

# Sierra Signals

Sierra Foothills Amateur Radio Club  
Auburn, CA  
An ARRL Special Service Club

<http://sf-arc.org>

June 2007

P.O. Box 1005, Newcastle, CA 95658

## PAVE PAWS

(Reported by Fred, K6DGW)

A month or so ago, word arrived via the Internet that the US Air Force was going to shut down 70 cm ham repeaters in N. Cal and the Cape Cod region due to interference with PAVE PAWS radar. As is often the case with “word that arrives via the Internet,” it was really “words,” as in a great number of them, they carried a dire threat, and the threat got worse with every re-telling. Should you be short of time, the answer to the question in the sub-title is, “No, don’t knot up your shorts, nor will you likely need to anytime soon -



### OFFICERS

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**ARRL:** Casey, W7IB

**Contesting:** Fred, K6DGW

#### **WEBMASTER**

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### RESOURCES

#### **REPEATERS**

145.430 (-0.6 MHz/PL 162.2)

440.575 (+5.0 MHz/PL 94.8)

223.860 (-1.6 MHz/PL 100.0)

#### **CLUB NET**

Thursdays, 7:30PM, K6ARR/R

145.430

#### **CLUB MEETINGS**

Second Friday of the month,

7:30PM at the Library, 350

Nevada St, Auburn CA

#### **CLUB BREAKFAST**

Last Sat of the month at Susie’s

Café, Cirby at Riverside, Roseville

– 8:00 AM

#### **NET CONTROL OPS**

Dave Jenkins, WB6RBE

Gary Cunningham, KQ6RT

Joe Sylvia, KF6OQY

Casey McPartland, W7IB

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maybe not even in your lifetime.” Should you have time and be interested, read on.

PAVE PAWS: “PAVE” is the code name for a long-running Air Force systems program since at least as early as the mid-70’s [“code name” doesn’t mean it’s classified, if it was I wouldn’t be writing this]. I’ve worked on about seven PAVE

*(continued on page 2)*

### **2007 Calendar of Events**

*(Operating Events in Italics)*

[Dates are local unless otherwise indicated]

June 2-3 *Alabama QSO Party*

June 2 **VE Session**

June 8 **Regular Meeting**

June 9-10 *ANARTS RTTY*

June 16 *Kid’s Day*

June 16-17 *All Asian DX*

June 23-24 **ARRL FIELD DAY**

June 30 **Club Breakfast**

July 6 **VE Session**

July 13 **Regular Meeting**

July 28 **Club Breakfast**

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## Forty Years Ago At The SFARC

(Reported by Gary, KQ6RT)

June 21, 1967

Finally had a meeting inside the building, with seven members present. The upcoming Field Day and the 100 mile horse ride next month were discussed. We all signed up again for RACES. Jim showed some pictures he had taken at previous Field Days and we adjourned.

Ken Weger suggested changing the meeting nights and the meeting place to his room at Sierra College.

Anyone else have any bright ideas?

73, Dick

June of 1967 was the last official meeting of the original Sierra Foothills Amateur Radio Club. The Club remained dormant for the next five years until it was resurrected with the efforts of Jim Carmen and Ken Weger in August of 1972.

Forty Years Ago at SFARC will resume in August 2008 when we will start over again with the very first meeting of SFARC. Until then I will try to fill in with a Thirty Years Ago column. Unfortunately during the late seventies there were several months with no recorded meetings.

73,

Gary

KQ6RT

## PAVE PAWS

(Continued from front page)

projects. I'm not sure if it is still active or funded, I've been retired for six years, but it covered a large array of weapon system and support system modifications and upgrade projects as well as new systems. One was a long-range radar system to ID and track SLBM/ICBM launches which ultimately became the AN/FPS-115. It also tracks satellites. "PAWS" is an acronym for Phased Array Warning System." The building is sort of triangular with antennas on two of the faces. The antennas are formed from a very large number of small antennas and the phasing between them can be varied. This

sweeps the beam up and down, and back and forth in microseconds. The system transmits/receives in the range 420 – 450 MHz [sound familiar?] with a peak total RF power of a little over a half-megawatt. The antennas have about 37 dB gain, for an effective radiated power of a little over 3.5 million KW [the ultimate "California Kilowatt"] If you're interested in the nitty gritty technical stuff, visit

[www.fas.org/spp/military/program/track/pavepaws.htm](http://www.fas.org/spp/military/program/track/pavepaws.htm)

There were three or four PAVE PAWS installations in the US at Beale AFB, Cape Cod AFS, and Robins AFB in GA. I seem to remember one in TX too, however I also remember [vaguely] that it was moved to the BMEWS site at Clear, AK. The Robins installation was decommissioned some time ago, but the last time I was there in 1999, the building was still there. Obviously, it is the Beale installation that concerns us.



