



QRO

THE PALOS VERDES AMATEUR RADIO CLUB NEWSLETTER

MARCH 2024

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

Additional club news appears in the PVARC Weekly Bulletin sent by email to members.

"Propagation Tools...Can Anybody Hear Me?"

Dennis Kidder, W6DQ

Thursday, March 7, 2024, 7:30 pm, via
Zoom only

Hesse Park's building is closed that evening...do not show up there.

**PVARC Zoom meeting room
opens by 7:10 pm**

Also in March:

Saturday, March 9, 10:00 am-Noon,
PVARC HF Enthusiasts Group meeting at
Palos Verdes Library main branch in the
Conference Room

Upcoming PVARC meeting speakers in 2024...

PVARC's **March 7th monthly meeting** via Zoom has Dennis Kidder W6DQ presenting his new talk "Online Propagation Tools – or – Can Anybody Hear Me?"

Dennis grew up on the Palos Verdes Peninsula, attended Rolling Hills High School (now Peninsula High School) and after an aerospace-industry career retired to the Inyokern, CA, area. He has given at least seven talks to our club in the past 16 years...and frequently speaks at other ham clubs.

Dennis will speak about many free web-based tools enabling hams to quickly see how radio signals from many places to other places are being received (or not). Some tools even venture into predicting HF conditions for the next day or two.

Many hams use the ubiquitous Solar Data/Propagation widget developed/maintained by Arizona-based Paul Herrmann, N0NBH (see right illustration). Once you understand the variables shown the numbers tell a comprehensive story of HF radio conditions.

Many more websites and online maps will also open your vistas to radio communication, so do attend by Zoom on March 7.

Our **April 4th monthly meeting** at Hesse Park and via Zoom focuses entirely on VHF/UHF DMR (Digital Mobile Radio)...and how you can be involved with it, if not already.

This meeting also celebrates our 5th anniversary of K6PV's UHF Hytera analog/DMR dual-mode repeater. It became fully-operational on March 22, 2019, and opened new opportunities to communicate with hams throughout the world on 70cm via Internet linking.

Speakers for our May and June meetings at Hesse Park and via Zoom will be announced soon.■



Above: Solar Data/Propagation data maintained by Paul Herrman, N0NBH, of Sierra Vista, AZ. He updates this information every 3 hours.

RF Line-of-Sight Elevation Profiles

By Jerry Kendrick, NG6R

Ever wonder why you can't receive or don't have a strong response from some VHF/UHF repeater, when your buddy a few blocks away seems to have no problem getting in? Or you want to set up a simplex QSO, but find that you can't hear the other person. Maybe you have some terrain or obstacle between you and the repeater site or the other station. Wouldn't it be great if you knew for certain that was the case? And if so, what is the obstruction and where is it located?

This article demonstrates using various free and easy-to-use online elevation profile applications that will determine if there's something substantial between you and the repeater you want to use or the other station you want to contact. All you need to know is your exact location and where the repeater or other station is located (Lat/Long, or you can identify it on a detailed map). I.E., you need to identify the locations of both ends of the link.

Several line-of-sight (LOS) elevation profile programs are available, some are free and some are not. We'll demonstrate four websites that are free as well as easy to use. All four are accessible online using just a browser and do not require downloading apps.

Elevation profiler tool #1: arcgis

The first elevation profile app being demonstrated [1] can be found at the arcgis.com website. A click on the profiler on the website URL will bring up a world map.

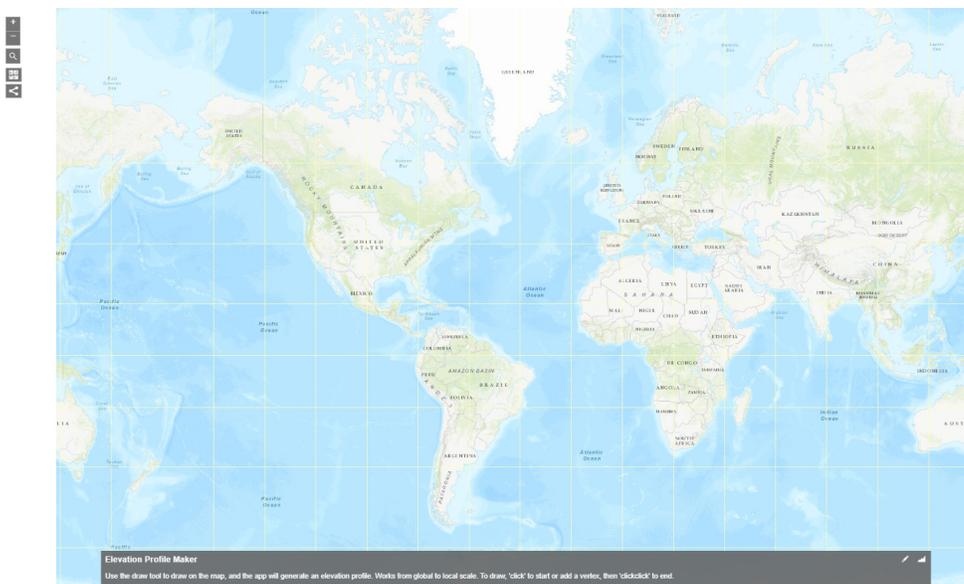


Figure 1. Initial world map display from the arcgis.com website [1], which will enable zooming down to any local portion of the map, even down to within a few feet

Simply navigate using the mouse and/or the +/- zooming feature in the upper left corner of the display to bring up the region in which both ends of the link are visible. As an example, we'll use the same RF link for all four of the apps being demonstrated in this article. If I want to determine if there are LOS obstructions between my home QTH in Rolling Hills Estates (address found on QRZ.com) and K6RH repeater located in Rolling Hills (33.745860, -118.337671), I just zoom down to locate the NG6R QTH end of the link, single click, then navigate to the other end of the link at K6RH and double click. After double-clicking, a popup elevation profile will appear. By moving the cursor to some spot along the

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RF Line-of-Sight Elevation Profiles

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profile (the K6RH repeater end point in this example), banners will indicate the distance in miles from my QTH, the mean sea level in feet of the ground at the repeater site, and the elevation gain in feet above my QTH. This profile is shown in Figure 2

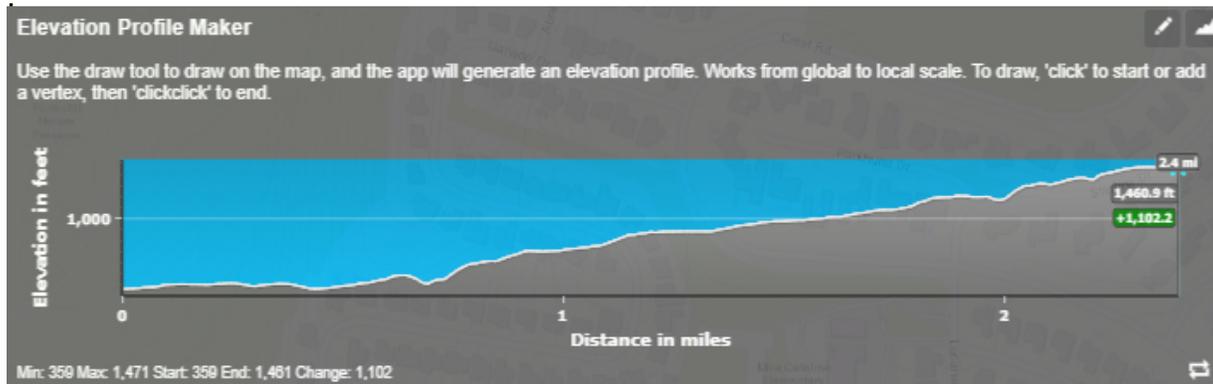


Figure 2. Elevation profile between NG6R Rolling Hills Estates home QTH (on the left) and K6RH repeater located in Rolling Hills (on the right), using elevation profiler tool #1. Observe that the line of sight appears to be fairly unobstructed except at the end of the link near the repeater site. Connectivity could be marginal and might depend on the height of the repeater antenna. Note that height of the antenna at NG6R QTH would not appear to be much of a factor.

