

MAY 2011

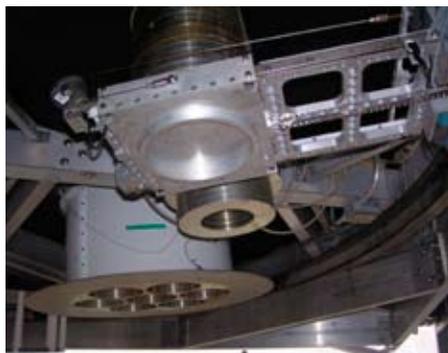
THE MONTHLY NEWSLETTER of the SANTA CRUZ COUNTY AMATEUR RADIO CLUB

SHORT SKIP



ARECIBO, KLYSTRONS, WATER COOLED FEEDS, and EMEME

I cannot believe that more than a year has passed, since a major waypoint, or "bucket list item" in my ham career has been marked off.... A year ago April, I had the good fortune to see and operate Moon-bounce at the Arecibo Radio Observatory. An intense experience on so many levels. Arecibo certainly has to be one of the major wonders of the world.



Arecibo Feed Horn

Here I will just focus on a tiny slice of the overall experience, and explain a little about the Photos here, that were taken during a tour of the Arecibo Focus Platform. One photo is of a monster Klystron amplifier, (Varian VKS 8270A) 2.x GHz, the RF cannon of Arecibo's Planetary Radar. The other, is a photo of the muzzle of that Cannon, the 2.x GHz feed horn, which you will notice is water cooled. The Klystron produces 1 million watts, key down CW RF at the Horn, which even though it is very low loss, has to be water cooled to keep from melting during long sessions at 1 million watts. Notice the hefty high pressure fire hose water cooling hose at the Klystron, too. If I recall correctly the Klystron is fed with -126 KV dc, at beaucoup amperes

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International DX Conf. Visalia 2011

(A first timer's view of an International DX Convention)

by Don (K6GHA)

There are always surprises when you step into the unknown. At best it includes unanticipated meetings, high expectations, exponential learning, reinforcement of best practices, is all part of the excitement. However as a first time attendee, for me most valued of all experiences were the new discoveries of support and sense of kinship found at the International DX Convention in Visalia.

Let me begin at 8am, Friday morning, when I picked up my carpool to the convention, Tom (KW6S). He says in passing that he and I are close to the same point in our learning curve for competitive DXing (in my opinion, I have a long climb to reach his level). I can think of no better person to talk with about HAM radio for the 3-hour drive to Visalia.

And talk we did. Everything from station setup, propagation maps, amplifiers (or the non-use of amps), end fed antennas, and operating experiences. But truth be known, most of these discussions were around how much we were learning from CAKE (Coffee Assisted Knowledge Exchange) and others in the DX community in Santa Cruz. Our hopes were that Visalia would be a confirmation, and substantial addition, to our collective radio "life experiences". As I drove, it felt as if in a blink of an eye we were pulling into the convention hotel.

The first activity Friday was the Contest Academy. These are 4-hour intensive classes tracked for either Beginners or Advanced DXers. For me, the beginner's class was a chance to reinforce some of the rules necessary to be a good DXer and learn a few trick and techniques to improve my Q's (the contacts made during a contest). Concepts like how to run a frequency, handle a pile-up, search and pounce, effectively communicate a QSO, and manage and use of logging software. All of these added to some of the basics I use today or added to under a category of new found knowledge. Applying the lessons taught, honing skills learned, and applying the techniques will add additional contacts the next time I get ready to participate in a contest.

As it just so happened, two of our local (Santa Cruz) DXperts were on hand sharing their knowledge on what they are noted for, Winning DX events! Rob (K6RB) and Bob (K6XX)



Bob Wolbert (K6XX) was awarded the prestigious Jim Maxwell award, for the third time.

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CLUB MEETING FRIDAY MAY 20, 7:30PM



April 23—Our second session at The Abbey was very energized and well attended. I for one felt quite comfortable there.

We were pleased to welcome Bill Henley N6RHF and hope to see him more often. It is always a pleasure to have David WN5Y visit us from Texas. David is the inventor of the electroluminescent radio receiver. He is designing a companion TX using a DDS VFO made by WA1FFL. This product uses a 4-layer board as specified by Analog Devices to obtain the best possible single frequency dynamic range (SFDR). Anyone who has fought spurious artifacts will appreciate this. Great to see our Den Mother Kathleen KI6AIE as always.

Don's K6GHA enthusiasm seems to know no bounds. He was very impressed by the Visalia experience and we can look forward to publication about his experiences there. Bob K6XX was not present but we became aware of the recognition he has received recently. I know full well how valuable Bob is to our Club.

Don showed his impressive DX marked on a map of the world and described his first experience of a contact via both the short and long paths. Ten meters is opening many eyes and ears these days.

Tom KW6S talked about 2 more projects on his list, one is an end-fed half wave vertical for 40m and we discussed various matching options. The other project will involve modifying a SB220 for full-limit single-band operation on 6 meters. Air-core vs ferrite coils were debated.

Ron W6W0 talked about using computers to read CW. This is of special interest to K3 users who are trying to send PSK31 using the Morse keyer. Serendipity shows up often at our sessions and never was so amazing as in this topic today. Kerry K6RRY came with two stiff volumes of research done at the Naval Post Grad School in the mid 70's. One volume had a 20-word title including words like Bayesian, Probabilistically, Conditional Mapped-memory, Markov processes. This all had to do with decoding of manual Morse transmissions. We just don't know what we don't know!

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ARECIBO

to make the RF, and I have some photos of that, also, (another article) That is Dr. Mike Nolan, Director of Arecibo Observatory, standing next to the Klystron. Mike gave myself, and Angel Padilla of the Observatory, the E-Ticket tour of the Platform and the Gregorian Feed Dome where the rotary turret of many feeds, receivers and secondary and tertiary mirrors live.

There was so much to see that, I did not fully work out what I saw at the feedhorn other than that the water cooling of the horn, also meant that I or any other carbon based life wanted to be nowhere near the feed when the ON switch was pushed. Mike told me that when the on button was pushed, they could hear their Echoes off the moon TWICE. That's EMEME. He also said there is an extensive check



Arecibo Klystron



Arecibo antenna looking down

list that he is personally responsible for checking off before pushing the on button. All living things have to be cleared from many areas of the Dish and site if they want to continue to live when they turn on the blowtorch at 2.x GHz. Other photos I have show scorch marks left by birds, who had nests on/in the Gregorian reflectors that did not get out before use of the Planetary

Radar, used about once a month. Instead of Carbon Based compounds they are now elemental carbon. I took the photo of the rotary feed turret, noting the extremely fine machining on the the Radar Receiver horn cover mechanism, right next to the Microwave blow torch. Then I figured out why the precision work there. While map-

ping close objects like the moon, the Cryogenically cooled receiver has to be isolated from the 1 megawatt Microwave right next door. So the transmitter transmits a microwave blowtorch blast to the moon, with the receiver feed tightly sealed under the aluminum cover, which then has to open fully within 2.5 seconds to hear and record the bounce. This Transmit receive cycle goes on, over and over, during a scan of the moon, or other object in orbit.

Using laser positioning feedback, they manage to keep the phase center of the feeds, within about 3 mm of the correct coordinates to put the constantly moving beam in the right location at the right time.

If anyone (esp hams) visits Puerto Rico, contact me in advance, I can probably get you the E-ticket tour of Arecibo.

—73, Pat, AA6EG

SCCARC DIRECTORY UPDATES:

Alan Harwylyshen K2ACK now has his General license; his spouse is KC, KI6TDK; and his email address is incorrect in the directory, but you can use k2ack@k6bj.org to email him. The Steinbruner family's city is incorrect in the directory; they live in Aptos. —Kathleen KI6AIE

WELCOME NEW MEMBERS!

Rod Atlansky KI6UWN

Bob Fike K06XX

Carl Hensler KJ6MPY

Sky Merritt KJ6LDB

Patrick O'Rourke KJ600W

DX

were two of the five presenters who put on some great sharing of knowledge condensed presentations. In fact, during Bob's presentation, Tom and I often glanced at each other as Bob, almost in checklist fashion, answered questions we both wanted to ask from our discussion in the car ride down to Visalia. It occurred to me that maybe being new to DXing is like being a lemming heading for the sea (a group with similar questions and a singular direction)! What a great session.

Friday evening in Visalia generally is followed by "what is there to do in downtown for dinner"? For me it was walking back to Santa Cruz in the 1960's, literally. We walked about a mile around downtown taking in everything from the diagonal no-metered parking, neon signs (partly burned out), showcase windows, and a street cruisers atmosphere with car windows open or tops down. The friendly atmosphere of the place prompted me to ask folks where to grab a bite to eat. The consensus on the street was 'The Depot'. This served up a fine dinner in the old Visalia railroad depot.

Saturday morning arrived and I was back at the convention eager to take in the pretensions, show floor of new (and used) equipment, and the chance to talk to vendors, DX folks I had worked in the past few months, and ARRL luminaries. And, all of this fun for the price of admission. Who needs a carnival when you have a candy shop of information and the endless display tables of toys?!? Oh, and did I mention the presentations? Details were shared on DXpeditions (including 'how to' sessions), tools and practices for every event DXing and sessions on improving your antennas, Moon bounce techniques, VHF and 6-meters, and low power HF operation. What a day.

Later that evening, the International DX Convention banquet dinner provided a number of surprises as well. I settled at a table with some of Santa Cruz contingent (10+ at the event not including the Elecraft folks from Aptos).

During the awards program our own local boy made good. Bob Wolbert (K6XX) was awarded the prestigious Jim Maxwell award, for the third time! (The following day I read in ARRL that Bob also was awarded the 2010 ARRL Nov. CW Sweepstakes award for the Pacific Division).



By Art Lee WF6P

CHATTER

Hooray! Foreign broadcasts are booming in on 40 meters, jumping into the middle of our nets. Hearing the dulcet tones of Japanese women broadcasters once again is a good indication that our ham-friendly sunspots are back. QSYing to 80 meters this AM was no help as east coast operators were booming in also. It appears that "Happy Days Are Here Again" as the Depression Era song title goes.

Received an email from my sailing buddy Perry Olson. He and his Hunter 48 Bobby McGee, is about half way to Honolulu. Perry is a ham but uses email for position reports. Says they have been in heavy seas and winds making 5 knots and using his storm trysail only. Worse, his 30" cockpit nav station screen went totally black. His secondary screen is in the cabin at the navigator's table, inconvenient, but workable. Salt spray is no friend of electronic equipment, despite protective neoprene seals. At one time I considered going with Perry as crew. I even borrowed AE6KS Jeff's sextant to practice with. My celestial nav skills were far too rusty to trust, but I have my own hand-held GPS. In the middle of the ocean,

The Jim Maxwell Memorial Award is for the greatest overall contribution to NCCC Sweepstakes effort. <http://www.nccc.cc/awards.html>

So you may ask "why DX competitions"? For me, it is as simple as improving your understanding of your radio performance, your antenna and propagation, and most of all your radio skills.

The byproducts of DXing includes:

- Discussion of trends and new technology and its impact on contesting, with a like minded group.
- Improvement of your station's antenna and radio, by pushing the envelope of the technology to capture weak or rare DX locations, to the best of your ability.
- And practice through competing. As you contest you cannot help but improve your

it is always good to know where you are.

Noted with pleasure that Ken Adelman, K6KZA, made the Extra Section of the Santa Cruz Sentinel on April 15th. His photo, as an electric automobile enthusiast, showed him placing his finger on the electrodes of an electric charger station. He was proving that the safety feature works. Wonder if he wet his finger first? I always refrained from bridging contacts with any part of my human body. Heard of a little girl who was teased into putting her tongue on a 9-volt radio battery. She said it wasn't a pleasant experience.

While electric cars are not new, their range is far too limited for practical use. How about getting half way to San Jose and running out of juice?

An interesting insert came with my May issue of Popular Mechanics Magazine. "First Robotics: The After-School Sport That Will Change The World," showed various applications of winning machines. Most boys my age owned an Erector Set, complete with pulleys, girders, holed plates, wheels and an assortment of nuts and bolts. This, with a Tinker Toy set could provide hours of thought-provoking engineering entertainment. My flute-playing friend, Dr. Laura Serbus, is a UCSC biologist. Her lab uses robots to fill hundreds of test tube samples at a time. "We couldn't do that amount of research by hand," she said.

A dozen years ago I paid a visit to KN6VV Al Marconett's home in Scotts Valley. He had built a robot looking like something from NASA or R2D2 of movie fame. Al now works for a company building robots.

radio skills to copy weak signals and pass traffic.

At the beginning I said, "There are always surprises when stepping into the unknown" what surprise me most is what I took away from this year's International DX Convention: inspiration, applicable knowledge, refined techniques, and a sense of the challenge that awaits me. Best of my discoveries included the camaraderie shared by the new and seasoned, young and old, in a spirit of improving your own abilities to compete.

That just left Tom and me the 3 hour trip home to discuss and share what we had learned and plan for what still needs to be done... did I say that trip went by in a blink of an eye?!
73 and good DX.

SCCARC Board - 2011

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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 7:30 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+ PL123 (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 Tuesday

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

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

Cake

At one end of the table was a discussion of the evolution of our computing and communications science. When and what was the first true IC?, My earliest recall was the 4-bit micro processor around 1970. Remember magnetic core memory, punch cards, equipment rooms with 14 ft ceiling height and the shrinking sizes of every thing.

The group poses this question to the Club at large. What is the single most significant invention without which our hobby as we know it wouldn't exist?

You are invited to post your concise answer to the K6BJ reflector and responses will be judged at our next CAKE meeting on May 7th.

May 7—Kerry is right, we were off by one week from our usual 2nd and 4th Saturday sessions. No harm done, Don K6GHA, Tom KW6S, Oliver KJ6LDD, and Alan K2ACK provided very lively conversation. Where else can you have intelligent discussion of Arecibo, Synthetic Aperture RADAR, Moxon, G5RV and vertical antennas, in the space of one hour!

Oliver is making good progress with the DSTAR project and we had an initial contact with a friend of Ron's in Austria

Alan is making some simply amazing con-

tacts with his FT817, and Softrock radios. He clearly demonstrates the amount of fun in our hobby is often inversely proportional to expenditures.

We discussed the idea of a survey of 2-m simplex communications possibilities in our area. Sounds like an opportunity for a mid-CAKE weekend event. Don is thinking of the ways to increase his potency for contesting and Tom is priming a big gun for 6 meters.

I have been be-moaning the appearance of most ham radios these days being black, cluttered look-alikes. What happened to the style and two-tone appearance of Heathkit, Collins and some others. It was refreshing to browse a few German FUNK

Treasurer's Report

The March 31, 2011 Treasurer's Report presented to the Board of Directors in April showed that the SCCARC treasury had \$4,303.20 in cash and bank accounts (total less encumbrances: \$3,663.37). At that time all financial obligations for which invoices had been received had been met. The full Report, incorporating the current working budget as well as actual and projected income and expenditure figures for the full calendar year, will be available for review at the May 20 Club meeting.

SCCARC Calendar of Events

ARES Meeting (prior to club meeting)	Friday	May 20
SCCARC Meeting	Friday	May 20
Cake Meetings	Sat	May 14, 28
Board Meeting	Thursday	May 26
Short Skip articles due	Mon	Jun 6
SCCARC Meeting	Friday	Jun 17
Field Day	Sat-Sun	Jun 25-26

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)

5/16	Chris KG6DOZ
5/23	Byron N6NUL
5/30	Greta KI6NTL
6/6	Phil KE6UWH
6/13	Tom K6TG

Short Skip is published 12 times per year. Free to members.

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Columnist: Art Lee, WF6P

Writer: Ron Skelton, W6WO

AMATEUR magazines recently and noted there was more style and variety to be found in some European products. I think I will spray paint my K3 !!

This was my last CAKE meeting for a while but will be attending to email at irregular intervals so will not be entirely out-of-touch. I expect to be active on HF mainly 20 and 17 and will take part in the field-day events at two local clubs in KY

What FD call-sign will be used here ?

—Ron W6WO

The SILVARC/SCCARC effort will be K6MMM (Monkey, monkey, monkey).

"Horsing Around" will be AE6RF (mostly CW).

May Raffle:

Because of insufficient raffle items, it was decided at the beginning of the April meeting to move the raffle to May. Please take a look around and see what you can bring to help raise funds for your Club. Radio-related items are always appropriate, but feel free to bring anything that someone else might appreciate. Strange and unusual items especially welcome!

--Kathleen, KI6AIE