Sierra Signals

Sierra Foothills Amateur Radio Club
Auburn, CA
An ARRL Special Service Club

December 2008 P.O. Box 1005, Newcastle, CA 95658

ARISS Commemorative Event – 25th Anniversary of Ham Radio in Space

(Submitted by Greg, KO6TH with permission of Frank Bauer, KA3HDO)

Twenty-five years ago this week, Owen Garriott, W5LFL, made history by being the first amateur radio operator to talk to hams from space. Owen's historic flight on the STS-9 Space Shuttle Columbia mission was launched on November 28 and landed on December 8, 1983. Owen's ham radio adventure on STS-9 ushered in a host of outstanding outreach activities that continue today with the ARISS program.

Many will recall that first set of contacts and downlinks with Owen. Those first contacts allowed each of us to share the excitement of space exploration through Owen's first-hand eyewitness accounts. Owen's ham radio legacy enabled space travelers that have flown on the Space Shuttle, the Space Station Mir and now the International Space Station to share their journey of exploration. And Owen's son Richard, W5KWQ just a month ago carried the torch further to become the first 2nd generation amateur rdaio operator to talk to hams from space. What other hobby, except amateur radio, could or would open the communications lines of space travelers beyond that of the space agencies or international heads of state??

(*continued on page 2)*

2008/09 Calendar of Events

Dec 6	**VE Session – 8:00 – 10:00am**
	Raley's - Douglas/Auburn Folsom
Dec 12	**Regular Meeting – Annual Christmas Dinner**
Dec 29	**Club Breakfast – Susie's – Cirby/Riverside**
Jan 3	**VE Session**
Jan 9	**Regular Meeting – Annual Christmas Dinner**
Jan 31	**Club Breakfast**

At the Key of S.F.A.R.C.

OFFICERS

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Satellites: Greg, KO6TH
History: Gary, KQ6RT
Misc Radio: Fred, K6DGW

RESOURCES

REPEATERS
145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 94.8)
223.860 (-1.6 MHz/PL 100.0)
CLUB NET
Thursdays, 7:30PM, K6ARR/R 145.430
CLUB MEETINGS
Second Friday of the month, 7:30PM at the Library, 350 Nevada St, Auburn CA
CLUB BREAKFAST
Last Sat of the month at Susie's Café, Cirby at Riverside, Roseville – 8:00 AM
NET CONTROL OPS
Dave Jenkins, WB6RBE
Gary Cunningham, KQ6RT
Norm Medland, W6AFR
Casey McPartland, W7IB
EDITOR
Deb Cunningham, KF6LXN
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We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

50 Years Ago At The SFARC

(Reported by Gary, KQ6RT)

The meeting of December 3 was brought to order by Vice-President Jerry Murch, in the absence of President Woods.

Elections of officers was held and the following were elected: President-Theron Woods, Vice-President - Don Richier, Secretary - Kay Woods, Treasurer – Arlene Murch, Activities Manager – Frank Towne.

The telephone tour was postponed because of the illness of Bruce Witwer.

The motion was made the president or secretary write to Pan American Airways or other places for free club QSL cards.

The door prize was won by James Carman.

The meeting was adjourned early and most of the members were treated to coffee at the Koffee Kup, thanks to Buzz LaBonte.

These minutes are respectfully submitted for correction or approval.

Secretary

Arlene Murch

73,

Gary

KQ6RT

ARISS...

(Continued from front page)

To celebrate our 25 years of amateur radio operations from space, the ARISS team has planned a set of special event opportunities during the month of December and part of January. A special certificate is being developed for those who communicate with the ISS, either 2-way direct (with the ISS crew, the digipeater, or cross band repeater), or 1-way reception of SSTV or voice downlink. Several events will be described here with several "surprises" planned over the month-long celebration. The surprises will be announced once we are prepositioned to accomplish them.

Specifically, the following is being planned in the near-term:

December 1-5--in addition to school contacts and APRS digi operations, we plan to configure the radio system for cross band repeater operations. This will utilize the standard U/V operations in low power mode. ---December 7-12 we will run a test of 9600 baud packet operations on the simplex frequency 145.825 MHz. ---Given that PCSAT should be in full sun starting December 9, December 14-19 we will switch to 1200 baud packet on 145.825 to support double hop opportunities. -- And at times, especially during the weekends, you might see some SSTV operations if the crew is available.

We will provide more updates in the near future. We would like to remind everyone that ISS flight requirements related to EVA and vehicle activity may require the radio to be off for some portion of this schedule. And school contacts and general QSO opportunities by the crew will also preempt this schedule for short periods of time. (But remember that if you hear these, you still qualify for a commemorative certificate).

In the meantime, enjoy the ARISS ops on ISS! And congratulations to Owen Garriott, W5LFL, on the 25th anniversary of his historic flight!!

