

News From...



# CVARC

Conejo Valley Amateur Radio Club  
PO Box. 2093 Thousand Oaks CA 91358-2093

Web site: <http://www.cvarc.org>  
Robert "Neil" Waybright, Publisher



June 2006

## President's Message – Something new

By Steve Champion, AE6NX

### Articles:

President's Message

June 15th Club Meeting

Field Day Preparations

Sea To Summit 2006

Testing NVIS Suitability For Local Events

Preview of Upcoming Club Meeting Speakers

One of the nice things about Ham Radio as a pastime is the sheer breadth of the hobby. For newcomers there is a lot to explore. For seasoned hams there is the opportunity to dabble in new areas so as to keep the hobby interesting. This month I'd like to suggest that you go out of your way to sample something new, just to experience more of the hobby. Here are some ideas (in no particular order):

- Try a new band. If you have equipment that covers a band that you have barely used, try it. If you need to borrow equipment, then do so.
- Call CQ and talk to someone that you don't know. Sure, sometimes it just is not possible to find much to talk about beyond exchanging signal reports and the weather... but if you talk to enough people, from time to time you will have some of those really interesting QSOs.
- Try a new mode. Play with a mode that you haven't used much. Dust off your CW key. If you haven't tried PSK-31, Hellschreiber or other digital modes yet, then download some free software and put your computer's microphone in front of your receiver's loudspeaker. No interface required (for receive, anyway).
- At the club meeting, go and talk to someone that you haven't spoken to before. Sure, it is more comfortable talking to the people that you already know, but it really isn't so hard to get to know the others. Everybody has a slightly different perspective on the hobby.
- If you don't operate mobile, try setting up a station in your car. Even a mag-mount antenna and a rig plugged into the cigarette lighter will work. And it is not just while driving that it can be fun. Some of my best mobile QSOs have been while waiting for someone. If you already have a VHF or UHF station in your car, think about an HF set-up. It is more

(Continued on page 6)

## June 15th Club Meeting "Field Day Preparations"

The field day committee members will be speaking on the club's preparations for field day. We have the site reserved, "facilities" arranged, dinner Friday and Saturday night organized, and many other details to share. Please join us at the June 15th meeting to get up-to-date on all of the details for field day. Bring a pad of paper and be ready to take notes on what you need to know about operations on your favorite bands and modes. We will not be operating QRP this time, so HF operations should be more productive this year. Additionally, we have the opportunity to use a networked call-sign logging program which will take the work out of de-duping and make single-

(Continued on page 4)

Ventura County Area 2 ARES/RACES members are encouraged to check in every Tuesday night at 7:00 pm on the Area 2 Check-in Net. Specific ARES/RACES times and frequencies are as follows:



Radio  
Amateur  
Civil  
Emergency  
Service

Area	Time	Mode	Frequency	PI	Repeater
County	7:30 - 8:00 pm	Voice	146.880 -	127.3	WA6ZTT
County	7:30 - 8:00 pm	Voice	224.020 -	127.3	WB6ZTR
County	Before 6:30 pm	Packet	145.710	No pl	Hospital Net
County	RACES Simplex	Voice	147.570	No pl	
Area 1	7:00 - 7:30 pm	Voice	147.930 -	127.3	WB6WEY
<b>Area 2</b>	<b>7:00 - 7:30 pm</b>	<b>Voice</b>	<b>146.850 -</b>	<b>94.8</b>	<b>Grissom K6AER</b>
<b>Area 2</b>	<b>Simplex</b>	<b>Voice</b>	<b>147.555</b>	<b>No pl</b>	
<b>Area 2</b>	<b>Backup Repeater</b>	<b>Voice</b>	<b>147.885 -</b>	<b>127.3</b>	<b>Bozo - N6JMI</b>
Ares 2	220 Repeater	Voice,	224.700 -	156.7	K6HB
<b>Area 2</b>	<b>Amgen Repeater</b>	<b>Voice</b>	<b>449.440 -</b>	<b>131.8</b>	<b>KE6SWS</b>
Area 3	7:15 - 7:30 pm	Voice	147.915 -	127.3	WB6ZTQ
Area 4	7:15 - 7:30 pm	Voice	146.970 -	127.3	WB6YQN
Area 5	7:00 - 7:30 pm	Voice	145.400 -	No pl	N6FL
Area 6	7:00 - 7:30 pm	Voice	147.975 -	127.3	N6AHI
Area 7	7:00 - 7:30 pm	Voice	146.985 -	127.3	WB6ZTX
Area 8	7:00 - 7:30 pm	Voice	145.280 -	100.0	KN6OK
6 Meter	6:45 - 7:00 pm	Voice	52.980 -	82.5	K6SMR

