QRO

Monthly Newsletter of the Palos Verdes Amateur Radio Club

March 2020

Inside this month's QRO

All **QRO** monthly issues since 2007 are on the PVARC website at: www.k6pv.org in the "Newsletter" tab

2019 DXpedition to Pitcairn Island: Location of "Mutiny on the HMS Bounty"

Arnie Shatz, N6HC

Thursday, March 5, 2020

6:30 pm: 1) "What's Next?" group...all ham radio questions welcome, and 2) separate "DMR Basics" group

7:30 pm: Main meeting and presentation

Fred Hesse Community Park
(McTaggart Hall)
29301 Hawthorne Blvd.
Rancho Palos Verdes, CA
Visitors always welcome

PVARC's upcoming meeting topics

Our March 5th meeting program speaker is noted DXer and DXpeditioner Dr. Arnold Shatz, N6HC, who will show a video and discuss the 2019 Pitcairn Island DXpedition where he was an operator and team physician. If the place sounds familiar maybe that's because Pitcairn is where "Mutiny on the HMS Bounty" mutineers led by Fletcher Christian hid from 1790 to 1794...and a permanent settlement continued after that. Today about 50 individuals live on Pitcairn Island, most of them descendants of the mutineers. In the late 1990's the PVARC was fortunate to have the island's long-time ham radio operator Tom Christian (VP6TC) at one of our monthly meetings. Tom Christian died in 2013 at age 77.

Our speaker Arnold Shatz, M.D., was first licensed as KN3ANU at age 13 in Philadelphia. After upgrading to General class he began relaying CW traffic, then attended Temple University in Philadelphia where he earned a B.S. in Biology and M.D. degree. After public health service positions he moved to Southern California in 1976 and had a solo urology practice until retiring in 2001. Since then he has been Team Physician on over a dozen major DXpeditions to all corners of the world.

Speaking at our April 2nd monthly meeting is your **QRO** Editor AI6DF presenting "GPS for amateur radio: location reporting for emergencies and public service events using devices you already own." This presentation is adapted from two training classes on GPS which AI6DF developed and taught to Los Angeles County Disaster Communications Service members at the L.A. County EOC. There's much more to GPS than you already think you know.

Our topics for May and June will be announced soon. ■

Some interesting Pitcairn Islands facts before our March meeting

Did you know (all facts from Wikipedia):

- Pitcairn Islands is the world's smallest democracy? It has a population of 50 people.
- Pitcairn is an overseas territory of the United Kingdom, with a local government and Queen Elizabeth II as Monarch?
- Pitcairn's rainy season (November-March) has temperatures of 77-95ºF...with humidity often exceeding 95%?
- Pitcairn has only one bar and café?
- On Pitcairn diesel generators provide electric power only from 7 am to 10 pm?
- The main modes of transportation on Pitcairn are four wheel drive quad-bikes (ATVs) and on foot?

Learn more about Pitcairn at our March 5 monthly meeting... and how amateur radio has been used there. ■

Right: Photo of Pitcairn Island's east side.
PHOTO CREDIT: U.S. National Oceanic and Atmospheric Administration
http://www.photolib.noaa.gov/htmls/geod0710.htm

Next HF Enthusiasts Group meeting at PV Library is March 14

The PVARC's HF Enthusiasts Group meets Saturday, March 14, from 10:00 am to Noon, at the Palos Verdes Library's main branch (701 Silver Spur Rd / 650 Deep Valley Dr.) in the Purcell Room behind the Reference Desk.

The HFE Group now has two discussion go-arounds. First, the moderator leads discussion of an HF-related topic or two. After that, the broader 2nd go-around allows attendees to discuss whatever they are doing in amateur radio.

Among topics discussed at the February 8th HFEG meeting (as noted by Ray, N6HE) with 13 attendees:

