

The Heterodyne

Newsletter of the West Valley Amateur Radio Association

April Meeting

**Sun-Powered Radios: Harnessing
Solar Power For Amateur Radio
by Kenneth Finnegan, W6KWF**

**Wednesday April 13
Meeting Starts at 7pm**

Meeting Location:
American Red Cross,
Silicon Valley Chapter
2731 N. First Street at Plumeria Dr
(southwest corner) in San Jose

Map at www.wvara.org/meetings.html

WVARA Repeaters (W6PIY)		
Band	Frequency	PL
6 Meters	52.580- MHz	151.4 Hz
2 Meters	147.39+ MHz	151.4 Hz
1.25 Meters	223.96- MHz	156.7 Hz
0.70 Meter	441.35+ MHz	88.5 Hz
0.23 Meter	1286.2- MHz	100 Hz

Club Net

WVARA's club net is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net script can be found at www.wvara.org/net.html.

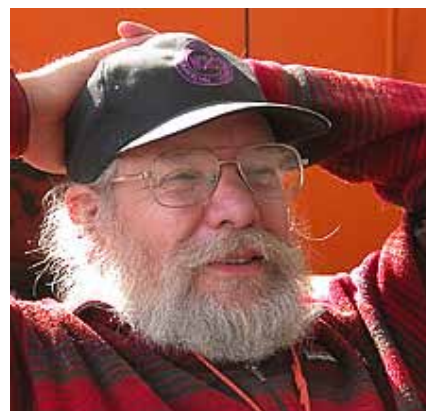
Visitors Are Welcome!

President's Letter

Learning CW

As some of you know, I've been trying to learn morse code for several years. My interest in this ancient art form started with an Elmer (now SK) who encouraged me to use CW, saying, "Real hams use CW." As a practical matter, using CW increases the number of stations you can contact, either because of improved performance with weak signals, or just because that's what the station is using.

To pass the old 5 WPM tests, CW can simply be considered to be an encoding system for the letters, numbers, special characters, and some procedural signals. When you get to 20+ words per minute, CW is no longer just an encoding system. It is a language of its own (actually a pidgin) and should be approached like any foreign language. The big win for people new to CW is that, in contesting and DXing, the vocabulary is very small. You can quickly recognize a few CW sequences the



way you recognize spoken words and work the other stations.

There are a number ham activities where CW is frequently used. The simplest CW is probably found while DXing. Although the speed is high, the vocabulary is very small. You can scrape by recognizing AGN, ?, 5NN, TU, and your call sign. The DX may be limiting calls to certain parts of the world. For example: EU - Europe, JA - Japan, NA - North America etc., so it helps to recognize them, but a dozen words will let you get by.

Only slightly more complex is using CW for contesting. The vocabulary is a bit bigger, and it is also necessary to be able to copy the exchange. When operating search and pounce, there is plenty of time to listen to the other station, copy the call and exchange, and then work it yourself. Making CW contacts may put you into a more competitive entry category, but there is lot of fun in contesting without even expecting to win your category.

Perhaps the most complex CW commonly found on the bands is rag chewing. Here you need to be able to copy anything the other station sends: name, location, rig, and even perhaps the dog's name. The good news is that the CW speed in rag chewing contacts is usually much slower than either contesting or DXing.

Some of the things I have learned along the way may help others trying to learn CW.

ARRL code practice is sent regularly during the week on many bands. It is a good way to learn and improve your speed. Additionally, the CW Operators Club CW Academy has a variety of courses, one of which may be tailor made for you. Check out <http://www.cwops.org/cwacademy.html> for details.

There are some survival strategies for getting by with poor CW skills at high speeds:

- In contests I only search and pounce. I can hear the other op's call many times and get it right. One of my goals in learning CW is to get good enough to run in a contest.
- With my 100W and wire antennas, I get a lot of chances to listen to DX stations handle other callers. It is good practice to try to decode the call signs they're working. (It also helps locate the caller in the pileup.)
- I use my radio's CW decoder to act as a check on my head decoding.
- If the DX is only rarely identifying, or sending faster than I can copy, I see if I can find the frequency on the QRZ.COM DX spotting network. It is a lot easier to verify a call sent faster than you can read than it is to copy it.

73 Bill AE6JV

New Members

***The following new members
joined WVARA since the last meeting:***

Yaron Oren-Pines, K6YOP

Kyle Nguyen, KG6UOF

Jon Kim, KI6RT

Welcome!!!