Net Control operations for the weekly ARES/RACES Area 2 check-in net is run from the ARES/RACE communications center at the East County Sheriff Station on Olsen Rd each Tuesday at 7:00 pm. Visitors are welcomed and have the opportunity to operate the station equipment. Contact Jerry Goldman KC6JSO (805) 241-9187 if you plan to attend. RACES members should remember that their RACES card is issued for only two years. When your card is due to expire simply call Jackie (805) 654-2551 at the Office of Emergency Services in Ventura to renew your card. For questions concerning ARES/RACES call Area 2 Emergency Coordinator Ken Larson KJ6RZ (805) 495-9435 or go to the ARES/RACES section of the CVARC web site at <http://www.cvarc.org>.

## 2006 CVARC OFFICERS

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Member-at-Large	Dave Davis	KG6WRG	(805)479-8879	kg6wrg@yahoo.com



The Conejo Valley Amateur Radio Club is an ARRL affiliated Special Service Club. Meetings are held on the third Thursday of each month, unless otherwise noted. Meeting location is at the East Valley Sheriff Station, 2101 E. Olsen Road, Thousand Oaks. Meetings start at 7:30 pm. with a pre-meeting social and technical assistance session from 7:00 to 7:30 pm. Meetings are open to the public, and members are encouraged to bring their friends.

## 2006 EVENT CALENDAR

DATE	EVENT	COMMENTS
Jan 12	CVARC Club Meeting	General CVARC Club Meeting
Feb 9	CVARC Club Meeting	General CVARC Club Meeting
Feb 12	FCC License Exam	Begins 8:30 am at East County Sheriff's Station
Feb 14	Introductory New Ham Class	Technician Class @ LDS, contact ke6wvz@aol.com
Mar 9	CVARC Club Meeting	General CVARC Club Meeting
Mar 12	CLU CROP Walk	Annual CVARC/ARES T.O. Charity Walk
Apr 2	Westlake Street Fair	Radio support for Westlake Rotary Club (morning)
Apr 20	CVARC Club Meeting	General CVARC Club Meeting
Apr 22	Arbor Day	CVARC/ARES radio demo at N. Conejo Creek Park
May 13	Cruisin' The Conejo Bike Ride	This is a major yearly CVARC field activity
May 18	CVARC Club Meeting	General CVARC Club Meeting
May 20	Sea-To-Summit Bike Ride	Communication Support for Sea-To-Summit Ride
<b>Jun 15</b>	<b>CVARC Club Meeting</b>	<b>General CVARC Club Meeting</b>
<b>Jun 11</b>	<b>FCC License Exam</b>	<b>Begins 8:30 am at East County Sheriff's Station</b>
<b>Jun 24 - 25</b>	<b>Field Day</b>	<b>CVARC annual field day event, don't miss it!</b>
<b>Jul 3</b>	<b>Moorpark Fireworks</b>	<b>Comm support for Moorpark's 3rd of July Fire works</b>
Jul 20	CVARC Club Meeting	Visitors welcome. See web site for speaker
Aug 17	CVARC Club Meeting	Visitors welcome. See web site for speaker
Aug 13	FCC License Exam	Begins 8:30 am at East County Sheriff's Station
Sep 21	CVARC Club Meeting	Visitors welcome. See web site for speaker
Oct 8	FCC License Exam	Begins 8:30 am at East County Sheriff's Station
Oct 19	CVARC Club Meeting	Visitors welcome. See web site for speaker
Nov 16	CVARC Club Meeting	Visitors welcome. See web site for speaker
Dec 9	CVARC Christmas Party	Club Christmas party at the Cameron Center
Dec 10	FCC License Exam	Begins 8:30 am at East County Sheriff's Station
Dec 14	CVARC Club Meeting	Club Christmas party meeting