73,

Frank Bauer, KA3HDO

AMSAT-NA V.P. for Human Spaceflight Programs

ARISS International Chairman

November Meeting Minutes

(Reported by Wayne, W6DT)

Minutes of the Meetings of November 14, 2008

Board of Directors Meeting

The meeting of the Board of Directors was called to order at 7:00 PM, a quorum being present.

In light of the treasury balance being approximately $1400, a discussion took place regarding how much money to recommend that the members authorize to be offered as a main prize drawing and how much to donate to the Church where the party will be held. The result was $150 for the drawing and $200 for the Church. Our annual insurance bill of $320 was discussed.

Food for the Christmas party was discussed.

The meeting adjourned at 7:25 PM.

Meeting of the General Membership

The membership meeting was called to order at 7:30 PM by President Don Hay, WB6LPJ.

Flag salute was followed by introduction of officers, members and guests.

Ron Murdock,W6KJ, our ARRL section manager, was present to update the club the ARRL and answer general questions. The restrictions on 440 was a big topic. On behalf of the ARRL, Ron donated some publications to the club.

Dave, NA6DF, advised that he has a new store, Radio Supply Company at 4055 Grass Valley Highway, Suite 105, in Auburn. Dave has an extensive background in broadcast radio, commercial and mobile installation and maintenance. He has many amateur items, has a consignment section and can do

mobile installations. He will be able to obtain special orders for most amateur needs if he does not have in stock.

Leslie, K7NYE, our treasurer advised the club that we have approximately $1340. Membership dues for 2009 will start to be collected next month.

Chuck, KG6FFR, gave an ARES report.

Birton, N6UG, updated the club on the backup repeater status.

Motions were made by Bob, WA6ULL, and seconded by Michele, KD6QQW, to authorize expenditures for the Christmas Party drawing of $150 and for a donation to the church of $200.

Elections for officers for 2009 were held. All nominees, volunteers or those Shanghaied were elected. They are, for President, Norm, W6AFQ, Vice-President, Al, NI6U, Treasurer, Leslie, K7NYE, Secretary, Wayne, W6DT, and George, KG6LSB, Curt, N6RS and Chuck, KG6FFR for Directors.

The meeting was adjourned at 9:45 PM.

Respectfully Submitted,

Wayne Stilwell, W6DT

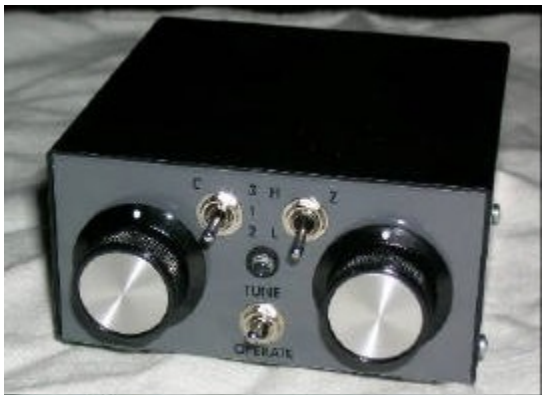
Secretary

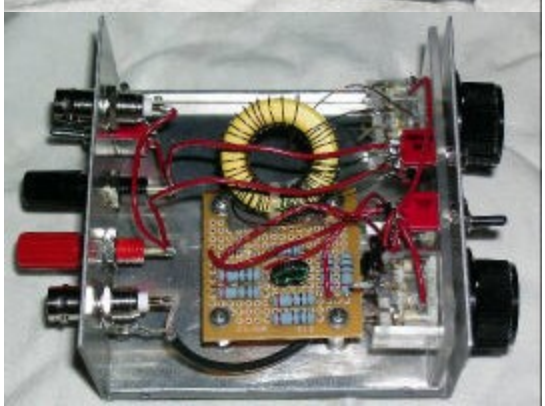
Miscellaneous Radio

Antenna Simulation

Part 1 – "What is Antenna Simulation?"

Many of us "historical hams" entered the hobby via the (then) new Novice license, a great number as teenagers. Lacking money, the concept of building your own equipment, often with reclaimed parts, was in full flower. It was much easier then, you could actually see and pick up the parts, see and read the value printed on it, you literally "wired" your project with hookup wire and solder, and transmitters (and even receivers) were much simpler than today's equipment. Things are a lot different today. Instead of hookup wire, we have PC boards. Instead of wax impregnated paper capacitors that we can hold with our fingers, we have tiny little tantalum capacitors, and in recent equipment, we have surface-mount parts that are the size of a flake of pepper and will disappear forever if you sneeze near them. Forget about reading their value, were it even printed on the part. As a result, home-brewing radio stuff has declined a great deal. Some still persists in the QRP world, the photos are a QRP Z-Match built for me by Dave, W8FGU. Dave is a firefighter in Brownstown MI, a suburb of Detroit, and a good friend (the Z-Match is an intriguing matching technique which we might take up in the future).





