

J U N E 2 0 0 9

# SCOPE

A newsletter by and for the Palomar Amateur Radio Club of San Diego, California.  
See SCOPE in color on our website at [www.palomararc.org](http://www.palomararc.org).

Annual Club  
Picnic will be  
held in  
August!



Field Day is the fourth full weekend in June.



Setting up a packet station near the start/finish line of the PCT 50 Mile Endurance Run. Because the central database station was nearby, a handheld transceiver with a short whip antenna was sufficient.

## June Highlights

Paul Williamson KB5MU writes on page 5, "The event went remarkably smoothly, both on voice and on packet." Read his report on the Pacific Crest Trail 50 Mile Endurance Run.

Ron Pollack K2RP describes ham radio during and after World War II starting on page 8. Don't tell Ron, but there will be a special presentation for him at the June PARC meeting.

Larry N6NC writes about remote CW Skimmer project. Learn how to log in and check it out on page 10.

## Save the Date!

### Club Meeting

**3 June 2009**

Monica Zech talks about CERT at 7:30pm Carlsbad Safety Center.

### Board Meeting

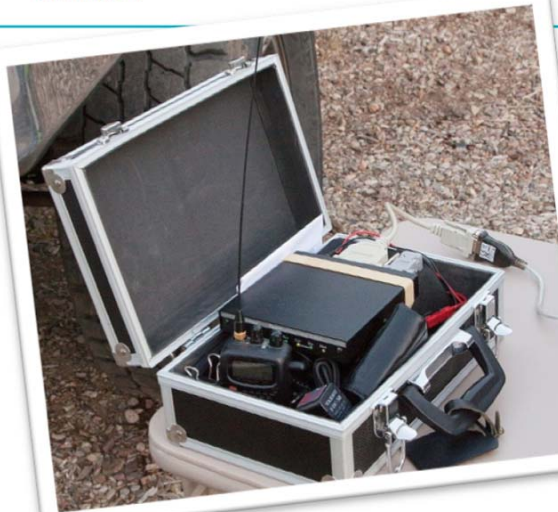
**10 June 2009**

At W6GNI QTH. Meeting starts at 7:00pm.

### Field Day

**27-28 June 2009**

Don't miss our lean and mean Field Day Machine this year!



Pictured above is a packet station in a box, used at the start/finish line for the PCT 50 Mile Endurance Run. See page 5 for the article about the race. Below is an Acer Aspire One netbook computer running the Runner Track software at the start/finish line.



Pictured below is the central database station. Two packet stations are to the left of the computer. The radio to the right of the computer is monitoring activity on the voice net. Photos by KB5MU.



## Club Reports

**Got news? Send reports about your activities and things that you think other club members need to know to [scope@palomararc.org](mailto:scope@palomararc.org).**

### Membership

New Members Joining PARC:

KE6RLA, KI6LEX, KI6YEW, AF6JN, KI6YFD, KI6TWZ, and KI6JTC.

And several reinstatements. Welcome back.

We now have 79 members that have elected to receive the SCOPE on the web. And, we have noticed that a number of those receiving the SCOPE by web mail do not have the monthly label to remind them when their membership is nearing renewal time. So, the board has recommended that we print the calls of those that are near renewal time, in the SCOPE as a reminder.

SO - Here is the list of members that either "expired" in the last month or so, along with those whose renewal date is in the next month or so. Please check this list, and get your renewal checks in the mail!

PLEASE!!! N6SF, KI6FVN, N2CDP, N6MJS,  
KI6LAY, KI6KJG, K6JWP,  
W6TVA, NN6X, W9WV,  
WZ6RAM, W6PUG,

### Fold and Staple for May

KB6NMK Jo  
K2RP Ron  
W6GNI Al & Kathy  
WA5ACE Sonny  
KB6YHZ Art



## Field Day Update

By Dennis Baca KD6TUJ

Pictured at right is Charlie NN3V operating at the 2008 PARC Field Day.

PARC has a chance to be at a different location this year. The Board is finishing the request process to locate PARC at Guajome County Park. This would be just past the night entrance for the campground.

We have the San Marcos site if this does not complete.

The commitment we have this year would place PARC in the 3A classification.

As such we are looking at operating 20/80 phone/digital, 15/40 phone/digital, 10/6 phone/digital, and GOTA.

