The Coastside Communicator

Vol. 57 No. 01 ~ January 2025

www.coastsidearc.org

President's Column

Hope everyone had a wonderful holiday season and I wish you a happy and healthy New Year.

Please renew your membership for 2025. It couldn't be any easier, thanks to Paul (AI6BB) and Jon (N6SJF) for setting up a PayPal account. It's on our website www.coastsidearc.org under PayPal Dues Renewal.

I hope to make the repeater system a priority in 2025. It still needs a new antenna and the UHF side needs to be set up.

A big thank you to Jon (N6SJF), Paul (AI6BB), Tom (KJ6OGL) and Steve (KN6ORM) for serving as club officers last year.

'73, Ralph, KC6YDH
Club President

CARC December 11, 2024 Meeting Minutes

Call to Order - The December 11, 2024, meeting was called to order by VP Paul-AI6BB at the Linda Mar Fire Station, Linda Mar, Pacifica.

Self-introductions - Introductions by members in attendance.

Minutes – Motion was made by Steve-KN6ORM and seconded by Ralph-KC6YDH? to approve the November minutes as published in the December Coastside Communicator.

TREASURER'S REPORT - The funds provided by the Treasurer as of December 11, 2024, are:

Account	Previous	Current	Change
General Checking	$12,362.97	$12,185.07	$177.90
PayPal Checking	$270.93	$416.77	$145.84
CD Accnt ….7605	Cashed Out	---	$0.00
CD Accnt ….7779	$10,569.03	$10,608.60	$39.57
Total a/o 20240611	$23,202.93	23,210.44	$7.51

General Fund	$18,417.90	$18,425.41	$7.51
Repeater Fund	$4,785.03	$4,785.03	$0.00
Total a/o 20240611	$23,202.93	$23,210.44	$7.51

Bills needing approval – None

Correspondence – None

COMMITTEE REPORTS

Current Repeater

Status of current Yaesu WA6TOW repeater: Mention made of putting up a UHF Repeater and finding a way to remotely control it. Steve mentioned that we could get a cellular modem or equivalent and control it via the internet. Further discussion on both Yaesu & Motorola repeaters.

Replacement Repeater
No update on Motorola Replacement Repeater:

Newsletter – December newsletter published, emailed to Paul-AI6BB.

Website – December newsletter posted on website for viewing/download.

UNFINISHED BUSINESS
Tabled to January meeting

NEW BUSINESS
Tabled to January meeting

Adjournment
Motion made by Frank-N6FG and seconded by Steve-KN6orm to adjourn the meeting. Meeting adjourned.

Present at the Meeting
Officers: President: Absent, Vice-President: Paul-AI6BB, Secretary: Absent, Treasurer: Steve-KN6ORM

Members: Jillian-KN6PIV, Ralph-KC6YDH, Georga-KE6KRT, George-KJ6TSX, Frank-N6FG, Dennis-KN6QER

Submitted by: Tom-KJ6OGL, Secretary

NEWS

$41,000+ Raised by Donors, YouTubers, for ARRL Teachers Institute - A YouTube telethon to raise money for the ARRL Teachers Institute on Wireless Technology was a resounding success. More than $21,000 was contributed during the livestream, which unlocked another $20,000 that donors had set out as a challenge gift. ARRL Director of Development Kevin Beal, K8EAL, says that upped the ante. "It's quite clear that even with the generosity of the donors in attendance, the challenge gift really pushed everyone until the end to meet that goal." There were over 430 gifts made and the most frequent was $20.

The event, hosted by YouTuber Josh Nass, KI6NAZ, on his popular Ham Radio Crash Course channel, drew thousands of views. On the stream, several teachers and students who have benefited from the TI shared their stories of success. "We were glad that teachers Everton Henriques and Drew Mortenson joined us on the stream. Two of Everton's students attended and were inspirational and impressive. They're the whole reason why we're doing this," said Beal.

A replay of the live telethon can be seen at this link. If you'd like to contribute to the future of ARRL Teachers Institutes on Wireless Technology, visit www.arrl.org/GiveToSTEM.

via Hackaday: Amateur Radio Operators Detect Signals from Voyager 1 - At the time of its construction in the 1950s, the Dwingeloo Radio Observatory was the largest rotatable telescope in the world with a dish diameter of 25 meters. It was quickly overtaken in the rankings but was used by astronomers for decades until it slowly fell into disuse in the early 2000s. After a restoration project the telescope is now a national heritage site in the Netherlands where it is also available for use by radio amateurs. Recently this group was able to receive signals from Voyager 1.

