



# Propagator

The Monthly Newsletter of the South Orange County Amateur Radio Association

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## General Meeting

NPM Center  
March 18, 2024  
6:30 PM  
Norman P. Murray  
Center  
23492 Veterans  
Way, Mission Viejo,  
CA 92692

## President's Message

Greetings and Salutations (I've always wanted to write that)! This month I'm going to pass on some good information from the PAPA System, a large So, CA Repeater Club with many linked repeaters. The article from PAPA, is titled: "SMOOTH OPERATOR, How To Feel Easy About Getting on the Amateur Airwaves" By Eric Fitzgerald KG6MZS While written especially for New Hams and has some specific references to PAPA SYS. I'm going to adapt it slightly to our situation at SOARA. Good "Smooth" operating techniques are pretty universal!

Here goes:

As the most general rule: **put more effort into RX than TX.** What does that mean? Listen! Listen carefully. Put more effort into receiving than into transmitting. Like any good conversationalist, being a good listener is the key. The technology of the radio makes this a bit more complicated, however.

1. Listen to the frequency you plan to transmit on for a minute or two before you key down and transmit. Make sure there are no QSOs (conversations) in progress and the frequency is not in use.
2. Make sure the sound is turned up on your radio. It can be embarrassing to key down and call only to find that there was a conversation going on that you couldn't hear! I've done this more often than I care to admit. HELPFUL HINT: One way to double check for this is to turn the squelch all the way down so you can hear the background noise. You can adjust the audio level on the pink noise and you can be sure that there are no weak signals already on frequency not breaking squelch. Some radios have a "Monitor" button or key that opens the squelch, just for this purpose. Alternately you can check the S-meter.
3. If you have a dual receive radio, make sure you are on the correct VFO. Most every ham with a dual receive radio has keyed down and transmitted on one VFO thinking they are on the other. Better to double check.

4. If you are in doubt as to whether the frequency is clear – and this is especially true of simplex frequencies and also on HF, where you might not be able to hear one side of the conversation - key down and ask politely “Is the frequency in use, KG6MZS ?”

OK, so you have turned your radio on, listened to a frequency for and while and adjusted your radio to transmit – so now it is time to let the world know you are there! Announce your presence and your intention on the frequency and say something like “KG6MZS listening on Laguna 2” Or “KG6MZS Mobile, Santiago 440, listening.” You never know who might come back to you. Try this once or twice when you monitor a frequency. Or KG6MZS testing.” If you are trying to figure out something about your radio. Note: Simply tossing out your call does not let listeners know that you are looking for someone to talk with.

If somebody comes on frequency when you are in a conversation politely inform him or her the frequency is in use. If they don’t move, you should. Never argue or fight over a frequency. As Riley Hollingsworth., formerly Chief of Enforcement at the FCC, and now manager of the VO program at the ARRL, advises; If something or someone annoys you or is rude, use “The Big Knob” ie just change your channel or frequency.

OK, what about breaking into a conversation? This can be done for a variety of reasons: to make a call to another ham not in the current conversation, to join in the current conversation or to make an emergency call.

First you need to size up the QSO or conversation you are breaking into. If it is a controlled net, you must listen to determine the net protocol for entering the net. Usually the net control station will ask for check-ins. Make sure it is a net open to non-members. Most nets have a net control – one station that directs traffic. Do not speak directly to another net participant without getting permission from the net control station first. If you are in doubt, listen to the net. If you can’t determine if it is an open net, wait until the net control station concludes the net and ask. Hams are very helpful – especially when you are polite.

If you want to join an informal conversation, wait for one station to unkey and give your call, or simply say “Info” or “Comment.” Should you need to make a time- sensitive call such as “I’m at the intersection, do I turn right or left?” then it is appropriate to say “break”. If you are in a conversation acknowledge a station calling “break” as soon as possible. A double break, or “BREAK BREAK” is reserved for bonnafide emergencies and any station transmitting a double break should be acknowledged immediately. All non-emergency traffic should cease until the emergency has been resolved. By using these three different forms of breaking the flow of a QSO it makes your intention clear.

When breaking in to an existing conversation, be patient. Often stations will get to you but they will finish their thought first. Sometimes the stations will “quick key” or leave virtually no space between one transmission and the next. This can be a bit more challenging. A lot of new hams get upset because they think that other stations aren’t giving them a break. Chances are they didn’t hear you asking. Keep trying until you are acknowledged. Nobody owns any frequencies in amateur radio. Also note: Don’t ‘quick key” yourself.

