

# Sierra Signals

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

March 2008

P.O. Box 1005, Newcastle, CA 95658

## The Holy Frequency

(Submitted by Fred, K6DGW)

We hear a lot these days about this or that “Holy City,” and I’ve wondered just how many holy cities there are in the world. A corollary question is, “How many people do you need in a religion in order for them to have a holy city?” For radio communications, 600 meters is arguably the “Holy Wavelength,” which makes 500 Kcs the “Holy Frequency.” It is probably the first agreed upon worldwide frequency for ship-to-shore and ship-to-ship communications, and goes back to the very early part of the 20<sup>th</sup> century. At that time, frequencies were measured in cycles-per-second, and if they were high enough, kilocycles-per-second, the latter generally



### OFFICERS

#### PRESIDENT

Don Hay, WB6LPJ  
[wb6lpj@arrl.net](mailto:wb6lpj@arrl.net)

#### VICE PRESIDENT

Casey McPartland, W7IB  
[w7ib@arrl.net](mailto:w7ib@arrl.net)

#### SECRETARY

Wayne Stilwell, W6DT  
[dxwayne@juno.com](mailto:dxwayne@juno.com)

#### TREASURER

Leslie Nye, KYNYYE  
[k7nye@arrl.net](mailto:k7nye@arrl.net)

#### DIRECTORS

Jim Griffith, KI6AZH  
[jim.griffith@usamedia.tv](mailto:jim.griffith@usamedia.tv)  
Chuck Minton, KF6FFK  
[chuckminton@wizwire.com](mailto:chuckminton@wizwire.com)

Norm Medland, W6AFR  
[norm.linda@surewest.net](mailto:norm.linda@surewest.net)

#### REPORTERS

**Satellites:** Greg, KO6TH  
**History:** Gary, KQ6RT  
**Misc Radio:** Fred, K6DGW

### 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

#### EDITOR

Deb Cunningham, KF6LXN  
916.663.4143  
[kf6lxn@sbcglobal.net](mailto:kf6lxn@sbcglobal.net)

shortened to just “kilocycles,” or “Kcs.” Hertz and kilohertz hadn’t been invented then, and not much was happening in the megacycle range, so when one talks about the Holy Frequency, one needs to use the most reverent of terms, “Kcs.”

Most folks know that radio played a huge role in the rescue of over 700 people from the Titanic. What may be less known is that the Titanic disaster really motivated the world’s nations to  
(continued on page 2)

### 2008 Calendar of Events

[Dates are local unless otherwise indicated]

Mar 14	Regular Meeting
Mar 29	Club Breakfast
Apr 5	VE Session
Apr 11	Regular Meeting (Meeting to be held at the Newcastle United Methodist Church)
Apr 26	Club Breakfast

We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

## Thirty Years Ago At The SFARC

(Reported by Gary, KQ6RT)

March 9, 1978

The regular March meeting was called to order at 7:45 p.m. by president Carroll Evans. (Cafeteria Placer High School).

Minutes of the February meeting were approved as corrected.

K6ARR, Jim gave the following report for the Technical Committee:

The receiver arrived. He has the crystals Jim needs a cover for the rcvr.

Treasurers report: \$399.95

Activities Director Tom, WB6UBF reported on the club dinner held at the Auburn Hotel last month.

It was moved and seconded to have a Club sponsored dinner annually. Motion passed.

The film "Earthquake" was shown by Joe Sasser, K6ZAM - Communications Coordinator of regions 3&4 for the Office of Emergency Services, an area encompassing 24 counties. Joe stated that in case of a major disaster the only communications will be by wireless (Amateurs). Hams should be ready to offer services.

Field day will be on June 24-25<sup>th</sup>. Floyd, W6OZH is chairman. Band Captains are needed plus a 3kw generator.

It was suggested by the president that the club sponsor a swapfest to be held in September or October.

Dick Lund, WA6HYO gave an interesting report on the Grass Valley club.

Thanks to Roy Vermes, a student at Placer High School for his assistance in obtaining the cafeteria at Placer High School for three meetings.

The meeting adjourned at 9:15 p.m.

Al Schweigert, Secretary

73,

Gary - KQ6RT

do something to standardize radio communications between ships and shore stations because, had there been better coordination, many more might have been saved from the Titanic. Several international meetings were held leading up to the designation of 600 meters [they tended to use wavelength rather than frequency then] as the Holy Wavelength.