Set up starts at 12:00pm on Friday where PARC spots equipment and puts up the towers and antennas and generally sets up the stations.

Saturday final checks are made prior to the



11:00am local start time.

Sunday at 11:05 tear down and clean up begin.

Lots of help is needed for set up and tear down. This is a good time to learn or remember how to set up the PARC portable towers. With Harv's K6QK flip brackets, our antennas are easier to put up.

Dennis KD6TUJ

## Solution to May Puzzle

*Mile markers on interstate highways increase traveling North and restart when crossing a state line. The car traveled 300 miles, so it must have crossed a state line at mile marker 150 in the first state.*

*From Al Donlevy W6GNI*

## June Gloom Puzzle

*What's the original proverb?*

*A proverb is written with exactly one letter of each word replaced with another. Can you figure out what the original proverb is?*

**Wetter mate that fever.**

## For Sale

### Club Classified Advertisements

Spot a good deal  
in the Scope!



Personal equipment ads are free to members and will run for at least one month. Send your ad to [scope@palomararc.org](mailto:scope@palomararc.org)

Commercial ads are \$2 per column inch per month. We will adjust your ad copy to conform to the number of inches bought.



### Drake Receiver For Sale

Drake R7 Receiver for sale. Excellent condition. Asking \$800 If interested please Email me, [slevy1@san.rr.com](mailto:slevy1@san.rr.com) or call during day or early evening at 858-755-0571.

Stephen L. Levy, KG6VSF

## Amateur Radio Town Meeting

**Preserve YOUR rights to install residential radio antennas.**

Please RSVP to [K6ESC@cox.net](mailto:K6ESC@cox.net) (we need a head count)

North County Amateur Radio Town Meeting

Presented by Escondido Amateur Radio Society and ARRL Southwestern Division

Date: Thursday, June 11, 2009 -- 7:30pm

Location: 1301 Las Villas Way, Escondido 92026

Escondido Salvation Army Building, Exit I-15 at El Norte Parkway eastbound.

Talk inbound on Escondido Repeater - 146.880 -107.2

Thanks

73, Dennis N6KI

# Pacific Crest Trail 50 Mile Trail Run

## Communications Report

By Paul Williamson KB5MU

On May 9, amateur radio operators provided support for the Pacific Crest Trail 50 Mile Trail Run. The run was relocated at the last minute to the course planned for the San Diego 100, after a military helicopter crashed near the PCT and scattered live ordnance all over the place. Fortunately, the same group had already been planning to support the San Diego 100 run in June, so plans were already in place for the new course.

Ham support for ultra trail runs is focused on runner safety. Runners are scattered over many miles of back-country trail, far from any facilities beyond those provided by the race organizers, and they are stretching the limits of human endurance. Minor injuries are not uncommon, and more than a few runners drop out before completing the course, due to exhaustion or by taking a wrong turn on the trail and getting lost. The race organizers set up aid stations or checkpoints along the course, where runners can eat, drink, or rest, obtain limited medical assistance, and rendezvous with friends in case they need to drop out and be driven home. The organizers keep track of each runner by bib number as he or she enters and leaves each checkpoint, so they know when and where to search for a missing runner. Ham radio operators assist in collecting this information and relay it to a central point, where it can be checked for consistency and any stray runners detected.

Hams have been doing this by voice for years. This works well enough, but the voice relay means that runner position data is a bit stale, and only the bookkeepers at Net Control have access to the collected information. If the race director or other official needs to know the status of a particular runner, for instance, a

time-consuming query must be relayed to Net Control and the answer relayed back. Lately we've been experimenting with using packet radio with specialized software to handle the data collection and querying functions. At the PCT50 run, we deployed a full set of voice stations (as primary) and an additional set of packet stations, which ran independently of the voice operations as a test. Each checkpoint packet station included a Windows laptop running Runner Track software by Gerry Walsh, KB6OOC, and a central packet station ran specialized database software (also by KB6OOC) that collected the information and distributed it back out to the checkpoint stations as needed.

The event went remarkably smoothly, both on voice and on packet. This was the first time I'd been involved in an event where the hams kept track of each individual runner. My assignment was to be available to troubleshoot any packet-related problems that came up. Because of the lack of problems, I was free to roam around and visit all the checkpoints, the database site, and voice net control. Here's a random collection of thoughts about the packet operations, taken from my post-event debriefing email.

