

FEBRUARY 2010

THE MONTHLY NEWSLETTER of the SANTA CRUZ COUNTY AMATEUR RADIO CLUB

# SHORT SKIP



## Veteran's Memorial Hamshack Temporarily Closed

The County's surprise closing of the downtown Santa Cruz Veteran's Memorial Building on the afternoon of January 21 caught all of the building's users off guard. Suddenly, nobody could enter the building at all, not even the upstairs ham radio Room 21's daily operator, WWII veteran Maurice "Rick" Ricketts N6GOW.

After bits of exterior stucco were noticed to have fallen from the building's facade, the County contracted an engineering firm that initially suggested concrete cracks could be signs of a compromised structure and pose serious danger to those inside. "Based upon our brief visual observation it is our opinion that the deterioration observed presents a significant risk

of injury or death to the occupants of the auditorium should a seismic event occur," read the report by Soquel engineering firm Streeter Group Inc. Additional inspection of the building by the contractor is planned, and the County expects to report back with findings to the Board of Supervisors in mid-March.

County OES Emergency Services Manager Paul Horvat advised us regarding the needed permissions for arranging special entry into the building, and finally we (Rick N6GOW, Bob KI6TKH, Cap KE6AFE) were able to briefly visit the upstairs ham shack



on February 5. We turned off the power equipment and the radio gear, and Rick took home his old sailor's uniform shirt with the campaign medals from WWII for temporary safekeeping. We also took to Rick's home enough of his radio and computer gear to enable him to operate from home for the time being. Rick is often on K6BJ repeater

and his home phone number is 426-5409.

Our visit secured the ham station in the building for the short term, and most of the gear is still in there and ready for use, including the rooftop tower and antennas.

At Rick's suggestion, before we left, before closing and locking the door at the end of our brief visit, we left the police scanner turned on and playing in the room, just to provide a bit of audio from RF. <grin>

Time will tell what happens next with the building (and the upstairs ham station). Lots of folks are interested. Stay tuned.

—Cap, KE6AFE

## New ARRL Exam Testing Location

The Tri-City VE Group welcome candidates to our location near highways 680 and 880 at Hurricane Electric, 48233 Warm Springs Boulevard, Fremont.

Here are the scheduled 2010 test dates:

March 13	Saturday 9:00 a.m. – 11:30 a.m.
April 15	Thursday 6:30 – 9:00 p.m.
May 8	Saturday 9:00 a.m. – 11:30 a.m.
July 10	Saturday 9:00 a.m. – 11:30 a.m.
August 19	Thursday 6:30 p.m. – 9:00 p.m.
September 9	Saturday 9:00 a.m. – 11:30 a.m.
November 13	Saturday 9:00 a.m. – 11:30 a.m.
December 16	Thursday 6:30 p.m. – 9:00 p.m.

We're excited to provide more options for new hams and upgrades. For further information, contact Bernhard AE6YN@arrl.net (510) 364-0611 or myself, Rita, KI6SSQ@arrl.net (510) 703-7090, or check the ARRL website.

## KIDS NET

Certain XYL's from the Santa Cruz and NPSARC clubs are hosting a "KIDS NET" on Saturdays at 1000 Hrs. The repeater is the Mount Toro KI6FKX on 146.655 -600 Tone 94.8 It will be a work in progress with kids subject matter.

## February Meeting

Our February program will be a presentation by Linda Bittner, K6GRL and possibly Sal DeFranco, N6SPD, on RadioFest 2010. Never been to RadioFest? Find out what it's all about! Seasoned RadioFest goer? Come learn what will be offered this year!

Join us on Friday, February 19th at 1930hrs, in our usual suites B1 and B2 in the Dominican Hospital Education Center.

—73 de Greta, KI6NTL

**CLUB MEETING FRIDAY FEBRUARY 19, 7:30PM**

## My Life as an Inductance

My name is Coil and my cousins Res and Cap have said a few nice things about me but didn't say much about what I do for a living. Incidentally my parentage goes back to Joseph Henry (1797-1878), the American scientist who discovered electromagnetic induction independent of, and at about the same time as, Michael Faraday (1791-1867) in England.

Today the diminishing sizes of family members are Henries (H), milliHenries (mH), microHenries (uH), nanoHenries (nH). Simply put our mission in life is to exploit the properties of electro-magnetic induction.

Henry and Faraday discovered that when current in a conductor changes, a magnetic field, (aka Flux) is created which induces an emf (Voltage) in the conductor. This emf (termed a back-emf) opposes the emf that caused the current to change in the first place. Pretty weird and sounds self-defeating huh! You are probably wondering what on earth are we good for so please bear in mind, our magnetic fields can be energy resources in much the same way as electric fields are within capacitors.

The relative movement of a conductor and a magnetic field creates the emf, therefore if you rotate a loop of wire within a magnetic field (such as from a magnet) the mechanical energy of rotation generates electrical current that will flow in the loop. This finding was crucial to the development of generators and created the electric power industry. Conversely if electrical energy creates magnetic fields that threads a coil of wire having freedom to rotate, electrical energy will be converted to mechanical energy and hence we have the world of electric motors.

The property of inductance has a wide range of uses in electronics. We refer to our opposition to alternating current as inductive reactance. This is also measured in Ohms and usually designated as XL. XL is

proportional to the amount of inductance and frequency so that  $X_L = 2\pi f L$  where  $f$  is in Hz and  $L$  is in Henries. It's simple, try calculating XL when  $f = 1$  MHz and  $L = 1$  uH.. Did you get 6.28 Ohms?

As you know my name is Coil because most inductors involve coils of wire. The more turns of wire that are linked to magnetic flux the greater inductive reactance. Inductance is also influenced by other factors such as length and cross-sectional area. A most important way of increasing flux density is the use of magnetic materials. Types of iron have the property of permeability (called mu), which is a measure of their ability to increase and concentrate magnetic flux relative to air. A very popular component in electronics is a torroid core, (made from a mixture of iron powders), with a winding of copper wire. This is a very compact way to create inductance and retain the magnetic field.

Because inductive reactance is frequency sensitive, coils find many applications where it is important to filter wanted frequencies from unwanted frequencies. Without filters amateur radio wouldn't exist. For filters to function we need to collaborate with our cousin Cap who provides a complementary capacitive reactance and together we create the resonant circuits that filters often depend on; however we are not keen to have Cap straying around in our windings!. As for cousin Res, we pride ourselves on Quality which is designated by the letter Q and is the ratio of our reactance to resistance =  $(2\pi f L)/R$ . Thus from the point of view of inductance, the less resistance involved in our coils the better we do our job.

This completes the stories introducing the three component families that provide the foundations for our hobby and indeed the whole world of electronics.

—Ron, W6WO

## Wireless World

It's going to become a wireless world, here's a recent example of current research.

Wireless Sensors Anywhere Miniature sensors located in inaccessible places (such as inside a body) can use wireless communications powered by piezo-electric (Hams should know something about piezo-electricity) generators driven by microelectromechanical systems MEMS. The small amount ( $\ll 1$  milliwatt) of primary energy for the MEMS can come from radio isotopes or from vibrations harvested from the environment.

What applications of such sensing capability can you imagine?

—W6WO



Images from January CAKE



## Treasurer's Report

The January 2010 Treasurer's Report presented to the Board of Directors showed that the SCCARC treasury had \$3589.16 in cash and bank accounts. The full Net Worth Report will be available for review at the February 19 Club meeting.

—Kathleen, KI6AIE



## MBARA's N6IJ A-Buzz with Activity

In the past several months the Monterey Bay Amateur Radio Association (MBARA) membership has elected a new, energetic board that is working to bring the site back on-line. There are numerous challenges including deferred maintenance, off-line antennas, low membership engagement and low public involvement. The board has defined four general areas for work: Safety/Aesthetics, Operations, Development and Administration.

Under Safety/Aesthetics, they have secured a 20m mono-band Yagi that had been precariously dangling by its feed line for almost a year. They are also evaluating securing the station's landmark log-periodic which has slipped off its mount. Many local volunteers have been cleaning the site up over the past year. Beyond the "unsightly radio stuff," the site now resembles a park, with picnic tables under the trees. While they're making the carpet more presentable immediately, painting the shack will need to wait until spring.

Bringing the site back to full radio operations also has its challenges. Right now they have two working HF antennas: the big Pro-67 multi-band beam (which is currently stuck beaming ENE) and the 1200' loop. The troubleshooting and repair of the big Pro-67's rotor is planned to start in late January. They'll be having a "Wire Antenna Day" in March to get their low band capabilities back up to snuff.

Club president, Donald (AE6RF) operated the Stew Perry Top Band Distance Challenge from the shack to get first-hand experience of the station's status and condition. Having an excellent station available is more and more important as a large percentage of hams now live in "antenna restricted areas." Donald's personal vision is to get enough quality antennas/gear online to permit two HF stations to operate at the same time. This will allow multi-two or single operator, two radio (SO2R) contesting from the site. They want N6IJ to again be a common entry in everybody's logs.

MBARA's membership has fallen from a high of 71 members so they're looking to both re-invigorate the current membership and engage the amateur community. They'll be sending out an "Introduction to N6IJ" flier



By Art Lee WP6P

### CHATTER

Our two club meetings were well attended on Friday night. Jerry Inman, AE6I, led off with the 6:30 PM ARES meeting. He had prepared a power point show pointing out the mission of ARES and its members. We were introduced to training opportunities for members: IS, NIMS and ARRL EC-001 on-the-air classes. Allan Handforth, AF6BO, offers CERT Training. He is a qualified instructor. Jerry Inman teaches CPR and First Aid and asked us to check in on the ARES, Public Service and club nets. He placed a special emphasis on developing Digital Communication capabilities.

Our newest club President, Bruce Hawkins, AC6DN, kicked off the regular club meeting. I counted about 35 members in attendance. Ron Skelton, W6WO, treated us to a fine electronics lecture on the topic of BALUNS. Ron's professional-level presentation was highly informative and delivered with his usual humor. Most of us are aware that BALUNS are transformers, but the lecture began with that and built up from there. Ron has done extensive experimentation with these circuits, reflecting his many years as an electronics engineer. He told us of his early years working with underwater transmission cables, terminating in a huge BALUN on shore. I wanted to ask him about the effects of surface current on the coax sheathing when buried in earth. I'll save that for the next CAKE meeting.

I was happy to see Scott King, AH6KL, again. He helps produce that very fine product put out by Elecraft. His job is customer

to the 200 closest non-member hams in February and hope to have an informational table at RadioFest in March. The schedule for pre-planned work parties/open houses hasn't settled out, but they'll have an informal open house in parallel with RadioFest. People can check out the site on their way home.

Finally, They're in the normal process of handing over the administrative details. Finalizing the 2010 budget/spending plan

service and trouble shooting information and advice. We discussed piano playing, which we both enjoy. He and I suffered from a hindering affliction, Dupuytren's contractures. This is an odd contraction of the 4th and 5th fingers. We both had corrective surgery so we can tickle the ivories (now plastic!)with gusto.

Our Secretary, Kathleen, KI6AIE, celebrated her birthday on the club meeting night of the 15th. We all sang a few choruses of Happy Birthday for her. Gretta, KI6TKA, provided homemade cake for the occasion. It was very tasty!

It has been many, many years since I was stopped by a police officer. It's never any fun. On Mission Street last week on my way home from my piano lesson, I was pulled over. It was about 7:30 PM when I saw those dreaded blinking red lights behind me. Not speeding, no red light running, no known vehicle malfunctions. "Driver, please pull into that parking lot," was the order barked over the speakers. Under the harsh light of a spotlight shining through my rear window, visions of the "Cops" series on TV flashed through my mind. Would he slam me up against the hood of my car? Taze me, bro? Will I have to walk a chalk line or breathe into some tube? Have a blood sample drawn? Should I run? (I doubt that I could jump over those three-foot high fences.)

No I wasn't cuffed. I had my seat belt fastened, no cell phone in hand and was wearing my driving glasses. After showing my driver's license, organ donor ID, COSTCO club card, proof of insurance and registration he asked me what kind of a license plate was AB6XJ? I explained that it was my wife's ham radio call sign. He had not seen anything like that before. To further confuse things, his cop car computer did not come up with that license number. After about 20 minutes he deduced that the DMV had put a space between the last two characters to read, AB6X J. The police computer didn't match the DMV computer. I was released with no jail time served. Whew!

and schedule will take another month. Plus there seems to be a backlog of QSL cards to take care of. Nobody else has one of those, right?

So, while N6IJ has a number of challenges, they've got plans to meet them and have had a great deal of luck executing the plans they've already made. Please feel free to contact Donald Kerns (ae6rf@arrl.net) for further details...

## SCCARC Board - 2010

<b>President</b>	Bruce Hawkins	AC6DN	689-9923
<b>Vice President</b>	Greta Steinbruner	KI6NTL	325-9482
<b>Secretary</b>	David Copp	WS2I	708-2206
<b>Treasurer</b>	Kathleen McQuilling	KI6AIE	476-6303
<b>Board</b>	Christopher Angelos	KG6DOZ	688-3562
	Mike Doern	KM6IKE	477-1161
	Rich Olsen	W1WUH	464-7474
	Cap Pennell	KE6AFE	429-1290
	Jeff Watson	W6NA	
<b>K6BJ Trustee</b>	Allen Fugelseth	WB6RWU	475-8846

## MONTEREY BAY REPEATER ACTIVITY

Santa Cruz County	K6BJ 146.790- PL 94.8 Santa Cruz (linked to KI6EH) KI6EH 147.945- PL 94.8 Watsonville (linked to K6BJ) K6BJ 440.925+ PL 123.0 Santa Cruz (not linked) • SCCARC Net Monday 7:30 PM 146.79- /147.945- /147.180+ linked • SCCARC 10 Meter Net Monday 7:00 PM 28.308 MHz USB
ARES Net	SC County Wide ARES Tuesday 7:30 PM on 147.180+ PL 94.8 and 443.600+ PL 110.9 linked
San Lorenzo Valley	WR6AOK 147.120+ PL 94.8 Ben Lomond • SLV Net Thursday 7:30 PM
Loma Prieta	AB6VS 440.550+ / AE6KE 146.835- PL 94.8 (linked for net) • LP ARES / LPARC Net Tuesday 7:15 PM
Monterey	K6LY 146.97- PL 94.8 / 444.700+ PL 123 (linked for net) Monterey • Monterey Co. ARES Net Wednesday 7:30 PM K6LY 146.970- (PL 94.8) • NPSARC Net Wednesday at 8 PM on K6LY/R
LPRC	WR6ABD 146.640- PL 162.2 / 442.900+ PL 162.2 (winsystem.org) • LPRC Net Tuesday 8:00 PM 146.640-(PL 162.2) • Amateur Radio Newslines broadcast Wednesday at end of LPRC Net

• Santa Clara Valley Section Traffic NET Tuesday 9:00PM 146.640- (PL 162.2)

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

## SCCARC Calendar of Events

ARES Meeting (prior to club meeting)	Friday	Feb 19
SCCARC Meeting	Friday	Feb 19
Cake Meetings	Sat	Feb 13, 27
Board Meeting	Thursday	Feb 25
Short Skip articles due	Mon	Mar 8
SCCARC Meeting	Friday	Mar 19

## MONTHLY MEETINGS.

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

## NET CONTROL SCHEDULE

(Subject to Change)

2/15	Greta KI6NTL
2/22	Phil KE6UWH
3/1	Chris KG6DOZ
3/8	Tom K6TG
3/15	Greta KI6NTL

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**Santa Cruz County Amateur Radio Club, Inc.**

Post Office Box 238, Santa Cruz, CA 95061

Editor: Ron Baldwin, k6ext.santacruz@gmail.com

Columnist: Art Lee, WF6P

Writer: Ron Skelton, W6WO



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

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—Kathleen, KI6AIE