- Jeff K6JW is switching to a new Mosley beam on his tower covering 40 through 6-meters in place of a SteppIR and moving his logging software away from CommCat to the free DXLab Suite.
- Mike KK6KCH is getting his HF Yaesu FT-897 and antenna up and running.
- Jerry NG6R demonstrated a low-cost GPS receiver he built. (See article on following pages in this **QRO** issue.) He reported also using the no-cost DXLab Suite.
- Bob AC6RM reported getting a used Flex 6500 SDR transceiver, soon to get a DX Engineering 43' vertical antenna. He also discussed the kind of primer and camouflage paint to help make antennas less noticeable.
- Brian KA6UHM is fabricating a new tower base and will need some hole-digging help soon.
- Ray N6HE discussed how the origins of QLF go back to 1898 when Marconi told his wireless operator, "Try sending with your other foot!" (Note: QLF is a humorously-derogatory Morse code abbreviation about the operator's hand-sending quality: "Are you sending with your left foot? Try sending with your left foot.")
- Carlos WD6Y showed a failed lightning arrestor.
- Don KD6UMC said his antenna is currently down. But recommends DeOxit for any sticky electrical contacts.
- Neal N6YFM is looking for a 2x1 or 1x2 call sign.

All are welcome to attend HF Enthusiasts Group meetings...even if just to observe. ■

Left: Jerry, NG6R, showed this low-cost easy-to-build GPS receiver, less than a ballpoint pen's length.

Above: The HF Enthusiasts Group meeting (partial view) on February 8, 2020. PHOTOS: DIANA FEINBERG, AI6DF

Some subtle improvements coming to PVARC meetings

By Diana Feinberg, AI6DF
QRO Editor

"New and improved" has long been an over-worn cliché with consumer products (...I know because I started my professional career in a marketing consulting group at Chicago's largest advertising agency in the mid-1970's.) Sometimes change for the better comes subtly, and that's what your club hopes for.

First, our Board of Directors has authorized a slightly wider (and higher quality) assortment of refreshments for our monthly meetings. We hope you like some of the newer cookies we'll start providing. But please continue eating responsibly in the back of our room to minimize carpet vacuuming.

Second, at our March 5th meeting we'll have a blank index card on each chair...anonymously asking for topics you would like presented at a PVARC meeting or in another setting we might provide. We are always open to ideas and will strive to find a suitable speaker. In amateur radio we've found some experts with incredible technical knowledge on their subject—-but unfortunately are mediocre speakers. I know about them too...in 2008 and 2010 I dozed off at two PVARC meetings while sitting during the presentations of experts who were positively boring.

Third, also starting at our March 5th meeting we'd like everyone attending to introduce themselves to at least one other club member they don't already know. I will be engaging in that too...but let's not engage in handshakes or hugs given health concerns we all currently have.

Fourth, we'll try a new signaling method to indicate meeting starts and refreshment break endings. It's called "the brass dinner chimes" as demonstrated at our Holiday Dinner last December. If you grew up in the 1950's watching the NBC children's show "Ding Dong School" with Miss Frances you already get the idea.

Lastly, our Board is striving to have some newly-created appointed positions for better understanding our members' amateur radio interests and needs. We're here to serve our members...and it's been our pleasure doing so. ■

PVARC's February 14th VE test session licenses eight operators

Following the PVARC's February 1st and 8th ham license classes taught by Walt Ordway, K1DFO, our February 15 Volunteer Examiner test session licensed eight operators.

In an unusual distribution of applicants, five Technician and three Amateur Extra licenses were earned—but no General licenses. A ninth applicant missed getting a Technician license by one question.

Our Volunteer Examiner team was led by Jerry Shaw, KI6RRD, with other Volunteer Examiners Ray Grace, WA6OWM; Jeff Wolf, K6JW; Steve Collins, KI6TEQ; Don Putnick, NA6Z. Dave Scholler, KG6BPH, coordinated arrangements. ■

Position Locator using GPS

- Another inexpensive and easy-to-build DIY project

By Jerry Kendrick, NG6R

There are many Global Positioning System (GPS) handheld and mobile receivers on the market (from just under a hundred to well over $400 at Amazon) providing a wide selection of capabilities, from simple lat/long location information to elaborate moving maps and driving instructions. [1] But, what if you're interested in simply knowing your current location's latitude and longitude, reliably and precisely enough to enable you (or someone you might be able to contact by ham radio) to pinpoint your location in the event of an emergency.

Our Los Angeles County Sheriff Department's Disaster Communication Service (DCS), with which several of our PVARC members are associated, routinely asks its members to report latitude and longitude data for waypoints closest to their current location—waypoints such as hospitals, pharmacies, schools, etc. And, it asks for that lat/long information to six decimal places, precise enough to enable a really accurate fix of the receiver's position.