Any ship and any shore station anywhere was authorized to use it. In fact, as time went on, regulations required all stations in the marine service, ship and shore, to have 600 meter capability and monitor it continuously. Point your browser at [mikea.ath.cx/www.n1ea.coastalradio.org.uk/](http://mikea.ath.cx/www.n1ea.coastalradio.org.uk/) and note the little clock image in the upper left. There are two 3 minute segments of each hour marked in red - from :15 to :18 and :45 to :48. These were the "silent periods," a time when every ship and shore station on the planet ceased transmitting [or should have, some didn't] on 500 Kcs and listened for distress signals. Many ships had only a single radio operator, and he [they were all male then] did need to sleep some, which leads to the second "Holy" in this story.

On the landline telegraph, "CQ" had evolved to mean "General Call." It would precede a message to all stations on the line. It alerted the operators to wake up and copy the message, and helped efficiency since the message didn't need to be sent to each station individually [unless of course they didn't wake up in time]. CQ moved to radio and acquired the "General Call" meaning ... "Hey all you out there, I'm here and can receive traffic." The Marconi Company, which owned many of the shore stations, and much of the equipment and employed many of the operators afloat, proposed "CQD" as the universal distress signal, and for a short period, it was sort of de facto accepted.

When the international radio community took up the matter of the International Distress Signal, there were a number of other proposals. The Italians suggested "SSSDDD" which may have derived from their landline telegraph. The Germans suggested "SOE," which they already used as a general inquiry prosign. Some objected to the "E" because it is one dit which could easily be lost in noise. We'll cut to the chase here [the discussion went on for quite a bit], and "SOS" ... dit dit dit dah dah dit dit dit ... sent as one character was proposed. This was accepted as the "Holy Distress Signal," and is today. When voice radio arrived on the scene, the proword "MAYDAY" was likewise accepted worldwide as the international distress call, but that's another story.

So, RO's needed to sleep ... what if the Titanic2 was sinking close to your ship's position and you were sawing them off in your bunk, off-watch? Enter the AutoAlarm. This was a device that listened to 500Kcs. The AA was a mechanical device, computers had not been invented yet, that could decode "SOS." Nothing else, just SOS. If it decoded a distress call, it rang a big bell in the RO's quarters, and on the bridge. All coastal marine stations on shore also had an AA, and ours went off only once while I was on shift.

You might get the idea that 500 Kcs was the worldwide party-line, and it was. Typical operating procedure was to use it as a calling frequency, and the shore stations would dispatch you to a different frequency to handle your traffic. Shore stations typically sent a "wheel" of call signs for which they held traffic

**Holy Frequency...**

(Continued from front page)

on one of their assigned frequencies, the ships might reply on 500 Kcs and again, would be sent to another frequency for the traffic. Incidentally, many signals on 500 Khz were MCW, with an audio tone modulated onto the keyed CW carrier. The link above has some MP3 recordings of 500 kcs. The quality of some of the signals is remarkably bad ... heavy chirp, drift, almost unintelligible keying, and the like. I recall it sounding like that on the west coast in 1956 too when the ham bands then were filled with clean stable signals.

The Holy Wavelength today? Well, technology overran the "party-line," and nowadays it's rare that there is an HF CW RO aboard any ship. Satellite communications, GPS navigation, and digital radio have supplanted the shipboard RO [aka "Sparks"], and ... sigh ... the coastal marine stations as well. Not too long ago, the Coast Guard and the Navy stopped guarding 500 Kcs and the Holy Frequency is eerily silent. Ahhh, but not all is lost.

WD2XSH/xx stations now populate 505 – 515 Kcs with test transmissions, QSO's, and beacons under a Part 5 FCC experimental license [See [www.500kc.com](http://www.500kc.com) ], and there are similar experiments underway in other parts of the world. There is a movement afoot to hold 499 – 501 KHz free worldwide as an historic frequency. And hams, who were once banished to the supposed wasteland of "200 meters and down," stand a good chance of getting a small segment very close to the Holy Frequency.

600 meters is tough though. Antennas need to be large – OK, huge – to achieve any efficiency at all. The current WD2XSH license specifies a max ERP of 200W. For an antenna any reasonable ham can erect with a ground system he/she can put in, it takes many KW of real RF into the feedpoint to achieve that ERP and none of the stations in the experiment are even close to the 200 watt ERP limit. Nonetheless, we hams are, if nothing else, challenged by what folks say we can't achieve. Look what we did with "200 meters and down!"

