



THE COASTSIDE COMMUNICATOR

Vol. 58

No. 7 ~ July 2026

www.coastsidearc.org

Meeting Night Talk-In: 441.075MHz, (+) offset, PL 114.8, WA6TOW 70cm Repeater

PRESIDENT'S COLUMN

Happy 250th USA.

Hello HAM's.

We had a successful Field Day at Skyline College. The day started with a drizzle, then cleared with a cold wind. Never the less, the rugged volunteers set up camp. George's end fed 20 meter antenna sloped toward the east from a 40 foot high mast. It preformed excellent. We made over 60 contacts from California to New York. Leandro KO6NHA, a new HAM, tried his hand at the mic, making numerous HF contacts like a pro and appeared to enjoy the new experience.

Thank you to the volunteers and operators: George KJ6TSX, Jillian KN6PIV, Jon N6SJF, Steve KN6ORM, Tom KJ6OGL, Ralph KC6YDH and also operator Leandro KO6NHA. Tom provided coffee and pastries to start the morning right and I ordered a pizza for the hungry volunteers.

'73

Ralph Kugler, KC6YDH
Club President

Editor's Note: Thanks to all CARC Members who came to Field Day2026, not only to visit, but also transmitting and making HF contacts across the country. It was a pleasure seeing you. Thank you Tony Dowler, K6BV, ARRL / SCV Representative for stopping by and chatting. Sounded like you had a busy day ahead for you. Thanks to Reed Graham, KK6W2 for also stopping by. Reed is with a new national organization, K2BSA, that is involved in introducing Ham Radio to the Boy/Girl Scouts.

CARC JUNE 10, 2026 MEETING MINUTES

Call to Order – The June 10, 2026, meeting called to order at 7:38pm by President Ralph Kugler, KC6YDH, on Google Meet

Held a Moment of Silence for Bill Lij: The group held a moment of silence in memory of Bill Lillie, a long-time member who became a silent key on May 31st. Members shared historical context about Bill's long-standing dedication to the club, dating back to the 1970's

Self-Introductions – Introductions by members in attendance

Presentation – None this month

Break – None

Minutes – Motion by Steve-KN6ORM and seconded by Paul-AI6BB to approve the minutes of the May meeting as published in the June Coastside Communicator.

Open Discussion – None this month

Committee Reports

Treasurer's Report

The Treasurer provided current status of accounts as of June 10, 2026.

Membership: Total Members: 55, Dues Current: 36

WA6TOW Repeater

Current status and future plans:

Repeater Status – Steve stated that he has lost connection with the computer on the hill. Needs someone to go up to the repeater to see what the issue is. He has a replacement cellular modem. The current one doesn't work with DMR.

Antenna Project Status – Ralph needs to contact the installer to see when he will be able to schedule the antenna installation.

Unfinished Business

1. Field Day Planning – Skyline College reserved for FD. Ralph said that Jon could help setup but not teardown. George said he'd help Ralph pick up the antenna and supplies from John. Should have enough people to setup the antenna. Steve suggested using Slack to track equipment availability for FD. He said that he could bring a Yaesu 991A and an ATS 120 antenna. George also said he could bring a Yaesu 991A radio for the 20-meter station. Steve said he grabbed the Yagi antenna from Frank's place and will bring to FD. HEX Beam antenna status – Steve said he has his name on the list with the antenna company, but doubts we'd get it in time for FD, due to supply chain backorders. Additional equipment to bring to FD: George, Ralph & Steve said they'd bring additional VHF/UHF equipment to FD, Tom said he'd bring a 10'x10' canopy, folding table, folding chairs. In addition, he has copies of the Station License, ARRL flyer, Property Use request & Current Insurance – all laminated, and operator & visitor sign-in sheets. Both Steve & George have computers with logging software installed to track contacts made during FD. The Club decided not to bring a gas generator. Both Ralph & Steve offered to bring batteries.
2. Frank has antennas he'd like to have removed. Does the club want? Frank & Barb were able to have the antenna(s) and masts taken away. Cost of \$250. Motion made by George-KJ6TSX and seconded by Steve to reimburse Frank & Barbara for the fees. All are in favor. Ralph requested Barbara email him a receipt so a check can be made. Frank has some radios he'd like to dispose of: Icom-7000, an IC-735, and Icom-756 Pro. The group agreed to place these items in the newsletter and at upcoming flea market to find buyers, using descriptive information provided by Steve.
3. Make PayPal Secure – Possible project by Jon-N6SJF. Skip this meeting
4. Donated equipment in the RACES room (Access?) The club discussed donating surplus equipment to the local CERT team. Steve noted they were unable to assist with this due to a lack of access, while Ralph proposed selling smaller donated items at an upcoming electronics flea market at West Valley College to avoid clutter.
5. VE sessions? Steve reported completing the requirements for VE status and uploading the paperwork to the club's VE Slack channel. Ralph discussed the potential need to study for the Extra class license to support exam oversight.

