one near Canberra Australia respectively. These antennas were (and still are) approximately 85 feet in diameter. The major use of these antennas were in tracking and control of deep space probes using signals on the S band at about 2200 MHz. At this frequency, the theoretical signal gain is in excess of 50 dB and the 3 dB beamwidth is less than 0.4 degrees.

The DSIF antennas have separate azimuth and elevation motor drives. These antennas could be steered in both azimuth and elevation by sophisticated motor drives using simple computer commands corrected by the use of multi-element feed horns providing corrections so as to provide equal signal strength into the four separate elements. Position pointing accuracy has been much improved since that time.

Joddrel Bank (Spelling varies)

When additional gain was needed to receive extremely weak deep space signals in the late 1950s and well into the 1970s, the 250 foot diameter radio astronomy facility at Joddrel Bank England was pressed into service. The theoretical gain of this Lovell antenna at S band is in excess of 60 dB. This antenna, with a weight of around 3.3 million pounds, has an elevation drive consisting of a semicircular truss cage with a motor drive mechanism. The entire antenna is rotated for azimuth on a circular structure rotating on what is similar to a railroad track.

Arecibo

You may have heard of the radio astronomy antenna at Arecibo in Puerto Rico. This antenna is a roughly spherical antenna made up of 38,778 perforated aluminum plates in a bowl shaped depression between peaks and ridges and extending into the valley. The diameter of this antenna is approximately 1000 feet but the spherical shape considerably reduces the gain over a parabolic dish of the same diameter. The bowl depth is approximately 167 feet. The effective beam is pointed by moving the receiving element to various places over the bowl in much the same manner as the overhead camera at a football game using a network of 18 steel cables strung from three concrete towers as much as 365 feet high around the perimeter of the bowl..

The major use of this facility is radio astronomy although there are some radar type transmitters for ionospheric studies and planetary astronomy. The ionospheric studies radar operates at 430 MHz with a peak power of 2.5 MegaWatts and an average power

of 150 kiloWatts. The planetary astronomy radar operates at 2380 MHz Watts at 1 MegaWatt average power. Receiving capability ranges from 50 MHz to over 10 GHz.

DSN

The facilities at Goldstone and elsewhere have been upgraded with new (additional) parabolic dish antennas. This is now called the Deep Space Network. The diameter of these new dishes is approximately 230 feet with the weight of the elevation elements and dish being over 4 million pounds. All of this weight is supported on just two bearings. The azimuth tracking rotates the entire structure on a set of rails with a total weight of approximately 6 million pounds.

Much of the signal reception from deep space probes is now being conducted in the X band at about 10 GHz. The theoretical gain of these antennas at these frequencies is approximately 75 dB with a beam width of considerably less than 0.1 db. The DSN also has an X band radar that can use these dishes. The transmitter reportedly has an average output power of 500 kiloWatts.

These 230 foot diameter antennas are merely the newest and largest of the Goldstone antennas. There a number of other antennas there and their internet site is very interesting.

MWA

The Murchison Wide Field Array is being constructed in the western Australian Outback out of a set of fan shaped dipole antennas consisting of 512 “tiles” each consisting of 16 dipoles. That is 8192 elements with a total capture area of approximately 88,000 square feet or approximately 2 acres. All of these elements can be combined through computer controlled phase shifting elements to position a receiving beam anywhere in a nearly hemispheric coverage of the sky.

The useable frequency range of this array is 80 to 300 MHz. The beamwidth at 150 MHz is approximately 25 degrees. As this is a radio astronomy array, naturally the beam is pointed at the sky so the possibility of terrestrial DX appears remote.

The gain at any frequency is not being specified although it could be in the 40 dB range. More important is the capture area.

One asks about the frequency range of this array. Believe it or not, this is the range of the “red shifted” signal from the ionized hydrogen emissions at around 1500 MHz from the more distant and more rapidly moving away galaxies.

LOFAR

The Low Frequency Array being constructed by the Netherlands Foundation for Research in Astronomy (ASTRON in Dutch) will consist of some 15,000 small antennas distributed over 77 stations in the Netherlands and Germany. The baseline for this system extends over an area of approximately 100 km (or 62 miles).

There are plans for expansion of the network into Scandinavia and into Great Britain. The system expansion plans call for more than 25,000 antennas with baseline diameter of approximately 350 km (or 220 miles).

Each antenna in the baseline system consists of what is similar to inverted-Vee antennas with multiple element wires and optimized for reception over the range of 10 to 240 MHz. The expansion zones may have somewhat different antenna configuration.

Each station forms it's own beam using computer controlled phase shifting elements. The data from all stations is combined for processing by some very large capability computers.

Other Large Antenna Arrays

A number of other very large antenna arrays are being planned. These include the One Mile Array and the Square Kilometer Array all designed to capture the very faintest signals from deep space.

SETI

No discussion about very large antenna arrays aimed into space cannot avoid the subject of the Search for Extraterrestrial Intelligence. Many people think it would be better to search for terrestrial intelligence. Be that as it may, the essential output of the MWA and LOFAR in particular consists of a digitized data stream representing what is being received at any particular time. This raw data is planned to be made available on the internet for any one or group to try their own analysis of what might be out there.

My personal view is that, since we are just now at the edge of the capability to conduct this "search", any other civilization is either far behind us (and thus not radiating signals) or is far ahead of us – in which case maybe we should be quiet. In any event, signals from far away will be extremely weak and buried in noise so perhaps we should not worry.

For more information on any of the above subjects (except perhaps for DSIF), just Google the term and see what you get.

Older Than Dirt

How many do you remember?

1. Blackjack chewing gum
2. Wax Coke-shaped bottles with colored sugar water
3. Candy cigarettes
4. Soda pop machines that dispensed glass bottles
5. Coffee shops or diners with tableside juke boxes
6 Home milk delivery in glass bottles with cardboard stoppers
7. Party lines
8. Newsreels before the movie
9. P.F. Flyers
10. Butch wax
11. Telephone numbers with a word prefix (Greenfield - 6933)
12. Peashooters
13. Howdy Doody
14. 45 RPM records
15. S&H Green Stamps
16. Hi-fi's
17. Metal ice trays with lever
18. Mimeograph paper
19. Blue flashbulbs
20. Packards
21. Roller skate keys
22. Cork popguns
23. Drive-ins
24. Studebakers
25. Washing machine with wringers
26. Head lights dimmer switches on the floor.
27. Ignition switches on the dashboard.
28. Heaters mounted on the inside of the fire wall.
29. Real ice boxes with iceman delivery.
30. Pant leg clips for bicycles without chain guards.
31. Soldering irons you heat on a gas burner.
31. Using hand signals for cars without turn signals.

If you remembered 0-5 = You're still young
If you remembered 6-10 = You are getting older
If you remembered 11-15 = Don't tell your age
If you remembered 16-25 = You’re getting ancient
If you remembered more than 25 = You’re older than dirt!