If you have corrections, please email them to the editor at [kg6qel@yahoo.com](mailto:kg6qel@yahoo.com)

### Next FCC License Examinations On August 13th

CVARC hosts FCC License Examinations at 8:30 AM on the second Sunday of even numbered months at the Ventura East County Sheriff Station on Olsen Rd. (near the Reagan Library). The next exams will be held on Sunday morning August 13th. CVARC conducts exams for all license classes. Exam candidates must bring a form of government issued photo I.D., the original AND a photocopy of any existing license or Certificate of Exam Element Completion, a Social Security (or government issued Taxpayer I.D.) number, and \$14 ARRL VE Exam fee (cash is preferred). No advance reservation is necessary, walk-ins are welcome. Advance notice is needed for special circumstances, such as reading the exam to sight-impaired candidates. If you have any questions, contact CVARC VE Coordinator Jeff Reinhardt at 818-706-3853.

*(Continued from page 1)*

operator operations easier to manage. (The club purchased the “networked” version for field day use),

A delicious dinner is planned for the Saturday evening of field day, catered from Bandit’s Barbeque in Thousand Oaks, with deserts from the Cheesecake Factory. The charge for the meal will be \$12.50 per person, and we promise it will be an excellent bargain at that price. Please contact our Social Chair, Rob Hanson at the club meeting or via email (see the board members email addresses on page 2) and get your orders in early so we have an idea of how many orders to reserve.

Looking forward to seeing you there!

Neil  
KG6QEL

## **Sea To Summit 2006**

### **Testing NVIS Suitability For Local Events**

**Ken Larson KJ6RZ**

The Sea To Summit Bike Ride this year provided our ARES/RACES team with an opportunity to test Near Vertical Incident Skywave (NVIS) HF radio communications in mountainous terrain. NVIS provides an alternate means to “line of sight” VHF (2 meter, 147 MHz) and UHF (70cm, 446 MHz) communications, particularly in mountains regions when VHF and UHF repeaters are not available to relay signals.

NVIS operates in the HF 75 meter, 3.9 MHz, and 40 meter, 7.2 MHz, frequency bands. NVIS signals are transmitted straight up into the Earth’s atmosphere, reflected by the Ionosphere about 175 miles above the Earth’s surface, and returned to Earth within a relatively short distance from the transmitting station. A short distance means anywhere in a radius of about 15 to 200 miles. For distances shorter than about 15 miles in mountainous terrain, the HF radio signals tend to propagate from the sender to the receiver via various modes other than NVIS, including line of sight, ground wave, and ground scatter, as we discovered during this test. By reflecting radio signals off the Iono-

*(Continued on page 5)*

## **Preview of July Club Meeting Speaker**

### **“A Photo Tour of CBS Television City”**

At the July meeting, Jonathan Fox ( KT6LA ) will present a photographic tour of CBS Television City. Tours of the facility at Beverly and Fairfax in Hollywood are not normally available. We will get an inside look, however, at the CBS Television Network production facility. This technical tour will cover everything from the ground floor to the roof. Popular TV shows produced here include The Bold & Beautiful, The Young & Restless, Price is Right, Late Late Show, Tyra Banks Show, Dancing with the Stars, and American Idol. See what it takes to put together one of these productions.