**The 70cm Band [aka the 27.56 inch band]:** It runs from 420 MHz to 450 MHz. The band plan is complex, but in general, 420-423 is used for point-to-point stuff, mainly links between repeaters. There's some ham TV above that, weak signal and satellite above 430 MHz, and 440 – 450 is our UHF repeater band. We share this band with the US military. We have always shared it with the US Military, and very successfully.

In fact, a number of years ago at a break in a meeting, I was chatting with the Deputy Director of the Defense Communications Agency about ham radio, and he indicated the military prefers to share spectrum with us over all other services. There are a ton of 70cm repeaters in the N. Cal. area, and those familiar with the WSER and Tevis know that we use two of them [Bald Mt. and Squaw Peak] to support those events each year.

**What Happened?** The Air Force [actually an AF contractor] recently produced a list of some of the 440 ham repeaters in N. Cal. that might have the potential to interfere with PAVE PAWS at Beale. The ARRL tackled it with the full cooperation of the DoD [remember, our military likes us], and they're working together as I write this to assess the potential for interference using terrestrial propagation models coupled with historical data on interference.

**What Didn't Happen?** No repeater has been ordered off the air. In fact, our repeaters have co-existed happily with the PAVE PAWS radar at Beale since the late 70's. You can count the number of specific cases of ham QRM to the radar over 25 years on the fingers of one hand, and the AF mitigated most of those themselves. The radar does not interfere with us. Name

the last time you heard a pulsed signal with an EIRP of 3.5 Gigawatts on your UHF radio.

**So, What's Going On?** Well, the short answer, if you want the exact truth is, "I don't know." However, having been employed by defense contractors for several decades before retirement, I can conjure up a scenario that I'll bet is very close to what is really happening. To understand it, you need to know a teeny bit about Federal contracting law.

DoD contracts contain a Contract Data Requirements List [CDRL, usually pronounced "see-drill"]. It specifies the "data" that the contractor must provide over and above the actual airplane or battleship [or whatever] in the contract. "Data" in this context means operation manuals, maintenance manuals, parts lists, illustrated parts breakdowns, support equipment requirements, project progress reports, and much more. The CDRL also specifies exactly what the government will pay for in the way of data. This evolved because contractors used to provide truckloads of engineering and accounting information, basically charging the government for tons of paper it didn't need.

It is very common that the CDRL for a contract will include some survey items, often the result of some regulation that requires periodic review. A repeat EMI evaluation for safety around the radar would be very likely, and a report identifying potential sources of interference would be another. The contractor sends a couple of new-hire [i.e. low paid] engineers or interns [i.e. not paid] off to find a plausible source, write the plausible reports, submit the plausible reports to the contracting officer with a DD Form 250 [a DoD Invoice] on top, and get paid, which of course is the whole object of being a DoD contractor in the first place [Please forgive my cynicism, one gets a bit jaded after a decade or two in this business].

So, to the scenario: PAVE PAWS needs some upgrading. Possibly components, assemblies, and sub-assemblies have become non-maintainable – parts are no longer available or manufacturing systems have changed. So, the AF puts a Request for Proposals [RFP] together and contractors produce proposals to do the work. Maybe it's time to re-evaluate the environmental impact of the system, perhaps a safety review is due, or a review of possible sources of interference is mandated somewhere, so all that goes into the CDRL.

Now, the goal in being a DoD contractor is to maximize your profits. That means the least labor that will successfully result in a paid DD-250. I suspect the new-hires/interns assigned to "QRM Analysis" found a repeater directory, likely on that bastion of solid information – the Internet. They might have found the NARCC 70cm coordination database, but I kind of doubt it. They wrote the report and no doubt their DD-250 has been paid.

**Why do I think this is whathappened:** Lots of reasons, experience probably being the biggest one. But ... there are lots of 70cm ham repeaters in the area that are not on the AF list [I'd have given them a much better list for free J ], and the missing repeaters have equal QRM potential. K6ARR [UHF] isn't on the list, neither is Squaw Peak, although it's LOS to Beale. There are also a huge number of 420-423 MHz transmitters out there that aren't on the list. In fact, none of them are, likely because they aren't listed in the repeater

directories. There are ATV repeaters in the North Bay area, and one on Diablo, easily in view of Beale and wide-band as well, and they aren't there. A number of the repeaters on the list don't exist anymore ... some haven't existed for several years. W6RWL and I dismantled the K6SRA site at Fowler west of Angels Camp a couple of years ago, but it's still on the list.

