The California QSO Party

Local Stalwarts Brave Elements, Murphy to Participate in CQP

Local hams Byron (N6NUL), Kerry (K3RRY), Cece (KJ6BNO) and Donald (AE6RF) joined by Donald's son Joey and father Carrol (KG6YPH) braved the elements at Fremont Peak State Park to participate in the California QSO Party contest.

The California QSO Party is a friendly contest where amateurs all over the world try to work

K6WC operation tent nestled in the oaks at Fremont Peak State Park

as many California hams in as many different counties as possible. It is a chance for Californians to be highly desired DX stations and experience pile-ups and contact rates usually reserved for small, uninhabited islands.

Byron, Kerry, et al traveled to Fremont Peak to activate San Benito County. San Benito is historically a "rare county" due to its low population and even lower number of contesting hams. Byron and Kerry's group views their "county expedition" not as a way to win a contest, but a service to the ham community, allowing contesters and county hunters alike a shot to work a very rare QTH.

This year, the group's fourth, the group used a homebrew two-element wire beam for 15 and 20m. They also used a Super Antennas YP-3 raised from a tree branch for 10m. A shortened dipole provided contacts on 40m. Their trusty Elecraft K3 performed flawlessly. However, their Ameritron ALS-600 linear amplifier developed a sticky transmit/receive relay which cost them contacts for several hours before being diagnosed. They went "barefoot" from Sunday morning on.

Byron, Cece and Donald all took turns operating under the K6WC callsign. Byron and Donald were mainly CW guys, while Cece charmed many callers on SSB.

Cece also chased the guys out of the tent in order to operate SSB on 10m under her own callsign using Technician privileges.

Kerry and Carrol provided moral and physical support. Cap (KE6AFE) got into the act as a pilot station, providing communications and information to the party on

Cece at the helm
Off shift operators relaxing at K6WC site in Fremont Peak State Park

Fremont Peak from his warm, cozy home in Santa Cruz.

Eschewing the normal Spartan camping cuisine, Byron and Kerry served up fare ranging from home-made spaghetti sauce, garlic mashed potatoes and grilled steaks for dinner to imported oatmeal for breakfast. In a humorous twist the bachelors provided the gourmet meals while married man Donald provided the junk food (Pretzels, Poptarts and Dr Pepper)!

Showing the discipline and teamwork of long practice, the team had the Fremont Peak campsite completely clear of everything (tents, antennas, cookware, food stuffs, trash and recycling) and pulled out of the park a lightning fast one hour and forty five minutes from the last contact of the contest.

As the dust cleared, the K6WC team log showed 470 contacts and Cece made 102 more during her solo effort. Over five-hundred hams nationwide now have rare San Benito County in their log books thanks to the local CQP expedition crew. The team considers it a job well-done and even now are planning their expedition for next year...

(photo credit Byron C Servies N6NUL)

—73 de Donald, AE6RF

... ask what you can do for your Club!

Our annual election is coming up in November, and we need several members to serve on the Nominating Committee. Here's your chance to be involved in the leadership of your Club.

Email me at ki6aie@yahoo.com if you're interested in serving; the sooner the better, as the Board of Directors will be meeting this Thursday to select the members.

I look forward to hearing from you!!

—73, Kathleen KI6AIE Secretary, SCCARC

CLUB MEETING FRIDAY OCTOBER 19, 7:30PM

Cake Crumbs

To all Cake consumers

Our next scheduled session coincides with Pacificon so if seems appropriate to defer CAKE to the next date of Oct 27

Now that we are approaching winter we should give some thought to alternative locations bearing in mind that we may be victims of our own success and will need a place to hold a dozen or so who tend to get rather excited.

Any "coffee shop" accommodation will be hard to find so I am wondering if we might make regular use of community meeting rooms at either the City of Santa Cruz or Capitola. I will check on this for Capitola and suggest that Cap do likewise for S. Cruz

Our sessions could be tied to either breakfast or lunch and perhaps give us other options

All and any other suggestions would be welcomed, let me hear from you

Ron

During our CAKE session today several attending expressed interest in the idea of a coordinated WSPR propagation test such as a period either side of sunrise on one or more band. We didn't nail down any specifics as some were unsure of what it would take to participate. If you prefer to get the instructions directly from the Horses Mouth go to the WSJT home page and read the WSPR 2.0 Users Guide. Alternatively I have laid out the basics as follows. (Some bright spark might comment about the other end of the horse but I can't do much about that.

Hardware

Any simple antenna suited to the band of interest. A stable SSB radio ie one that will drift no more than +/-1Hz per minute This is probably within the capabilities of most modern transceivers after X minutes warming up. This is more important if you are intending to transmit and you should be able to lower your output power to 5 Watts.

A computer running your favourite OS, 1.5 GHz CPU, 100 MB of available RAM and a monitor with at least 800x600 resolution.

Your computer must be time-synchronized to a standard prior to the test and ideally would have internet access during or at the conclusion of the test.

A sound card capable of at least a 48 kHz sample rate, this could be internal to the PC or external via an interface such as the Tigertronics SignaLink.

Connections between the radio and PC depend on your radio and on whether you are using direct cables to the PC or using an external box that provides USB connectivity.

For RX only all that you need is a single mono cable to pipe audio from your radio (LineOut jack headphones or spkr) into the PC(mic or Line-in Jack).

To transmit you also need to pipe audio out from your PC into the radio and actual connectivity depends on what works for the specific radio.

A transmit On-Off control signal must come from the PC to Key the radio. This control can be delivered via RS232 connectivity typically using a DSR signal. VOX switching may also be satisfactory.

A Signalink unit requires only a USB connection to the PC for audio and TX control and it will be supplied with cables specifically designed for the particular radio model you specify. It takes care of ground loop isolation and provides a very clean arrangement with fingertip control over audio levels. A similar arrangement to a SignaLink can be made with an Elecraft K3 alone.

SignaLink setup information is quite specific and requires selection of the internal sound card for Windows tones before running WSPR at which point you will then select their USB codec using the Windows audio record and playback controls.

If you are already up and running with other digital modes such as PSK31 I suspect you will have met all the interface requirements.

Software

The WSPR application is available for downloading from this site URLhttp;//www.physics.princeton.edu/pulsar/K1JT/ and the download and installation process is straight forward.

The program presents a set-up screen which requires self explanatory station data including your 6 digit Grid Locator and your TX power in dBm (37 =3 Watts is the most you should use, 30 =1 Watt The setup screen asks for the method to be used for TX control as discussed above.

Take note that you must have either the internal sound card or the external sound card selected for the audio in and out codecs as well as USB for PTT control if that is what you are using.

WSPR needs to know which band you will be using and will indicate the 200 Hz wide frequency span that your radio must be within. You can position yourself toTX in that range with a click.

WSPR starts once you press the Idle button. You will soon receive notices that WSPR is receiving and then decoding and displaying the standard WSPR structured data received from remote stations. A short while later WSPR goes into TX mode, the Signalink PTT light goes on and the radio starts its period of sending.

The duration of the TX period is adjustable but is usually maintained at 20% of a complete 2-minute RX-TX sequence.

WSPR indicates the correct RX signal level to aim for and this would be adjusted either at your radio or the Signalink as the case may be.

Provided your PC is on-line a button on WSPR enables automatic uploading of your RX data to an associated site found as WSPRNet. This enables other stations to learn that you heard them. Conversely the database found there enables you to specify search criteria and to receive custom reports and graphs of stations heard by you or of stations that heard you.

I hope this is helpful and do encourage you to get more details from the excellent user guide on the K1JT site.

I hope that at a future CAKE session we can lay down specific plans for a WSPR test of propagation and comparative station performance.

—Ron W6WO

Treasure's Report

The August 31, 2012 Treasurer's Report presented to the Board of Directors showed that the SCCARC treasury had $4,487.77 in cash and bank accounts (total less encumbrances: $3,960.77). 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 October 19 Club meeting.

—KI6AIE

Weak Signal Reports Past and Present

Around the middle of the 20th century short wave listening was a popular hobby and many like myself built sensitive receivers using low-noise triode tubes called acorns (because of their size). With long wire antennas and the selectivity of young ears we were able to explore the limits of ionospheric communications using CW; the digital mode and code of the day. One conclusion that I came to was the smallest practical bandwidth for CW at 20 wpm was 100Hz.

A QSL card from a SWL with a true report of 439 was often appreciated by a DX station who may have had no idea that his signals reached the UK. Reports of 599 were as useless then as they are now. What a great thrill it was to receive a DX QSL card in return. We don't receive many SWL cards these days but I always respond first class whenever I do; we may be adding to our ranks in the future.

Now fast forward 60 years or so and we have the incalculable power of several modern coding and modulation techniques for weak signal detection and reporting. The leading scientist behind many such tools is Professor Joe Taylor K1JT, a Nobel Laureate, and his program called WSPR (WeakSignalPropagationReporter) program has me excited. All today's SWL needs to do is connect the audio out of a very stable RX to the input of a PC sound card and synchronizing the PC clock to within to a time standard.

Transmissions from stations all around the world are synchronized and sent within two-minute time slots. WSPR tells you first that it is receiving, then decoding at which point the screen lists details of any signals heard in that time frame. WSPR signals contain standard information that includes, signal-noise ratio, 4-digit grid locator and the remote station's TX. You will see that the SNR is negative (ie below the noise floor) and the TX maximum power is +37 dBm which is only 5 Watt

This is all very interesting to the SWL but how do DX stations find out that their 1-Watt signals had been received? A button on the WSPR screen of the SWL causes their received data to be automatically uploaded to a database called WSPRnet, designed and maintained by Bruce Walker W1BW.

By entering the search criteria of interest the TX station can obtain reports of their signals heard at any location. It will even display a map showing where those stations are located. This example shows stations that decoded the messages from my 5Watt transmitter over a 2-hour period on 20 meters.

This information raises many questions. How is it possible for stations as remote as Norway and Antarctica to accurately decode 5Watt transmissions from a simple vertical antenna? How can signals 20 dB below the noise be detected? The answers can best be obtained by reading Joe's WSPR user guide.

Briefly each message contains just 50 bits

and the occupied bandwidth is only about 6Hz, the keying rate is less than 1.5 Baud and strong error correction coding is applied; moreover the nature of the transmissions is predictable. This reminds us of the key word "Entropy" (the measure of randomness) used in Shannon's theory. Simply put the more predictable a signal is relative to noise/interference, the more information can be recovered.

Finally how about those negative SNR values? Be wary when one hears claims that may appear to challenge Shannon. WSPR reports SNR relative to noise in a 2500 Hz bandwidth while the detection bandwidth is only a few Hz. WSPR does an amazing job for its intended purpose but for interactive communications we need bandwidths with many more Hz. To use WSPR you will need a callsign to upload reception reports but if for any reason you cannot transmit be young again as a SWL.

—Ron W6WO

HF Propagation Outlook

The latest prediction from NOAA/USAF has solar flux on October 5-6 at 110, 105 on October 7, 100 on October 8-11, 115 on October 12-13,120 on October 14-15, 130 on October 16, 140 on October 17-18, and then 145 and 150 on October 19-20. The same forecast has solar flux rebounding to 150 on November 16, after reaching a minimum of 110 on November 4-5.

If you have only lived through the last few years of HF propagation you will likely be amazed of what La Grand Orange can do

Call for Auction items

At the November membership meeting we'll have our annual auction. This event usually generates a lot of excitement as well as funds for our Club. Now's the time to look around your shack and anywhere else you might find items to contribute. For the auction, the Club gets a minimum of 20 percent of the proceeds, although many members donate the entire proceeds. We are not limited to radio-related items--in fact, some of the non-technical items are often the most entertaining! So take a look around and remember, your discards may be someone else's treasure!

SCCARC Board - 2012

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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)
	K6BJ D-Star 441.675 +5MHz (D Star link: tinyurl.com/dstar-sc)
	• 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+ 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 Newsline 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

SCCARC Calendar of Events

ARES Meeting (prior to club meeting)	Friday	Oct 19
SCCARC Meeting	Friday	Oct 19
Cake Meetings	Sat	Oct 13, 27
Board Meeting	Thurs	Oct 25
Short Skip articles due	Mon	Nov 5
SCCARC Meeting	Friday	Nov 16

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:

10/15	Becky KI6TKB
10/22	Tom K6TG
10/29	Phil KE6UWH
11/5	Keith W6WKK
11/12	Becky KI6TKB
11/19	Tom K6TG

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-- Best, 73,   Pat Barthelow, AA6EG apolloeme@gmail.com

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and many more c website
—Rich Olsen