But, one area of ham radio remains ripe for experimentation and home-brewing … antennas. The ham literature has grown to have a lot of guidance regarding many forms of antennas … it was and probably still is typical to pick some configuration you can fit onto the land you own (or that you pay the bank to live on) without incurring the wrath of your neighbors, and just put it up. It might be a cut-and-try operation, or you might try to do some calculations to shorten the trial and error time. I remember an antenna problem on a mid-term in college. It was a ¼ wave vertical in an open field with 512 radials buried a few inches in the ground. A typical AM broadcast station. The problem: Calculate the expected field strength 1 mi away on the ground. Keep in mind, this 1960, pocket calculators had not yet been invented although slide rules had. I got zero on that problem because of a stupid math misteak and I still have the slide rule I used to make it.J

Fast forward to the latter part of the 20th century, we have computers that can compute at breakneck speed, or faster, and programs are developed to simulate antennas. How do they do this and do we hams care? The answers are: "With a lot of complex math, a few assumptions, and yes, we hams care, because they're available to us, and we don't have to screw with the math!" And, that's the good news, the hard work is done by the "Numerical Electromagnetics Code." Best of all, while NEC is very complex, we don't care. It's just there, and it works.

The interface to NEC is complex and somewhat obscure, but fortunately, there are folks out there that have created user-friendly (OK, sort of) interfaces to it. One of them is EZNEC, from Ray Lewellen [www.eznec.com]. There are several versions of the program and, while not free, it is not real expensive. EZNEC works with "wires," however the elements of a yagi are just thick wires, so pretty much any ham antenna can be modeled.

The model starts with a description of the elements in your antenna design. You do this using a standard right-handed Cartesian coordinate system: Origin is at the surface of the earth, X-axis is horizontal and usually points north, Y-axis is also horizontal and points west, and the Z-axis is straight up. Each "wire" in your design is straight, and has two end points. You just enter the coordinates of the ends. For example, consider a horizontal 40m dipole at 50 ft elevation running east and west. If coordinates are [X,Y,Z], you can do it with one wire [0, -32, 50 / 0, 32, 50], or you can do it with two wires [0, -32, 50 / 0, 0, 50][0, 0, 50 / 0, 32, 50]. EZNEC will note that

the two wires share a common coordinate and will connect them electrically. You put a "source" [aka transmitter] at the center of the one wire or the junction of the two.

NEC operates by computing the currents in the wires, taking into account their mutual interaction. To do this, it divides the wire into "segments" and assumes the current is constant within each segment. As a result, you need to specify enough segments such that they will each be small enough to make that assumption valid. We all know that ground plays a big role in many antenna designs, EZNEC allows you to specify the type of ground you have. You can also include loading coils and traps.

What do you get out of the simulation? In two words, "a lot." You can get radiation patterns, both azimuth patterns around the compass, and elevation patterns. You can even get 3D patterns although they're a little hard to understand. EZNEC will compute "source data" for you – feed point impedance, SWR, and the like. It will even sweep your design across the band and give you an SWR plot vs frequency.

What won't it do? Well, first and foremost, it is not reality. It isn't going to account for the tree at the end of your antenna, or the metal building underneath it. The professor in a simulation class at Cal Poly put it accurately, but a bit crudely so I'll skip it here in Sierra Signals, email me for the quote. Some simulations can be extraordinarily accurate and realistic … calculating the position of a spaceship is the best example I can think of, but even there, some variable effects are always not accounted for. Antenna simulations are far less accurate, but still very useful. For Part 2 [and maybe Part 3, I don't know how this will go], we'll design an antenna, I'll model it and we'll look at the model and results and what they mean.

And, the answer to the puzzle in last months issue: I put my padlock on the box and send it to you. You put your padlock on the box along with mine and send the box back to me. I take my padlock off and send the box back to you. You take your lock off, open the box, and turn on the Elecraft K3. There are cryptographic analogs to this simple puzzle, however they are fairly complex since multiply encrypted messages must be decrypted in the reverse order in which they were encrypted.

