



The

July 2021

Propagator

The Monthly Newsletter of the South Orange County Amateur Radio Association

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General Meeting

July 19, 2021
7:00 PM

Norman P. Murray
Center
23492 Veterans
Way, Mission Viejo,
CA 92692

Presidents Message - July 2021

Help Wanted Apply Within!

It takes people to make a successful organization. That's true whether it's a business endeavor or a club like SOARA. In any voluntary organization, like SOARA, it seems typical that about 10% of the membership does 90% of the work. We don't intend it that way, that's just the way it generally is. SOARA has over 200 members, so if typical averages apply, we should have 20 to 22 people, more or less, carrying out the work of the organization that keeps it running smoothly. Instead, SOARA has about half that number who actively help with running the club on any regular basis.

So here comes the pitch: We need about 10 or 12 more of you who enjoy and believe you derive benefit from SOARA, to please jump in and give the loyal few a hand. For starters, we need a Club Treasurer, Secretary. Let me warn you, that while the main qualification needed is a willingness to contribute some time, a thick skin is useful, because praise is the only fringe benefit, and that comes infrequently. The pay is also terrible, with the only reward being a feeling of satisfaction derived from knowing you contributed the most valuable resource a club can possibly have: Active members contributing some of their time. As they say, "Only the hardy need apply".

If you believe you've benefited from your association with SOARA, and the camaraderie and learning associated with Ham Radio, as well as the opportunity to serve the community, please strongly consider joining the hardy few who keep your club viable and hopefully beneficial to the members. Remember, a desire to help is the primary qualification, and you have a lot to offer! Please seriously think it over.

Please contact any of the club officers to inquire about ways you can contribute, and help keep SOARA running smoothly into the future.

73 to all from Ray, AE6H

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

General Meeting - Back to In Person Meetings

This will be our first meeting back at the Murray Center located at 23492 Veterans Way, Mission Viejo, CA, 92692 in almost a 18 months.

The meeting will start at 7:00 p.m. We will not be having a guest speaker. We prefer to take this opportunity to re-connect with each other and check in with club members.

We will have decaf coffee and snacks AND we will raffle off the Yaesu FT-70. We almost had enough \$5 tickets sold at our last in-person meeting to raffle this off. If you bought a ticket for this raffle item, it is still in play. We will also have a number of the \$1 raffle prizes as well. You do not need to be present to win the \$5 raffle.

Masking is not required; but we do ask that you use your best judgment of whether or not you should.

Ham Radio Examinations will be administered at 6:00 PM, prior to the start of our general meeting. Cost is \$15/attempt. Pre-registration is not required and you don't need to be a SOARA member to take the test.

Erik Wresch

Vice President - South Orange Amateur Radio Association

SOARA Elmer Saturday/Planning

We need to start thinking about what we want to do on SOARA Saturdays once again!

First, I think we can start meeting at Gilleran Park, later, meetings at the Murray center. Next SES July 24 at Gilleran park, 9AM. Coffee & donuts will be provided. Theme: TinySA (spectrum analyzer) and Nano VNA. Bring antennas to test with the NanoVNA. We will likely setup a HF rig or two.

Now the hard part, picking what we want to do. Let me know those project ideas you like most. Email wa6ed@soara.org. I will publish results in the next Propagator issue. Suggestions are welcome.

Project Ideas:

- Antenna analyzers, Nano VNA, RigExpert, hands on
- TinySA, spectrum analyzer, hands on, attenuators
- Soldering Required
 - Field strength meter (soldering required)
 - HF dummy load build
 - Pixie CW crystal transmitter receiver
 - Homemade SWR meter or kit
 - QRP Tuna Can Kits