Each checkpoint was free to make up its own procedures. At some checkpoints, the radio operators were making their own observations, and at others there were separate people doing that. Generally the checkpoints with separate observers ended up handling the times in large batches, which meant the times were rather stale before they were transmitted. This could be mitigated by having one more person, whose job it would be to shuttle back and forth between the observers and the radio operators. However, I think the better approach is to site the radio operators very close to the observers,

*continued on page 6*

*continued from page 5*

so they naturally get every observation as it happens. This would require more coordination between the radio operators and the aid station personnel, which would be a good thing all around.

I was surprised to find that the voice operator was really no busier than the packet operator. Both methods are quite practical for moving the data from the checkpoint to the central database or net control. Where packet really shines is in its ability to answer queries at checkpoints. It does a great job with queries like “how is runner 27 doing?” or “when is runner 27 going to get here?”. If the customer doesn't know the bib number, though, there's no good way to find it. A text search on the name list would be a handy feature for a future version of the program. At checkpoints where the packet operators were caught up and handling each entry as it came in, packet operation was more convenient, because the operator was free to type stuff in at will, without waiting for anybody else. The voice operator had to wait for a lull on the channel, then get a word in edgewise to net control, then send traffic. That overhead encourages batching up the numbers, which leads to more delay, which increases the wait time, etc. Packet is a better design for the convenience of the operators.

The biggest practical problem in setting up one of these packet stations remains the lack of a good display screen that's readable in the sunlight. This problem forces the packet operators to have elaborate setups that can't easily be moved around, which limits flexibility. There has to be a better way! A laptop based on an e-paper display (like a Kindle eBook reader has) would be great. I'm not holding my breath, but recent industry announcements point to availability “soon” of an affordable LCD-based display technology that is daylight-readable (in black and white) and consumes less power than existing laptop displays. It will also support conventional full-color backlit operation. I want one!

Most of the packet operators were listening to the voice net, too. I am worried that when we go to packet-only (really, packet-mainly) operation, the packet operators are going to have nothing to listen to and they will get bored. Or, they will listen to something else and get distracted. There's a lot of waiting around at one of these events, and I'm concerned that it will seem like an eternity without the chatter on the voice net.

My biggest concern, though, is that the Runner Track software is so very specialized. Operators who have used Runner Track a few times to track runners are fully qualified to ... track runners using Runner Track. They may have a clue or two when it comes to setting up a packet station. Other than that, the training is not very portable to other situations. In a real emergency, we won't have such specialized software optimized for the exact problem at hand, and even if we did, it wouldn't be exactly like Runner Track. There ought to be a way to do the runner tracking job effectively with software that isn't so specialized, even if it means giving up some of the convenient optimizations that Runner Track provides for runner tracking.

Suppose, for instance, that we had a spreadsheet application like a simple version of Excel that could be jointly edited by all stations. Something like that would be very useful for a wide variety of situations, and would serve for runner tracking. I think with some clever design a program like that could be almost as efficient in airtime utilization as Runner Track. It would be somewhat less convenient for the operator, but that might be a good tradeoff if it meant the operators were getting trained to use something of general utility.

See photos of the operators and operating stations on the following page ✱





Above, Ed W6ABE uses a plastic storage bin to shield his laptop's screen from the bright sun. This is partially effective.

At right, Georgia KI6LAV operates the packet station at a checkpoint from inside her Toyota Prius. The car can provide air conditioning and all the 12VDC power you need for about four days on a tank of gas, but the operating position is a little cramped and not very social. With sunshades on the windshield and side windows, she had no trouble



Above, Dean K6DBJ mans the central database station. Two transceivers and two TNCs are used to accommodate simplex users a separate channel from digipeater users.



Above, sometimes extreme measures are required to make the laptop screens readable in the sun.



Above, Dave K6ROY attempts to identify incoming runners before the other spotters do.  
Photos by KB5MU.

## World War II Ends

By Ron Pollack K2RP

Even before America's involvement in World War II in late 1941, the hostilities in Europe had major effects on US hams.

By the time the war began, half of the world's DXCC countries had banned their amateurs from contacting other countries. Content of conversations were limited for many others. In the effort to prepare for our military involvement and help our allies, consumer production of electronic equipment was severely limited, making components and manufactured units scarce. In addition, the shortage was so severe that for the duration of the war, hams were encouraged to donate meters, parts and radios to the war effort. Thousands complied.