This app does not provide a straight line between the two end points to enable a quick assessment of line of sight. Also, it does not provide a means of increasing height of either end of the link to simulate an antenna of a particular height above ground level. Another slight disadvantage of this app is that the zoomable map is not of the quality or resolution of Google Maps. So precise locations are not as easy to achieve as some other apps. But this app is very quick and easy to use.

Elevation profiler tool #2: solwise.co.uk

The second elevation profile application we're demonstrating [2] can be found at the solwise.co.uk website. Click on the website tool URL and scroll down to a map image initially centered on the United Kingdom, as shown in Figure 3.



Figure 3. Initial map displayed after opening the solwise.co.uk tool website. Navigating on it is easy using ctrl + scroll to zoom in or out and the mouse to drag the map to other parts of the globe.

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RF Line-of-Sight Elevation Profiles

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Using the same example and locating NG6R home QTH on the Google Map, a single click places a green marker on the map. After navigating to the other end of the link at K6RH, a double click will place a red marker at the location. Immediately upon doing so, an elevation profile will be created, as shown in Figure 4.

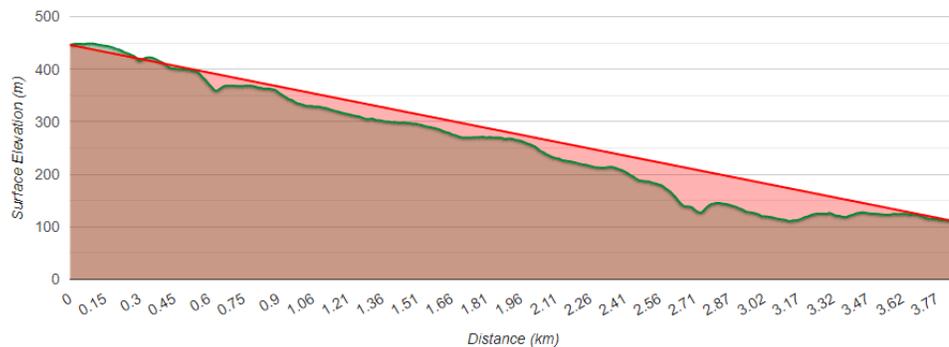


Figure 4. Elevation profile between NG6R Rolling Hills Estates home QTH (right end) and K6RH repeater located in Rolling Hills (left end), using elevation profiler tool #2. All distances are metric with no option to select English units. A straight line between the two end points is helpful to instantly spot potential obstructions.

Unlike the previous app (elevation profiler tool #1), which placed the left side of the elevation profile image at the starting point of the link (NG6R QTH), this app places the left side of the elevation profile image at whichever end of the link is more westerly. I.E., it's attempting to replicate a spatial view of the elevation profile as one might imagine it on a map (west to the left, east to the right). Since K6RH repeater site is mostly south but also just slightly west of NG6R QTH, it shows up on the left side in Figure 4. This feature (or shortcoming?) seems to be unique among the four apps demonstrated in this article.

This app has a feature of enabling different antenna heights for both ends of the link, as shown in the left side of Figure 5. By single-clicking on the marker at the end of the link, where adding antenna height at the repeater might be an advantage, a pop-up window will appear, into which an antenna height can be entered. Comparing back to Figure 4, note in this example that an antenna height above ground of 16 meters appears to clear all obstructions on the link.

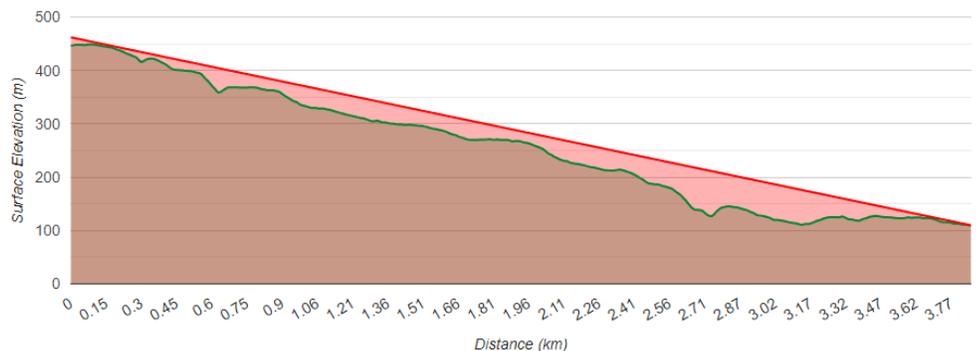
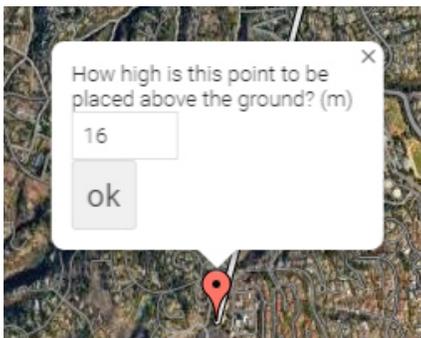


Figure 5. An antenna height pop-up window will appear on the map by clicking on the end-of-link marker. An antenna height in meters can be typed in and after clicking "ok" the elevation profile image is shifted to display the new profile. In this example, an antenna height of 16m at the repeater end of the link seems to clear all obstacles.

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RF Line-of-Sight Elevation Profiles

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Elevation profiler tool #3: scadacore.com

Clicking on this website URL [3] brings up an online tool for determining elevation profiles when both ends of the link can be identified. Scroll down the page and find the world map. It is of Google Maps quality and resolution. So, selecting “Satellite” view will enable very precisely locating each end of the link. Oddly, the initial website image displays blue and green markers already arbitrarily placed on the map, as can be seen in Figure 6.

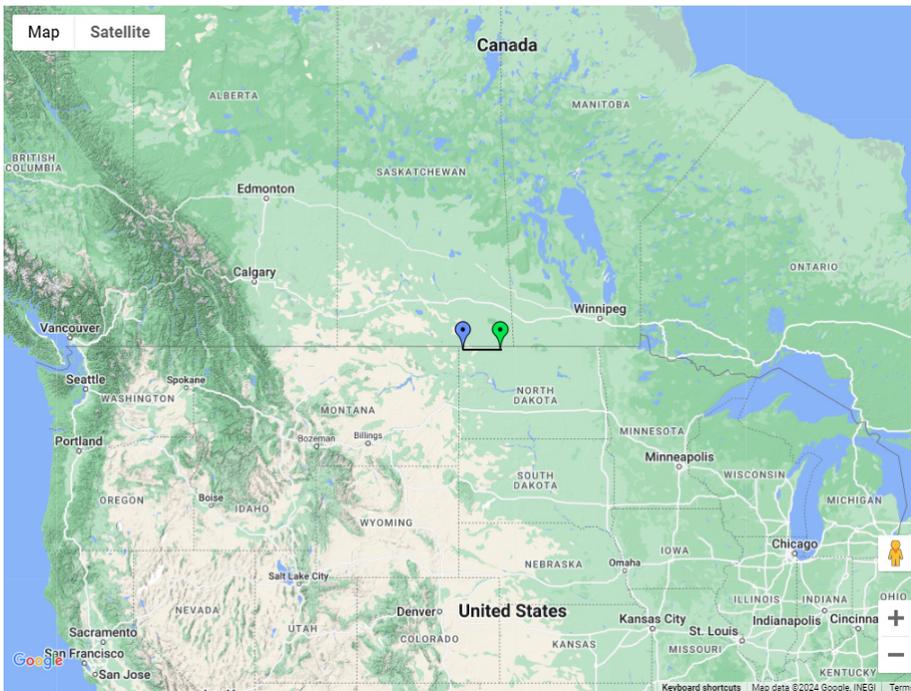


Figure 6. Initial world map image when opening this Scadacore tool [3]. The blue (initial end of link) and green (terminal end of link) markers are already shown at arbitrary locations in North Dakota. The user will drag these markers to the start and stop positions, respectively, for the link of interest. In this example, the blue marker is dragged to NG6R home QTH and the green marker could be dragged as well but instead, for the purpose of demonstrating this feature, is given the Lat/Long data already identified for the K6RH repeater site.

The blue marker is dragged to the start end of the link you wish to assess and the green marker to the stop end of the link (or Lat/Long data are entered). You'll find it easiest to move both markers into the general vicinity of southern California and keep zooming down and adjusting the positions of the two markers as you zoom closer to the region of interest. A minor annoyance is that a new elevation profile will pop up each time you make any adjustment to the position of either marker. Simply delete the pop-up and keep navigating. Navigating on the map is easy by holding down the **ctrl** key, scrolling and moving the map to find the initial end of the link. Using the same example as in elevation profiler tools #1 and #2, the blue marker is moved to the antenna site at NG6R home QTH. Although I know the location and can find the K6RH repeater site by viewing the map, I take advantage of the Lat/Long entry feature of this app and enter those data in the appropriate fields for the green marker. The result of specifying the link in this manner is the elevation profile shown in Figure 7.

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RF Line-of-Sight Elevation Profiles

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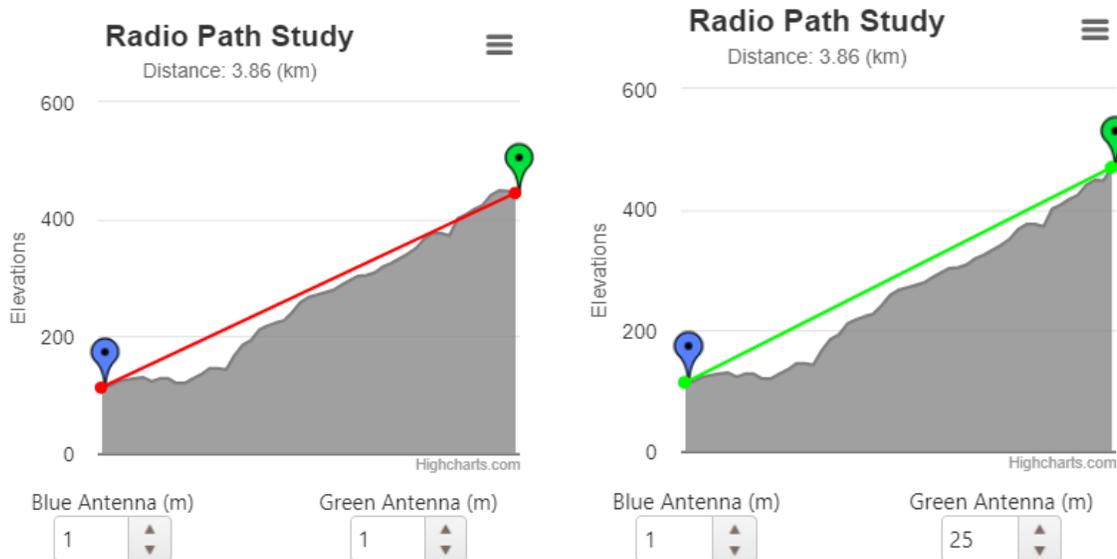


Figure 7. Elevation profile between NG6R home QTH and K6RH repeater located in Rolling Hills, using elevation profiler tool #3. The LOS line is shown as red in the left image, meaning that the LOS is obstructed. A feature of this app allows adjustment of height for antennas at both ends of the link. As surmised, an antenna height increase at NG6R QTH would not improve LOS, but a height increase at K6RH of 25m in the right image would be required to remove obstructions and close the link, as indicated by the straight green line between the link ends.

Note that units are metric; English units are not an option. Distance between link ends is shown at the top of the plots, not along the abscissa. Antenna heights can be adjusted to simulate real antenna heights at each end of the link, just as in elevation profiler tool #2.

Elevation profiler tool #4: HeyWhatsThat?

Clicking on this website URL [4] brings up an online tool for determining elevation profiles when both ends of the link can be identified. Scroll down the page and find the world map. It is of Google Maps quality and resolution. So, selecting “Satellite” view will enable locating each end of the link very precisely.



Figure 8. World map in Google Maps is the initial image on this website. Navigating is easy by dragging using the mouse and ctrl + scroll to zoom in or out to locate the exact position of the two ends of the link of interest.

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RF Line-of-Sight Elevation Profiles

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The small L-shaped icon in the lower right corner of the world map can be dragged downward to change the size of the map image. As in the previous apps, the map image can be dragged by use of the mouse and ctrl + scroll is used to zoom in and out to find the general region for the link of interest. This app allows for the selection of metric or English units, as well as precise Lat/Long entry using three different methods for specifying latitude and longitude (DD.DDDDDD° or DD° MM.MMMM' or DD° MM' SS.SS"). However, unlike some other apps, HeyWhatsThat.com does not enable changing the height of either end of the link to simulate raising an antenna. This app considers 3-D heights of structures along a path to help determine what if anything is directly affecting link connectivity. This feature is useful when considering a change in the pathway to avoid such obstructions. The elevation profile using our example is shown in Figure 9.

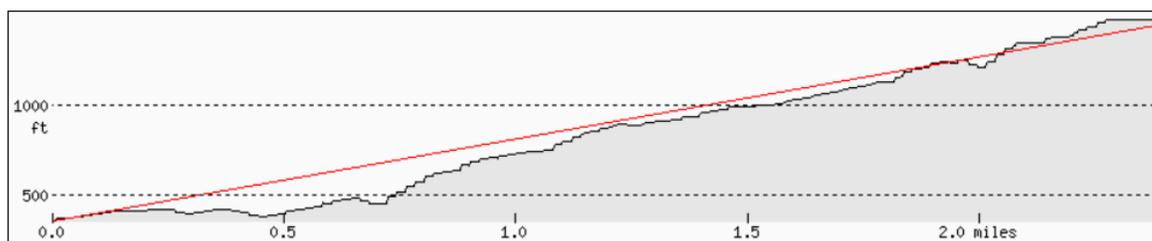


Figure 9. Elevation profile between NG6R home QTH and K6RH repeater located in Rolling Hills, using profiler tool #4. No provision is available to simulate raising either end of the link to improve obstruction clearance.

Summary and Conclusions

Knowing the elevation profile between a station and a repeater, or between two stations, can be useful information when obstructions along that path could be a factor in link performance. Using the same example, this article demonstrated the use of four different free and easy-to-use online elevation profiler applications. There are slight differences in the profilers, but all are user friendly and provide roughly the same information, i.e., whether or not obstructions are in the path that might affect or even determine link connectivity. For more precisely determining the effect of raising an antenna at one or both ends of the link, elevation profiler tool #2 or #3 would be the right choice. Real accuracy of the various apps is unknown. For example, note that tool #2 showed that a repeater antenna of only 16m would clear all obstructions, whereas tool #3 required an antenna of 25m to create that same condition. Because of the inclusion of along-the-path 3-D structure heights in its model, elevation profiler tool #4 would probably be the choice, with the limitation that variable antenna heights to improve link performance is not an available option. Many other path profiler apps have been created and identified and can be accessed online for those with further interest in this topic [5].

References

1. <https://www.arcgis.com/apps/Profile/index.html?appid=fb052ab397f045ea999525f6b57e702e>
2. <https://www.solwise.co.uk/wireless-elevationtool.html>
3. <https://www.scadacore.com/tools/rf-path/rf-line-of-sight/>
4. <https://www.heywhatsthat.com/profiler.html>
5. <https://www.heywhatsthat.com/faq.html> ■

PVARC membership for 2024 (as of 2/29/2024)

Thank you to everyone who has renewed their PVARC membership for 2024 or holds a complimentary membership for the year. To ensure we better acknowledge all membership renewals—whether received by postal mail, PayPal, or in-person—we'll be listing renewals in **QRO** for the next several months. Let us know if you renewed (or recently joined) but do not see your call sign here.

We'll have forms available at our in-person monthly meetings for member renewals. You may also use the fillable form on our website with your PayPal payment or mail the form with check to our PO Box address. ■

AB6SY
AB9A
AC6RM
AC6RW
AF6VT
AI6DF
AK6CZ
K0MZ
K1DFO
K6BRN
K6JW
K6JW-XYL
K6LH
K6MU
K6NT
K6UU
K9BGC
KA6JMR
KA6JWR
KA6LJR
KA6MJR
KA6ZTO
KC6NNV
KE6PMN
KE6SGP
KF6MYQ
KF6VTN
KG6BNN

KG6BPH
KG6RH
KI6EAI
KI6GUY
KI6HQX
KI6RRD
KI6SUA
KI6TEQ
KI6YMD
KJ6CAU
KK6EWB
KM6ATI
KM6LGU
KM6LGX
KN6FYW
KN6UMV
KN6YDX
KN6YSJ
KO6BVD
KO6CIA
KO6CIK
KO6MD
KO6S
N6AA
N6HE
N6KN
N6NNW
N6YFM

NA6Z
NG6R
W6BMD
W6DLD
W6GEZ
W6HIP
W6HIP-XYL
W6KCV
W6KCV-XYL
W6MO
W6OQ
W6PBH
W6YBW
W6YBW-XYL
WA6LKV
WA6MEM
WA6NSR
WA6OWM
WA6OWM-XYL
WA6WV
WD6Y
WJ1P
WW6WW

PVARC 2024 upcoming events

- **PVARC hybrid monthly meetings online via Zoom and in-person as announced**
1st Thursday each month, 7:30-9:15 pm, except in August and December
- **PVARC HF Enthusiasts Group meetings in-person at Palos Verdes Library main branch**
2nd Saturdays, 10:00am-Noon
- **PVARC EmComm Interest Group online meetings via Zoom (*currently under review*)**
- **Walt Ordway K1DFO Technician and General amateur radio license classes at Hesse Park**
May 11 and 18, 2024; 9:30 am to 5:00 pm
- **Volunteer Examiner license test session at Hesse Park, May 25, 2024 (Fireside Room) 10:00 am**
- **PVARC 2024 Holiday Dinner or virtual "After-Dinner", December 12**

Non-PVARC Events of Note:

- **W6TRW Swap Meet**, last Saturday each month. 7:00-11:30 am. Northrop Grumman parking lots, Aviation Blvd./Marine Ave., North Redondo Beach. VE license testing in Building S-2 at 10:00 am.
- **International DX Convention: April 12-14, 2024.** Visalia Convention Center, Visalia, CA; website: www.dxconvention.org
- **Dayton HamVention: May 17-19.** Greene County Fairgrounds, Xenia, OH (Dayton suburb). Largest ham convention in the Western Hemisphere. Website: <https://hamvention.org/>

Become an ARRL member: support amateur radio while increasing your learning

Consider joining the American Radio Relay League (ARRL) if not already 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, which requires that at least 51% of club members be ARRL members.

Annual ARRL membership costs \$59 and includes digital access to all four ARRL periodicals (**QST** magazine, **On The Air** magazine, **National Contest Journal**, and **QEX** magazine focusing on advanced technical topics.) Subscriptions to printed copies of ARRL publications are available at additional charge.

All ARRL members can access numerous web-based materials, ARRL staff, and assistance with ham radio issues. Visit: www.arrl.org/. ■

Need a PVARC badge?

If you wish to order a new or replacement engraved PVARC badge contact Gary Lopes at wa6mem@cox.net and he will make arrangements for your payment and sending your new badge. Badges cost \$13. ■

Embroidered PVARC patches available

PVARC club patches are still available for \$4 each. They may be sewn onto any cap, jacket, shirt, or bag.

If you would like a patch contact Diana, AI6DF, ai6df@arrl.net and we'll find a way to get your patch to you. ■



About Us...

Welcome to the Palos Verdes Amateur Radio Club, K6PV.

Founded in 1975, today our 150+ members hail from every city in Los Angeles County's South Bay region...and beyond.

Our club fosters diverse ham radio interests including public service, DXing, contesting, digital modes, and electronic experimentation.

We also teach license classes several times annually and gladly assist newer hams in understanding amateur radio technology or procedures.

Many PVARC members serve in the government-affiliated disaster amateur radio groups for the South Bay's cities and Los Angeles County. We also provide public service communication at no charge to sponsors of community and running events.

No matter where you are along your ham radio journey you are welcome as a PVARC member. ■

Palos Verdes Amateur Radio Club

An American Radio Relay League Affiliated Club

Board of Directors:

President	Diana Feinberg, AI6DF
Vice President	Ray Day, N6HE
Treasurer	Don Putnick, NA6Z
Secretary	Ron Wagner, AC6RW
Directors	Clay Davis, AB9A Gary Lopes, WA6MEM
Past Vice President	Bob Sylvest, AB6SY

Appointed Offices:

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K6PV QSL Manager	Jeff Wolf, K6JW
K6PV Trustee	Mel Hughes, K6SY
LAACARC Delegate	Jeff Wolf, K6JW
VE Coordinator	Dave Scholler, KG6BPH
VE ARRL Liaison	Jerry Shaw, KI6RRD
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Email: k6pv@arrl.net

Website: www.k6pv.org

Postal Address:

Palos Verdes Amateur Radio Club

PO Box 2316

Palos Verdes Peninsula, CA 90274-8316

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

Club badges: Gary Lopes, WA6MEM, wa6mem@cox.net

Club jackets or patches: Dave Scholler, KG6BPH,
310-373-8166

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Front page photo — Pt. Vicente Lighthouse after sunrise on February 28, 2019. PHOTO: DIANA FEINBERG, AI6DF

PVARC CALENDAR OF EVENTS

MARCH 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2
3	4	5 K6PV analog net, 7:30 pm	6 K6PV DMR net, 7:30 pm	7 PVARC monthly meeting via Zoom, 7:30 pm	8	9 HFE Enthusiasts Group meeting, PV Library, 10 am
10 Daylight Saving Time begins	11	12 K6PV analog net, 7:30 pm	13 K6PV DMR net, 7:30 pm	14	15	16 No EmComm Interest Group meeting...just yet
17 St. Patrick's Day	18	19 K6PV analog net, 7:30 pm	20 K6PV DMR net, 7:30 pm	21	22	23
24	25	26 K6PV analog net, 7:30 pm	27 K6PV DMR net, 7:30 pm	28	29	30 W6TRW Swap Meet, Northrop Grumman, N. Redondo Bch. 7:00-11:30 am
31						



Palos Verdes Amateur Radio Club

P.O. Box 2316

Palos Verdes Peninsula, CA 90274

<http://www.k6pv.org>

MEMBERSHIP FORM

New

Renew

Fillable PDF form is downloadable from PVARC website at: http://www.n6rpv.net/n6rpvpage/pvarc/membership_form.pdf

Date _____

Last Name _____ First _____ Spouse _____

Street Address _____

City _____ State _____ Zip _____

Home Phone _____ Work _____ Cell _____

Email address _____

(Unless otherwise noted, emails will be sent to the applying member only)

License Call _____ Class _____ v ARRL Member?

Other amateur radio groups you belong to _____

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

Last _____ First _____ Call _____ Class _____ v ARRL?

Last _____ First _____ Call _____ Class _____ v ARRL?

Last _____ First _____ Call _____ Class _____ v ARRL?

Membership (\$20 Individual, \$25 Family) \$ _____

(Optional) donation to support PVARC activities \$ _____

TOTAL \$ _____

Paypal to recipient
PVARC90274@gmail.com
Go to www.paypal.com

Cash

Check made payable to
Palos Verdes Amateur Radio Club

Check # _____

Please email completed form to PVARC90274@gmail.com or print and mail to the address at top. Dues based on January 1st to December 31st year. By submitting this application/renewal you agree to the Club's constitution and by-laws, available on-line at: <http://www.n6rpv.net/n6rpvpage/pvarc/constitution.pdf>.

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 11 and 18 May 2024

Technician 9:30 AM to 1:15 PM both Saturdays (bring your lunch)

General 1:30 PM to 5:00 PM both Saturdays

The FCC tests will be 10:00 AM to noon on 25 May 2024

At the start of the 11 May Technician course, a member of the Palos Verdes Amateur Radio Club will give a 30-minute presentation on how to get further involved in 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 waltfordway@juno.com

I charge no fee for either course. Taking the FCC test is \$15. After passing the Technician test the FCC will send you an e-mail for paying its \$35 license fee and then they will post your call sign.

Optional Material (sold at cost)

Gordon West books with all the FCC test questions,

\$30 for the Technician and \$33 for the General

Paper copy of Walt's Power Point charts,

\$29 for the Technician and \$26 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 \$85 to cover the costs of materials, examination fee, and FCC license 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.