Famously, Voyager 1 is the furthest manmade object from Earth, having been launched on a trajectory out of the solar system in 1977. As a result of distance and age, the signals it sends out are incredibly faint. The team first had to mount a new antenna to the dish, which was not originally designed for signals in this frequency which added to the challenge. They then needed to use orbital predictions of the spacecraft in order to target the telescope and also make the correct adjustments to the received signal given that there is significant Doppler shift now as well. But with that all out of the way, the team was successfully able to receive the Voyager 1 signal on this telescope.

Only a few telescopes in the world have ever been able to accomplish this feat, making it all the more impressive. Normally Voyager 1 is received using the Deep Space Network, a fleet of much larger dishes stationed around the world and designed for these frequencies. But this team is used to taking on unique challenges. They also decoded the first ham radio station on the moon and made a radar image of the moon using LoRa.

via Hackaday: Why NASA Only Needs Pi To So Many Decimal Places - If you're new to the world of circular math, you might be content with referring to pi as 3.14. If you're getting a little more busy with geometry, science, or engineering, you might have tacked on a few extra decimal places in your usual calculations. But what about the big dogs? How many decimal places do NASA use?

Thankfully, the US space agency has been kind enough to answer that question. For the highest precision calculations, which are used for interplanetary navigation, NASA uses 3.141592653589793 — that's fifteen decimal places.

The reason why is quite simple, going into any greater precision is unnecessary. The article demonstrates this by calculating the circumference of a circle with a radius equal to the distance between Earth and our most distant spacecraft, Voyager 1. Using the formula C=2pir with fifteen decimal places of pi, you'd only be off on the true circumference of the circle by a centimeter or so. On solar scales, there's no need to go further. Ultimately, though, you can calculate pi to a much greater precision. We've seen it done to 10 trillion digits, an effort which flirts with the latest Marvel movies for the title of pure irrelevance.

via Hackaday: Mighty Morphin' Antenna
The Shape of an antenna can make a big difference in its performance. Researchers at the Johns Hopkins Applied Physics laboratory have used shape memory alloy to construct an antenna that changes shape depending on the signals it is receiving. Nitinol, a common shape memory alloy made from nickel and titanium, is an obvious choice, but it's not obvious how you'd make a shape-changing antenna out of nitinol wire. That changed when a mechanical engineer found a way to 3D print the substance. You can find a paper about the research online from **Applied Engineering Materials**.

In practice, the antenna is a double spiral made of nitinol. A channel contains a copper wire that can heat the antenna and, therefore, change its shape. Having a powered wire in the antenna ca cause problems, so special designs route the signal away from the heating element. It look like the antenna can assume a flat configuration or a spiral conic configuration.

Printing nitinol requires laser melting with argon gas, so you probably aren't printing an antenna with your Ender 3 anytime soon.

How Ghost radio signals could hold the key to finding missing flight MH370 – Malaysian government resumes search for passenger jet's wreckage using WSPR transmissions – Christopher Jasper, Transport industry editor - Transmissions from amateur radio enthusiasts may hold the key to locating the wreckage of the Malaysia Airlines jet that vanished a decade ago in one of the greatest aviation mysteries.

The Malaysian government announced on Friday that it had agreed to resume the search for the remains of MH370, the Boeing 777 that disappeared in March 2014 while carrying 239 people.

Efforts will focus on a new area of seabed covering around 5,800 square miles – slightly bigger than Northern Ireland – according to Anthony Loke, the Malaysian transport minister. The search will be led by underwater exploration firm Ocean Infinity, which conducted the last sweep in 2018. This time around, the investigation is expected to draw on a new area of research involving so-called WSPR – pronounced "whisper" – transmissions from amateur radio operators.

An acronym for Weak Signal Propagation Reporter, WSPR was designed as a way of sending and receiving low-power transmissions to test the capabilities of antennas used by amateur radio enthusiasts – known as radio hams – and the extent of their reach.

WSPR transmitters send thousands of low-power radio pulses around the world every two minutes, with any given signal disturbed should an aircraft cross it, or so the theory goes.

Richard Godfrey, a retired aerospace engineer, who has worked with NASA, Boeing and Airbus, has advanced the theory that an examination of historical WSPR data might help pin down the flight path of MH370.