Jonathan, who has only been a ham for about a year, has been in broadcasting for 36 years. Starting out, while attending the New Jersey Institute of Technology, his first radio experience was on a 33,000 watt FM station covering parts of NJ, NY and PA. The first TV experience was at a CBS affiliate in Atlanta, GA as a transmitter engineer. Following college graduation, he joined the Engineering and Development department at CBS in New York. The Broadcast Center in NY, CBS News - Washington and CBS TVC in Hollywood were some of locations of his work. Eventually, Jonathan decided to make Los Angeles his home and he is now the Audio Maintenance Supervisor of CBS TVC.

*(Continued from page 4)*

sphere NVIS has the desirable feature of being able to transmit radio signals from one side of a mountain range to the other side. By using NVIS, one can also transmit radio signals out of deep canyons from which all other modes of communications, including VHF, UHF, and cell phone communications, are impossible. At least that is the theory.

The purpose of this test was to determine if NVIS would indeed provide us with reliable radio communications in mountainous terrain where cell phone, VHF, and UHF communications is not available. If it did, the advantages would be enormous. NVIS could be used by an Emergency Operations Center (EOC), for example at the Ventura County Government Center or East County Sheriff's Station, to communicate with Search and Rescue teams or other emergency personnel in remote areas of the Ventura County Mountains.

We already have good VHF and UHF radio communications for the Sea To Summit Bike Ride which has been perfected over many years of supporting this event. One of the key elements of this communications is a cross band repeater that is set up each year on Reyes Peak in the Pine Mountain area. The repeater relays signals from the first part of the bike ride, from Ojai and the canyon areas along Hwy 33, to net control at Mt. Pinos. So for the bike ride, NVIS would serve as a supplement to our existing communications.

For our HF NVIS test we had radio operators located along the bike ride route at Check Point 2 (Hwy 33 at Rose Valley turn off), Rest Stop B (Hwy 33 at Wolf's Grill), Check Point 3 (Hwy 33 at Pine Mountain turn off), Rest Stop C (Lockwood Valley Rd at Doma Springs turn off), Mt. Pinos, and Reyes Peak (at the end of the Pine Mountain road). We also had a HF mobile radio in the Rover 5 vehicle. In addition to these locations, we had one HF NVIS station located near the Ventura County Government Center operating with the tactical call of Ventura EOC, and a station located at Lake Piru.

HF did turned out to be a good supplement to our Sea To Summit VHF/UHF repeater system as Jose, N6VUY, in Rover 5 demonstrated. Jose's signal from his vehicle's 40 meter vertical antenna was received well on Reyes Peak as he drove the winding route through the canyons along Hwy 33 from Wheeler Gorge to Check Point 3.

From the HF data that we collected on both 40 and 75 meters, it is apparent that we were utilizing multiple HF propagation modes, including:

Line of sight,  
Ground wave,  
Ground scatter, and  
NVIS.

I did not anticipate the significant of the non-NVIS propagation modes.

An important bit of communications theory relevant to NVIS radio signal propagation is the Ionosphere Critical Frequency. Critical Frequency is the maximum radio frequency that can be transmitted straight up and reflected back to Earth by the Ionosphere. If we transmit at a frequency higher than the Critical Frequency, our transmitted signal will pass through the Ionosphere to outer space without being reflected back to Earth. Thus for NVIS to work, we must transmit at a frequency equal to or less than the Critical Frequency. The Critical Frequency is constantly changing. Usually it is highest at noon when we receive the most ultraviolet energy from the Sun and at its lowest levels at night when we receive no energy from the Sun.

The Critical Frequency during the bike ride ranged from about 4.8 MHz to 6.6 MHz. Based on these values for Critical Frequency we should not have been able to communicate on our 40 meter frequency of 7.233 MHz using NVIS. Our 40 meter signals should have passed through the Ionosphere to outer space never to return. On the other hand, NVIS communications on our 75 meter frequency of 3.992 MHz should have been excellent.

*(Continued on page 6)*

(Continued from page 1)

complicated than VHF or UHF, but it is a lot of fun and doubles as a reliable means to get a health & welfare message out of the area in an emergency.

- If you are not active in ARES/RACES, talk to Ken Larson and look into what it takes to become involved.
- Volunteer. CVARC can offer more if more people get involved in the running of the club. As well as Board Members, we need people who are willing to lend a hand with tasks from time to time. Let the Board Members know if you can help out.
- If you haven't tried EchoLink yet, try it. Yes, it is not as much of a *challenge* to talk to someone overseas on EchoLink as it is on 20 meters, but it is still fun. Pick a foreign town that is of interest to you and put out a call through their local repeater.
- Go portable. Lots of us have combined camping and Ham Radio from time to time, but maybe not recently. Decide that now is the time!
- Try a new antenna. Don't be put off because the other guy has a 100ft tower with a big beam! See what you can do with a minimalist antenna. The radiating part of my HF mobile antenna is three feet long, but I recently worked Serbia and New Zealand with it.
- Visit another club. There are several other ham clubs in the area. Visit one of their meetings, meet other hams and hear a technical presentation.
- Put together a presentation. Many hams know a great deal about various technical subjects due to their work. Figure out whether one of your specialties (or a colleague's specialty) is something that would make an interesting club-night.
- Build something. It doesn't have to be an all-bands all-modes transceiver! There is a lot of fun to be had building simple things.
- Tired of QST and CQ magazine? Ask around the club to see who subscribes to an overseas Ham magazine, or subscribe to one yourself.
- Organize your shack. Lots of things are easier to do when you can easily get to your rigs, tools, computer, and so on!
- Try a contest. Lots of hams are just not crazy about contests, but it can be fun to participate occasionally. Try out some radio-related software. Antenna modeling is an interesting area to play with. Propagation is another area to look at.

Please let me know if you think of things that I have left off this list And don't just make a list, act on it too!

73 de AE6NX



(Continued from page 5)

However, we had good 40 meter communication between Mt. Pinos, Reyes Peak, Rest Stop C, Check Point 3, Rest Stop B, and Check Point 2. This result indicates that the primary HF propagation modes for communications between these locations must have been via line of sight, ground scatter (our HF signals bouncing off the canyon walls), and perhaps ground wave, since NVIS communications should not have been possible on 40 meters for the Critical Frequencies that we were experiencing during the bike ride. Our HF communications between these points seemed to have nothing to do with the Ionosphere or NVIS communications. Jose in Rover 5 confirmed this result. His 40 meter vertical mobile antenna should have had essentially zero vertical (NVIS) radiation, yet I received Jose very well at Reyes Peak as did others.

This is a good result. It means that we can use HF to supplement VHF/UHF repeaters in very localized areas within mountainous terrain without the need to erect large 75 meter NVIS antennas. It would appear that HF mobile rigs will work out very well in this type of situation. In fact, for line of sight, ground wave, and ground scatter, mobile

(Continued on page 7)

*(Continued from page 6)*

vertical antennas should be superior to our large NVIS antennas. We need to test out this mobile HF possibility further.

Communications with Lake Piru was a completely different situation. The distances and the severity of the mountain terrain between Bruce (K6ZB) and Steve (WA1ESF) at Lake Piru and the rest of us precluded the use of line of sight, ground wave, and ground scatter as viable HF propagation modes. The only mode left for communicating with Lake Piru was NVIS.

The Ionospheric conditions during our test were very bad. As mentioned earlier, the Critical Frequency was in the 5 MHz range (4.8 to about 5.6 MHz) from 8 AM through noon, the solar x-ray flux was very low (which was actually good for us), and the 10.7 cm solar flux was at 76 (about as low as it ever gets). We are truly at the minimum in the 11 year solar sun spot cycle.

Under these conditions we should have had good NVIS communications with Lake Piru on 75 meters and no communications on 40 meters. That is what we observed. Our 75 meter frequency of 3.992 MHz was considerably below the Critical Frequency indicating that we should have good NVIS communications on that frequency, and we did. Our 40 meter frequency of 7.233 MHz was substantially above the Critical Frequency indicating that we should have no NVIS communications on that band, and that was pretty much what we saw.

While communications with Lake Piru was unusable on 40 meters, most stations could detect the presence of Lake Piru's signal and even detect a word or two occasionally. How do we account for that when we should not have heard Lake Piru at all? One possible explanation is back scatter. Lake Piru's vertical incident 40 meter signal should have been passing through the Ionosphere to outer space without reflection. However, Lake Piru's 40 meter antenna was also radiating energy at lower angles in addition to its straight up 90 degree radiation. The lower angle radiation would have been refracted by the Ionosphere and returned to Earth in central California. Sacramento was probably receiving Lake Piru very well on 40 meters. We see this happen often during the Wednesday morning 10 AM California Emergency Services Net on 7.230 MHz. A small amount of the signal arriving in central California, particularly that reflecting off the Sierra mountains, will be scattered back this direction, taking a second hop through the Ionosphere and arriving at our receivers along the bike ride route. Under the Ionosphere conditions that we were encountering, this back scatter signal would have been very weak. While there are many complex HF propagation modes, back scatter is one of them and perhaps what we were observing with Lake Piru on 40 meters.

The good news is that the 75 meter NVIS communications did work in a situation where that was the only means of communications available.

From a practical perspective, we proved that the 75 meter NVIS communications mode is a reliable means of communications throughout the mountainous regions of ARES/RACES Area 5 and Area 7, even when Ionospheric conditions are very bad. That is important! All of us with our portable NVIS 75 meter antennas have just provided Ventura County ARES/RACES with another tool to use in the ever expanding set of services that we offer to OES and our other ARES/RACES customers.

It was an excellent and valuable experiment!

Ken  
KJ6RZ  
Area 2 EC

News from CVARC  
Neil Waybright KG6QEL  
4818 Avedon Road  
Moorpark, CA 93021

## Membership Application Form

Name: \_\_\_\_\_

Call Sign: \_\_\_\_\_ Class: \_\_\_\_\_

Address: \_\_\_\_\_

City, ST Zip \_\_\_\_\_

Tel: (\_\_\_\_) - \_\_\_\_\_

E-Mail: \_\_\_\_\_

ARRL Member expiration date (on QST label) \_\_\_\_\_

RACES # \_\_\_\_\_ ARES# \_\_\_\_\_

Date: \_\_\_\_\_ Update Roster Only? \_\_\_\_\_

Family Membership: \_\_\_\_\_ Names/Calls \_\_\_\_\_

Send Information/Application to:  
Conejo Valley Amateur Radio Club  
ATTN: Michael Pershing, treasurer  
P.O. Box 2093  
Thousand Oaks, CA 91358-2093

New    Renewal  
Single Membership - \$25 \_\_\_\_\_ Multi-year \_\_\_\_ years @ \$20 = \_\_\_\_\_  
New Ham, New Member - \$10 \_\_\_\_\_  
Single Membership, Full-Time Student \$10 \_\_\_\_\_  
Family Membership - \$30 \_\_\_\_\_

ARRL Membership Renewal (include ARRL form) \$ \_\_\_\_\_  
AD Space (2x3) One Year (member) - \$35 \_\_\_\_\_  
AD Space (2x3) One Year (non-Member) - \$75 \_\_\_\_\_

Total Enclosed \$ \_\_\_\_\_

Cash \_\_\_\_\_ Check Number \_\_\_\_\_

Interested in License Upgrades? \_\_\_\_\_

Joining ARES/RACES? \_\_\_\_\_

Disaster Action Team? \_\_\_\_\_

Obtain a HAM License? \_\_\_\_\_