So no need to overreact. Right now, the best of all possible worlds is happening ... the primary occupants of the 70cm band think we're good neighbors, they are actively cooperating with ARRL, and historically, QRM to the radar hasn't been an issue. Let's let this take its course. PAVE PAWS is a national security system, and if we really are interfering with it, we'd have been shut down long ago.

Fred

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## Contesting

### The Sport of Amateur Radio

(Reported by Fred, K6DGW)

Those of you who actually read this column may have been a bit puzzled by last month's column, and you would be justified. You see, at the time, I was writing two columns, one for Sierra Signals, and one for the NCCC. I sent the one for NCCC to both K6RB and Debbie. So, do not adjust your TV, it was a technical difficulty in my mind.

#### Selected Contests for June:

Here's a few of the more popular June contests -- as always, the complete list can be found on Bruce's page at [www.hornucopia.com/contestcal/](http://www.hornucopia.com/contestcal/)

Alabama QSO Party: 2 Jun 1600Z – 3 Jun 0400Z  
[www.alabamqsoparty.org](http://www.alabamqsoparty.org)

ANARTS RTTY: 9 Jun 0000Z – 10 Jun 2400Z  
[www.anarts.com.au](http://www.anarts.com.au)

All Asian DX: 16 Jun 0000Z – 17 Jun 2400Z  
[www.jarl.or.jp/English](http://www.jarl.or.jp/English)

Kids Day: 16 Jun 1800Z – 2400Z  
[www.arrl.org/FandES/ead/kd-rules.html](http://www.arrl.org/FandES/ead/kd-rules.html)

ARRL Field Day: 23 Jun 1800Z – 24 Jun 2100Z  
[www.arrl.org/contests/rules/2007/fd.html](http://www.arrl.org/contests/rules/2007/fd.html)

**Contest Chatter:** I mention the AL QSO Party because AL participation is usually pretty good, and I've had quite a bit of fun in it in the past. It's a bit hard to predict this year at the very bottom of Cycle 23 but, like all of these, it's a good place to pick up some counties if that's what floats your boat. This year it's on my birthday so I might not make it on if the family comes over. ANARTS RTTY is a contest sponsored by the Australian National Amateur Radio Teleprinter Society, and there will be a large number of DX stations on. I used to avoid this one because the log submittal requirements were awful and often took longer than the time I spent on the air. They finally got the message, and the logging requirements now are pretty much like any other contest.



All Asian DX will be well attended by a huge array of DX stations, and we are at an advantage ... the oft cursed "East Coast Wall" that makes Europe hard for us is behind us for this one! Kids' Day isn't a contest, but should be. Kids used to get into ham radio for "The Magic of Wireless." Today, that magic is in most every kid's pocket. Competition, however, can be a powerful magnet. At any rate, the goal is for kids, under the supervision of licensed hams, to QSO with other kids [and former kids] on the radio. The kid can be yours or OPK [Other Peoples' Kid]. The suggested "exchange" is name, age, location, and favorite color. I've worked quite a few since it was founded a few years ago. I generally give them a serial number too, and tell them I don't have a favorite color since I'm color blind. That usually gets a bit of conversation started J

And, of course, June means Field Day which ARRL tells us is also not a contest, but we all know they're smoking their socks. After all, if it isn't a contest, why is it located on the "Contest" pages on the web and why are there rules for keeping score? I haven't heard what the SFARC plans are yet, but I think something at Nyack would be a good bet. This is also the Western States 100mi Run weekend, and Andrea and I will start the day at Duncan Canyon. When we get home in the afternoon, I'll either get on as a 1D, or maybe take my K2/100 and new BuddiePole out under the trees, fire up my little 1KVA Honda, and hand out some 1A QSO's.

**BS7H:** I hope everyone who wanted a Scarborough Reef managed it. I made one on 20 CW, and I heard the ever-popular W6RFF make a Q on 20 CW too [a quick check of the on-line log shows Jettie actually got 4, 3 on 20 CW and 1 on 20 SSB]. Scarborough Reef is located in the S. China Sea, a couple hundred miles west of the island of Luzon in the Philippines. It is not your ordinary DXpedition destination! The "reef" consists of some scattered coral rocks that project a few feet above high tide. Visit [www.scarboroughreef.com](http://www.scarboroughreef.com) for some amazing pictures.

I've been there twice ... well, not exactly "to" it but maybe 12,000 feet over it. In the mid-60's our combat communications group shipped my airborne team and me to Clark AB in the PI for a couple weeks of training on some new equipment. On the trip east, the co-pilot wanted to sleep and the pilot asked me to ride in the right seat and keep him awake [it's about a 4hr dull grind in a C-130]. There are just about an uncountable number of islands that make up the Philippines, and a large number of coral reefs off the west coast of Luzon. We were arriving in the late afternoon and the sun was low and I could see them, mainly by the surf breaking over them. It never occurred to me then that 40+ years later, I'd work someone perched on a platform on one of them. We were still about an hour or more out, which at C-130 speed is about 250 - 300 nm, so there are a few more DXCC Entities just waiting for us! Incidentally, this expedition was organized and commanded by our ARRL Pacific Division Director, Bob W6RGG.

73,

Fred K6DGW

## May Meeting Minutes

(Reported by Leslie, K7NYE)

### Minutes of the SFARC Board and General Meeting, May 11th, 2007 at the Auburn, CA main library:

**Board of Directors** meeting began at 6:50 PM with a quorum of officers and directors in attendance. New business discussed included obtaining a second club 2-meter repeater to provide broader coverage and range. Richard Kuepper, WA6RWS, volunteered to obtain additional information for a back-up SFARC club repeater. It was discussed among the board members that the cost to complete a second repeater would be approximately \$1000.00, for a duplexer and a controller. Other necessary equipment has already been donated at no cost to the club. Once the additional equipment costs are identified, any purchase over \$200.00 shall be brought to the members of the SFARC club for a vote. Old business discussed included preparations for Field Day 2007. Current expenses and balance for the club were presented by George, KG6LSB. Meeting was adjourned at 7:30 PM.

### SFARC General Meeting Minutes:

7:35 PM Meeting started by SFARC Club President, Don Hay, WB6LPJ. Meeting started with Pledge of Allegiance, Introduction of SFARC Board Members and introductions made of all club members and guests, total of 30 in attendance; Officer reports were given by Vice President, Secretary and Treasurer; Committee reports made for ARES. No representatives were present for ARRL, VE or Satellite reports.

**Old Business:** Don, WB6LPJ mentioned the discount membership for ARRL members, \$15.00 for new members and \$2.00 discount for continuing members.

**New Business:** Leslie, K7NYE said the SFARC club protocol for the 2-meter Thursday net was available to all members, as well as the roster for the attendees of the weekly SFARC 2-meter net. Debbie, KF6LXN, volunteered to email the information to all members currently receiving the newsletter via email. By distributing the net protocol and net roster, more members can become net control operators and also be able to step in if the regularly scheduled net control operator was unavailable. A backup 2-meter repeater was discussed and a committee was formed to explore the feasibility of this option. Volunteers for this committee consist of five active members of the club, Bob, WA6ULL; Chuck, KG6FFK; Birton, N6UG; Kevin, K7TST and Richard, WA6RWS.

**Presentation:** Kevin, K7TST introduced Don Kunkel, KE6GMT, a fellow ham and retired CHP officer. Don spoke to the group about general traffic safety and its impact on California drivers. Don presented some very interesting statistics and other information about highway and road driving safety, plus provided the group an opportunity for Q & A. He discussed speed, traffic techniques, preparation, attitude and other tips, including several eye-opening examples of what can happen in various traffic situations. As an experienced CHP officer from 1962-1989, Don gave us excellent insight into his

previous work and how we can train ourselves to be more conscientious and safe motorists.

Gene, KG6NYH held the monthly Drawing. Meeting was adjourned around 9:40 PM.

Respectfully submitted:

Leslie, K7NYE

Secretary

**ARRL Director to Visit SFARC**

*(Reported by Jettie, W6RFF)*

The ARRL Pacific Division Director, Bob Vallio W6RGG, will attend the June 8th meeting of SFARC. He will make an award presentation and will answer questions you have about the ARRL or FCC. Bob was a Section Manager in the East Bay section for many years as well as several years as Vice Director and Director. He is a high speed CW operator, works contests, chases DX and just returned from a DXpedition from the China Sea, where he and a group operated as BS7H, from Scarborough Reef, making nearly 50,000 contacts.

If you have ideas or gripes with the ARRL or FCC, this is the chance to air them and get comments from the Division Director. Bob is one of 15 elected Director of the ARRL, and they are the ones that make the policies for the League. So, let's have a good turn-out at the June meeting and show him how active the Sierra Foothills Amateur Radio Club can be!!

Jettie B. Hill, W6RFF

American Radio Relay League

306 St. Charles Ct.

Roseville, CA 95661-5008

916-783-0383

**WS 100**

Just a reminder – the WS100 will be held on June 23 and 24, 2007. As usual, they will be using the K6ARR repeater for communications during the event.

**Compact Fluorescent Lamps (CFL's)**

*(Reported by Carl, WF6J)*

At the last meeting there was some discussion about CFLs. While being pushed as lower energy and long lasting alternatives to incandescent lamps, there are also some downsides that come along with the upsides.

Incandescent lamps burn energy that mostly generates heat, not light. A CFL is rated for 10,000 hours, the incandescent only 1,000 hours of operational life. According to data on PESWiki over the CFL's life you can save \$88.90 in electric energy costs.

CFLs are great for replacing those hard to reach bulbs. They offer a 60-75% saving on power consumption. Their light output can be purchased in different color temperatures (daylight, warm white, warm). With life expectancies at 5-10 years they can cut lighting bills more than half. Amortized over the life of the bulb, CFLs are a money

saver plus you are helping to reduce fossil fuel consumption for electricity demands.

While it is true that they give a great light output for a much lower power level, it must also be said that it takes a lot of energy consumption to manufacture them and also generates higher levels of pollution than its incandescent cousin.

They work best upside down, and they contain mercury. There are a lot of stories about how much of a risk the breaking and or disposal of the CFLs can be. Mercury is a toxic metal associated with contamination of water, fish, and food supplies, and can lead to adverse health affects. A CFL bulb generally contains less than 4 mg of mercury. A power plant will emit 10mg of mercury to produce the electricity to run an incandescent bulb compared to only 2.4mg of mercury to run a CFL for the same time. Disposal of CFLs and fluorescent bulbs is considered a hazardous material item in California. CFLs should not be sent to an incinerator, which would disperse the mercury into the atmosphere.

Another health risk is in the phosphors. This is true for regular fluorescent and CFLs. They contain beryllium, a carcinogen and some heavy metals like strontium. As with regular fluorescent, be especially careful not to get cut on the broken glass.

CFLs should not be used in closed fixtures, like globes, as the ballast may overheat causing a fire. Older CFLs should not be used with a dimmer. This is also a fire hazard. Most CFLs today are dimmer friendly. The differences are in the ballast types: Electronic (or high-frequency) ballasts are a more recent development and are usually integrated with the lamp in a one-piece unit. Compact fluorescents with magnetic ballasts are heavier, "blink" when they start, and can produce a faint hum. In contrast, electronic ballasts are lighter, start instantly (although they take up to a minute to reach full brightness), and do not hum.

Consider the quality (aka price). Some bulbs do not last the reported long life needed to offset the cost. Save your receipts so when your bulbs go out in 1 or 2 years you can obtain warranty replacements.

If everyone used CFLs we would reduce energy consumption significantly. And with almost everything, there are risks and benefits. It is up to you to decide, when and where and which manufacturer you choose to use in your home. Please recycle carefully.

de Carl WF6J

Hazardous Disposal: Western Placer Waste Management Authority for Lincoln, Rocklin, Roseville and County of Placer

3195 Athens Avenue (near Fiddymont Road) in Roseville

<http://wpwma.com> (916) 543-3960

Some Information in this article obtained from:

WorldNetDaily PESWiki <http://wpwma.com>



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**SIERRA FOOTHILLS AMATEUR RADIO CLUB  
2007 MEMBERSHIP APPLICATION**

Name: \_\_\_\_\_ Call: \_\_\_\_\_ Class: \_\_\_\_\_ e-mail: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Associate Name: \_\_\_\_\_ Call: \_\_\_\_\_ Class: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Application: (Circle One)    New            Renewal

Member Dues: Circle Amounts That Apply.      Applications (for new members only) received in the middle of the year will be pro rated. Contact the President or Treasurer for exact rate.

Membership:	\$22.00	Name Badge:	\$7.00
Associate:	\$ 7.00	Repeater Donation:	\$ _____
Auto Patch Donation:	\$ _____	Newsletter Booster:	\$ _____
Miscellaneous Donation:	\$ _____	Christmas Donation:	\$ _____
Worldradio Renewal:	\$ _____	<b>TOTAL:</b>	\$ _____

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