New Business

1. Steve proposed that the club establish its own Google Workspace account to centralize administration and recording capabilities, rather than relying on a personal

account. The group discussed the costs and the possibility of obtaining a free tier for nonprofits, and Ralph KC6YDH requested that Stephen investigate these options and verify the club's nonprofit status document before the next meeting. Paul and Steve discussed potential alternatives to the current website hosting, suggesting a move to AWS or Google Cloud to save costs. They will coordinate with each other to evaluate the options, with plans to demonstrate a prototype for board feedback before finalizing any migration, and bring to the July meeting.

2. Tom asked if anyone updated the member roster spreadsheet on Google Drive. It hasn't been updated recently.
3. The club discussed identifying a location for future meetings. Tom stated his concerns about the costs of the Crespi Center. Pedro Point firehouse was mentioned as a possibility. Eric said he'd look into contact info and determine its availability and cost-effective option. It was also mentioned about the possibility of returning to the Linda Mar firehouse. It was mentioned to speak directly with the station personnel to ask about returning to use the space.
4. After asking the members present about scheduling speakers for the July meeting, Ralph stated he would look into finding presenters.

Newsletter

May newsletter emailed

Website

May newsletter uploaded to the website. Appears that there was some sort of attack on the website. Paul sent diagnostic info to Jon for review. Does not appear to have damaged the site, just used a lot of RAM & storage utilization.

Adjournment

Motion made by Steve-KN6ORM and seconded by Eric-KO6JRD to adjourn the meeting at 8:35pm. Meeting adjourned.

Present at the Meeting

Officers: President: Ralph Kugler-KC6YDH, Vice-President: Paul Adkins-AI6BB (Google Meet), Secretary: Thomas Oliver-KJ6OGL, Treasurer: George Salet-KJ6TSX

Members: Eric-KO6JRD, Dennis-KN6QER, Steve-KN6ORM, Frank-N6FG, Barbara-K6IIP

Guests: None

Submitted by: Thomas Oliver-KJ6OGL,
CARC Secretary

In Brief....

Sad news to report: Bill Lillie, N6BCT passed away on May 31, 2026, at the age of 93.

Paul Atkins, A6BB: Bill was an antenna/receiver engineer and we both worked at the Dalmo Victor company in Belmont. Dalmo Victor was eventually gobbled up by Litton Applied Technology which itself was gobbled up by Northrop Grumman.

Ron Perser, WB9EGG: I was at his house quite a few times over the years, working on antennas and rerouting coax, and got to know his wife, Charlotte and his son. We watched the Giants baseball games together, so he was a good guy and sorry to see him go.

I strung up an 80-meter dipole up in the trees for him so he could continue to be on the 80-meter net. I also put up a 40-meter dipole on top of his house so he can get on the military net there on 40.

We used to talk a lot about the Midwest. He went to Purdue University. I had a couple of cousins that went to Purdue, and I'm from Chicago, so we reminisced about that quite a bit.

Obviously, he was quite a DXer at one time with the massive multi-band beam he has on the tower all around. He was mentally with it up until the last time I spoke with him on the QWCA net. We used to meet every Saturday at 38.52.

Kelly Tuttle, WB6AAJ: Recalls that he was a graduate of Purdue University in Electrical Engineering. As well as being an avid DXer, he was a member check-in on the Knights of the Megahertz Net as well as Net Control for the Coastside/QCWA 75m HF net for many years.

He was also an Officer of the Coastside ARC for many years.

NEWS

(Editor's Note: I found this article on the website "This Week In Amateur Radio", interesting. For those who know tube theory better than the current micro-electronics, this is for you! Please comment!)