Obviously, while sitting at one's home desk computer, such a position lookup would be easy, just by employing Google Maps or some other free Internet map site. But, the motivation for this project is to enable an individual, away from home and perhaps experiencing an emergency situation, to easily retrieve a pocketsize battery-powered electronic unit and after attaching a small antenna be able to read out accurate latitude and longitude of their current location using the GPS satellite constellation. The following article describes how to easily and inexpensively construct such a unit.

GPS receiver modules

Virtually every new cell phone now includes a tiny chip that is capable of receiving the GPS satellite signals and determining its own location. Such chips are incredibly small and lightweight. Experimenters and hobbyists, such as drone builders and remotely-controlled vehicle enthusiasts, have an interest in employing these chips as well.

One popular GPS receiver module that is also packaged for hobbyists is made by a Swiss company, u-blox. [2] The NEO-6M-0-001 module weighs a mere 12 grams (0.4 oz) and is relatively inexpensive because of the ubiquity of these mass-produced chips. The module receives the satellite signals via a separate "active" antenna (which has a built-in low-noise amplifier or LNA of nearly 30dB gain); down-converts the satellite RF downlink signal from L-band 1575.42MHz to an intermediate frequency before demodulating and outputting a (default) 9600-baud-rate serial digital data stream.

The digital data from the receiver module is output in a specified format and is capable of providing latitude, longitude and altitude of the user's receiver as well as date and accurate time. So, clearly, this little receiver chip is highly capable, but its digital data output still must be processed and formatted so that it can be displayed for the benefit of the ultimate user. Hence, there is need for a microprocessor to retrieve and display the specific data for our project, viz., latitude and longitude. As discussed in previous **QRO** articles, the Arduino family of microprocessors is both highly capable and quite inexpensive. [3][4] We've chosen the Arduino NANO for this project—it's small and it's very cheap!

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Position Locator using GPS

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Configuration diagram

The configuration for this project is shown in Figure 1. The display device selected is a 16x2 Liquid Crystal Display (LCD). The nomenclature 16x2 means that there are two lines available for text and/or data, and each line is capable of displaying 16 characters. With the limitation of two lines of 16 characters, we will use one line each for latitude and longitude; so display of altitude and accurate time will not be possible. A future project enhancement might expand the capability (and physical size) of the unit to include up to four lines of information.

A typical latitude readout in the United States would be two digits plus a decimal point, followed by up to six decimal places; a typical western US longitude would be a negative sign, three digits, a decimal point, followed by up to six decimal places. So, a reasonable way to display desired information using the 16x2 LCD might be:

```
Lat:   33.123456
Lon: -118.123456
```

All sixteen possible LCD character positions are used, a visually pleasing space exists between the descriptor and the numerical data, with six decimal places displayed and decimal points for latitude and longitude aligned for ease in reading the numbers.

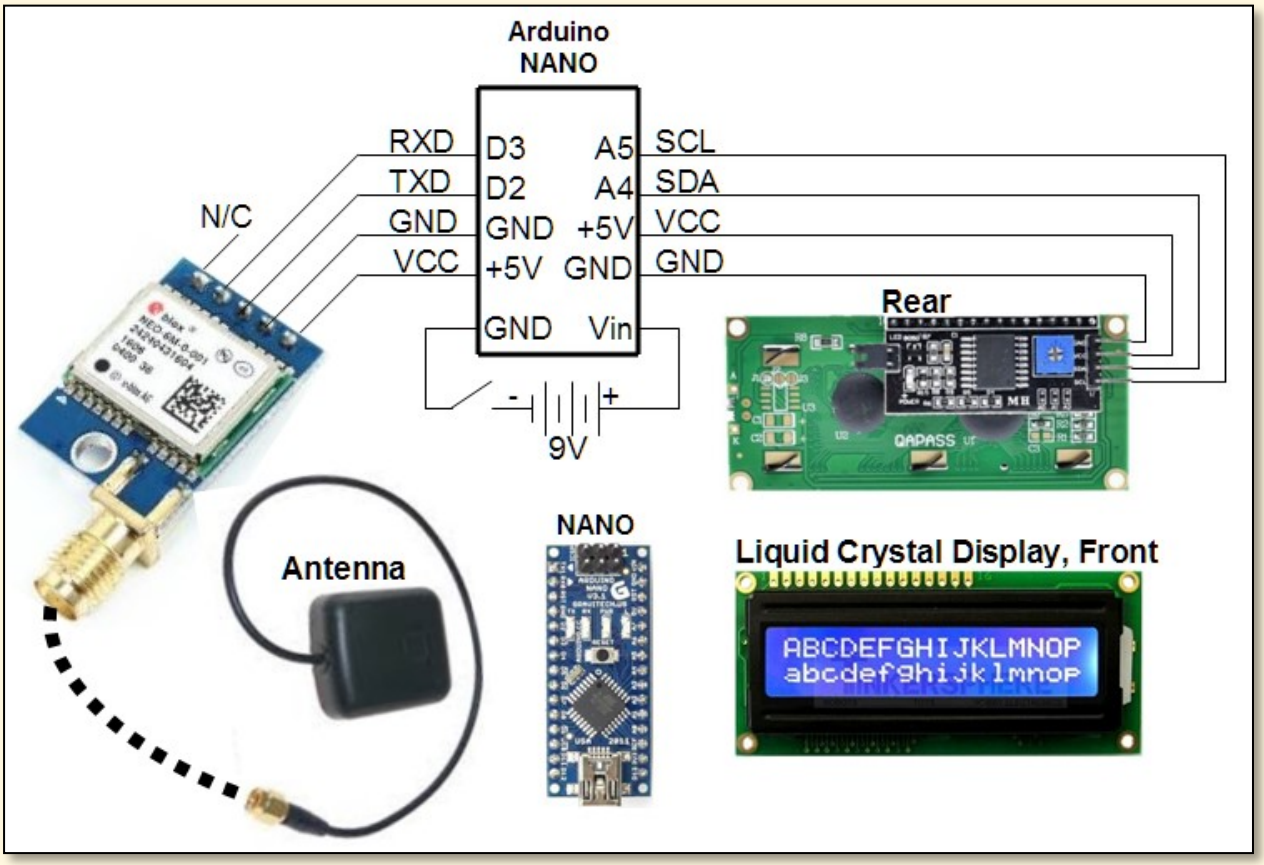

ILLUSTRATION:
JERRY KENDRICK, NG6R

Figure 1. This GPS position locator project consists of five key components: antenna, receiver module, microprocessor, display and battery. The antenna is only 1.5 inches square, has a magnetic base for convenient attachment to a metal surface such as a car roof, and houses a low-noise amplifier (with almost 30dB of gain) that is powered by 3.3V from the receiver module (via the coaxial cable center conductor doing double-duty by also carrying the RF signal). The tiny GPS receiver module then down-converts and demodulates the received satellite signal and packages the digital data for serial transfer to the Arduino NANO microprocessor. The microprocessor is computer-programmed via the built-in USB connector to pick out the latitude and longitude frames and format them for display on a 16x2 liquid crystal display. A virtual or "software serial port" is created within the microprocessor for ease in getting digital data from the receiver module into the NANO. And, a hardware serial I2C data port is utilized to get the formatted lat. and long. data strings displayed on the LCD. Use of serial data buses significantly reduces the number of wire connections that would otherwise be required.

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Position Locator using GPS

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An Arduino sketch (software code) was written by the author to parse the serial digital data stream, extract the latitude and longitude data and display those data once per second on the LCD. The sketch was only 143 lines of code. It can be this short primarily because some existing code libraries were utilized. A code library called ***TinyGPS++*** does most of the parsing of the key parameters from the satellite; and two more code libraries, ***hd44780*** and ***Wire***, enable the use of a serial data bus called Inter-Integrated Circuit or I2C (also known as IIC or I^2C) to send serial data from the microprocessor to the LCD. The use of existing code libraries greatly eases the burden of having to create code from scratch for basic and commonly used functions.

Note that there are very few ports of the Arduino microprocessor actually needed for this project—just digital data ports D2 and D3, and (what are normally) analog ports A4 and A5. [For the NANO, analog ports A4 and A5 also have a secondary function of being Data and Clock ports (referred to as SDA and SCL, respectively) for hardware serial data devices such as this LCD.] In the code sketch, D2 and D3 are set up to exchange serial data across the digital interface between the GPS module and the Arduino microprocessor. Since there is a voltage regulator in the NANO capable of providing sufficient current to power both the GPS receiver module and the LCD backlit display, no additional power conditioning is required. So, 5V and ground are supplied to each device (GPS receiver and LCD) from the NANO. A small 9-volt battery via an on/off switch provides power for our project.

Completed unit

The completed GPS position locator unit is shown in Figure 2. Note the small size of the unit, able to fit comfortably into a shirt pocket. The right photo shows the layout of the key components inside the small plastic enclosure.

Figure 2. The liquid crystal display of the completed unit provides sufficient contrast, even in sunlight. The brilliant blue of the relatively inexpensive 16x2 LCD device gives a pleasant background for the white position readout data. (The white characters are even brighter in reality than captured in this photo.) The right photo shows how the u-blox GPS receiver module (with built-in SMA connector) and the Arduino NANO are assembled on a perf board. Point-to-point wiring of their interconnections are completed on the back side of the board. The "backpack" I2C adaptor module is shown on the underside of the LCD mounted on the enclosure lid; its four wires (VCC, GND, SDA and SCL) are also routed under the perf board for point-to-point connection to the NANO. A single 9V alkaline battery provides power to the NANO, which in turn routes regulated 5V power to the GPS receiver module and to the LCD. PHOTOS: JERRY KENDRICK, NG6R

Cost of the unit as built is shown below. All items were purchased from eBay vendors generally located in China except as noted. Prices include CA Internet tax (something new!) and shipping cost, if any.

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Position Locator using GPS

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Item	Cost	Comment
GPS Active Antenna	$3.38	Single unit
NEO-6M-0-001 Rx module	$7.39	Single unit
Arduino NANO	$2.79	In quantities of 5
Small perf board	$0.25	In bulk quantities
16x2 LCD with I2C rear adaptor	$2.09	Single unit
9V alkaline battery	$1.37	In quantities of 8
Battery snap-on connector cable	$0.25	Ham swap meet purchase
Small plastic enclosure	$1.21	In quantities of 5
SPST on/off switch	$0.40	Ham swap meet purchase
Total cost	**$19.13**	

Operation

The significance of increased precision in lat/long location readouts relative, say, to the location of one's own home, easily confirmed with Google Maps, is explored in the following table.

No. of decimal places	General location accuracy/precision
0 (e.g., Lat 33, Lon -118)	Region (like "LA area")
1 (e.g., Lat 33.8, Lon -118.3)	Within about ten miles
2	Within about a mile
3	Your house or a house nearby
4	Your house
5	Within a few feet
6	Within a few inches

A frequent (and perhaps lively) discussion related to GPS position location parameters is the difference between "accuracy" and "precision" and how many decimal places one should rely on for latitude and longitude readouts. It was decided for our project to display six decimal places for these two parameters. Both parameters are in degrees of earth central angle so a single digit in the sixth decimal place would represent one "micro-degree," i.e., one millionth of a degree.

Just how much distance on the earth's surface does one micro-degree represent? First consider latitude: With one nautical mile (NM) defined (originally) as one minute of latitude (i.e., 60 nautical miles per degree), 6076.12 feet per NM and 12 inches per foot, then one micro-degree of latitude (the 6th decimal place in our ***Lat:*** display) would calculate to be approximately 4.4 inches. Now consider longitude: While there is also ~60 NM per degree at the equator, the subtended angle gets smaller away from the equator, so one degree of longitude is about 50 NM at our latitude of ~33.8 degrees. [5] Therefore, a micro-degree of longitude would represent only about 3.6 inches. So, not to put too fine a point on it—as if that hasn't already happened!—a change by one unit in the rightmost 6th digit in our display would represent a theoretical movement of approximately four inches.

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Position Locator using GPS

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If the 6th digit in the readout is stable and isn't moving, does that mean our position locator accuracy is less than half a foot? NO!

The US Government estimates the accuracy of GPS in current-day cell phones is about 16 feet. [6] But, if we observe our project display and see only slight movement in the 6th decimal place, that just means that our location has been precisely (if inaccurately) determined to within just a few inches. This concept of knowing "precise" location, even if inaccurate, can be quite useful when attempting to locally control or assess movement of the GPS antenna. Hobbyists with remote control vehicles use this relative motion of GPS-receiver-equipped vehicles to determine how much, and in what direction, the receiver has moved since the last noted position update.

We note when observing our project display that the 6th decimal place, or "micro-degree" digit, is very stable. It might stay on a particular value for 10 or 20 seconds and when it does change value, it's only by at most 3 or 4 units. So this behavior suggests that even though accuracy is only good to 15 to 20 feet, the stability of the sixth readout digit might enable us to precisely discern movements of our antenna location, from readout to readout, down to just a few inches.

The unit does take a short amount of time to lock on to the satellites and begin displaying lat/long data. With full and unobstructed sky visible to the GPS receive antenna (so that several GPS satellites are being processed), we consistently find that the initial lat/long data are displayed in less than 60 seconds after power-on and very stable latitude/longitude readings are available a few minutes later.

Summary and conclusions

This completed position locator project based on using GPS satellites is small enough to fit into a shirt pocket or place in an automobile's glove compartment; it has low power consumption for extended battery life; and only needs a small GPS antenna to function. It can be built for under $20, well below the cost of commercial units that perform essentially the same function. The Arduino NANO microprocessor that does the data manipulation to drive the display can be purchased for as little as a couple of dollars for a knockoff—generally made in China—as compared to the genuine article directly from the Arduino website for $22. Just as was offered for the Code Practice Oscillator in last month's **QRO** issue, for anyone in the club wishing to acquire the parts and complete this project—and who supplies the Arduino device—we'll be more than willing to program it for you using this sketch. Consider constructing this relatively easy-to-build fun and inexpensive DIY project, particularly if your cell phone does not have a GPS position locator capability. ■

References

1. https://en.wikipedia.org/wiki/Global_Positioning_System
2. https://en.wikipedia.org/wiki/U-blox
3. Page 5, http://www.n6rpv.net/n6rpvpage/pvarc/2019QRO/QRO_Mar_2019.pdf
4. Page 7, http://www.n6rpv.net/n6rpvpage/pvarc/2020QRO/QRO_Feb_2020.pdf
5. https://www.nhc.noaa.gov/gccalc.shtml
6. https://www.gps.gov/systems/gps/performance/accuracy/

PVARC Club News

Consider being an ARRL member

Please consider joining the American Radio Relay League (ARRL) if not currently a member. The ARRL is the only national organization representing amateur radio and has another significance for the PVARC: We receive benefits from being an ARRL-affiliated club. But being an ARRL-affiliated club requires at least 51% of club members also be ARRL members. Annual ARRL membership costs $49 and now includes your choice of the printed monthly **QST** magazine or the ARRL's new **On The Air** magazine for newer hams. Both are available electronically to all ARRL members. Additionally all ARRL members have access to numerous web-based materials, ARRL staff, and assistance with ham radio issues. Visit: www.arrl.org/ then click "Join/Renew."■

PVARC badges await pickup at next monthly meeting...or another time

Gary Lopes, WA6MEM, has the following PVARC badges ready for distribution at our March 5 meeting or by other arrangement.

- KN6FYW
- NA6Q

To make special arrangements with Gary (or to order a badge) contact him at: wa6mem@cox.net. ■

Embroidered PVARC patches available at monthly meetings

PVARC club patches are available at our monthly meetings for $4 each. They may be sewn on any cap, jacket, shirt, or bag.

The four illustrations in the patch center are emblems of the Palos Verdes Peninsula's four cities (clockwise from top left: Palos Verdes Estates, Rolling Hills Estates, Rancho Palos Verdes and Rolling Hills.) ■

Palos Verdes Amateur Radio Club

An American Radio Relay League Affiliated Club

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Palos Verdes Peninsula, CA 90274-8316

Monthly Meetings:
1st Thursday (except July and December in 2019) at 7:30 pm at Fred Hesse Park, 29301 Hawthorne Blvd., Rancho Palos Verdes, CA. Visitors always welcome.

Repeaters (Open, though often listed as "Closed"):

PVARC: K6PV, 447.120 MHz
- **Analog FM:** (-), PL 100.0, CTCSS
- **Digital DMR:** 447.120 MHz (RX); 442.120 MHz (TX) Talkgroup 31060, Color Code 1, Time Slot 2

"PV-West": W6MTA, 449.980 MHz (-), PL 173.8, CTCSS

To order a Club badge:
Gary Lopes, WA6MEM, wa6mem@cox.net

To order a Club jacket or patch:
Dave Scholler, KG6BPH, 310-373-8166

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Front page photo — Pt. Vicente Lighthouse 30 minutes before sunset on February 21, 2020.
PHOTO: DIANA FEINBERG, AI6DF

PVARC Club News

PVARC upcoming dates in 2020

- **PVARC monthly meeting at Hesse Park, McTaggart Hall**

  1st Thursday each month, 7:30-9:30 pm, except in August and December. 6:30-7:25 pm, "What's Next?" group for newer hams and "DMR Basics".

- **HF Enthusiasts Group meetings at Palos Verdes Library, Peninsula Center main branch**

  2nd Saturday every month, 10 am to Noon, in the Purcell Room (corner behind Reference Desk.)

- **Walt Ordway, K1DFO, Technician and General amateur radio license classes at Hesse Park**

  Saturdays, May 2 and 9, 2020; exams, May 16.
  Saturdays, Nov. 7 and 14, 2020; exams, Nov. 21.

- **Field Operating Events:**
  ARRL Field Day, June 27-28, Soledo School.
  International Lighthouse & Lightship Weekend, August 22-23.

- **Public service events in 2020:**
  Ridgecrest Int. School 5K, Apr. 26.
  RHE Hills Are Alive 10K/5K run/walk, Aug. 10.
  Conquer the Bridge race, Labor Day, Sept. 7.
  Palos Verdes Half Marathon-10K-5K, Nov. 21.

- **PVARC 2020 Holiday Dinner:** To be announced.

Non-PVARC Events of Note:

- **W6TRW Swap Meet:** last Saturday each month, Northrop Grumman Space Park, North Redondo Beach, 7:00-11:30 am.

- **International DX Convention,** Visalia, CA: Apr. 24-26.

- **Dayton Hamvention**, Xenia, OH: May 15-17.

- **Sea-Pac & ARRL Northwest Division Convention,** Seaside, OR: June 5-7.

- **PACIFICON & ARRL Pacific Division Convention,** San Ramon, CA: Oct. 16-18. ■

WELCOME NEW MEMBERS OF THE PALOS VERDES AMATEUR RADIO CLUB IN 2018-2019

Daniella Ward, KM6TRC

Dylan Brown, KM6TDI

Ellen Tessitore, N6XJM

Michael Vulpillat, KJ6RVU

Brian Clebowicz, K6BRN

Warren Arata, KM6YGR

Chris Sundlee, N6CGS

Brad Rachielles, KC6NNV

Georgiann Keller, KM6YGM

Annalise Little, KM6YGS

Tim Couture, KM6QWA

Frank Brown, KM6YGQ

Charlie Hansen, AJ6HZ

Diana DiDomenico, KM6IQN

William McClure, W7QLI

Rick Shigio, K6RTS

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Jon Kuroyama, K6LDQ

Ray Grace, WA6OWM

Robert Keller, K9BGC

Alex Marko, KD6LPA

Erin Okada, KN6FYV

Derek Okada, K6DMO

Xing Yang, KN6FYX

Stephen Anderson, KN6FZA

Charles Tang, KN6FYY

Ikue Duncan, KN6FYW

PVARC Calendar March 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3 PVARC weekly net on K6PV repeater & analog cross-band, 7:00 pm (DMR); 7:30 pm (analog)	4	5 PVARC monthly meeting, Hesse Park. What's Next, & DMR 6:30 pm; Main meeting, 7:30 pm	6	7
8	9	10 PVARC weekly net on K6PV repeater & analog cross-band, 7:00 pm (DMR); 7:30 pm (analog)	11	12	13	14 PVARC HF Enthusiasts Group, 10 am to Noon, Palos Verdes Library Peninsula Center Purcell Room
15	16	17 PVARC weekly net on K6PV repeater & analog cross-band, 7:00 pm (DMR); 7:30 pm (analog)	18	19	20	21
22	23	24 PVARC weekly net on K6PV repeater & analog cross-band, 7:00 pm (DMR); 7:30 pm (analog)	25	26	27	28 W6TRW Swap Meet, 7:00-11:30 am at Northrop Grumman, North Redondo Beach
29	30	31 PVARC weekly net on K6PV repeater & analog cross-band, 7:00 pm (DMR); 7:30 pm (analog)				

Tell your friends and family about our upcoming ham license classes at Hesse Park.

Two Free Amateur Radio Courses

FCC "Technician" course (entry level)
FCC "General" course (2nd level)
Each course is 2 sessions
The sessions will be on 2 and 9 May 2020
Technician 9:30 AM to 1:30 PM both Saturdays (bring your lunch)
General 1:45 PM to 5:00 PM both Saturdays
The FCC tests will be 10:00 AM to noon on 16 May 2020

At the start of the 2 May Technician course, a member of the Palos Verdes Amateur Radio Club will give a 30 minute presentation on how to get further involved with amateur radio.