Immediately after Pearl Harbor, all amateur activity was banned, with the exception of ARRL headquarters station W1AW, which broadcast bulletins throughout the war. The WERS, War Emergency Radio Service was established to provide the type of emergency communications ability that hams had provided for years. It operated on the 2.5 meter band, the forerunner of the current 2 meter band. It was not an amateur service, but was under the control of hams who were not in the military. It is estimated that of the 51,000 licensed hams, about half served on active duty, as radio operators and instructors in Morse code and electronics. Although no amateur activity was permitted, the licensing process continued, to provide trained operators for the war effort. When the war ended with VJ Day in the summer of 1945, the nation quickly returned to consumer manufacturing, as the demand for consumer goods was huge due to wartime shortages. Electronic equipment was no exception. Our bands were returned to us gradually starting in November of 1945, and all bands were back in amateur hands by 1946, with the exception of 160 meters, which was in use by Loran, and was returned in pieces regionally for the next many years.

But, after almost 4 years of inactivity, equipment was required. Much of the prewar gear had been disposed of, so there were 3 major avenues to renewed activity: Home Brew, New Manufactured Equipment, and Military Surplus.

Before the war, most transmitting equipment was homebuilt, and many postwar transmitters were also. Part procurement was initially difficult, but many parts were released as surplus by the military.

New equipment began to trickle out of the factories in 1946, but as in the automotive industry, many were "warmed over" versions of prewar designs. In the immediate postwar years, Hammarlund, Hallicrafters, and National were the leaders in receivers. Each produced a variety of models from the primitive S38 from Hallicrafters to sophisticated high performance ones like the HRO series from National. In the next few years, the technical advances made during the war were incorporated into amateur equipment, and companies like Collins began to produce lines of amateur equipment of high quality. The variety of models increased, with all price points represented.

Perhaps the most significant change in how hams got on the air after the war was the availability of military surplus. Thousands upon thousands of new and used transmitters, receivers, and accessories were made available for a tiny fraction of their original cost. Each month, QST and CQ were filled with articles describing conversion of these units to make them suitable for amateur use. In addition to basic receivers and transmitters, hams converted these well constructed units for use as VFOs, antenna tuners, switch boxes, "Q5ers," and myriad other projects, both in the HF and VHF ranges. Parts and tubes were similarly available. Some of the most popular and useful were the BC348 receivers, which contained dynamotors for power, the ARC 5 series of aircraft transmitters and receivers (also known as SCR274N and "Command Sets,") and the

*continued on page 8*



*continued from page 7*

SCR522 VHF equipment. Surplus equipment was plentiful at least into the late 50s, and some are still heard on the air during Classic Equipment events. As late as 1957, receivers like the one shown were widely advertised for less than \$5!

Shown here are two survivors of that era. The Hallicrafters S40 was a 9 tube general coverage receiver, perhaps based upon the prewar S20R. This model was later upgraded to the S40A and S40B, and production continued for 10 years, when it was replaced by the S85. This is remarkable considering the advances made in receiver design during those years, as only the most minor changes were made, such as replacing the obsolete 80 rectifier tube with the more modern 5Y3, and miniature IF transformers. These receivers were very popular in their time, and included an RF and 2 IF stages, putting them way ahead of the AC/DC S38 series. A tunable BFO was included but one of the biggest deficiencies was the lack of selectivity for CW use. Many of them were fitted with the ARC5 Q5ers to make them more usable in the crowded bands. Later, when Heathkit introduced their inexpensive Q multiplier, many were fitted to S40 series receivers as well. At introduction, these sold for about \$80. By the time production ended, the price was up to about \$130, for virtually the same receiver. I was fortunate enough to pick this unit up at a PARC auction, where it was donated to the club by Michelle W5NYV, our Scope Editor!



After a bit of work and alignment, it's back on the air!

The next photo is of a converted BC455 receiver, part of the ARC 5 series of military aircraft communications sets. This model covers the range 6 to 9.1 MHz, so was popular for 40 meters.



Other popular models covered 1.5 to 3 and 3 to 6 MHz. The aircraft had 24 volt electrical systems, so the filaments were wired in series/parallel for that voltage. Most users rewired the filaments. Also, a small power supply had to be built to provide the high voltage that was supplied by a dynamotor in the airplanes.

A word about the "Q5ers:" Selectivity was a problem in both the manufactured and surplus receivers. One of the "Command Sets" was the BC453, which covered 190 thru 550 KHz. It had an 85 KHz IF that was much more selective. It was common practice to take a receiver with an IF that fell in that range, connect the output of the IF stage (455 KHz in the case of the S40), and feed it into the input of the BC453. Then, the '453 was tuned to 455, and, instantly, we have a double conversion receiver, with much greater selectivity. These receivers are typical of what the low-to-middle price station was using at the time, mostly with homebrew and surplus transmitters. \*

## N6NC Remote CW Skimmer Online

In the recent April and May issues of the Scope, Paul Williamson KB5MU described the capabilities of the software program called CW Skimmer. In this article, Larry N6NC describes a project that several PARC members are involved with. In a future issue of the Scope, contesting details and strategies will be more fully described.

As you may have heard, a new category of ARRL contesting was announced at the software defined radio forum at Dayton Hamvention this past May. The Unlimited category answers the call for innovation in contesting, given the advancements and capabilities of software defined radio and other modern rigs.

### Larry N6NC writes

"I am pleased to announce that we have the N6NC Remote Skimmer provisionally operational, and looking for a permanent site. The remote CW Skimmer is now located at my home QTH in La Jolla fed by a modest 23 ft marine vertical overlooking the Pacific. It seems to copy good Pacific rim and SA DX on 40m at night.

Under the ARRL's recently revised Contest Rules, remote CW Skimmers are now allowed to be utilized during ARRL contests in the Unlimited and Multi-Multi categories. Also, CQ Magazine Contests will announce shortly the creation of an experimental "Extreme" contest class, where virtually anything goes.

The CW Skimmer is software that can monitor up to 96 kHz of bandwidth (covering virtually all of the HF CW band segments), and decode simultaneously virtually every CW signal it can hear through its dedicated SDR radio. I have implemented the system using a dedicated fast new Dell computer and an RF Space SDR-IQ sdr radio. The CW Skimmer software is set to send telnet spots (just like a DX Cluster) of all

CQing stations it hears on the band on which it dwells. Other software (SkimScan) rotates the CW Skimmer for 10 or 15 minute periods during the day through the other potentially open bands (usually dwelling on 20m) to see if there are any band openings. At night, the skimmer dwells on 40m.

**You are welcome to log in to the N6NC Remote CW Skimmer to receive its spots as telnet spots either directly in your computer's telnet window, or in the telnet window of your contest logging software. The IP address of the CW Skimmer is: 71.137.9.161**

If you want to telnet in directly (on WIN XP or WIN 98 computer) get into the DOS window by:

Click START

Click RUN

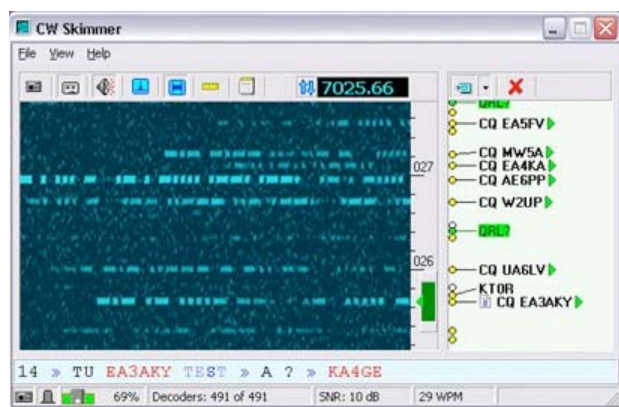
Type in CMD <enter>

At the C:\ prompt,

Type: telnet 71.137.9.161 7300 <enter>, then enter your callsign when requested.

The CW Skimmer is reasonably stable (meaning it doesn't disconnect too often on its own) but there are still some glitches. Please feel free to report any problems, suggestions, or proposed nighttime band scanning schedules to me at [hlserra@sbcglobal.net](mailto:hlserra@sbcglobal.net).

73, Larry N6NC"







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## Featured Program

The program for the general meeting at 7:30pm on 3 June 2009 at the Carlsbad Safety Center, 2560 Orion Way, Carlsbad will be on the subject of CERT and will be given by Monica Zech.