Once you are in an informal conversation of 3 or more, you are in a round table. Remember the order and wait your turn. Never “toss it up in the air” in a round table. When you are done send it to the next station in order by saying “Over to Steve” or “WD8CIK to take it.” Listen carefully and don’t key down if it wasn’t handed to you. If others become confused as to the order, help them out by saying something like “Over to Howard, KG6OFS and Howard you pass it to Steve WA6FGW. This is KG6MZS.

If you are in a round table and someone does “throw it up in the air” and you aren’t sure who gets it next, it is a good idea to start off by saying “Have I got it? reset” then unkey for moment and listen to see if anybody else is doubling with you. It is embarrassing to go on and on only to be told after you unkey that you doubled with somebody else who thought they had it too.

If you are in conversation on a repeater system, always wait for the courtesy tone before responding. It is a good idea to ask occasionally if anyone would like to break in and leave some room between transmissions.

On any repeater system wait a second or so after keying down before you start to talk! Otherwise the beginning of your transmission will be cut off. So the complete sequence goes like this: after the person before you un-keys wait for the courtesy tone, key down, wait a second or so. and then start to talk. Many repeaters are linked and / or may have “Kerchunk Filters” that intentionally delay the retransmission of a signal. It also takes a bit for repeaters to transmit. Waiting a second or so will cut down on people on the repeater asking you to repeat the beginning of your transmission.

Never “kerchunk” a repeater – Kerchuncking is keying down without identifying, just to get the machine to beep. This actually constitutes an unidentified transmission and is a violation of FCC rules.

During drive time keep your conversations short – five minutes or so. If you want to continue, you should go to another, less used repeater so you don’t tie up the primary machines with one conversation.- especially out of courtesy. It’s good have some predetermined simplex frequencies that you can go to for extended conversations during the busy time of day. TASMA publishes a list of approximately 14 recognized So. Cal area simplex frequencies for your use. Check out:

[http://www.tasma.org/wp-content/uploads/2022/11/Band-Plan\\_25Oct2022.pdf](http://www.tasma.org/wp-content/uploads/2022/11/Band-Plan_25Oct2022.pdf)

NEVER criticize other people’s operating habits or their signal on the air. If you cannot understand them tell them you cannot copy them and leave it at that. However, if they ask you for a signal report, be as critical as you want. If they don’t ask, only let them know when they are not making it the repeater, and suffer through the rough copy when they are.

Learn the limitations of your radio. Find out where it works with a given repeater and where it doesn’t. Most hams will love to help you figure out the limits of your radio. This is why you will hear so many “Can you hear me now?” type conversations on the air. Once you get your radio area mapped out, refrain from transmitting in exceedingly marginal areas. The noise can become annoying. More power or a better antenna can

expand your range. Don't continually transmit "from the weeds." This is all very good stuff to know in an emergency!

Never acknowledge a jammer or someone causing harmful interference in any way. This is a BIG ONE! Jammers crave attention. They will go away if they don't get any. As much as it can be sorely tempting to tell a jammer what you think of them, DON'T DO IT. You will just be pouring gasoline on the flames and I guarantee any response will make the problem worse. Repeater systems have been shut down by memberships that could not resist acknowledging jammers. If they make it impossible to communicate, sign and turn the radio off. If someone refuses to identify, stop talking with him or her immediately. As far as you are concerned, jammers do not exist.!

You only need to sign after 10 minutes of transmission and when you stop transmitting. Avoid excessive signing. As a courtesy, SOARA recommends that you ID right at the beginning of joining a QSO and sometimes when a round table gets a little confused. HINT: Repeaters must ID every 10 minutes too, when in use, so if you ID only when you hear the repeater ID and at the end of your conversation, you will be in compliance with the law and not be overdoing it. Also, it is not necessary to constantly give the call of the other station and then your call at the end of every transmission. This is an archaic practice left over from the CW only days. Some wanna be' old-timers' may do this. It's not all that cool and is totally unnecessary!

So there you go. Like A every good Elmer says, Don't worry about making mistakes. Just get on the air. With a little practice you will sound like an old pro in no time. HINT: Keep a little "Cheat Sheet" handy and jot down the names, calls and other little notes about people you talk with. They will be tickled when you "remember" them the next time you talk with them. The most important thing is to get on the air and use your radio! Hope to hear you out here soon!