The Vacuum Tube's Last Stand(s)

When most people think about vacuum tubes, they picture big glass bottles glowing inside antique radios or early computers. History often treats tubes as a dead-end technology that was suddenly swept away by the transistor in the 1950s. But the reality is much more interesting. Vacuum tube technology did not simply stop evolving when the transistor appeared. In fact, some of the most sophisticated and technically impressive tube designs emerged after the transistor had already been invented.

During the final decades of mainstream tube development, manufacturers pushed the technology in remarkable directions.

Tubes became smaller, faster, quieter, more rugged, and more specialized. Designers experimented with exotic geometries, ceramic construction, metal envelopes, ultra-high-frequency operation, and even hybrid tube-semiconductor systems. Devices such as acorn tubes, lighthouse tubes, compactrons, and nuvistors represented a last gasp of thermionic electronics. Ironically, many of these innovations arrived just as solid-state electronics were becoming commercially practical. Vacuum tubes were improving rapidly right up until the market abandoned them.

The Pressure to Improve

By the 1930s and 1940s, vacuum tubes dominated electronics. Radios, radar systems, military communications, industrial controls, and the first digital computers all depended on them. But everyone was painfully aware of their problems.

Traditional tubes were fragile, generated heat, consumed significant power, and suffered from limitations at high frequencies. Internal lead lengths created parasitic inductance and capacitance. At radio frequencies and especially microwave frequencies, those unwanted effects made design difficult.

Military requirements during World War II accelerated development dramatically. Radar systems needed tubes capable of operating at VHF, UHF, and microwave frequencies. Vehicle equipment required devices that could withstand punishment. Computers with tubes suffered from frequent failures, took up entire rooms, and needed special cooling equipment, often bigger than the computer. These pressures drove tube designers into an intense period of innovation.

Acorn Tubes: Tiny Tubes for High Frequencies

One of the earliest major departures from conventional tube geometry was the acorn tube. Developed in the 1930s by RCA, the acorn tube got its name from its distinctive shape, which resembled an acorn with wire leads protruding from the base and sides. Unlike ordinary tubes, where the internal elements had relatively long leads, the acorn design minimized lead length to reduce parasitic capacitance and inductance. At high frequencies, this reduction was crucial.

One famous example was the 955 acorn triode. These tubes found use in experimental television receivers, military radios, and laboratory equipment. Acorn tubes also reflected an important trend in late tube development: engineers were increasingly treating tubes not merely as amplifying devices, but as microwave structures requiring careful electromagnetic design.

The Lighthouse Tube

If acorn tubes were specialized, lighthouse tubes were positively futuristic. Lighthouse tubes abandoned the classic cylindrical glass form almost entirely. Instead, they used stacked disk-like electrodes arranged in a compact coaxial structure. The resulting geometry minimized transit times and parasitic reactances, allowing operation into microwave frequencies.

The tubes vaguely resembled a lighthouse tower. These tubes became essential in radar systems during World War II and the early Cold War period. Some lighthouse designs could operate in the gigahertz range, something impossible for conventional receiving tubes.

Their construction also introduced new manufacturing techniques. Many used ceramic and metal rather than large glass envelopes. This improved heat resistance and mechanical stability while reducing losses at high frequencies.

In many ways, lighthouse tubes represented the transition from classic vacuum tubes and true microwave devices like klystrons and traveling-wave tubes.

Metal Tubes and Ruggedization

Another path of tube evolution focused on durability and compactness. Early tubes used fragile glass envelopes that were easily broken and susceptible to microphonics and vibration. During the 1930s, manufacturers introduced all-metal tube designs. These tubes replaced the glass envelope with a metal shell, improving shielding and mechanical ruggedness.

Metal tubes were particularly attractive for military and automotive applications. Shielding reduced interference, while the smaller physical size allowed more compact equipment layouts.

Hybrid glass-metal constructions also became common. Engineers experimented constantly with new materials and packaging approaches to reduce noise, improve reliability, and extend tube lifespan.

Subminiature Tubes

One of the most impressive developments was the subminiature tube. These tiny devices often looked more like oversized resistors than conventional tubes. Some were less than an inch long and designed to be soldered directly into circuits rather than plugged into sockets.