About the Meeting

“Sun-Powered Radios: Harnessing Solar Power For Amateur Radio” by Kenneth Finnegan, W6KWF

Ken will provide an introduction to the electrical characteristics of solar panels and how best to use them to power radio equipment. We'll start by talking about what the IV (Current-Voltage) curve of a solar cell looks like and what the different parameters on a solar panel datasheet mean, before moving on to what to look for in a solar charge controller. We'll also cover a concrete design example of powering a radio shack entirely off the grid.

Kenneth Finnegan, W6KWF, was originally licensed in 2008 while attending UC Davis studying mechanical engineering. After graduating with his BS, he transferred to Cal Poly, SLO to get a MS in electrical engineering and became involved with the Cal Poly Amateur Radio Club. So involved that his masters thesis ended up being related to amateur radio: “Examining Ambiguities in the Automatic Packet Reporting System”[1]. He now works as a Solar Applications and Test Engineer at a small solar cell supplier (Solar Junction) where he tests record-breaking GainNAsSb solar cells for a living.



This is a typical off-the-grid site that Kenneth helps deploy, this one for the 2015 Wildflower Triathlon at Lake San Antonio. The 400W solar panel is powering an APRS digipeater, a VHF/UHF crossbander, a UHF repeater, and a WiFi link to another radio site.

[1] <http://digitalcommons.calpoly.edu/theses/1341/>

Meeting Location: Meeting Room 5 at the Silicon Valley Chapter of the American Red Cross, 2731 N. First Street at Plumeria Drive (southwest corner) in San Jose. Most of us come in through the side entrance on the southwest side of the building — look for our red WVARA sign. And remember, visitors are welcome!

To learn more about the West Valley Amateur Radio Association, refer to <http://www.wvara.org>. If you haven't been to the Red Cross before, “talk-in” is usually available on WVARA's repeaters. Best choice would be 2m/220.

Dinner: For those who are hungry, several of us will be eating dinner at 5:50pm, just prior to the meeting, at The Habit at 2000 El Camino Real at the corner of Scott Blvd in Santa Clara — a ten minute drive from the Red Cross building.

Map of restaurant: <https://goo.gl/maps/NipZ7c1jhUL2>

Menu:

<https://www.habitburger.com/charburger/?MenuVersion=D®ion=bay-area®ionDisplay=Bay Area>

Hope to see you there!

Jim Peterson, K6EI

A Fun Antenna Party

WVARA's first Field Day Antenna Party of 2016 was a major success. We assembled the club's Force12 10/15/20/40 yagi and tested it on Svend's 50ft tower. It loads up beautifully on all 4 bands! 73 Jim Peterson, K6EI





From left: Roy AA6RB, Jon W6PI, Bill W9KKN, Svend KF6EMB,
Kevin KK6VF, Jim K6EI (back), Jack W6FB, Bobby KA4VBF

Treasurer's Report

Here are the Financial Reports for Jan-March. Please bring any questions to the April meeting.

Overall, we're in good shape. Thus far this year, 25 people have paid 2016 WVARA Individual Association dues. 15 of those also paid Repeater Dues. An additional 7 have paid Family dues, of whom 6 also paid Repeater dues. We have already exceeded our 2016 dues target of \$700.

This doesn't count those who paid their 2016 dues late in 2015, nor the one new member (Jonathan Kim KI6RT) who joined in April and will appear on next months report.

If you have not paid your 2016 dues yet, please do so (See <http://www.wvara.org/membership.html> for details).

I'd like to welcome new members Kyle Nguyen KG6UOF and Yaron Oren-Pines K6YOP who joined in March, and Jon Kim who joined in early April.

You may notice that our Net income for the year is negative. Not to worry. We've already paid for our De Anza Flea Market Space, but not won't see the setting income until our June 11 Flea Market gig. This is our major fund raising event of the year, and I encourage everyone to participate.