His own analysis pointed to a search area with a radius of less than 20 miles, some 1,000 miles west of Perth, Australia.

Mr. Godfrey told The Telegraph he understood the target zone he identified would be covered by Ocean Infinity's new search. The company will also examine parallel strands of research such as examinations of hydro-acoustics data from the time of the disappearance.

The BBC explored the WSPR hypothesis in the documentary Why Planes Vanish: The Hunt for MH370 in March this year on the 10th anniversary of the tragedy.

Mr. Godfrey said on the programme that "there's no radar coverage of the Indian Ocean but there are radio signals" and that these amount to a "trail of breadcrumbs."

He claimed to have found 130 disturbances to signals crossing the Indian Ocean on the night that MH370 vanished, possibly indicating its final trajectory.

However, the creator of WSPR technology has suggested that historical data from the network is of little use for tracking aircraft. Nobel laureate Prof Joseph Taylor, of Princeton University, an astrophysicist and radio ham himself, developed WSPR based on his research into pulsars.

Even still, support for the theory persists. Prof Simon Maskell, a computer engineer and professor of autonomous systems at the University of Liverpool, said it would be premature to reject WSPR's potential for tracking down MH370.

He said the application of a so-called particle filter developed by Australia's Defence Science and Technology Group could help exclude unhelpful data and further refine the search area. Prof Maskell, who has been advising Ocean Infinity, is in the process of testing the accuracy of WSPR-based tracking using real-life data from planes in the air on a single day.

His team is also using the same particle filter technology to enhance predictions for the crash site based on where debris from the plane washed ashore.

He said: "The important question is whether all of this analysis usefully reduces the search area. As soon as you can definitely say the plane couldn't have headed north or it couldn't have gone this far south you have narrowed things down and that is useful."

Ocean Infinity, which was founded in 2017 and has operations in Southampton and in Austin, Texas, had submitted proposals to resume the search in May.

Mr. Loke said the marine robotics company had been awarded an 18-month contract on a "no find, no fee" basis but would receive $70m (£56m) if substantial evidence of the plane's final resting place – and that of its 227 passengers and 12 crew – was detected.

He said: "The data has all been presented. Our team has gone through and they felt that it is credible.

"Nobody knows for sure. It has been over 10 years. We hope this time will be positive, that the wreckage will be found and give closure to the families."

No precise location for the new search area was given, though Prof Maskell said he understood that it would involve a broadening of the previous favoured search area by about 20 sq km.

light MH370 sent its last transmission 40 minutes after departing Kuala Lumpur bound for Beijing. Soon after, its transponder was turned off, with military radar revealing that it then turned south, crossed the Malaysian peninsula and headed out over the Indian Ocean.

Data from automatic connections with an Inmarsat satellite indicated a broad arc that the plane could have been on.

Extrapolations based on how much fuel it had on board led searchers from Malaysia, Australia and China to focus on a 46,000 sq mile area of open sea west of Perth.

While debris from the aircraft washed up along the coast of Africa and on islands in the Indian Ocean, the search for the plane ultimately proved fruitless.

A report into the disappearance said that while MH370 was most likely deliberately flown off course, an explanation of what happened would require the wreckage to be found.

Oliver Plunkett, Ocean Infinity's chief executive, said the official go ahead for the new mission after a long interval was "great news."

He said: "We look forward to sharing further updates in the new year once we've finalised the details and the team gets ready to go."

In Brief….

Winter Field Day is next month, January 25-26, organized by the Winter Field Day Association. It's a perfect opportunity to practice portable emergency communications in winter environments that pose unique operational concerns.

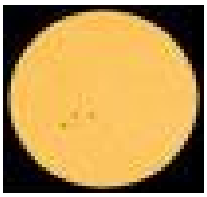
Via Amateur Radio Daily: WINTERHEAT Simplex Contest Runs Through January
In its 6th year, WINTERHEAT is a month long simplex contest active January 1 through January 31. The event encourages hams to get on the air and accumulate as many VHF/UHF simplex contacts as possible. The 2024 event saw 785 participants make over 214,000 contacts.

Contacts are to be made via FM voice, including digital voice modes such as DMR, Fusion, and D-STAR.

Visit Ham Active to register.

The K7RA Solar Update

12/05/2024



12/30/2024: Strong solar activity continues, with worldwide propagation on 10 and 12 meters quite commonplace.