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- Coax connector soldering & crimping
- Megger, high voltage coax testing, insulation testing
- Tape measure antenna build for Thunting, attenuator options
- Thunting basics
- Battery box or connector box, batteries, chargers
- Arduino projects
 - Terminal Node Controller TNC
 - Temp, pressure & Humidity shield
 - CW Keyer
- Raspberry Pi projects
 - NOAA weather pictures, QFH antennas
 - Portable station, FL-DIGI, FL-Rig...
 - TNC to Pi with HT, YAAC
 - Build a svxLink/EchoLink simplex node
- Repeaters, controllers, duplexers, repeater support
- ESP32 Ham Badge, display, GPS, RTC, temp, pressure, humidity
- Bird Wattmeter testing & using
- Current & Volt meters
 - mechanical analog meters
- 3D printing, getting started
- Magnetic loop antennas
- Jpole / ladder-line / copper pipe
- Baluns, how to build, why, how to use
- Contest, HF, VHF, UHF
- HF operation in the park
- HT programming, repeaters, simplex
- Emergency power, generators, solar chargers, batteries
- Emergency communications
- Go kit
- First Aid
- Slow scan TV
- Satellites, need data where to point, make antennas? Tracking?
- Attenuators, resistor / switch, offset, automated
- Microphones, types, performance
- High voltage measurements, safety
- EME, moon bounce, high power and big antenna
- RTL-SDR, SDRplay, Airspy, and others...
- Echolink getting started
- DSTAR
- Fusion
- DMR
- External crowbar protector
- Connectors, power pole, crimp tools

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- FCC compliance with Home Station RF Exposure Evaluations. Steps for performing the station evaluation, needed documentation, deadlines for completing, etc.

Next, based on feedback, I will work on dates for each month, and the project theme. More feedback, the more likely a project idea will make it into the schedule. If something you are interested in doesn't make it into the schedule, let me know. Maybe, I can hook you up with an Elmer.

**73,
Ed, WA6ED
wa6ed@soara.org
SOARA Elmer Saturday Coordinator**

[Field Day 2021 - Results Summary](#)

Entry received at: 2021-07-07 18:39:12 UTC
 Submitted by: Zhiming (Jimmy) Huang, KK6TTL E-mail: kk6ttl@soara.org
 Call Used: K6SOA Participants: 69 GOTA Station Call: (NONE)
 ARRL/RAC Section: ORG Class: 3A
 Club/Group Name: South Orange Amateur Radio Assoc.
 Power Source(s): Generator, Battery, Solar
 Power Multiplier: 2X

Preliminary Total Score: 2,864

Bonus Points:

Bonus	Points
100% emergency power	300
Media publicity	100
Public location	100
Public information table	100
Natural power QSOs	100
Educational activity	100
Safety officer	100
Social media	100
Entry submitted via web	50
Total bonus points	1,050

Documented by South county radio operators have been tuning in their radio skills in case of emergency - Orange County Register.pdf

Score Summary - Cabrillo log/dupe sheet file: K6SOA-2021.dup

	CW	Digital	Phone
Total QSOs	179	73	403
Total Points	358	146	403
Total	907		

Claimed Score = (QSO points x power mult) = 1,814

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Band/Mode QSO Breakdown:

Band	CW		Digital		Phone	
	QSOs	Pwr(W)	QSOs	Pwr(W)	QSOs	Pwr(W)
160m			2	100		
80m			10	100	8	100
40m	7	100	27	100	248	100
20m	104	100	24	100	30	100
15m	66	100	8	100	16	100
10m	2	100	1	100		
6m			1	100	52	100
2m					49	100
222						
432						
Other						
Satellite						
GOTA						
Total	179		73		403	

(Jimmy) Huang Zhiming
KK6TTL

[Introduce Young People to Ham Radio by Building a Satellite Ground Station](#)

If you are looking for a great way to introduce youngsters to Ham radio, you can build a satellite receiver and a tuned antenna for less than \$25 USD.