Again, Thanks and credit to Eric, KG6MGS and the PAPA System! !

**Best 73 de Ray, AE6H**

## [March Membership Meeting](#)

[March 18<sup>th</sup> 6:30 PM](#)

Come and join us as Kris Larson picks up where he left off in November. The topic was the radio spectrum and discussing Who and What was Where as he crept up the frequencies.

Note the 6:30 pm start time again. We are going to continue to try this 30 minute earlier start time to give you time to show up and talk with one another with the goal of getting started at 7pm with club business and presentations.

[Ham Radio Examinations](#) will take place prior to the General Meeting and also at the Murray Center. Testing session starts at 6pm and is \$15/session.

Pre-registration is not required and you don't need to be a SOARA member to take the test. Please contact our Education Director, Steve Kuver, if you have questions about testing at [k6uvr@soara.org](mailto:k6uvr@soara.org)

## **SOARA Membership Report**

Welcome to our newest members!

K6GH - Bruce Gary

KO6CZG - Mark Wisniewski

KO6DGH - Derrick Beard

KN6WNO - AJ Ricci

We're currently at 224 active members. Of those, 18 of you still have not paid your 2023-2024 dues. If you haven't paid yet, please check the email notices I sent you to see how much you owe (it's in the subject line as well as in the message), and pay your dues soon. If you haven't received a dues notice, please check with me first ([membership@soara.org](mailto:membership@soara.org)) before submitting a payment.

If you're a new or newish member, and haven't picked up your badge yet, see me at one of the membership meetings or a SOARA Saturday. If you need a new badge or a copy of the repeater manual, send me an email at [membership@soara.org](mailto:membership@soara.org).

**73, Greg, N6PM**

**SOARA Membership Director**

## **A Look Back at Heathkit**

Our own Warren, W6WDB, shared this insightful retrospective on Heathkit, offering the author's personal glimpse into the legacy of this iconic electronics brand. Delve into the article to uncover fascinating insights and reminisce about the golden era of DIY electronics.

<https://www.electronicdesign.com/blogs/contributed-blogs/archive/communiqu/article/21148923/electronic-design-heathkit-an-employees-look-back>

## [SOARA Saturday Report](#)

March 2 SES was very busy and fun for a rainy day. We had twenty attendees. WA6ED, K6NOV, KM6FOY, KI6LOM, KO6KZE, AE6H, KK6UMB, W6INE, KK6TTL, N5KZV, N6PM, KK6PWG, KN6HEC, W6CAG, WE4BY, N1SPW, W6WDB, KN6SIP, W6EDT, KN6KDR.

Bill brought the cups and additives for coffee. Greg brought the donuts. And, I made both regular and decaf coffee in the air pots. Jim KI6LOM walked the sign-in sheet around. Thank you for helping with this event. SES keeps getting better with everyone's participation.

Ray, AE6H setup his HF rig with a JPC-12 antenna and was operating. Claude W6CAG, setup his service monitor, Bill was programming his Baofeng HT. Dale and Ed setup a Hermes Lite 2, with a PA50 50 watt linear, ATU-100 tuner and a SWR meter. We collected harmonics data with Dale's spectrum analyzer connected to attenuators, Bird wattmeter, and a dummy load.



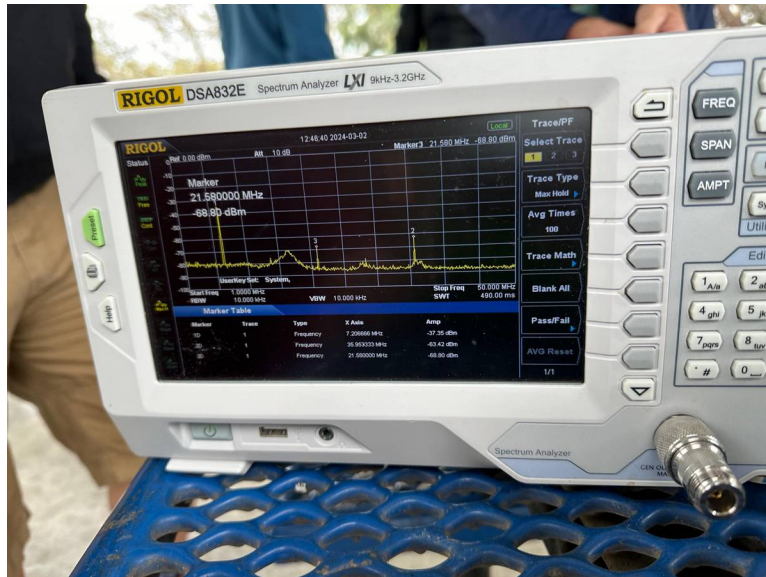
AE6H HF rig, W6CAG Service monitor on back table



Greg WE4BY (on the right) demoing portable rig & contest operation



Dale setup Hermes Lite 2 software Ed's HL2 with PA50 in foreground.