Predicted solar flux is 255, 250, 210, 200, and 195 on December 30, 2024 through January 3, 2025, 190 on January 4-5, 170 on January 6, 160 on January 7-8, then 165, 170 and 165 on January 9-11, 170 on January 12-13, 175 on January 14-15, 180 on January 16, 185 on January 17-18, 200 on January 19-23, 185 on January 24-26, 175 on January 27, and 180 on January 28-30, 2025.

Predicted planetary A index is 8, 50, 20 and 8 on December 30, 2024 through January 2, 2025, 5 on January 3-4, 8 on January 5-6, 5 on January 7-9, then 12, 10 and 8 on January 10-12, 5 on January 13-15, then 8, 10 and 10 on January 16-18, 8 on January 19-23, and 5 on January 24-31.

"As expected, active regions on the Sun did appear and they were not alone. Moderate solar flares are the order of the day, while we have been expecting a geomagnetic disturbance during the Christmas holidays since after the CME registration. But the particle clouds missed the Earth, the disturbance did not take place, and ionospheric shortwave propagation conditions remained above average.

"But even better propagation conditions are likely to await us next year. The high solar activity in October this year was probably not yet the peak of the 25th cycle - that is yet to come!"

Sunspot numbers for December 19 through 25, 2024 were 96, 148, 152, 176, 199, 219, and 218 with a mean of 172.6. 10.7 cm flux was 175, 184, 201.2, 223.3, 238.3, 258.5, and 252.7 with a mean of 219. Planetary A index was 11, 13, 16, 14, 12, 12, and 5 with an average of 11.9. Middle latitude A Index was 9, 10, 13, 15, 11, 9, and 5, with a mean of 10.3.

12/19/2024: Excellent HF conditions greeted hams in the ARRL 10-Meter Contest last weekend. Recent indicators show a sudden shift to two-digit daily sunspot numbers from three, and although there is nothing significant about 100, it makes one notice. Perhaps this indicates a move off of solar max, or a future with a second maximum.

Predicted solar flux is 175, 185, 190, 195 and 200 on December 19 – 23; 205 on December 24 – 25; 180 on December 26 – 27; 185 on December 28 – 29; 180 on December 30 through January 2, 2025, and 175 on January 3 – 4.
The forecast for Planetary A index shows a quiet 5 on December 19 – 22; 8 on December 23 – 24, and 5 on December 25 through January 4, 2025.

Sunspot numbers for December 12 through 18, 2024 were 91, 82, 86, 97, 90, 88, and 82 with a mean of 88. The 10.7-

centimeter flux was 172, 163.7, 170.5, 172, 166.7, 170, and 173.5 with a mean of 169.8. Estimated planetary A indices were 6, 4, 10, 12, 14, 29, and 15, with a mean of 8. Middle latitude A index was 4, 2, 8, 9, 11, 20, and 12, with a mean of 12.9.

12/12/2024: Hard believe, but solar activity dropped from recent record-setting values again this week. It looks like solar flux may peak for the short term around 190 on December 22 and again on December 24 and 28.

Predicted solar flux is 180 on December 13 - 14; 170 on December 15 - 16; 175 on December 17 - 20, 185 on December 21 and is forecast to peak at 190 on December 22.

Predicted planetary A index is 6 on December 13; 8 on December 14; 5 on December 15; 8 on December 16 – 18; 12 on December 19; and 8 on December 22.

12/05/2024: Solar activity seems to have dropped dramatically from a recent peak. Are we over the cycle peak and headed down again? Too early to say.

Daily average sunspot numbers this week sank to 120.1.

Predicted solar flux is 175 on December 6 – 8; 170 on December 9 – 10; 175 on December 11 – 12; and 205 on December 13 - 17.

Predicted planetary A index is 8 on December 6 – 7; 5 on 8 – 12; 10 and 5 on December 13 – 15; 8 on December 16 – 18; 12 and 8 on December 19 – 20; and 5 on December 21 through January 6, 2025.

Sunspot numbers for November 28 through December 4, 2024 were 149, 162, 103, 83, 113, 126, and 105, with a mean of 120.1. The 10.7 -centimeter flux was 213.9, 219.8, 204, 186.3, 185.3, 174.2, and 174.7, with a mean of 202.2. Estimated planetary A indices were 4, 8, 11, 7, 6, 13, and 7, with a mean of 8.3. Middle latitude A index was 3, 6, 9, 6, 6, 6, 10, and 5, with a mean of 6.

A weekly, full report is posted on ARRL News.

Coming Events

The **Silicon Valley VE** group is holding online amateur radio exam sessions on the first and third Saturday morning of every month. More information can be found at https://www.svve.org, or by emailing Morris Jones, AD6ZH at ad6zh.mj@gmail.com.

Arv's - WA6UUT (SK) Wednesday Ham Radio Luncheon
Our 17th Year! >> Since May 2, 2007 <<

Black Bear Diner - 415 East El Camino Real, Sunnyvale, California, (Just "North" of South Fair Oaks Avenue on El Camino Real) - 11:30 AM ~ 3:00 PM

Website: www.blackbeardiner.com. Every Wednesday – Not a Club, Closed Group or Clique: Amateur Radio Operators & Friendly People Are Encouraged To Attend! Call in on the N6NFI Repeater – 145.230MHz, PL 100Hz.

QCWA NorCal Chapter 11 - Lunch at Harry's Hofbrau 3rd Wednesday of every month, 1909 El Camino Real, Redwood City, CA. No host. 11:00AM to 1:00PM (approx.).

North County Fire Authority CERT Training – For information: https://northcountyfire.org/home/cert-classes/

San Bruno Amateur Rado Club – Tech License Class Starts January 7th.

- January 7th, 2025 to Tuesday, February 25th, 2025
- 7 Tuesday Classes & FCC Exam Session
- Time 7:00 P.M. to 9:00 P.M.
- Ages 16* and Up (*10 to 15 with a parent)
- San Bruno City Hall EOC, 567 El Camino Real
- Free
- Limited Space
- https://www.sbamradio.org/class_signup/php

If you have an event you'd like posted in the Coastside Communicator, please send to: kj6ogl@arrl.net

2024 ARRL/CARC Field Day
At Oceana High School, Pacifica

January Puzzler

Paul Atkins, AI6BB

A G N I D O C N E I T N E C Q R H Z Z N
M G Z B M I C R O P R O C E S S O R E C
T N X A H U M H T B Y M L C D P L L N H
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Wordlist

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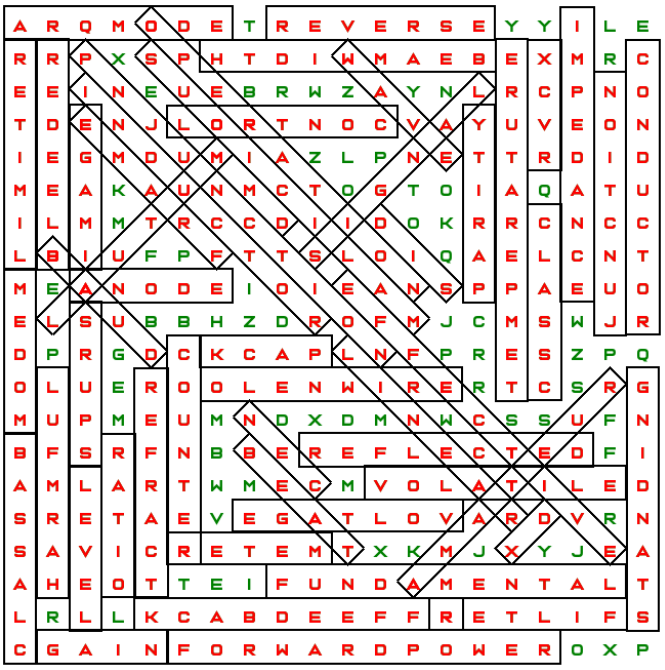
Answer to December's Puzzler



Happy Transmitting

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In 2025

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CARC Meeting/Event Schedule

Date	Event
Jan 8th	Firehouse Meeting - 2025 Event Planning
Jan 25th-26th	ARRL Winter Field Day
Feb 12th	Firehouse Meeting - 2025 Agenda Final
Mar 9th	Daylight Savings Time Starts
Mar 12th	Firehouse Meeting
Apr 9th	Pizza Meeting – TBD
May 14th	Firehouse Meeting - Field Day Planning
June 11th	Firehouse Meeting - Final FD Planning
June 14th	Flag Day
June 28th-29th	ARRL Field Day – Location: TBD
Jul 9th	Firehouse Meeting
Aug 13th	Firehouse Meeting
Sep 10th	Firehouse Meeting - Fog Fest Planning
Sep 27th-28th	Pacific Coast Fog Fest
Oct 8th	Firehouse Meeting – 2026 Nomination of Officers
Nov 2nd	Daylight Savings Time Ends
Nov	Dinner Meeting - Election of Officers - Date and Time TBD
Dec 10th	Firehouse Meeting - Holiday Potluck

All meetings are held at 7:30pm, at Pacifica Fire Station #72 (Linda Mar), 1100 Linda Mar Boulevard, Pacifica, CA 94044, unless otherwise stated. If possible, meetings will have a Zoom component.

www.smcready.org
cert@pacificapolice.org

Coastside Amateur Radio Club

The Coastside Amateur Radio Club (CARC) is affiliated with ARRL and meets the second Wednesday of each month at 19:30 hrs. in the Linda Mar Fire Station Community Room, on Linda Mar Blvd. in Pacifica. Visitors are welcome.

The CARC has been organized since 1959, serving Bay Area amateurs, and providing emergency communications services to the City of Pacifica. Membership dues are $20.00 per year for the administration of the Club and the publication of the Communicator.

CARC supports one repeater, WA6TOW/R (VHF), and an APRS Digipeater, WA6TOW-2, on the North Peak of Montara Mountain, altitude 1900 feet located on the border of Pacifica and Montara: Users of the machine provide repeater support and maintenance strictly through donations.

VHF: 146.925 MHz –offset 600 KHz PL 114.8

PL Tone: 114.8 Hz is used on both repeaters, as needed, for noise suppression.

APRS Digipeater: 144.390 MHz.

CARC/Pacifica OES VHF Simplex: 146.535 MHz
PL Tone: 114.8 Hz is used, as needed, for noise suppression.

7VHF Nets

The club sponsors a VHF net each Wednesday, with the exception of meeting nights, at 20:00 hrs. for membership check-ins, notices, and QST's. Note: The WA6TOW repeater on 441.075 MHz may be used as an alternate if the WA6TOW VHF repeater is down. The WA6TOW-UHF repeater is currently not available.

HF Net

The club sponsors a HF rag chew net on 3.852 MHz, or the first clear frequency up/dn, on Saturday at 09:00 hrs. with an alternate frequency of 7.228 MHz.

◄►

65 years of Service

55 years Affiliation

COASTSIDE NETS

Monday

7:00 PM on WA6TOW
146.925 MHz, PL 114.8
Pacifica CERT Net

Tuesday

7:30 PM on WA6TOW
146.925 MHZ, PL 114.8
Daly City Net

8:00 PM on WA6TOW 146.925 MHZ, PL 114.8 and KC6ULT 146.865 MHz, PL 114.8 simultaneously, but not linked.
San Mateo County ACS Net

Wednesday

8:00 PM on WA6TOW
146.925 MHz, PL 114.8
Coastside Amateur Radio Club Wednesday Night Check-in.

Saturday

9:00 AM on 3.852 MHz, or the first clear frequency up/dn.
(alt freq of 7.228 MHz.)
Coastside Saturday Morning Group.

10:00 AM on WA6TOW
146.925 MHZ, PL 114.8
QCWA Ch. 11 NorCal. Net

Sunday:

7:00-7:45 AM on WA6TOW
146.925 MHz, PL 114.8
Knights of the Megahertz Net

Note: All 2m repeater traffic is recorded and may be replayed at audiostickerburr.net.

CLUB OFFICERS		
Office	**Name**	**Call**
President	Ralph Kugler	KC6YDH
Vice President	Paul Atkins	AI6BB
Secretary	Tom Oliver	KF6OGL
Treasurer	Steve Austin	KN6ORM
CLUB STAFF		
Control Officer	Steve Austin	KN6ORM
Trustee of Club Call	Steve Austin	KN6ORM
Station Technician	Michael Herbert	WB6JKV
Field Day Coordinator	Ron Perser	W9EGG
Membership	Steve Austin	KN6ORM
Newsletter Editor	Tom Oliver	KJ6OGL
Newsletter Publisher	Paul Atkins	AI6BB
Website	Paul Atkins	AI6BB
Emergency Services		

MEETING NOTICE: 

JANUARY 08, 2025 7:30 PM (FIREHOUSE & ZOOM)
WATCH FOR INVITATION VIA E-MAIL OR CONTACT CARC_INFO@COASTSIDEARC.ORG TO BE ADDED

COASTSIDE COMMUNICATOR
EDITOR
P.O. BOX 1106-6106
PACIFICA, CA 94044

FIRST CLASS

TO: