

W7DTA

Volume 2010, Issue 10 October 2010

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Club Web Page:		http://www.gsl.net/w7dta	

Next Club Meeting
 Thursday, October 7, 2010, 7:00 PM
 Red Cross Building, 60 Hawthorne St., Medford, OR
 Across from Hawthorne Park
 Program: Local Ham Stations

President's Letter

Again my thanks to Tom McDermott N5EG for his graphic explanation of HF propagations at the September meeting. Also thanks to Ellis Feinstein, K7MFR for the use of his video projector. The October meeting will feature a show & tell of local amateur stations on video presented by Don Bennett, KG7BP and Jack Schock, WA7IHU.

There will be more goodies from the N7NS estate available at the meeting; this includes more free books, and some items for sale. The Club owes a big thank you to Van Sias, K7VS for merchandizing N7NS's equipment, largely on e-bay. The Club will gain financially from this venture, the proceeds which will be split with the estate. Also Chuck Meek, KB7LHM has donated his equipment to the club. This includes a Kenwood TS820 transceiver, with microphone and antenna

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Secretary's Report

MINUTES OF THE 2 Sept 10 ROGUE VALLEY AMATEUR RADIO CLUB MEETING.

The meeting was called to order by President Herb Gray, W7MMI at 1905L in the Red Cross building in Medford, OR.

Herb had our guests introduce themselves. They are Carl Van Orden, KF7LAF and John Griffin, KF7JWC.

Herb said, "since the minutes are in the news-letter they will not be read." Treasurer Lud Sibley, KB2EVN said, "the approximate treasury balance is \$1400 plus."

OLD BUSINESS:
 Scott Cummings, KD7EHB gave a report. Field day got off to a slow start because they couldn't set up on Friday. The event was a

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President's Letter, Continued

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tuner. Thank you, Chuck.

At the October meeting, an officer nominating committee will be named. If during the month you are asked to serve as a Club officer for 2011, the correct response is "yes." New officers will be elected at the November meeting and installed at the December event.

I will propose a five dollar reduction in dues for those who receive the newsletter on-line rather than a printed copy by mail. I'll explain my position at the forthcoming meeting

Those of you who take for granted the coffee and donuts we share during the meeting break need to thank Don Bennett KG7BP and Jack Schock WA7IHU for their loyal efforts. I thank them again right now! Also I thank Tom McDermott N5EG for publishing the top-notch newsletter every month and Dave Basden W7OQ for an excellent job maintaining the Club's web site. Both of these have seen BIG improvement since Tom and Dave have contributed their talents.

73, Herb W7MMI

Two Meter Repeater Frequency

In order to provide a common place to find fellow RVARC club members on two meters, we recommend using the K7RPT 147.62 / 02 repeater as a calling and monitoring frequency. This is an open repeater (no tone or PL access required). The repeater listens on 147.62 MHz and transmits on 147.02 MHz.

Secretary's Report, Continued

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success with several CAP cadets operating. Around of applause was accorded to Scot, Don Bennett and Tom McDermott for the efforts in making the years field day a success.

NEW BUSINESS:

Pete Bateman, N7NS a well know local ham passed away. Van Sias, K7VS volunteered to get rid of his electronic stuff. Pete's brother Erick asked Van sell the gear and he would split with the radio club. Van made a motion and Lud seconded it and it pass stating "the RVARC club members would sell the gear and split 50/50 with Erick the profits minus any expenses like selling and shipping." Van will make a complete listing of the gear.

At 1930L Herb put the meeting on hold for coffee and "eye ball" QSO.

At 2000L Herb called the meeting back into session. Tom McDermott, N5EG put on a very informative presentation on radio wave propagation.

Herb adjourned the meeting at 2100L.

Submitted by Jacob O. (Jack)
Schock, WA7IHU secretary.

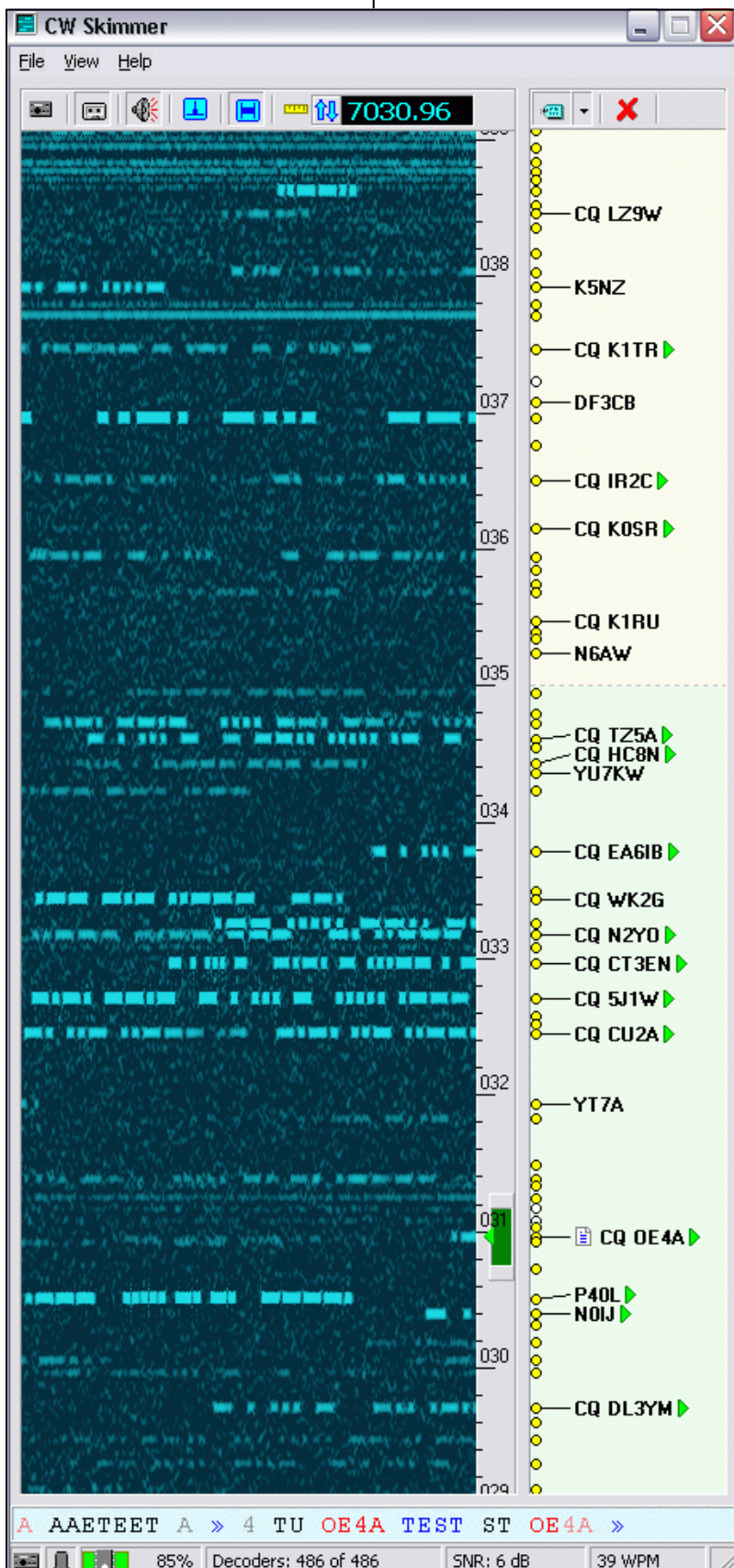
Club Badges / Newsletter Labels

Club badges were finished and available at the September meeting for memberships received up through June. The labels & email on club newsletters should be current as well. If you've renewed and are not receiving the newsletter or are missing a badge, please let Tom, N5EG know at the next meeting.

CW Skimmers and Reverse Beacons

Most hams probably know what a beacon is—it's a station that blindly transmits periodically on a known frequency, usually with power levels that are stepped in a known sequence (100 watts, 10 watts, 1 watt, 100 milliwatts, etc.). There are particular frequencies used by beacon stations throughout the world, and the beacons are coordinated in time so that they each transmit at a different time in a 3 minute cycle. Beacon stations allow you to determine where the band might be open, and the varying power levels let you know how strong a signal you can receive at any given time that you are monitoring the beacons.

However, it would be nice to know how strong your particular transmitter is, and where in the



world it might be heard. That's tough to do when no one is listening to you from certain parts of the world, or maybe even if no one is listening to you at all. How do you get a signal report if no one works you?

Well, it turns out there's a way—a reverse beacon. A reverse beacon is actually a network of wideband receivers all over the world that are constant listening to the CW parts of all HF ham bands. If your callsign is detected, even for the briefest moment, these stations automatically send a packet spot—not to the packet spotting network, but rather to the reverse beacon network—which is an Internet-based server. These spots indicate which of the monitoring stations heard you, your frequency,

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CW Skimmers and Reverse Beacons, continued

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the time of day and date, and your signal-to-noise ratio (SNR).

Such a collection of stations send enormous numbers of spots each second to the reverse beacon network—so it's quite a computer cluster that processes these reverse spots.

Each monitoring receiver in fact needs to be able to listen to an entire ham band. Fortunately that's actually pretty easy to do these days by using a software-defined-radio (SDR). The typical SDR can receive an entire swath of 80-160 kHz at one instant in time. Some monitoring stations in fact have an array of receivers, each one listening to a different ham band. Many of the monitoring

Skimmer, written by Alex Shovkoplyas, VE3NEA. The software can simultaneously in real time pick out every individual CW call within the SDR window, typically about 80-kHz—a remarkable feat of software engineering. This software can in fact pull out hundreds of CW calls across a band at the same instant in time. During busy CW contests it extracts calls, SNR, and frequency and generates a bandmap which is used by assisted testers to speed up the process of finding and working signals.

The first screenshot shows a CW skimmer in wideband mode on 40 meters. It's displaying signals from 7.029—7.039 MHz and the calls associated with each one. The skimmer is running 486 different CW decoders at the same time, using 85% of the CPU capacity.

REVERSE BEACON NETWORK

[welcome](#) | [main](#) | [dx spots](#) | [skimmers](#) | [downloads](#) | [about](#) | [contact us](#)

[show/hide my last filters](#)

showing spots for DX call: N5EG rows to show: 15

[search spot by callsign](#)

de	dx	freq	cq/dx	snr	speed	time
WZ7I	N5EG	14005.0	CQ	19 dB	23 wpm	0301z 02 Sep
N4ZR	N5EG	14005.1	CQ	10 dB	23 wpm	0301z 02 Sep
K1TTT	N5EG	14005.0	CQ	22 dB	23 wpm	0301z 02 Sep

stations use the SoftRock SDR transmitter/receiver in just the receive mode. It's a very inexpensive kit. This is the same kit shown by Van Sias, K7VS at the RVARC meeting in 2008. There are also receive-only versions of the SoftRock kits available.

The next thing needed is the ability to recognize all the CW callsigns in the entire pass-band. Fortunately that problem has been solved by a piece of software called the CW

However, this skimmer is also sending this information in real time to the internet reverse beacon system. As a result, if you transmit CW at anytime, there's a pretty good likelihood you will be heard by one or more of these receivers, your call recognized, and spotted all within just a second or two.

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CW Skimmers and Reverse Beacons, continued

As a test, I fired up with 50 watts to a dipole on 20 meters in the evening on a pretty dead band, and sent TEST DE N5EG N5EG just one time — I was picked up by three different stations. The screenshot shows the report generated by querying the reverse-beacon database with my callsign about 20 seconds later. It shows that WZ7I, N4ZR, and K1TTT each picked up my 50 watt signal on 14.005 at 0301Z with varying SNR values, at 23 WPM. In this case 'DE' refers to the station receiving the signal off-the-air (the spotting station), and 'DX' refers to the station heard, regardless of how near or how far away it is from the particular radio receiver that is listening.

Now, if I ever want to make changes to my station, I can rerun the test and see if the SNR values have changed, and know plus/ or/minus band conditions if the change was a good one or not. Of course static, poor propagation, or other changes will obviously impact the reported SNR as well as any modifications you may have made intentionally. Note that the only equipment you need is a web browser and an HF station.

Each monitoring station uses a bank of SDR receivers and a bank of CW skimmers to receive all the bands, extract all the CW calls from the aether, and report them to the network. Most of the active skimmers are in North America and Europe, with a few on in Russia. I did not see any on from Asia at the time I looked. Hopefully we will start to see some from more parts of the earth over time.

The beacon database is in fact searchable on a lot of different fields and with a lot of different restrictions. So, for example you can search not only on your own callsign, but for any callsign. Or you can restrict the band, the spotting station, the time, date, etc.

Additionally, you can download the spotting database for large periods of time. These databases are exported in Microsoft Excel CSV (Comma Separated Variable) format, a text-based format that separates each field in the database with a comma, and each record with a Carriage Return character. During busy contest weekends, however the databases are much larger than Excel can handle (65,635 rows) so you will likely need some other tools to process the data instead, such as Microsoft Access, a SQL database, or a custom-made software tool.

Such analysis can, for example, find band openings that happened in the past, or provide statistical analysis of calls heard, path SNRs, or many other relationships. It's a great database for doing all kinds of propagation analysis, contest activity analysis, etc.

Some major contest organizers may be looking at using the reverse beacon database to adjudicate disputes in some CW contests. Particularly if there's doubt whether a particular station claimed was actually on the air or not.

Links

- You can find information about the CW Skimmer at:

<http://www.dxatlas.com/CwSkimmer/>

- The main webpage for the reverse beacon network is located at:

<http://www.reversebeacon.net/>

- The webpage for the SoftRock kits is located at:

<http://www.kb9yig.com/>

For Sale

iCOM Dual Band FM Transceiver IC-T7H
2 meters & 70 Centimeters. BP-173 battery
(condition uncertain). MB-30 mobile mount-
ing bracket, HM-54 speaker-microphone,
CP-12L Cigarette lighter cable with noise fil-
ter, instruction manual.

“Your Mobile Companion”, “Ham Radio
Made Easy”, “Your VHF Companion” and
“Ham Radio for Dummies”

Asking \$150

Richard Headley
(541) 244-1554 [home]
(432) 294-0562 [cell].

Next Club Meeting

**Thursday, September 7, 2010, 7:00 PM
Red Cross Building, 60 Hawthorne St., Medford, OR
Across from Hawthorne Park
Program: Local Ham Stations**

**Rogue Valley Amateur Radio Club
c/o 3950 Southview Ter.
Medford, OR 97504**