Dale's spectrum analyzer collecting data on 40M, 7.2 MHz

Coffee & Donut Fund

- \$43.50 started
- \$23.57 donuts and holes
- \$46.00 donations
- \_\_\_\_\_
- \$66 balance rounded

Next SES, 3/23/24 Gilleran Park.

**73,**  
**Ed, WA6ED**  
**SOARA Elmer Saturday Coordinator**



## SOARA - Statement of Cash Income & Expenses October 1, 2023 Through February 29, 2024

SOARA - Statement of Cash Income & Expenses October 1, 2023 Through February 29, 2024			
Five Months Ended:	February 29 <u>2024</u>	February 28 <u>2023</u>	Increase (Decrease)
Cash Income:			
Memberships	8,727	9,303	(576)
Other	<u>1,746</u>	<u>3,283</u>	<u>(1,537)</u>
Total Cash Income	<u>10,473</u>	<u>12,586</u>	<u>(2,113)</u>
Cash Expenses:			
Repeaters including site rental, utilities & insurance	2,530	2,498	32
Member Activities	3,224	2,415	809
Other expenses	<u>687</u>	<u>786</u>	<u>(99)</u>
Total Cash Expenses	<u>6,441</u>	<u>5,699</u>	<u>742</u>
Cash Net Income	4,033	6,887	(2,854)
Beginning Cash-October 1	<u>24,917</u>	<u>25,860</u>	<u>(943)</u>
Ending Cash - February 29	28,950	32,747	(3,797)
Note: If any member has questions about the financials, please contact the Treasurer or any Board member.			

**Ron Mosher - KOPGE**  
**SOARA Treasurer**

### Fun with Meshtastic®

“Meshtastic® is a project that enables you to use inexpensive LoRa radios as a long range off-grid communication platform in areas without existing or reliable communications infrastructure. This project is 100% community driven and open source!”

I’m not sure where I first heard about this new technology called LoRa or “Long Range” and Meshtastic but I was curious what it was all about and wanted to learn more. So, I visited the Meshtastic web site

From what I’ve read, the basic idea behind Meshtastic is that with enough nodes to form an adequate peer-to-peer mesh, any node can communicate with any other node in the mesh. Users can exchange encrypted text messages and their locations without an Internet connection. Extended communications is possible using the MQTT protocol over the Internet.

With a Ham Radio License, you may use higher power and higher gain antennas with Meshtastic, however, you cannot use encryption. You must identify according to FCC rules (every 10 minutes with your FCC granted call sign).

Devices can register as many different types from and end-user to a routing station designed to provide repeater service to the mesh.

Note that with a GPS enabled node, your position is sent out to other nodes by default. Even without GPS enabled, your position can be determined using triangulation, e.g. the signal strengths reported by multiple nodes.

You can purchase the necessary hardware on AliExpress or Amazon.



I first bought a [Heltec Wireless Stick](#) (sold as "MakerFocus LoRa Module SX1262" on Amazon) which contains a 915 MHz LoRa transceiver, ESP32 SoC Microcontroller (which I'm already very familiar with), Wifi, and Bluetooth with a 0.49" OLED display for \$25! This is a tiny 60x22mm module. I 3D printed a nice little case for it and was up and running in no time at all!

I downloaded the Meshtastic App for Mac OS/X and was able to get it talking to my new little gadget fairly quickly. There are Meshtastic Apps for Android, iOS, MacOS/X and Windows.

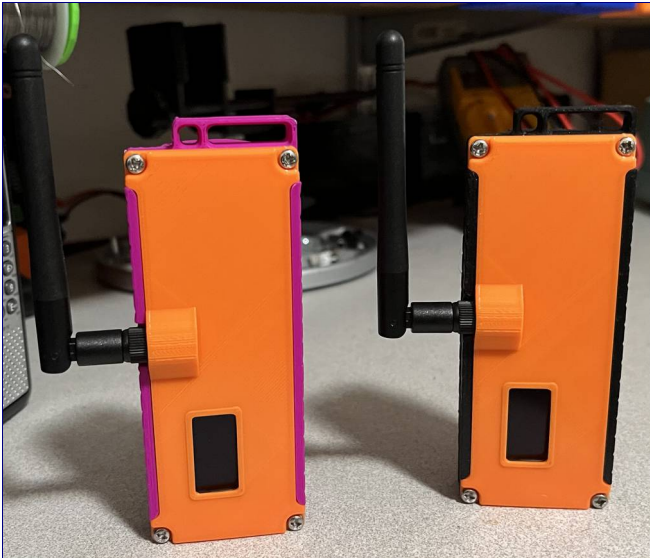
In the US, Meshtastic uses the 915MHz band. Specifically, the default frequency is 906.875 MHz (channel 20).

On the app, I started seeing other nodes appear. There is quite a bit of activity here in South Orange County including what appear to be some fairly high level nodes located at a water tank site.

I had to buy more nodes to experiment with range testing and such. I bought quite a few more!

I bought a LILYGO T-Beam from [Amazon](#). I was very confused when the package arrived and there were two of them. They were set up for range testing. One had transmit firmware and the other had receive firmware. I played around with that functionality for a while and then decided I wanted to flash the Meshtastic firmware onto them. The [LILYGO T-Beam](#) devices have built in GPS modules along with WiFi, Bluetooth, ESP32 MPU and the SX1262 915MHz LoRa transceiver. They also have a battery holder for an 18650 cell so they are ready to go portable right out of the box. There are many 3D printable cases designed for them.

To my dismay, I could not get anything to talk to their USB serial ports. After reading a lot about them on the web, I found a discussion of using an external USB to TTL adapter and connecting directly to the ESP32 board. That worked great! I was able to flash the firmware onto both of them using this technique. Also, the on-board serial ports came back to life after doing this. They are using a very cheaply designed USB to TTL interface chip supposedly due to supply chain problems.



These first nodes that I bought (Heltec Wireless Stick, LILYGO T-Beam) required the use of an external device attached via WiFi or Bluetooth to be useful. They do show messages on their OLED displays. The super small 0.49" display on the Heltec is practically useless except when pairing via Bluetooth.

The LILYGO T-Deck looks like a Blackberry device and contains a very nice keyboard and screen. No computer or phone necessary!



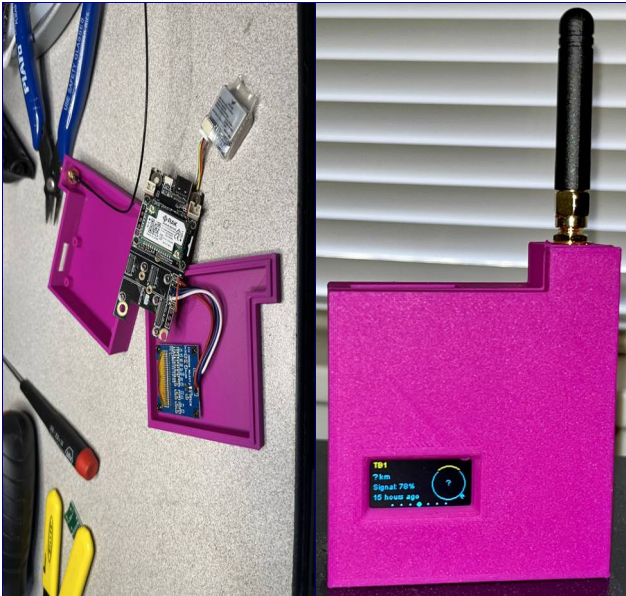
To make it really useful, I still need to add a GPS and finish printing a case that can hold the T-Deck<br/>GPS, better external antenna, and a 3.7V Lithium battery.

One of the newest nodes I have is the RAK Wireless WisBlock system. It contains a base “motherboard” (RAK19007) and RAK4631 (Nordic nRF52840 MCU with BLE 5.0 and 915MHz Semtech LoRa transceiver.) This modular system allows you to combine various modules to create whatever you want – Meshtastic Node, remote sensor board, etc. There is a slick modular GPS board option but I decided to use a GPS I already had.

I also added a 0.96” SSD1306 OLED display and battery to create a neat little Meshtastic node. An IPEX to SMA cable allows for an external rubber duck antenna (the module includes a flexible PCB antenna) I designed a case for it which makes a nice portable package. The battery is charged by a USB-C connector that also provides a serial console and the ability to mount the node as a disk drive for Firmware updates.