73,

Fred K6DGW

Emergency Preparedness

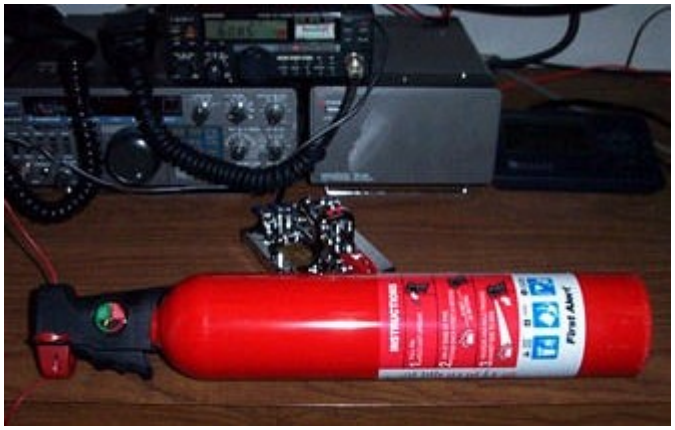
(Reported by Carl , WF6J)

Let's be prepared for one more emergency: FIRE

Most of us go through life with little consequences, but some of us don't. Over a year ago I was watching the news about a house fire in Rancho Cordova, when I saw AD6ZP in the new coverage. It was his house that was going up in flames. Another unfortunate event was in Fair Oaks where WA6CMM's long wire blew loose in a storm and hit the high tension power line causing a lot of voltage to zap into the shack. An a few years ago there was N6SNO's encounter with a lightning strike. Hope I now have your attention.

A potential disaster large or small isn't planned, they happen when you least expect them. The best we can do is to properly prepare for them. As we do with "Go packs", field communications training, proper protocol for handling traffic, we also should add one more thing to the list in the shack... a fire extinguisher. At my place there are several: in the car, in the garage, in the kitchen and in the shack. Overdoing it? not really.. my unit in the garage was put to use when the clothes dryer caught on fire. I was lucky to have just walked into the area when it started. While calling 911, grabbed the unit and was able to stop it (the fire) in its tracks. The Rancho FD arrived, took a look and said I was lucky.

There are several types of units available, but make sure that the one in your shack is for electrical fires. That would be a dry chemical "C" type. They are sold most everywhere, don't cost much, but could save your shack, your house or your life. Oh and when you change your smoke detector batteries, also check your extinguisher to make sure it's in the "full" or safe green zone.



For more information on fire extinguishers go to: http://www.fire-extinguisher101.com /

Auburn Ham Radio Trivia

(Reported by John , W7GE)

A search of the QRZ database shows that there are now approximately 245 licensed hams within the Auburn area zip codes of 95602, 603 and 604. The Auburn ham population was not so robust 80 years ago. According to a United States Department of Commerce publication of Amateur Radio Stations of the U.S., edition of June 30 1929, there was only one licensed ham in the Auburn area during 1929. The name of this gentleman was George Mulinix with the assigned call of W6BJI. George also had a separate call sign of W6EDP for portable operation. The station license location was shown as 124 Hoffman Ave, Auburn, CA. I drove by the address to see if there were any remaining signs of ham radio activity. We first spotted a vertical antenna and then a person in the yard and introduced our self to Richard Wise who coincidently turned out to be KF6KNN. We had a nice chat with Richard who is renting the property and was not familiar with the history of the home going back to 1929. The owner lives out of the area and we did not have any immediate success in contacting him. We would enjoy hearing from anyone who may have information

to share about George Mulinix and his early Auburn ham radio station. A typical station of that period was a homebuilt regenerative receiver and master oscillator power amplifier MOPA transmitter feeding an end fed, or center fed, wire with open wire transmission line.

73,

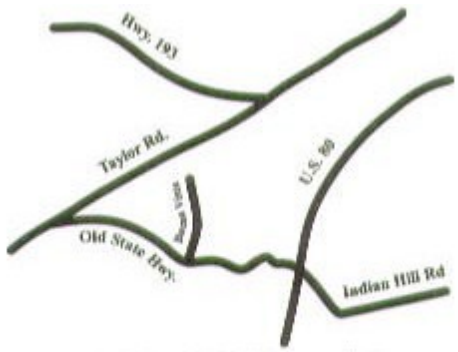
John, W7GE

Directions to Christmas Party

The SFARC Annual Christmas party will be held on Friday Dec. 12 at the Newcastle United Methodist Church – 410 Buena Vista in Newcastle. Dinner will start at 6:30pm.

From Sacramento: Take Hwy 80 East toward Reno. Exit Newcastle Rd./Indian Hill exit. Turn left at the light onto Newcastle Rd. Go over the freeway, the road will bear to the left and dead end at Old State Highway. Turn right on Old State Highway (the road will take a few curves) and then turn right on Buena Vista. The church is on the left about a block from the Old State Highway.

From Auburn: Take Hwy 80 West toward Sacramento. Exit Newcastle Rd. exit. Turn right onto Newcastle Rd. The road will bear to the left and dead end at Old State Highway. Turn right on Old State Highway (the road will take a few curves) and then turn right on Buena Vista. The church is on the left about a block from the Old State Highway.



P.O. Box 236, 410 Buena Vista
Newcastle, California 95658
916-663-2250

Stuff for Sale

Kenwood TS450S and AT 300 Antenna Tuner

If interested - call 300-2758.