Subminiature tubes emerged largely from military demands during and after World War II. Proximity fuses for artillery shells required electronics small enough to survive being fired from a cannon. Traditional tubes would simply shatter under the acceleration.

The resulting ruggedized miniature tubes were shock-resistant and compact enough for portable military electronics. After the war, subminiature tubes appeared in hearing aids, portable radios, test instruments, and early miniaturized computers.

The Nuvistor: The Ultimate Receiving Tube

One of the most interesting late-stage vacuum tube was the RCA Nuvistor. Introduced by RCA in 1959, the nuvistor represented an attempt to create a truly modern vacuum tube for the transistor age.

Unlike classic glass tubes, nuvistors used a compact metal-and-ceramic construction. They were extremely small, highly reliable, vibration-resistant, and capable of excellent high-frequency performance. They also exhibited very low noise

characteristics. At first glance, a nuvistor hardly resembles a traditional tube at all. You could easily mistake these for some other component in a metal can.

Technically, nuvistors were excellent devices. They offered superior performance in many RF applications compared to early transistors, particularly in television tuners, instrumentation, and aerospace electronics.

High-end studio microphones also adopted nuvistors because of their low noise and desirable electrical behavior. Some audiophiles still use nuvistor-based equipment today.

But despite their capabilities, nuvistors arrived too late. Semiconductor technology was improving rapidly. Silicon transistors were becoming cheaper, more reliable, and easier to manufacture in large quantities. Integrated circuits loomed on the horizon. The nuvistor may have been the best small receiving tube ever made, but it was competing against a technology whose economics would soon become overwhelming.

Compactrons

As semiconductor electronics advanced, tube manufacturers attempted another strategy: integration. The Compactron, introduced by General Electric in the early 1960s, combined multiple tube functions into a single envelope. A Compactron might contain several triodes, pentodes, or diode sections in one package. This reduced component count, simplified wiring, and lowered manufacturing costs for television sets and other consumer electronics. Of course, tubes with multiple electrodes weren't new. They dated back to at least 1926. However, GE's aggressive marketing of the brand was an attempt to prevent designers from defecting to the solid-state camp.

In some sense, compactrons were the vacuum tube answer to integrated circuits. Engineers were trying to achieve greater functional density while keeping tube-based designs economically competitive. GE's Porta-Color, the first portable color television, used 13 tubes, including 10 Compactrons. They usually have 12-pin bases and an evacuation tip at the bottom of the tube rather than at the top.

Compactrons saw widespread use in televisions, stereos, and industrial electronics during the 1960s and early 1970s. But again, semiconductor integration advanced even faster. The battle was becoming impossible to win.

Specialized Tubes Survived

Even after transistors took over consumer electronics, vacuum tubes remained important in specialized fields. Microwave tubes such as klystrons, magnetrons, and traveling-wave tubes continued to dominate high-power RF applications. Radar systems, satellite communications, particle accelerators, and broadcast transmitters all relied on advanced vacuum devices. In some areas, they still do.

A modern microwave transmitter aboard a communications satellite may still use a traveling-wave tube amplifier because tubes can handle very high frequencies and power levels efficiently.

No Instant Win

One misconception about electronics history is that the transistor immediately rendered tubes obsolete after its invention at Bell Labs in 1947. That is not what happened.

Early transistors had many limitations. They were noisy, temperature-sensitive, low-power, and expensive. Tubes often outperformed them in RF circuits, audio applications, and high-power systems well into the 1960s.

For a significant period, designers genuinely did not know which technology would dominate certain markets. Tube designers were still making substantial advances. Nuvistors and Compactrons were not desperate relics; they were serious engineering efforts intended to compete in a changing world. Ultimately, however, semiconductors possessed overwhelming long-term advantages. Transistors required less power, generated less heat, occupied less space, and could be manufactured using scalable photolithographic processes. Once integrated circuits became practical, the economics shifted decisively. Vacuum tubes could evolve, but they could not shrink into millions of devices on a silicon chip.

The final years of vacuum tube development are often overlooked because history tends to focus on winners. Yet this period produced some of the most elegant and specialized electronic devices ever created. By the late tube era, vacuum tube manufacturing had become quite refined. Engineers could produce tubes with tightly controlled characteristics and surprisingly long operating lives.