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**Contacting Soara:** Questions about SOARA? Postal mail: P.O. Box 2545, Mission Viejo, CA 92690  
Send e-mail to [membership@soara.org](mailto:membership@soara.org) or leave a message at 949-667-0173  
Facebook: K6SOA Twitter: @K6SOA



**Brian**  
**NJ6N**

## Calendars

### Upcoming SOARA Events

Dates are subject to change. Check the SOARA Web Site (<http://www.soara.org>) to verify locations and times

#### This Month...

- March 18 6 PM - HAM Radio License Exams, Murray Center
- March 18 6:30 PM - General Meeting, Murray Center
- March 23 9 AM - Noon - SOARA Elmer Saturday, Gilleran Park
- March 25 7 PM - Board Meeting, Murray Center

#### Next Month...

- April 15 6 PM - HAM Radio License Exams, Murray Center
- April 15 7 PM - General Meeting, Murray Center
- April 20 9 AM - Noon - SOARA Elmer Saturday, Murray Center
- April 22 7 PM - Board Meeting, Murray Center

# SOARA Information

**SOARA** meets at the Norman P. Murray Center, 24932 Veterans Way, Mission Viejo, CA on the third Monday of every month at 7:00 PM. For the months of January and February the third Monday is a holiday and the meeting is held on the fourth Monday.



**License Exams:** Amateur License Exams are given prior to SOARA meetings, except June. Exams are at 6pm. Prior registration is not required and walk-in applicants are welcome. For June, exams are held at Field Day. For further information, email Sean Reigle, AJ6B, at [aj6b@soara.org](mailto:aj6b@soara.org).

**SOARA Library:** SOARA has many amateur radio related books such as hand books, books about electrical theory, etc. available to lend out to club members. Contact Heiko Peschel [ad6oi@soara.org](mailto:ad6oi@soara.org) for more info.

**Web Site:** SOARA maintains a web site with current club information. The URL is: <http://www.soara.org/>

**Repeaters:** The Laguna Beach, San Clemente, and Trabuco repeaters are open. The Santiago Peak repeaters are closed. For details or questions on the repeaters contact the repeater director, or [repeater@soara.org](mailto:repeater@soara.org).

2m	— 147.645 - (110.9)	Laguna Beach
2m	— 146.025 + (110.9)	San Clemente
2m	— 145.240 - (110.9)	Trabuco
D-STAR 2m	— 146.115 + (K6SOA C)	Laguna Beach
220	— 224.100 - (110.9)	Laguna Beach
220	— 224.640 - (pvt)	Santiago Peak. (C)
440	— 445.660 - (110.9)	Laguna Beach
D-STAR 440	— 445.705 - (K6SOA B)	Laguna Beach
440	— 447.180 - (pvt)	Santiago Peak. (C)
D-STAR 1.2G	1282.600 - (K6SOA A)	Laguna Beach

## **Nets:**

- 40 meter HF (7.200 MHz +/- , Sundays @ 8 AM
- 10 meter HF (Technicians Welcome) (28.415 +/-) Sundays @ 9 AM
- General Membership Net - UHF/VHF (447.180, 147.645 & 224.640): Tuesdays @ 8 PM
- D-STAR (146.115 C module): Wednesdays @ 8 PM
- Tech Net - 147.645, 224.640, 447.180: Saturdays @ 9 AM
  
- California Rescue Communications (Gordo Net) HF (7.250 MHz +/- for QRM): Weekdays @ 8:30AM
- MVRACES - 447.180: Tuesdays @ 7PM
- Tri-Cities RACES - 146.025: Wednesdays @ 8 PM
- LNACS - 147.645: Thursdays @ 7 PM
- OC Parks Fire Watch - 447.180: Thursdays @ 8 PM

## SOARA OFFICERS

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**Secretary:** Charles Schultz, NY6I  
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**Treasurer:** Ron Mosher, K0PGE 949-363-0047  
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## SOARA APPOINTMENTS

**Past President:** Tom Hobbs, AE6SH 949-830-8131  
[ae6sh@soara.org](mailto:ae6sh@soara.org)

**Activities Coordinator:** Open

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**Raffle:** Bill Colvin KM6FOY  
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**Testing:** Steve Kuver K6UVR  
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[ad6oi@soara.org](mailto:ad6oi@soara.org)