I've mentioned before, as a 16yr old HS senior with a 2<sup>nd</sup> Telegraph ticket, I got a job as an operator at a coastal marine station in So. Cal. Let's see: 16, a ham for 3 years, working ships at sea on the Holy Frequency with 5 KW and rhombic antennas ... how much better could it get?

73,

Fred K6DGW

## February Meeting Minutes

(Reported by Wayne, W6DT)

Board of Directors

The meeting of the board of directors came to order at 7:00 P.M. with a quorum of the officers present. The board discussed upcoming dates for the SFARC 2008 calendar and discussed how the club might become active in presenting Amateur Radio to elementary school children (5th and 6th grades) and the Boy/Girl Scouts. It was agreed that the topics would be brought up before the general membership for ideas and comments. The board meeting adjourned at 7:20 P.M.

General Membership Meeting

The regular meeting of the SFARC membership was called to order at 7:30 by club President Don Hay, WB6LPJ.

The pledge of allegiance and introduction of members and guests followed.

Greg, KO6TH gave a satellite report.

Chuck, KG6FFR gave an update on ARES activity.

The Treasurer's report was given by Leslie, K7NYE.

Richard, WA6RWS brought the club up to date on the efforts to obtain the components necessary to get a backup repeater on the air. We are still looking for a suitable duplexer.

The **April** and the **June** monthly membership meetings will be held at the Methodist Church in Newcastle. This is the same location the Christmas Party has been held for at least the last two years and is located on Buena Vista Ave. Our regular meeting location, the Beecher Room at the Auburn Library is being taken by the Friends of the Auburn Library on those two dates.

Activities for the year were mentioned so people could start thinking about them and putting them on their calendars. We may provide communications for a motorcycle enduro in May. The MS walk will be in the spring, exact day to be announced. Field day will be the last full weekend in June. Support for the Tevis Cup and the Western States 100 will also be this summer. The Club picnic will be in August, most likely the same location as last year, date and time to be confirmed. The White Elephant sale will be in October and the Christmas Dinner will be in December on the regular meeting day.

Volunteers were requested for a potential license class.

N6GP reminded club members of an area wide net on 3.987 MHz on the fourth Wednesday of the month starting at 7:30 P.M. Local time.

After the break, Bob, KG6BQG showed an example of a small survival kit, contrasting one from approximately 20 years ago to one that could be assembled today with commonly available materials, small in size and light in weight.

The drawing was held and then the meeting adjourned at 9:13 P.M.

Respectfully submitted,

Wayne, W6DT

Secretary

## Ham Radio's Latest "Phoenix" Satellite

(Reported by Greg, KO6TH)

AO-16 has been having problems. One of six micro satellites launched on January 22, 1990, the little digital store-and-forward satellite is just the latest of this historic aging tribe to fail in one way or another.

The 1986 Challenger disaster changed things for more than just human spaceflight. Competition for launch space was severe, with very little space available, and at a very high cost. AMSAT took on a challenge to do something radically

different – build a satellite that was smaller, not larger, to accomplish its mission – and came up with the Microsat. A new launcher was being created by the European Space Agency about that time, and the two projects came together.

Six satellites, each a cube about 9 inches on a side and weighing less than 25 pounds, were put on a spring-loaded frame and sent into orbit at once. Once in orbit and turned on, the six were given “Oscar” identifiers. UO-14 and UO-15, which were built by the University of Surrey. AO-16, built by AMSAT. DO-17, from Brazil. WO-18 from Weber State University. And finally, LO-19, from Argentina. Each shared a common framework design, but had custom electronics for their particular missions.

The first to have trouble was UO-15. About 25 hours after launch, the spacecraft went silent, and repeated efforts to revive it were unsuccessful. The 150 foot dish antenna at Stanford University was even called in to listen for even the faintest signal. Nothing.

Fortunately for Surrey, its sister, UO-14, was working well. UO-14 was a digital satellite, with an on-board Bulletin Board (BBS) that ran in 4.5 megabytes of static RAM and a strong (10w) transmitter which allowed small portable ground stations to send messages and pictures around the world. After a time in the Amateur service, UO-14 was re-focused on providing medical relay service to remote areas in Africa. Then in March 2000, UO-14's BBS computer died, and the satellite was re-purposed again as an amateur radio FM repeater in space, a role in which it served well until the battery system failed in November of 2003.

DO-17 was launched into an education and peace mission. It was also known as “DOVE”, the Digital Orbiting Voice Encoder. It carried messages easily heard by school children around the world, spoken by other children and uploaded to the satellite by Brazilian hams. Unfortunately, DO-17 stopped transmitting in March of 1998, and did not respond to attempts by ground control stations to command its operation.

WO-18 carried one of the earliest cameras into space, and began snapping full color pictures of us smiling up at it from the time it reached orbit. It also had the ability to receive uploaded ATV transmissions for forwarding to others. The last report I can find lists it as “non-operational”, but I can't find much on its history. It apparently has not been heard from in several years.

LO-19 was another digital store-and-forward satellite. In that role, LO-19 served in relaying essential public service communications after hurricane Iniki took out parts of Hawaii in 1992. But by 2001, LO-19 was in a semi-operational mode. Its CW beacon is currently sending 8 telemetry channels, and one status channel, but the BBS is off line and its digipeater is not active.

That brings us back to AO-16. Essentially a twin of LO-19, AO-16 was used until 2001 as a digital bulletin board in orbit. Messages could be uploaded via one of four uplink channels, and received from one of two transmitters, with the earth side of things (that's us) controlled by an easy to use PC-based mail program.

But, as with the other satellites, things fail. In 2001 the satellite became just a digipeater, relaying digital AX.25 packets between stations. It was a somewhat diminished role, but still one of value, for example, picking up APRS packet messages from remote areas and forwarding them onto the rest of the network.

In May, 2007 AO-16 went silent again. After nearly 2 months of effort, operators were able to get it back into the Master Boot Loader stage, and transmitting telemetry about its health. Reloading software was tried several times, but without success. Finally, after about 6 months of work, they figured out the problem. The BBS computer itself was fine, but its ability to access all that wonderful memory in which the BBS software runs had failed. Without the software, digital operations are impossible, so the satellite appeared to be lost.

But just as they were discussing the decommissioning process, Jim White, WD0E, recalled a series of low level commands that Tom Clark, K3IO, had included in the spacecraft's design. One of the commands enable an uplink receiver to be tied directly to a downlink transmitter. In theory, this would turn the satellite into a voice repeater, but with a twist. The uplink receiver operates in FM mode, while the downlink is DSB (double sideband, basically AM without the carrier). Would it work? Yes! In fact, the satellite hears very well, allowing very modest equipment to access it, and being in the FM mode eliminates most, if not all, of the doppler shift effects. The downlink, of course, does require an all-mode receiver, but the signal strength is good, and you have your choice of USB or LSB. General ham use was announced in late January of this year, 18 years to the day from when it was launched.

So, the last of the original Microsats has one last “life” left in it. AO-16 is currently running in this “bent pipe with a twist” mode, receiving on 145.920 FM, and transmitting on 437.026 SSB, plus or minus with Doppler. They don't know how long this will hold, but for now, enjoy the “new” bird!

73s,

Greg KO6TH

---

## **The Never-Ending Saga of the California Call Letter Plates...redux**

*A true story by Casey McPartland, W7IB*

Did you think the saga was over? I did.

On Friday, January 25<sup>th</sup> (remember, this sad story started back in April of 2006, over 21 months ago) I received yet another package from the DMV! Just to refresh your memories, this is the third set of plates I've received. The first set was “\_W7IB\_” (a new DX country), the second set (the one's that are on my truck) is “\_W7IB\_”, and the latest version that appeared from out of the clear blue sky in a DMV brown (tan?) envelope goes like this, “\_W7\_IB\_”!

While the most recent plates have the call sign “perfectly balanced” in the 7 spaces provided, it's not my call sign, my call doesn't have a space in the middle of it! I wonder if anyone else has this problem? I guess I've got to hand it to the California DMV – I heard they were under a lot of pressure

from some state legislators, who are in turn under pressure from hams that for some unknown reason are unhappy about call plates – they (the DMV) are “trying hard” to get it right! But at what cost?

Think about it, I paid something like 26 bucks for a set of plates. I have over the course of darned near 2 years received 3 sets of plates! If \$26 is representative of one set of call plates, I wonder what it has cost to do the whole thing over and over and over. I’m guessing that I’ve put over 20 hours into getting this deal done, not to mention mileage on my car or truck or motorcycle, and wear and tear on the vehicles, and the time that had to have been spent by DMV people, whether I requested it or not(!) I’m thinkin’ it came up to a whale of a lot more than \$26, and the sad fact is that it was our money, yours and mine!

So what am I gonna do with the plates I just received? I guess I’m gonna be a righteous dude and turn them in at DMV, but I may take my time doing it! I just don’t know.

### March 14<sup>th</sup> Meeting

by Casey McPartland, W7IB

This month’s meeting promises to be both interesting and informative!

As some of you know there is a large group of folks who travel the Rubicon Trail in Jeeps and other off road vehicles, but did you know that amateur radio has become their major form of on-trail emergency communication? In fact, as this season begins, they will have trained and licensed over 100 new hams just for this purpose! They teach the material, provide study opportunities and testing, and train the off-roaders in operating etiquette and how to program their radios.

I have been able schedule Dennis Mayer, KI6MLG of Meadow Vista (how strange, another ham in MV!) Dennis is the individual that has led in the origination of the training and VE sessions that get the Rubicon jeep community trained and operating effectively. Dennis is a member of many of the key organizations, like Friends of the Rubicon (FOTR) that not only use the trails, but foster their continued viability. I think this will be a worthwhile evening, so come out and hear about another facet of what amateur radio is doing to support good fellowship and safety in our community!

Also, Field Day 2008 is rapidly approaching, just a bit over three short months away, and I would like to take some time in each of the next meetings to promote the event and perhaps some changes in the SFARC approach to the event. Curious? Bring your “thinking caps” (or a foil hat;-) and let’s make this FD one to remember.

See you all on March 14<sup>th</sup>!

### North Hills Hamfest

That time again. North Hills Radio Club is holding their annual Hamfest this year on Sunday, May 18th.

Location: (Sacramento)

Bella Vista High School

8301 Madison Avenue, Fair Oaks, CA

halfway between Sunrise & madison Aves.

Time: 7am - Noon

Talk in: K6IS 145.190 (-) PL 162.2

Free parking, spaces \$20 for 2,

Food & Beverages,

Raffle and hourly prizes.

NHRC is an ARRL Club

Contact:

www.k6is.org

Maynard, W6PAP (916) 726-1673

North Hills Radio Club

PO Box 417370

Sacramento, CA 95841-7370

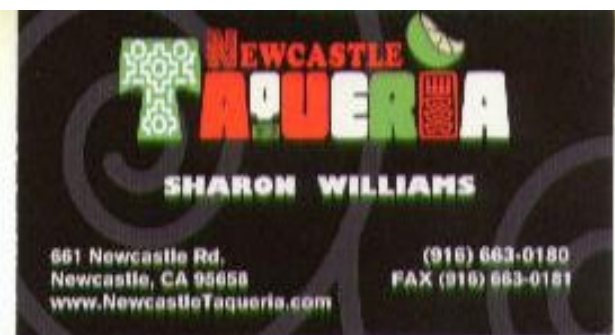
### FOR SALE

2500Watt 110V Craftsman generator Honda engine

On wheels, recently serviced, always stored under cover, less than 50 hours run time. \$350 OBO

George KG6LSB

530.888.0860



SIERRA FOOTHILLS AMATEUR RADIO CLUB  
P.O. Box 1005  
Newcastle, CA 95658

PLACE  
STAMP  
HERE

**SIERRA FOOTHILLS AMATEUR RADIO CLUB  
2008 MEMBERSHIP APPLICATION**

**Please Print**

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: (P)	\$22.00	Name Badge: (R)	\$7.00
Associate: (Q)	\$ 7.00	Repeater Donation: (S)	\$ _____
Auto Patch Donation: (T)	\$ _____	Newsletter Booster: (V)	\$ _____
Misc. Donation: (X)	\$ _____	Christmas Donation: (W)	\$ _____
<b>TOTAL: (Y)</b>		<b>\$ _____</b>	

<b>OFFICE USE ONLY:</b>		<b>DO NOT WRITE BELOW THIS LINE</b>	
Date: _____	Treasurer: _____	Secretary: _____	Roster: _____
Payment: _____	Check Number: _____	Cash: _____	