Peri KI6SLX
WVARA Treasurer

(continues on following page)

WVARA
Statement of Activity
January through March 2016

	Jan '16	Feb '16	Mar '16	TOTAL				
Income								
4200 — Misc. Income	0.04	0.04	0.00	0.08				
4100 — Program Income								
4110 — Membership Dues								
4111 — Indiv. Assn. (\$15)	60.00	270.00	45.00	375.00				2016 Budget
4112 — Indiv. Repeater (12)	243.00	-75.00	12.00	180.00				
4113 — Fam. Assn. (\$20)	20.00	120.00	0.00	140.00	Assn. Total	515.00	Assn	450.00
4114 — Fam. Repeater (\$18)	190.00	-82.00	0.00	108.00	Repeater Total	288.00	Repeater	250.00
Total 4110 — Membership Dues	513.00	233.00	57.00	803.00				
Total 4100 — Program Income	513.00	233.00	57.00	803.00				
4800 — Donations	205.00	0.00	5.00	210.00				
Total Income	718.04	233.04	62.00	1,013.08				
Expense								
5300 — Flea Market Expenses	0.00	2,300.00	0.00	2,300.00				
5100 — Administrative Expenses								
5110 — Finance Fees Paid	9.16	7.20	1.82	18.18				
5140 — Web Hosting Expense	0.00	59.40	0.00	59.40				
Total 5100 — Administrative Expense	9.16	66.60	1.82	77.58				
5200 — Membership Expenses								
5210 — Badges	16.00	0.00	0.00	16.00				
Total 5200 — Membership Expenses	16.00	0.00	0.00	16.00				
Total Expense	25.16	2,366.60	1.82	2,393.58				
Net Income	692.88	###	60.18	###				

WVARA
Statement of Position
As of March 31, 2016

ASSETS

Current Assets

Checking/Savings

1000 — Financial Accounts

1100 — Checking 2,104.13

1200 — Savings 4,494.55

1300 — Paypal 2,665.24

1900 — Cash 120.00

Total 1000 — Financial Accounts 9,383.92

Total Checking/Savings 9,383.92

Total Current Assets 9,383.92

TOTAL ASSETS 9,383.92

LIABILITIES & EQUITY

Equity

3300 — Unrestricted Net Assets

3310 — Associaton Balance 7,315.51

3320 — Repeater Balance 3,448.91

Total 3300 — Unrestricted Net Assets 10,764.42

Net Income -1,380.50

Total Equity 9,383.92

TOTAL LIABILITIES & EQUITY 9,383.92

Moving a Tower

On April 3, a group of people assembled to help Susie Wilson remove the tower her late husband Bob, KQ6X had used. Helping with the project were her two sons, Bob and David, Kevin Smith (KK6VF), Lou Steirer (WA6QYS) Gregg Lane (KF6ENA) and me. Svend Jensen (KF6EMB) was in charge.

With the benefit of Svend's long experience with towers and antennas, the project went very smoothly. We lowered the tower and tilted it over until the antenna was near the ground. We took off the antenna elements, marking each one with colored tape to make reassembly easy, and prepared the 800 pound tower pieces for transport to my driveway.

The only casualties were two roses from Susie's lovely backyard and a terra cotta plant saucer.

The next step is to get planning approval to install the tower in my backyard.

73 Bill Frantz, AE6JV



Kevin & Svend Prepare to Lower Tower



Svend Lowers Tower



Svend, David, & Gregg Remove Antenna



Ready to Load Onto the Dolly



Lou Guides the Dolly



Gregg, Kevin, Svend & Lou
Dismount Base as Susie Watches



Svend & Kevin Loading Up

WVARA Net Check-Ins (W6PIY)						
Tuesday's at 8:30 PM						
Call Sign	Name	03/08/16	03/15/16	03/22/16	03/29/16	04/05/16
Total		13	14	12	7	13
AA6RB	Roy			X		X
AB6XS	Kevin		X			
AE6JV	Bill		X		X	X
AF6AE	Bill	X	X			
K6BRF	Bert	X	X		X	X
K7RJV	Rex					X
KF6EMB	Svend	X	X	X	X	X
KG6UOF	Kyle		X			
KI6SLX	Peri		X		X	X
KJ6CQJ	Dean	X		X		
KJ6GMO	Sue	X		X		
KJ6ZZI	Michael	X	X	X		X
KK6VF	Kevin	NET	NET	NET	NET	NET
KM6AMQ	Matt		X	X		
KM6AMR	Scott		X			
KM6BHC	Bodan					X
KS6PD	Steve	X		X		
NU6P	John	X				
W6IA	Mark	X	X	X	X	X
W6PK	Phil	X		X		X
W9KKN	Bill	X	X	X	X	X
WB6KHP	Dave	X	X	X		X

Ham Crams

Los Gatos/Monte Sereno ARES/RACES is planning on offering ham crams on April 30, August 6, November 12 this year. These classes run from 8:00 AM to 5:30 PM. Contact Peter Hertan, K6PLH <phertan at alum.mit.edu> for more information.