Some early transistorized devices still retained subminiature tubes in certain high-frequency or low-noise stages because transistors had not yet surpassed tube performance in every application. This overlap period is often forgotten today. Electronics did not instantly switch from tubes to semiconductors. For years, many systems used both. For many years, a typical ham radio transmitter, for example, would be all solid-state except for the power amplifier finals, which were often a pair of 6146 tubes.

If there are articles you'd like to see in the Communicator, please let me know. Send messages to: info@coastsidearc.org

The ARRL Solar Report

6/xx/2026



6/11/2026: Solar activity has been at low levels this past week with most of the C-level activity originating from Region 4465, including the largest flare of the week, a C2.6 observed on June 10. There are currently 7 numbered

sunspot regions on the disk with Region 4467 decaying to plage.

There was a Type-II radio sweep detected by the Radio Solar Telescope Network (RSTN) on June 10. That radio emission was associated with a coronal mass ejection (CME) first

observed at the NE quadrant by ground-based coronagraph imagery from HAO/MLSO coronagraph late June 10, and later by space-based coronagraph LASCO/C2. Modeling indicates there is no Earth-directed component.

Other CME activity was observed in the coronagraph imagery later in the period, but preliminary analysis indicated no Earth-directed component.

Solar activity is expected to remain at low levels, with a chance for M-class flares and a slight chance for X-class flares.

The 10.7-centimeter flux: June 11, 138; June 12, 134; June 13, 143; June 14, 130; June 15, 146; June 16, 125; June 17, 149.

Predicted sunspot numbers: June 11, 103; June 12, 95; June 13, 107; June 14, 90; June 15, 111; June 16, 83; June 17, 116.

A weekly, full solar report is posted on [ARRL News](#).

Coming Events

Arv's - WA6UUT (SK) Wednesday Ham Radio Luncheon

Our 19th 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/>

Radio Exams in Millbrae – The Millbrae Amateur Radio Club (MARC), is the only organization that hosts exams every month of the year in San Mateo County. Website:

<https://millbraearc.org/>. Exams: First Thursday of each month at 17:30, and ARRL FD Robert Morris, AG6ZZ, President MARC, ARRL VE Team Lead

Plan Ahead:

Pacificon – October 16 – 18, San Ramon, CA

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

JULY PUZZLER

PAUL ATKINS, AI6BB

P A R S P U R I O U S Z H R D S A C N M
 S M G E O M A G N E T I C S D G W M A T
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WORDLIST

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| antipode | groundplane | ray |
| band | groundwave | refract |
| bandplan | henry | root |
| beacon | hertz | rotator |
| converter | hop | sdr |
| coronaball | interface | series |
| correction | limiter | services |
| decoding | linear | sleeve |
| demodulate | load | spurious |
| dielectric | maximum | spurs |
| digital | modem | standing |
| drop | modulate | tap |
| electronic | mount | trailer |
| examiner | ocf | turnsratio |
| flipflop | phone | twotonetesting |

ANSWER TO JUNE'S PUZZLER

C F W M O N I T O R R E G I O N M T H J O
 A G T W I N L E A D L L A B A N O R O C
 B R S R E X I M B D I G I T A L L A N A
 L O B T V R U E T A M A I N O I E D V D
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 H S L E E V E N O I T A L U G E R A K G
 N R J V N O I T P R O S B A W I L X O E
 I N V E R S I O N R O T A N I D R O O C

CELEBRATE



JULY 4, 2026

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

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	Thomas Oliver	KF6OGL
Treasurer	George Salet	KJ6TSX
CLUB STAFF		
Control Officer	Stephen Austin	KN6ORM
Trustee of Club Call	Stephen Austin	KN6ORM
Station Technician	Michael Herbert	WB6JKV
Field Day Coordinator	Stephen Austin	KN6ORM
Membership	George Salet	KJ6TSX
Newsletter Editor	Thomas Oliver	KJ6OGL
Newsletter Publisher	Paul Atkins	AI6BB
Website	Paul Atkins	AI6BB
Emergency Services		

Meeting Notice:

June 10, 2026, 7:30 PM –

Watch for Invitation via E-Mail or Contact
CARC INFO@COASTSIDEARC.ORG to be added



COASTSIDE COMMUNICATOR

EDITOR

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FIRST CLASS

TO: