



Sierra Foothills Amateur Radio Club

SIERRA SIGNALS

<http://www.sf-arc.org/>

SEPTEMBER 2011

PO BOX 1005, NEWCASTLE, CA

At the Key of SFARC

OFFICERS

PRESIDENT

Al Martin, NI 2U
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VICE PRESIDENT

Charles Baker, AE6LR
ae6lr@yahoo.com

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kd6wty@yahoo.com

DIRECTORS

Mary Ann Balthorpe, KE6EST
Gary Cunningham, KQ6RT
Jim Griffith, KI 6AZH

Field Day Chairman

Dave Hund, N6SHD

REPORTERS

Satellites: Greg, KO6TH
History: Gary, KQ6RT
Misc Radio: Fred, K6DGW
Sunshine: Richard WA6RWS
rkuepper@ymail.com

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, W6EK/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
NEWSLETTER EDITOR
Matthew Diridoni, KC6RUO
916-749-3032

matteod@comcast.net

WEBMASTER:

Carl A Schultz, WF6J

Calendar of Events

- Sep 9** Club Meeting
- Sep 10** Western Placer ARC Swap,
*McBean Park parking lot
Lincoln, CA See Page 10*
- Oct 8-9** Tevis Cup
- Oct 14** SFARC White Elephant
Sale
- Oct 14-16** PACIFICON 2011



SFARC CLUB MEETING PRESENTATION

"HISTORY OF RADIO"

Tech Ten" topic is
Filters for the Technician Tests

Everyone is welcome, bring a friend!

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We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

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From The Presidents Shack, Al Martin NI2U President's Thoughts



August has come and gone, amazing. Someone once said, that the reason that time seems to go faster as you get older is each day is a smaller percentage of your life. Elections are coming in October and a number of positions on the Board will change. Chuck AE6LR has been Vice President for two years. Bob KD6WTY has been Treasurer for two years and I have been President for two years. Please consider running for office.

Sometimes it takes a new member to find complacency. Someone new joined the club and it is obvious to him and now me that we need a welcome package. It can be nothing more than a letter but things we take for granted are not obvious to someone new. I will create the first such letter and have the board review it. Such a letter can be passed from president to president.

AUTO PATCH AND 9-1-1

By Matthew Diridoni, KC6RUO



Have you ever wondered what happens when you dial 9-1-1 from the Auto patch? It can be confusing to both the radio operator and the 9-1-1 operator.

Things that you should know: The Auto patch is located at the repeater site on Huntley Ave. in Auburn, CA. When you access the patch by DTMF command you are accessing a regular telephone line no different than a home telephone.

Here is where it can get confusing:

You are driving east on I80 near Riverside Ave. in Roseville. You notice there has been a vehicle accident that appears to be unattended and you decide to call 9-1-1 on the Auto patch.

Since the repeater is physically located in the city limits of Auburn, CA your phone call will be answered by Auburn City Police Department. Immediately after the phone is answered the screen (LEFT) appears on the 9-1-1 operator's computer and this is where the confusion can begin.

As you can see it appears the call is originating from what appears to be a house on Huntley Av in Auburn.

The dispatcher will announce: "Auburn 9-1-1, what is the location of your emergency?"



Calmly explain you are calling from a two way radio and you can only speak one at a time. Keep it simple and don't get all technical on them.

Explain you are east bound interstate at Riverside Ave. and there has been a vehicle accident, then state **“go ahead”** and release your PTT.

Let the dispatcher ask questions back and do not interrupt. Each time you answer back, state **“go ahead”** before you let go of the PTT so the dispatchers knows they can talk back.

In this case the Dispatcher will either transfer your call to California Highway Patrol or relay the call to CHP for you.

Other things to remember:

Be careful, don't do anything that will jeopardize your safety and pay attention to your driving. Know your radio and how to use Autopatch without taking your eyes off the road. Some radios offer one button dialing for emergency calls so check the owner's manual of your rig.

I was recently asked, “Why Autopatch, why not use a cell phone?” A cell phone is actually faster and it is my first choice to use in an emergency. But we are Ham Radio Operators and there will be a time during a major emergency when the cell phone system will fail. We have to maintain our proficiency on use of Autopatch and know how to use our radios and functions during an emergency. Call your home phone from time to time to make sure the Autopatch is working and to stay proficient on its use.

Speaking of the cell phone system failing, here are some Interesting stats resulting from Hurricane Irene. This is another reason we all have to maintain our proficiency in the use of our rigs.

As a result of Hurricane Irene:

6,500 cell towers were offline on Monday August 29th

44% of all cell sites in Vermont were non-functional

35% of all cell sites in Connecticut were non-functional

31% of all cell sites in Rhode Island were non-functional

25% of all cell sites in Virginia were non-functional

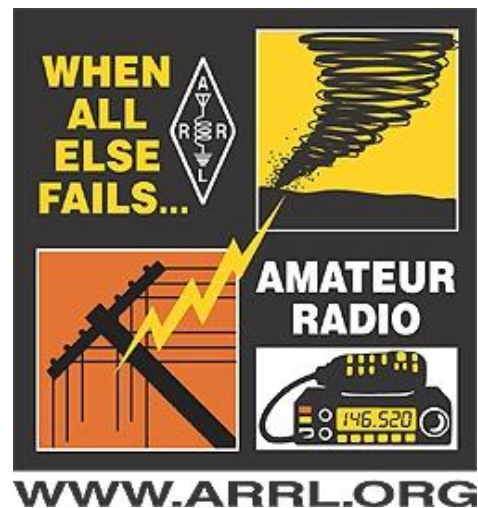
One million customers were without cable service.

Source: <http://www.computerworld.com>

Again, we have to maintain our proficiency on use of Autopatch and know how to use our radios and functions during an emergency.

73's

Matthew Diridoni, KC6RUO



MISCELLANEOUS RADIO

HF Antennas for Field Operations

Summer is drawing to a close, but here in Northern California, we still have a couple of months to go. I don cargo shorts on the first 70 deg day of the year, and I stay in them until at least Halloween no matter what. In the 34 years we've been in Auburn, I've managed that every year, and last year, I was still in cargo shorts on Veterans' Day. So, there's still time for outdoor ham radio. The Spartan Sprint on the first Monday of each month is a good activity, there are lots of nearby summits to activate in the SOTA program, and the QRP folks are always having some outdoor on-the-air event, or so it seems.



A big issue for field operations is the antenna. I have a Buddipole which I've used in various configurations, and it works very well. It is fairly easy to set up, the setup is very repeatable and easily adjusted for band-changes, it includes a tripod and collapsible mast which makes it more or less independent of my surroundings, and it packs into a canvas bag for transport.

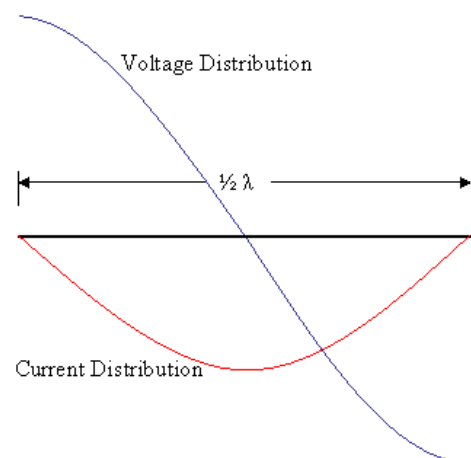
Repeatability and ease of adjustment are important in field antennas. Setting up in your back yard and adjusting your antenna is usually pretty easy. Once you get out in the field, anything that took you 5 minutes at home is going to take at least 30 and quite likely more. So, you want an antenna design that is "set up and play."

The photo is my Buddipole, in a vertical ground plane configuration, on Leviathan Peak [9,500 ft] on Field Day this year. That's Rich, NU6T in the distance; he has an older Buddipole and was using it in a horizontal dipole configuration. Leviathan is also SOTA summit W6/SN-039, and we wanted to activate it for the

SOTA Summit Chasers too. Both of us had been to the top several times, the N6A crew for the Cal QSO Party used to set up at its base at what we called Camp FYNO¹ [we all got old and now we're in a cabin at the Lake Alpine resort ☺], so we knew what to expect. All told we made 58 contacts before the wind got so cold we headed down.

The Buddipole is a great field antenna ... except for two little factors: It is fairly heavy [~10 lbs], and the canvas bag is moderately large. There are equally effective wire antennas that weigh a lot less, and can be rolled up and stuffed into a pack. Essentially all of them are based on the half-wave dipole. I am indebted to Steve Yates, AA5TB, who graciously provided me with the diagrams that follow.

The half-wave dipole is pretty simple – just a wire a half-wave long. Why is it called a "dipole?" Well, when you feed RF to it at its resonant frequency [we'll get to that issue next], a standing-wave is set up. The ends are open circuits, so the current has to be zero and the voltage infinite. Zero and infinite don't actually occur in real life, but the current will be very small and the voltage very high. At the center, the two halves of the wire are shorted together and the voltage has to be zero making the current infinite, well very high, and voltage very low.



¹ Camp Freezeyournutsoff

Those voltage maxima at the ends are “poles” and there are two of them [“di-”], hence “dipole.” It doesn't matter where you connect the power, this is the result. Remember that ... “You can feed the power anywhere along the wire, it doesn't matter, this will be the result.”

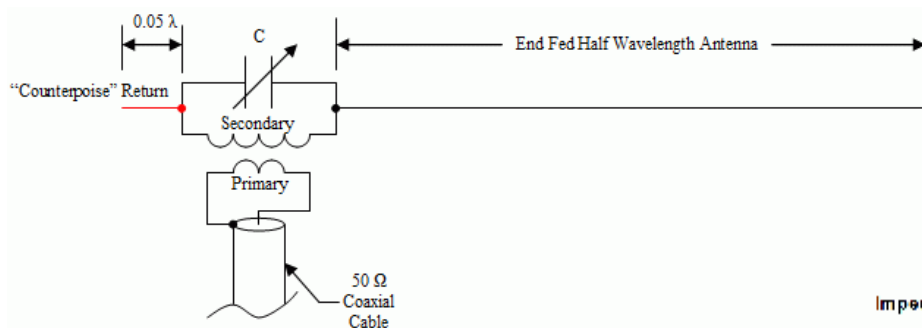
Actually getting the RF power into the wire efficiently does require that the transmission line carrying the power “see” an impedance that matches its own impedance. Recall Ohm's Law: $R = E / I$ That is, the resistance [impedance] of a circuit is simply the voltage divided by the current. At the center of the wire, the voltage is fairly low and the current is fairly high, so the impedance is fairly low. In fact, it's around 50-70 ohms, which just happens to be in the range of impedances of most coaxial cable. Thus, we can cut the wire in the center and connect a 50 or 70 ohm piece of coax to the two halves and get a pretty good match. This is how the majority of dipoles are fed.

But, remembering that you can feed power anywhere along the wire, if we move the feed point out towards one of the ends, the current in the standing-wave will decrease and the voltage will increase, so the impedance at the feed point will go up as we move out – Ohm's Law again. In its horizontal dipole configuration, the Buddipole is fed a little off center. Because the elements are too short for a half wave on anything but 10 meters and maybe 12 meters, inductors are inserted to “lengthen” the elements electrically. This results in a lowered impedance at the center ... 25 – 30 ohms, and a less than optimum match to 50 ohm coax. Moving the feed point out toward one end a little brings the impedance up to around 50 ohms.

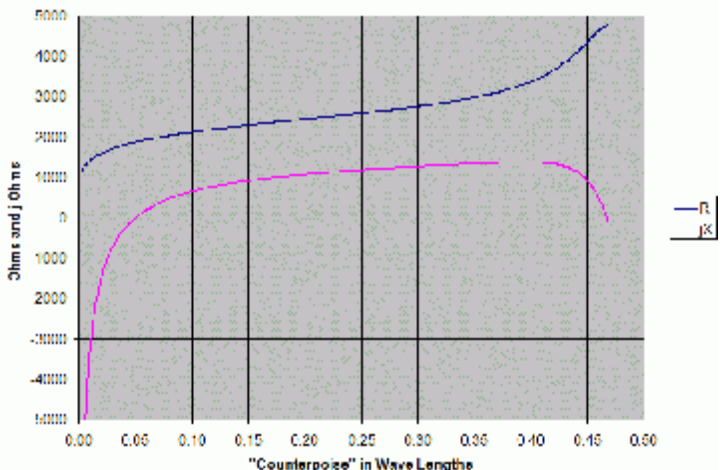
Horizontal, center-fed dipoles have two real disadvantages in the field ... A) It takes two supports, one on each end. We can cut that to one if we support the center and let the ends droop down which is the classic inverted-vee. This will work too but – B) They have a tendency to radiate straight up or at very high angles unless the center is well elevated. This usually requires organic towers [trees], rope, and a way to get the rope up in the tree ... more stuff, more space, more weight.

You can feed the half-wave dipole at the end ... remember, it doesn't matter, it's still a dipole. Because the voltage is high and the current is low, the impedance is high – usually a couple thousand ohms or so. But, in earlier days of radio, end feeding the half-wave dipole was hugely common.

WW2 cargo aircraft used trailing wire antennas [actually they were used 20 years later during the Vietnam conflict too.] They're fed at the end, the rest dangles out the back of the airplane. Ships had sloping wires up to masts, fed at the bottom, and for HF, they were often a half-wavelength long. What happens when we feed at the end?



Impedance versus “CounterPoise” Length



Well, coax doesn't come with characteristic impedances of several thousand ohms, it would be hugely big. But, borrowing from history, a parallel tuned circuit exhibits a high impedance. They used to be the output circuit of the power amplifier in our transmitters, and those trailing wire antennas were connected, through a capacitor to keep the HV off the antenna, to the output tank coil, and that will match a couple thousand ohms easily. We can couple power into the circuit with a few turns in a link around the main inductor. This is a transformer; the

high impedance of the parallel tuned circuit appears as a low impedance at the 2 or 3 turn “link” coil.

If it doesn't matter where we feed the half-wave dipole, what's the big deal about the end fed dipole? The answer is that, when fed at the end, the antenna is pretty much decoupled from ground. This is why it works as a trailing wire antenna out the back of an airplane, and why it doesn't care as much about how high it is. Note the little “Counterpoise” Return stub on the other end of the tank circuit. Strangely, it doesn't need to be very long. At 14 MHz, 0.05λ is 3.3 feet. Just leave a wire hanging out of your coupler 3.3 feet long if you're on 20, and the antenna doesn't really care about where the “earth” is. This means that you can raise your wire on a very light support, stretch the end out as far as it will go, and being low doesn't count. OK ... it counts some, but not nearly as much as a center-fed dipole.

Steve has done a lot of antenna modeling and come up with the graph at the right. Note that, at a counterpoise length of 0.05λ , the reactance [lower curve] is zero. The resistance is just under 2,000 ohms [around 1,800 actually], which is easily matched by the parallel resonant circuit. Typically, field operations are at QRP power levels, the inductor is usually wound on a ferrite core which reduces the number of turns required, and the capacitor can be one of those small “polyvaricons.”

A lot of operators use either a “jackite” collapsible pole [www.jackite.com], or crappie fishing poles [Google “crappie poles”]. The matching network goes at the bottom; the wire runs up the pole and is then stretched out to some convenient anchor. Height above ground matters of course, but to a much less degree than a horizontal center fed dipole. I have my wire marked with tape for each band, and I have a little reel to wind it up. I just stretch out a half-wave for the band I'm on from the reel and leave the rest wound up, get the pole vertical, and I'm in business. Fred, KT5X, who also likes to run up and down 14,000 foot mountains in Colorado and New Mexico, uses the EFHW antenna for SOTA summit activations. His ATS-3B QRP radio and the little matching network are fastened to the bottom of his pole, and collapsed; it makes a very light, small package. I've worked him on a number of summits, his signal isn't the biggest on the band, but it's strong enough to have a short CW conversation.

So, take your radio outside! Aside from getting some sunshine and making some vitamin D, which is good for you, you'll also get some exercise, have fun, and your body will be making “feel good” chemicals for you along the way. Our winters are milder than many areas of the country; you can even do this on nice winter days.

73,

Fred K6DGW



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SFARC has testing sessions on the first Saturday of each month at Raley's on the corner of Auburn Folsom Road & Douglas Bl. in Granite Bay. Sessions are in the multi-purpose room in the back left hand corner of the store. The session starts at 8:00 AM

SFARC CLUB PICNIC

The SFARC Club Picnic was held at the Auburn Recreation Park in Auburn





WF6J Report

By Carl Schultz, WF6J

SFARC Website - The Classifieds section will soon be Elmer's page. This section will be devoted to helpful information exchange for want- to-be Hams, new hams and old timers. Hope to be able to ask any question and get a solid reliable answer back. Inputs for questions will be taken via the club email: info@sf-arc.org Open to everyone!

Just a note that as the pages change, you may not be seeing the latest data unless you refresh your browser. There is a link to the ARISSat-1 page. As Greg, KO6TH reported, the sat is losing battery and altitude and now there is a "Chicken Little" contest to see who makes the best prediction of when and where ARISSat-1 will reenter Earth's Atmosphere.

73,
Carl Schultz, WF6J

SFARC Board of Directors Meeting Minutes

12 August 2011

The August Board meeting commenced at 1800 hours at Pizza Express in south Auburn.

Officers present: President Al Martin-NI2U; Directors Gary Cunningham-KQ6RT and Jim Griffith-KI6AZH. Also present were, Sunshine Reporter Richard Kuepper-WA6RWS; PIO/Webmaster, Carl Schultz-WF6J, and guest Jim Piper-N6MED. Vice President Chuck Baker-AE6LR; Secretary Dennis Gregory-WU6X; Treasurer Bob Balthorpe-KD6WTY and Director Mary Balthorpe-KE6EST were absent.

Discussion: The bi-laws have not yet been updated for Board review; Dennis has this task. Al reported the budget has not yet been reconciled. The Board reviewed the Treasurer's report as submitted. Bills paid in July were for Field Day food, printing and stamps, PG&E for the repeater, AT&T for Internet and phone, picnic pavilion reservations, and ARRL for memberships. Income included dues for renewals and new members.

Newsletter ads: Ads in the newsletter were discussed and confirmed to be free to club members. Batteries Plus gives club members a 10% discount, while Metro Electronics gives the club a 15% discount on "ham items" (9th and J street); we will note that in an upcoming Newsletter.

Club picnic: A sign-up sheet was passed around last meeting. The Board was curious as to how many we have signed up and intended to check the list after the evening's general meeting so food purchases can be determined. Provisions for the picnic were reviewed and discussed. Food will be purchased by Richard; Carl is cooking; desert is potluck. Carl will take pictures at the picnic.

FEMA: Discussion ensued relative to an email received from the Federal Emergency Management Agency soliciting participation; to be discussed further at the general meeting.

Newsletter classifieds vs. other use of space: Some discussion was held relative to having an "Elmer's" section in the Newsletter in lieu of the classified space which is not being used. Other suggestions were a "What's New" or "Satellite News". If an Elmer section is deployed, there was discussion of how to ensure someone answers questions asked by members.

ISS: A discussion was held about the possibility of demonstrating communications from the International Space Station, and how we might coordinate this around Tech-Ten. The pass is due at 2030, but is only scheduled to be 12 degrees above the horizon on this pass.

No further discussion; no decisions or resolutions due to lack of a quorum.

Meeting adjourned at 1850 hours.

Submitted by Dennis-WU6X, Secretary

SFARC General Meeting Minutes

Date: August 12th, 2011

The meeting commenced at 1930 hours at the Placer County Library in Auburn. Present were officers Al Martin-NI2U, President and Director Jim Griffith-KI6AZH. Also present were, Richard Kuepper-WA6RWS, Sunshine Reporter; Carl Schultz-WF6J, PIO/Webmaster; and Gene-KG6NYH, Entertainment chairperson. Chuck Baker-AE6LR, VP; Dennis Gregory-WU6X, Secretary; Bob Balthorpe-KD6WTY, Treasurer; Directors Mary Ann Balthorpe-KE6EST and Gary Cunningham-KQ6RT were absent. Al led everyone in the Pledge of Allegiance. Officers, Directors, members and guests were introduced.

Past minutes – The July minutes were approved as published in the Newsletter.

Treasurer's report – Al presented the Treasurer's Report as submitted by Bob Balthorpe. Balance on hand as of July 1st was \$1,850.80; bills paid in July totaled \$299.23; income received was \$193.00 (dues); leaving a balance on hand of \$1,744.57.

VE report – Dave-NO6NO gave the VE report. Ten VE's participated. 13 candidates took exams; 7 techs/6 passed, 2 generals/2 passed, 6 extras/3 passed.

Satellite report – Greg-KO6TH gave a report on the next pass due at 2030 this evening. Discussion was held whether to ask Greg to delay the presentation for 5 minutes so the club could experience ISS passing. AirSat1 appears to be working.

Sunshine Report – Richard-WA6RWS – Mary Ann is having allergy issues, but is hoping to make it to the picnic. Joe is going to therapy 3 times a week and is doing better after the stroke, and is typically on 40m (7.242) daily and Noon.

Repeater – no report.

Old Business – The picnic was discussed and a sign-up sheet was passed around. The picnic is scheduled to begin at 10am on the 20th of August. Desert will be potluck. No further old business.

New Business – *Website classifieds*: Suggestions of potential options for the classified ad space were discussed. Options included an "Elmer's" section, a satellite info section, a "What's New" section, and a few other options. Greg, Al and Burton volunteered to answer questions that were posted to the web. *Newsletter Ads*: Metro Electronics is offering a 15% discount, while Batteries Plus is offering a 10% discount to SFARC members. Dick reported a very good experience of a battery replacement experience at Batteries Plus. The continuation of the Club's policy to allow SFARC members to place ads in the Newsletter for free will be continued. *Website/State Records*: It was reported to the club that contact information and addresses were not being changed regularly as officers or addresses change. This needs to be reconciled on a regular basis. *Discussion*: A discussion was held on whether to offer a cram license course or more in-depth study.

Announcements – Al gave announcements about schedules for the Club net on Thursday's at 7:30, Board meeting time of 6pm on general meeting nights is now being held at Pizza Express in South Auburn; the General meeting schedule, club breakfast (last Saturday at Susie's Café) and referenced the Club website for more information.

Tech-Ten was provided by Richard-WA6RWS. An excellent demonstration of how to properly install a PL-259 connector on coax was demonstrated. Richard's secrets are to use silver-plated connectors, have a good soldering iron rated at least 50w, and to solder the braid to ground through at least 2 holes.

Presentation – Richard Lyons, author of Understanding Digital Signal Processing, 2nd edition, available at Amazon.com, gave an excellent presentation on audio processing and its application to amateur radio.

The meeting adjourned at 2030 hours.

Submitted by, Dennis – WU6X, Secretary

SFARC WEB PAGE

Don't forget to visit our web page at <http://www.sf-arc.org/> for up to date information, advertisers that support our club and informative links related to amateur radio.

Carl Schultz, WF6J, Webmaster



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Proceeds to go to charity

Saturday, Sept. 10, 2011 06:00 - Noon

McBean Park parking lot
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Ham Radio Related Stuff Only

No general merchandise, food for sale, or computer equipment (except directly related to amateur radio) is allowed

\$10 per space

Approx. 10' x 10'

Bring your own tables

Presented by these Sacramento Valley Amateur Radio Clubs:

- River City ARCS - www.n6na.org
- Western Placer ARC - www.wparc.org
- Yuba-Sutter ARC - www.ysarc.org

The 2010 Hamfest was a success with over \$800 donated to local charities.

We need your help to pass the word about this year's Hamfest.

Sierra Foothills Amateur Radio Club
P. O. Box 1005
Newcastle, CA 95658



**Sierra Foothills Amateur Radio Club
2011 Membership Application**

Please Print

Name: _____ Callsign: _____ Class: _____ email: _____

Address: _____ City: _____ State: _____ Zip: _____

Associate Name: _____ Callsign: _____ Class: _____

Phone number: _____ Application: (circle one) NEW RENEWAL

Member Dues: Circle Amounts That Apply: Applications (for new members only) received in the middle of the year will be pro-rated. Contact the President or Treasurer for exact rate.

Membership: (P)	\$ 22.00	Name badge: (R)	\$ 7.00
Associate: (Q)	\$ 7.00	Repeater Donation: (S)	\$ _____
Auto Patch Donation: (T)	\$ _____	Newsletter Booster: (V)	\$ _____
Misc. Donation: (X)	\$ _____	Christmas Donation: (W)	\$ _____
		TOTAL: (Y)	\$ _____

ARRL member? (please circle) Yes No

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Date: _____ Treasurer: _____ Secretary: _____ Roster: _____

Payment: _____ Check Number: _____ Cash: _____