The class location is at Fred Hesse Community Park,
29301 Hawthorne Blvd., Rancho Palos Verdes, CA 90275
Confirm your attendance to Walt, K1DFO at waltordway@juno.com

There is no fee for either course.
Taking the FCC test is $15.

Optional Material (sold at cost)
Gordon West books with all the FCC test questions,
$26 for the Technician and $26 for the General
Paper copy of Walt's Power Point charts,
$22 for the Technician and $20 for the General

For courses sponsored by the Palos Verdes Amateur Radio Club, students thru grade 12 who pass their examination at a PVARC VE test session will, upon application to the Club, be eligible for reimbursement up to a maximum of $50 to cover the cost of materials and the examination fee.

Everyone who obtains their first ham radio license through a PVARC VE test session, regardless of age, will receive a free membership in the Palos Verdes Amateur Radio Club for the remainder of the current calendar year.

If you haven't taken CERT training, or need a refresher, don't miss this opportunity

Community Emergency Response Training

Training Classes starting
Saturday April 4, 2020

C.E.R.T. TRAINING IS COMING TO PALOS VERDES
SIGN UP NOW!
FREE!

The **Los Angeles County Fire Department** is proud to present this training to the public.

Following a major disaster, police, fire, and medical personnel may not be able to fully meet the demand. People will have to rely on each other to meet immediate life saving and life sustaining needs.

Developed through FEMA, the L.A. County Fire Department's **Community Emergency Response Training (CERT)** program provides basic training in safety and life saving skills for the public.

The course curriculum covers the following modules:

Saturday, April 4	Saturday, April 18	Saturday, April 25
1. Disaster Preparedness 2. Disaster Fire Suppression 3. Disaster Medical Ops 1	4. Disaster Medical Ops 2 5. Light Search & Rescue 6. Disaster Psychology	7. CERT Organization 8. Terrorism 9. Course Review & Disaster Simulation Exercise

The training course will be a series of three classes on:
April 4, 18 & 25th from 9:00 a.m. to 4:30 pm

Rolling Hills Estates City Hall
4045 Palos Verdes Dr. North,
Rolling Hills Estates, CA 90274

C.E.R.T. training is free

Sign up by emailing gk1319@yahoo.com or 310 780-6867

Please include your name, phone number, and email address.

Class size is limited. Sign up today to reserve your seat.
CERT Class information is also posted on the Fire Department website: http://fire.lacounty.gov
*Students must complete all 20 hours of the course to receive a certificate of completion. If you must miss any units, you can make them up anywhere CERT is taught to receive your certificate.

Palos Verdes Amateur Radio Club
P.O. Box 2316
Palos Verdes Peninsula, CA 90274
www.k6pv.org

NEW MEMBER & 2020 MEMBERSHIP RENEWAL FORM

NEW: _____ or RENEWAL: _____ MEMBERSHIP DATE: _____

Last Name: _____ First Name: _____Spouse: _____

Street Address: _____

City: _____ Zip: _____

Phone: Home _____ Work _____Cell_____

Email address: _____
(Unless otherwise noted emails will be sent to the applying member only)

License Call: _____ License Class: _____ARRL Member?____Birth Mo./Day: _____

Other amateur radio groups you belong to:_____

Additional Household and/or Family Members (if Applicable):

Name_____ Call _____ Class_____ ARRL____ Birth Mo./Day: _____

Name_____ Call _____ Class_____ ARRL____ Birth Mo./Day: _____

Name_____ Call _____ Class_____ ARRL____ Birth Mo./Day: _____

Individual membership ($20.00) $_____

Household and/or Family membership ($25.00) $_____

Additional donation to support PVARC activities $_____

PayPal:_____Cash: _____ or Check #: _____ Date_____ TOTAL $_____

Please make checks payable to: Palos Verdes Amateur Radio Club; Dues based on January 1st to December 31st year.

PayPal payment: Go to www.paypal.com, enter recipient name: PVARC90274@gmail.com

All New and Renewal Member applications must be signed below.

I am applying for a new or renewal membership in the Palos Verdes Amateur Radio Club and understand that by accepting membership I agree to abide by the Club's constitution and by-laws (available on-line at: http://www.k6pv.org or upon request.)

Signature:_____ Date: _____

Family Member Signature: _____ Date: _____

Family Member Signature: _____ Date: _____