73 Bill AE6JV

Valley of the Moon Amateur Radio Club
presents

HAMFEST 2016

**Saturday, April 30th,
8 am to 12 noon**

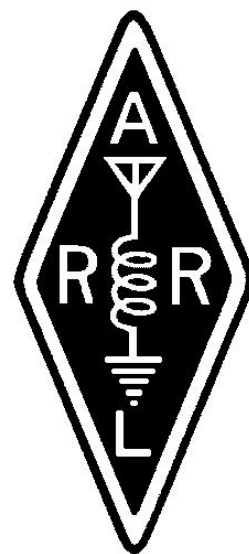
Featuring

- Swap Meet (indoor and outdoor spaces)
- Breakfast
- VE Testing Session
- Station Demos
- Fox Hunt

PLUS: special exhibit of vehicles that support
emergency communications

Radio Control helicopter using 70cm.

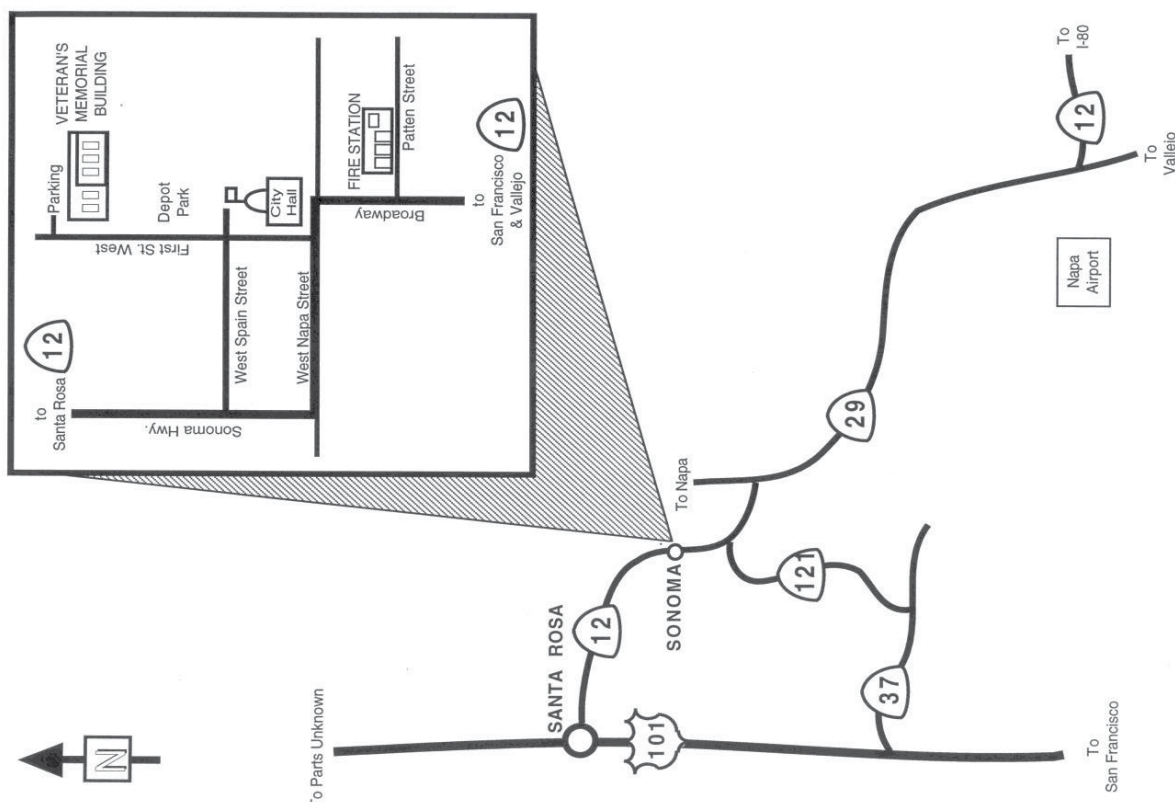
On the air demo of FreeDV digital voice on HF



Sonoma Veterans Memorial Building
126 First Street West
Sonoma
For info: 707-935-7441

Admission: FREE
Breakfast: \$8.00
Talk-in on 145.350 MHz (88.5 pl)
for flyer and map: www.vomarc.org

Map to Sonoma Hamfest 2016



2016 West Valley Amateur Radio Association Board

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 Bobby Barnett, KA4VBF
 Svend Jensen, KF6EMB
 Kevin Smith, KK6VF
 John Glass, NU6P
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DX Special Interest Group:
 Dennis Lyden, AG6HE

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