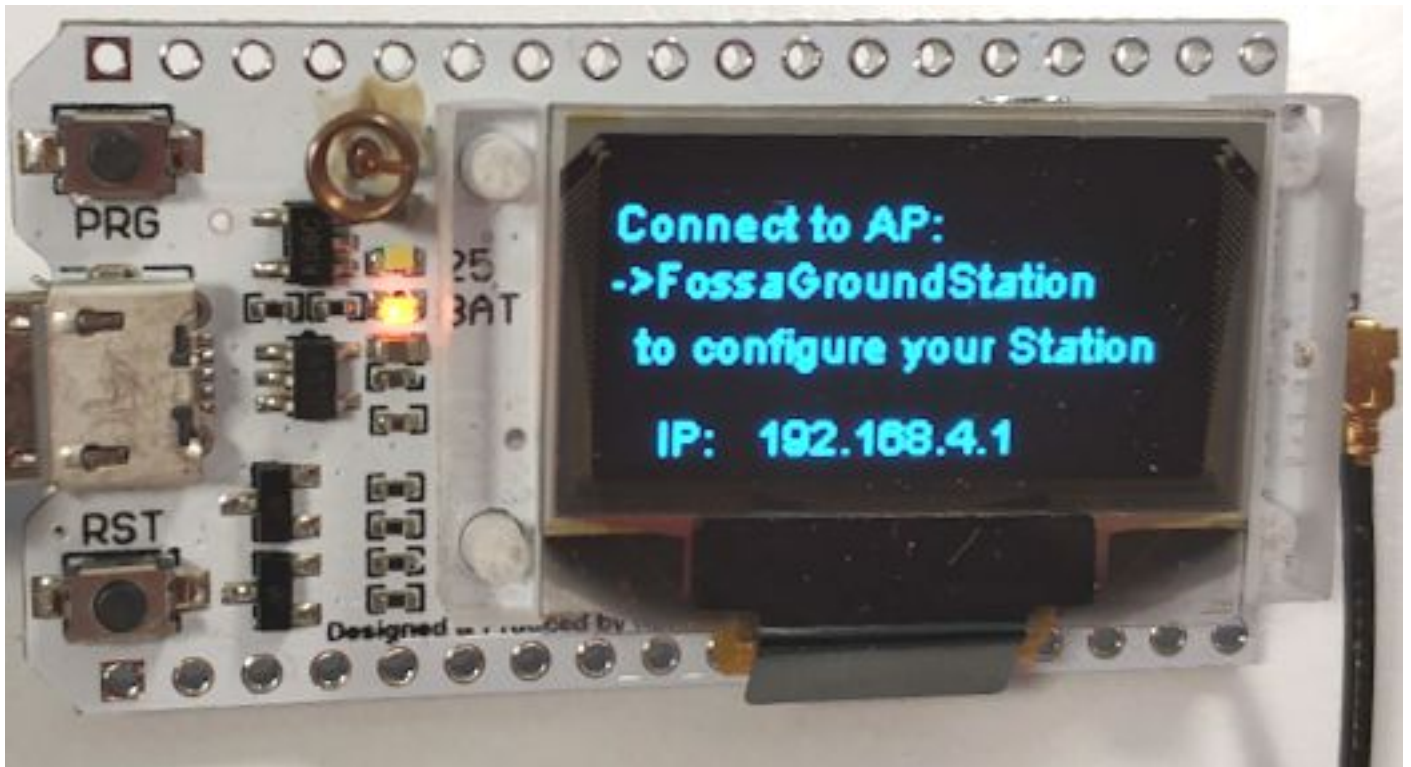
The [TinyGS](#) project is an open-source community that builds and deploys tiny LoRa receivers (Ground stations) to collectively track tiny satellites (CubeSats).

Today, there are 669 active stations around the world. This is more ground trackers than the combined sum of all the big boys like Nasa, SpaceX, ESA, JAXA, etc.

The receivers are based on tiny ESP32 microcontrollers with built in Lora receivers. Operating on frequencies of 433MHz and 868-915MHz, the receivers listen for satellite telemetry broadcast from space using LoRa technology. (Note: I suggest you purchase a 433MHz board. There are more satellites on this frequency and there is too much noise on the 900Mhz band in the US.)

You can 3D print a case for your receiver using projects posted on [Thingiverse](#). If you do not have a 3D printer, contact me and I will make sure you get a case.

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The TinyGS project has an innovative tool that uploads the satellite tracking firmware to the microcontroller.

There is a version for Windows, MacOS, and Linux. You plug the ESP32 into a USB port on your computer, run the firmware uploader, and you are done.

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The TinyGS firmware hosts a wireless access point (AP). When first booted, the ESP32 will display the AP SSID and IP address. Connect your computer or tablet to the SSID on the display. Once connected, open a browser and enter the AP IP address in the browser address bar. You will see the TinyGS dashboard.

- Station dashboard
- Configure parameters
- Upload new version
- Restart Station

Click on 'Configure parameters.'

System configuration

GroundStation Name (will be seen on the map)

Password for this dashboard (user is admin)

WiFi SSID

WiFi password

Latitude (3 decimals, will be public)

Longitude (3 decimals, will be public)

Time Zone

In the 'System Configuration' box, enter a name for your ground station and a password for the dashboard. Enter the SSID of your home network and the correct password.

Also enter the lat/long of your location. (Choose coordinates that are in your neighborhood - not your house to protect your privacy.) Finally enter your time zone.

Board config

Board type

OLED Bright

In the 'Board config' box, you only need to enter the Board Type. Choose the correct board from the dropdown.

You can leave the 'MQTT credentials' box blank for now. You will get them later from TinyGS.

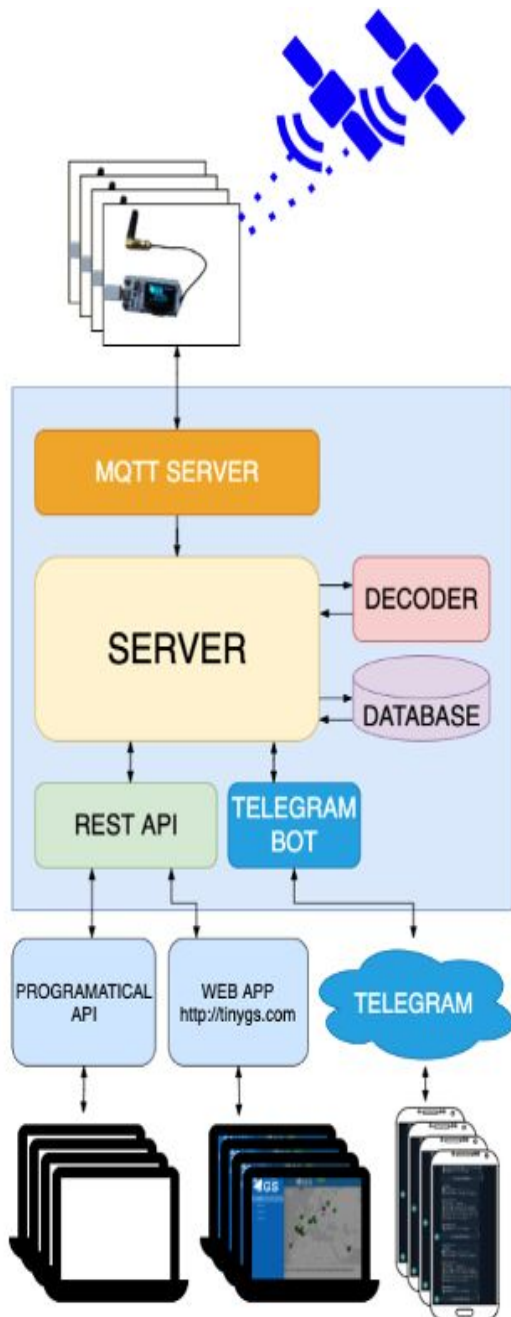
Click on the 'Apply' button at the bottom of the page. The device will reboot. If everything worked, the display will show it is connected to your home Wifi network and its IP address.

If the device is unable to connect to your home WiFi, it will go back into AP mode. If this happens, it is usually because you entered the wrong home WiFi credentials, or more likely, it is unable to 'see' your home WiFi network.

You need to create a [Telegram](#) account to receive your MQTT credentials from the project. You then enter them in your device configuration page. You can find detailed instructions on how to do this at the TinyGS web site.

The ESP32 devices are known for having really lousy WiFi antennas, so the connection range is very short.

The TinyGS system collects the data your ground station receives using MQTT transactions. The architecture of the system is shown below:



A note on antennas. The stub antennas that come with the receiver are totally useless. Most of them are tuned to the wrong frequency. Do not use them. Instead, make your own.

I purchased some copper wire from Lowe's and cut the vertical and radials based on calculations from the [MOUKD](#) web site. I then used a Nano VNA to clip the vertical to a height with an acceptable SWR (1.6). This antenna has received satellite data from 2200Km (1367 miles).



Postal mail: P.O. Box 2545, Mission Viejo, CA 92690
[yrg](#) or leave a message at 949-667-0173

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I have used both the Heltec and TTGO ESP32/LORA boards. Here is where I get them.

<https://amzn.to/2SDimwd>

<https://amzn.to/3jqHdyI>

<https://amzn.to/3jpkmTM>

<https://bit.ly/3w2F0LX>

<https://bit.ly/2TmqT71>

If you want to get just the LORA board to add to your existing ESP32, such as the SOARA Ham Badge project, here are some sources:

<https://amzn.to/3x9Hppj>

<https://amzn.to/3Aethx8>

If you are interested in looking at my ground station data, it is named 'N1SPW_433'. You can find it on the world map at the TinyGS web site by zooming in on San Clemente, CA. (Yes - the GPS coordinates are the end of the San Clemente pier). You can also search for it on the 'Stations' page.

I have built several of these ground stations and gave them away to my colleagues kids. There is no better way to introduce them to the wonders of radios and satellites. Kids love these things!

I encourage you to build a ground station. They are inexpensive, easy to get online, and are a boatload of fun. You are also performing a great service to the scientists that build experimental CubeSats.

Without our commitment to the TinyGS project, they would have no way to monitor their satellites as they traverse the globe.

Mike Spohn (N1SPW)
mspohn@topmail.com
949.370.7769

[How to Treat a Volunteer and How to Become One](#)

The lower part of this is a reprint from a few years ago and it is still accurate. I recently observed some volunteers being treated in a less than respectful manner. Never ever talk down to someone, do not treat them like an unknowing six year old. No adult appreciates it. Do not make the assumption that you know everything that there is to know about a given subject, there is always someone out there who has a better grasp of it. When you belittle or disparage someone you have lost them forever, there is no going back to apologize. Above all without volunteers our radio service would die a slow and agonizing death.

Having said that, this is SOARA looking looking for a few hams who would like to help us to move forward. We are currently looking for a secretary, a treasurer, a website manager, and net control operators for our nets.

We have weekly nets on Tuesdays at 8pm Wednesdays at 7 and 8pm, Firewatch is Thursdays at 8pm SOARA Saturday Tech net at 9am is looking for more operators and recorders. On Sunday we have a 40M net at 8am and a 10M net at 9 am. As you can see there is no shortage of opportunities to be had here. Most of these will not take a lot of time and are fun to do.

I have been a volunteer for over 40 years now. As such I think that I can speak from personal experience. My history goes back to the mid seventies when I started with foot races and then bike races. This led to getting a ham license in '93 and more volunteering.

We are all volunteers in this service (hobby) and should be treated as such. Whether you agree or disagree with someone you should always keep your language and opinions at a respectable level. When you disagree with someone, use your skills and abilities to help them and use positive points to encourage their efforts. When you use "Tribal knowledge" to justify your points please precede them with actual reference to something real like a "Constitution or by-laws" and not something that you pulled out of your hat. "That is the way we have always done it" is not the correct answer. Remembering that when your actions and words make it less than fun for the other party you may lose their assistance and involvement.

So please be respectful to your volunteers or you may not have any.

**Thanks
Heiko
AD6OI**

[SOARA Library/Nets](#)

As some of you have already heard the AD6OI/SOARA Library is now up and running at our house. (Please see attached picture for details). This library contains ARRL Handbooks, Repeater location guides, Tech modification books, radio and electrical books

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and a wealth of radio related information. For now the library will be open from 1pm to 4pm on Saturdays, and other times by appointment, if you call first, either by radio or telephone. E-mail will also work but allow at least 24 hours for a reply.

In other news, when using SOARA repeaters there are some things that it might interest you to know.

It is always good to key down for several seconds when first waking up your favorite repeater, otherwise the beginning of your announcement won't be repeated.

Also if you are in an extended conversation please leave room for others to break with their call sign.

It is never good form to interrupt a conversation with a comment. Using your call sign to identify yourself is usually sufficient to get the attention of the individuals involved in a conversation (aka QSO). When recognized feel free to go ahead with your comment.

You can find a summary of all of our nets at [SOARA Net Schedule](#)

Thank you
Heiko AD6OI
Director of Communications for SOARA

[SOARA Equipment For Sale Online Site](#)

Based on numerous requests from SOARA members for a place to post Ham Radio related items for sale to other club members, we have set up an opt-in based Mailman mailing list on our server. Interested SOARA members are invited to join the mailing list. The SOARA organization and Board of Directors do not provide any warranty or guarantee for the items being advertised, buyer beware!

To subscribe, navigate to:

<https://soara.org/mailman/listinfo/forsale>

Enter your "real" email address, not your "soara dot org" alias. You must be able to send and receive email from the address you provide.

Once subscribed, you will receive email when other members post items for sale. When posting to the list, you should provide an accurate description of the item for sale, its condition, and asking price. Replies to postings should be sent to the poster of the item, and not the list.

The archives of postings are publicly available on the web here:

<https://soara.org/pipermail/forsale/>

This mailing list may be suspended or discontinued at the discretion of the SOARA Board of Directors should that become necessary.

Brian, NJ6N

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2021 SOARA Calendar

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	18	15	15	19	17	21	19	16	20	19	15	-
Program	-	-	-	-	Spring Auction	Field Day Prep	-	SOARA Fair	-	-	-	-
FCC Ham Exam 6:00 PM			15	19	17	-	19	16	20	19	15	-
Education Classes 8:00 AM			13	17	15	-	17	14	18	16-	13	-
SOARA Elmer Saturday 9:00 AM	Net Every Sat	Net Every Sat	20	24	22	FD	24	21	25	23	20	-
SOARA T-Hunt 1:00 pm	updates	updates	Updates	Updates	Updates	Updates	Updates	Updates	Updates	Updates	Updates	updates
Board Meeting	25	22	22	26	24	FD-	26	23	27	25	22	-
Special Events	Quartz-fest 17-23	Palm Springs Yuma		Visalia DX	Dayton Ham-vention	ARRL Field Day 25-27	HRO Ham Jam	SOARA Picnic		JOTA 16-18		SOARA Holiday Party
Major HF Contests		ARRL DX-CW 20-21	ARRL DX-SSB 6-7 CQWPX SSB 27-28		CQWPX CW 29-30	ARRL Field Day 25-27			CQWW RTTY	CQWW SSB	CQWW SSB	
Volunteer Events	OC Chili Run	Paws Fur Pink OC Chili Run	OC Chili Run Baker to Vegas	Dessert Storm Rally Ride for Rwanda	HD Trails LH Marathon	ARRL Field Day 25-27	MV Fire-works 4				Vision Quest OC Marathon 7	

Dates subject to Change - Check the SOARA Web Site (<http://www.soara.org>) to verify locations and times or click on the live links in the table

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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.

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 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.

	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
- Astronomy - VHF 147.645: Wednesdays @ 7 PM
- D-STAR (146.115 C module): Wednesdays @ 8 PM
- Dinner Net - 147.645, 224.640, 447.180: Fridays at 7 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

President: Ray Hutchinson, AE6H 949-322-8468
ae6h@soara.org

V.P.: Erik Wresch, W6INE 714-883-7694
w6ine@soara.org

Secretary: Vacant
@soara.org

Treasurer: Vacant
@soara.org

SOARA DIRECTORS

Repeater: Brian Roode, NJ6N 949-257-2749
nj6n@soara.org

Publications: Dale Tyler W6EDT 949-360-1717
w6edt@soara.org

Membership: Ed Barnes, WA6ED 949-468-7706
wa6ed@soara.org

Education: Steve Kuver, K6UVR 949-874-1972
k6uvr@soara.org

Technical: Tom Hobbs, AE6SH 949-830-8131
ae6sh@soara.org

Communications: Heiko Peschel, AD6 949-859-3868
ad6oi@soara.org

SOARA APPOINTMENTS

Past President: Tom Hobbs, AE6SH 949-830-8131
ae6sh@soara.org

Activities Coordinator: Joe Perrigou K7KCE
k7kce@soara.org

S. Saturdays: Ed Barnes, WA6ED 949-468-7706
wa6ed@soara.org

Raffle: Bill Colvin KM6FOY km6foyl@soara.org

Testing: Steve Kuver K6UVR k6uvr@soara.org

Website: Vacant
@soara.org

Ambassador: Spencer Ammermon, NG6K
ng6k@soara.org

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