

SCCARA-GRAM



Santa Clara County Amateur Radio Association

Volume 46, Number 4

April 2021



2021 – Our 100th Year!

Meetings & Gatherings

Our in-person meetings are still canceled and the club station is closed because of the covid-19 pandemic.

The board meeting will be held at the normal day and time, but on our 2 m repeater right after the Monday Night Net.

Some positive news: as of April 1st those over 49 are now eligible to get the vaccine, but the supply is limited so appointments are still necessary.



ARRL News

From *The ARRL Letter*, March 4, 2021

Quantum Receiver Can Detect Huge Swath of the RF Spectrum

US Army researchers have built a so-called “quantum sensor,” which can analyze the full RF spectrum and real-world signals, a [report on Physics.org](#) says. The quantum sensor -- technically a Rydberg sensor -- can sample the RF spectrum from 0 to 20 GHz and is able to detect AM and FM radio signals, as well as Bluetooth, Wi-Fi, and other RF communication protocols. The peer-reviewed Physical

A Rydberg receiver and spectrum analyzer detects a wide range of real-world radio frequency signals above a microwave circuit including AM radio, FM radio, Wi-Fi, and Bluetooth. [US Army, illustration]

Review Applied published the researchers’ findings, “Waveguide-coupled Rydberg spectrum analyzer from 0 to 20 Gigahertz,” coauthored by Army researchers Drs. David Meyer, Paul Kunz, and Kevin Cox.

“The Rydberg sensor uses laser beams to create highly excited Rydberg atoms directly above a microwave circuit, to boost and hone in on the portion of the spectrum being measured,” the article explains. “The Rydberg atoms are sensitive to the circuit’s voltage, enabling the device to be used as a sensitive probe for the wide range of signals in the RF spectrum.”

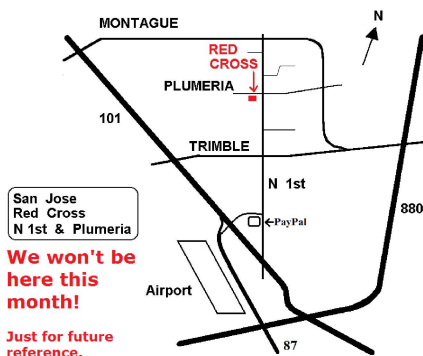
Cox, a researcher at the US Army Combat Capabilities

Calendar

- 4/12 **SCCARA General Meeting** -- **canceled**
- 4/19 **SCCARA Board Meeting:** On our 2 m repeater after the net at 7:30 PM)

General Meeting

Day: Monday, April 12 -- **Canceled**
 Time:
 Place:
 Featuring:



The **SCCARA-GRAM** is published monthly by the **SANTA CLARA COUNTY AMATEUR RADIO ASSOCIATION**, PO Box 106, San Jose CA 95103-0106.

SCCARA was formed in 1921 and became a non-profit corporation in 1947. SCCARA is an affiliate of the American Radio Relay League (ARRL). The club station is W6UW.

Permission to reprint articles is hereby granted, provided the source is properly credited.

The deadline for articles is the **last Monday of the month.**

Web page: www.qsl.net/sccara

club email: w6uw@arrl.net or w6uw@sbcglobal.net

BOARD OF DIRECTORS

(officers are also directors)

President	Gregg Lane KF6FNA	408-393-5607
	e-mail: kf6fna@comcast.net	
Vice President	Ned Tufekcic AC6YY	408-690-7250
	e-mail: t94nt@hotmail.com	
Secretary	Truman Lindsey N6TRU	408-896-1878
	e-mail: n6truhamradio@gmail.com	
Treasurer	Goetz Brandt, K6GKB	408-259-7287
	e-mail: goetz@ix.netcom.com	
Station Trustee	Don Village, K6PBQ	408-263-2789
	e-mail: donvillage7@yahoo.com	
Director	John Parks, W6JPP	
	e-mail: w6jpp@arrl.net	
Director	Lou Steirer, WA6QYS	408-241-7999
	e-mail: w6qys@aol.com	
Director	Ben Shuford, KK6CCU	408-429-5370
	e-mail: bshu288519@aol.com	
Director	Wally Britten, KA6YMD	408-891-1105
	e-mail: ka6ymd@arrl.net	
Director	James Rustermier, KI6ZSK	408-972-1689
	e-mail: rustermier@gmail.com	

COMMITTEES

Editor	Gary Mitchell, WB6YRU	408-269-2924
	e-mail: wb6yru@ix.netcom.com	
Repeater	Wally Britten, KA6YMD	408-891-1105
	e-mail: ka6ymd@arrl.net	
N0ARY BBS	Gary Mitchell, WB6YRU	408-269-2924
	e-mail: wb6yru@ix.netcom.com	
Webmaster	Wally Britten, KA6YMD	408-891-1105
	e-mail: ka6ymd@arrl.net	

SCCARA REPEATERS

SCCARA owns and operates two repeaters under the call W6UU:
2 meter: 146.985 - PL 114.8
70 cm: 442.425 + PL 107.2

Phone auto-dial and auto-patch is available. The two meter repeater is located at Eagle Rock near Alum Rock Park in the foothills of east San Jose. The 70 cm repeater is located at the Regional Medical Center (formerly Alexian), east of downtown San Jose, north of 280 and 101.

SCCARA NETS

On our two meter repeater: Mondays at 7:30 PM, (not the second Monday--our meeting night). Coordinator: Don Village, K6PBQ. On ten meters, 28.385 MHz USB, Thursdays at 8:00 PM. Net control: Wally Britten, KA6YMD. Visitors welcome.

N0ARY PACKET BBS

SCCARA hosts the packet BBS N0ARY (connect to n0ary-1). User ports: 145.09 MHz at 1200 baud, 433.37 MHz at 9600 baud, and telnet sun.n0ary.org (login "bbs"). Sysop: Gary Mitchell, WB6YRU For general packet info, see the NCPA web site ncpa.n0ary.org.

AMATEUR LICENSE TESTING

ARRL/VEC Silicon Valley VE group:
Morris Jones, AD6ZH: 408-507-4698

Development Command (DEVCOM) Army Research Laboratory, called the development "a really important step toward proving that quantum sensors can provide a new and dominant set of capabilities for our soldiers, who are operating in an increasingly complex electromagnetic battlespace."

Cox said earlier demonstrations of Rydberg atomic sensors were only able to sense small and specific regions of the RF spectrum, but "our sensor now operates continuously over a wide frequency range for the first time." The technology uses rubidium atoms, which are excited to high-energy Rydberg states. These interact strongly with the circuit's electric fields, allowing detection and demodulation of any signal received into the circuit.

Researchers use a Rydberg spectrum analyzer experimental apparatus at the DEVCOM Army Research Lab. [US Army, illustration]

The report says the Rydberg spectrum analyzer has the potential "to surpass fundamental limitations of traditional electronics in sensitivity, bandwidth, and frequency range."

According to Meyer, "Devices that are based on quantum constituents are one of the Army's top priorities to enable technical surprise in the competitive future battlespace. Quantum sensors in general, including the one demonstrated here, offer unparalleled sensitivity and accuracy to detect a wide range of mission-critical signals."

From *The ARRL Letter*, March 11, 2021

Monster Dipole Can Deliver Monster Signal

A [video](#) shows how Gary Watson, ZL3SV, in Nelson, New Zealand, installed an enormous all-band dipole with each leg extending 320 meters (about 1,050 feet). The antenna is multiple wavelengths on HF, and on 20 meters it has a gain of more than 16 dB, Watson says. It hears quite well, too.



A huge 12:1 balun resembling a utility pole power step-down transformer converts the impedance from 50 ohms unbalanced to 600 ohms balanced. The wire he uses for each leg is aluminum-wrapped, power-line cable (10-millimeter cable with wrap), and he uses power-line fittings, because they're designed to handle the wire. The line has a 60-ton breaking strength.

Watson said he made the 600 ohm ladder line himself and he uses the antenna on all bands, typically running only 200 W. The coaxial feed line goes to his house down a slope from the antenna via a conduit. His home is entirely off the grid, powered by solar power. The noise level is very low at his location, with power lines some distance away, although his solar power system's inverter is nearby.

Watson says he can copy stations with the "monster" antenna that remain undetectable with a half-wave dipole.

From *The ARRL Letter*, March 18, 2021

ARISS Ham Station in Columbus Module Is Once Again Operational

Some 6 weeks after going silent following a spacewalk that installed new antenna cabling, the Amateur Radio on the International Space Station ([ARRL](#)) ham station in the Columbus module is once again operational. The Columbus station, which typically uses the call sign NA1SS, is the primary ARISS amateur radio station used for school contacts and other activities. The problem arose after a January 27 spacewalk replaced a coax feed line installed 11 years ago with another built by the European Space Agency (ESA) and Airbus.



While the specific cause of the problem has not yet been determined, a March 13 spacewalk that restored the antenna cabling to its original configuration provided the cure. The plan to return the ARISS cabling to its original configuration had been a “contingency task” for a March 5 spacewalk, but the astronauts ran out of time. The ARISS work was appended to the to-do list for astronauts Mike Hopkins, KF5LJG, and Victor Glover, KI5BKC, to complete a week later.

During the weekend spacewalk, Hopkins swapped out a cable for the Bartolomeo commercial payload-handling platform that had been installed in series with the ARISS VHF-UHF antenna feed line, returning the ARISS system to its pre-January 27 configuration. Hopkins raised a question concerning a sharp bend in the cable near a connector, but no further adjustments were possible.

On March 14, ARISS was able to confirm the operation’s success when Automatic Packet Reporting System (APRS) signals on 145.825 MHz were heard in California, Utah, and Idaho as the ISS passed overhead. ARISS team member Christy Hunter, KB6LTY, was able to digipeat through NA1SS during the pass. With additional confirmation from stations in South America and the Middle East, ARISS declared the radio system operational again.

Work during the March 13 spacewalk also made Bartolomeo operational. “Yesterday was a great day for all!” Bauer said. “Ad astral!”

Ham Radio Satellite Returns from the Dead

After 7 years of silence, the Delfi-n3Xt satellite is again transmitting a signal. The 3U Delfi-n3Xt nanosat, launched by Delft University of Technology (TU Delft), has not been heard since 2014, and its sponsors were surprised to learn that it was transmitting again.



Delfi-n3Xt carries a linear amateur radio transponder. It was the second satellite launched by TU Delft, as part of the Delfi Program, which develops very small satellites. The first Delfi satellite, Delfi-C3, is still working as well. Now that Delfi-n3Xt is transmitting again, steps are being taken to further its mission. The Delfi-n3Xt project started in 2007, and the satellite was launched in November 2013. The satellite operated successfully for 3 months, achieving mission success. Contact with the satellite was lost in late 2014 after an experiment with the linear transponder.

When functioning properly, the Delfi-n3Xt satellite transmits telemetry on 145.870 MHz and 145.93 MHz, and high-speed data on 2405 MHz. The inverting SSB/CW transponder has an uplink passband of 435.530 - 435.570 MHz LSB and a downlink passband of 145.880 - 145.920 MHz USB. The ham transponder was a last-minute addition to the project.

On February 9, an automatic email notification was received from the satellite’s ground station, indicating that a signal from the Delfi-n3Xt had been picked up. Student and ground station operator Nils von Storch said he’d programmed the ground station software so that it would continue to track Delfi-n3Xt and notify him if it ever came back to life. Relevant checks and analysis of telemetry frames prove the satellite is transmitting again. The reason it stopped transmitting has not yet been determined, and the big question now is how it was able to resume operation.

Hypotheses include a bit flip in the software or a short circuit, given the extreme conditions in space.

“Of course, in the past, we have looked for all kinds of explanations, and we also had theories about how the contact could ever come back,” nanosatellite program manager Jasper Bouwmeester, PC4JB, said. “But after so long, I hadn’t counted on it anymore.” Bouwmeester, who has been managing the mission since 2007, expressed confidence that the satellite can still be of use to science.

“But I am sure that we will be able to find solutions,” operations manager Stefano Speretta said. “If we don’t lose the signal again, there are interesting times ahead.”

-- Thanks to AMSAT News Service and Delft University of Technology

WWVB

The National Institute of Standards and Technology ([NIST](#)) has announced that its [WWVB](#) transmission system is being upgraded to improve signal reliability. Many rely on the 60 kHz WWVB signal to synchronize specially equipped clocks and watches. NIST says the WWVB signal may operate on a single antenna at approximately 30 kW radiated power for several days, with periodic outages. Upgrades are expected to be complete by April 9.

From *The ARRL Letter*, March 25, 2021

FCC Not Yet Collecting \$35 Application Fee

The majority of the FCC’s revised Part 97 rules (adopted in December 2020) establishing new application fees become effective on April 19, but the new amateur radio application fees will not become effective on April 19. The FCC announced on March 19 that the amateur radio application fees, including those associated with Form 605 filings, would not become effective until the “requisite notice has been provided to Congress, the FCC’s information technology systems and internal procedures have been updated, and the Commission publishes notice(s) in the Federal Register announcing the effective date of such rules.”

The \$35 fee, when it becomes effective, would apply to new, modification (upgrade and sequential call sign change), renewal, and vanity call sign applications, as well as applications for a special temporary authority (STA) or a rule waiver. All fees will be per application. Administrative updates, such as a change of mailing, email address, or name, are exempt.

It is expected that such fees will not become effective before summer 2021. The FCC has stated that amateurs will have advance warning of the actual effective date, because it will publish such date in the Federal Register.

ARRL Volunteer Examiner Coordinator (VEC) Manager Maria Somma, AB1FM, said VECs and Volunteer Examiner (VE) teams will not have to collect the \$35 fee at exam sessions. Once the

FCC application fee takes effect, new and upgrade applicants will pay the \$15 exam session fee to the VE team as usual, and pay the \$35 application fee directly to the FCC via the Fee Filer System or License Manager System. Somma said this information was provided in a VE Newsletter distributed this past week. "Further news and instructions will follow when we have them," she said.

FCC Agrees with ARRL and Allows Partial Reprieve on 3.5 GHz

Pending future FCC action, amateur radio secondary use of the 3.3 - 3.45 GHz band segment may continue indefinitely. The FCC, as part of a lengthy Second Report and Order (R&O) for commercial licensing of 3.45 - 3.55 GHz adopted on March 17, agreed with ARRL that continued access by amateur radio to 3.3 - 3.45 GHz should be allowed until consideration of the 3.1 - 3.45 GHz spectrum in a later proceeding. The FCC action in WT Docket 19-348 represents a partial -- and temporary -- reprieve from the FCC's December 2019 proposal to remove amateur radio from the entire band, and it makes available an additional 50 MHz than an FCC proposal last fall to allow amateur temporary use of 3.3 - 3.4 GHz.

Amateur secondary operation in the 3.45 - 3.50 GHz band must cease 90 days after public notice that the spectrum auction has closed and licensing has begun. That is expected to happen early in 2022. The FCC announced the opening of 3.45 - 3.55 GHz for auction to commercial 5G interests on March 17.

The FCC stated that "While we adopt our proposal to bifurcate the band, we adjust our proposal and set 3450 MHz as the frequency at which the band will be split." It agreed "with the ARRL's assessment that the guard band is not necessary from a technical standpoint. We also recognize that the nature of amateur equipment realities makes the 50 MHz at 3400 - 3450 MHz particularly valuable to amateur operators because it means existing equipment can continue to operate in the band for the time being."

This allows "amateur operations to continue in the lower portion of the band while the [FCC and federal government users] continue to analyze whether that spectrum can be reallocated for flexible use," the FCC said. The FCC had proposed splitting the band at 3.4 GHz, permitting amateur use in 100 MHz of spectrum "while also providing a buffer to protect flexible-use operations at the lower edge of the 3.45 GHz band."

"We therefore allow secondary amateur operations to continue in the 3.4 - 3.45 GHz portion of the band," the FCC said. "We emphasize, however, that amateur licensees remain secondary users, and those that operate on frequencies close to the 3450 MHz band edge must do so with particular caution to avoid causing harmful interference to flexible-use licensees in the 3.45 GHz Service, which hold primary status. In light of these considerations, while amateur operations between 3450 MHz and 3500 MHz must cease within 90 days of the public notice announcing the close of the auction for the 3.45 GHz Service, as specified in the Report and Order; amateur operations may continue between 3300 MHz and 3450 MHz while the Commission, NTIA, and the DoD continue to analyze whether that spectrum can be reallocated for commercial wireless use."

"There is no expectation that such operations will be accommodated in future planning for commercial wireless operations in this spectrum, or that amateur operators will receive more than a short period of notice before their operations must cease," the FCC said.

Meeting Minutes

General Meeting, March. 8, 2021



{meeting was canceled}

Board Meeting, March. 15, 2021



Held verbally on our 2 m repeater W6UW/R

Meeting called to order by President Gregg Lane KF6FNA at 7:35 PM

Attendance:

President Gregg Lane KF6FNA; VP Ned Tufekcic AC6YY; Secretary Barbara Britten KD6QEI; Treasurer Goetz Brandt K6GKB; Station Trustee Don Village K6PBQ; Directors: Lou Steirer WA6QYS, Wally Britten KA6YMD, John Parks, W6JPP, Ben Shuford, KK6CCU.

Absent: James "Rusty" Rustemier KI6ZSK

Visitors: Editor Gary Mitchell WB6YRU, Jeff KN6EFS, Christine KN6ELY, Ed KN6KOS. Truman N6TRU.

Announcements:

Barbara KD6QEI: I'm resigning as secretary.

President's Report, Gregg KF6FNA: Nothing new to report.

Vice President's Report, Ned AC6YY: Nothing to report.

Secretary's Report:

Gregg KF6FNA: Truman said he was interested in being secretary.

Truman N6TRU: Yes, that's right.

Gregg KF6FNA: I appoint Truman secretary

KK6CCU: I move that Truman be confirmed as secretary.

Don K6PBQ: second

Gregg KF6FNA: All in favor?

AC6YY, K6GKB, WA6QYS, KA6YMD, W6JPP, KK6CCU, K6PBQ all voting yes

Motion carries unanimously.

Gregg KF6FNA: The previous board meeting minutes were published in the SCCARA-GRAM.

Any corrections? Approved by acclamation.

Gary WB6YRU: Regarding the roster and membership, there haven't been any more renewals since last meeting.

Treasurer's Report, Goetz K6GKB:

Checking = \$ 11440.93, Cash = \$ 216.04, Total = \$ 11656.97

Trustee's Report, Don K6PBQ: Regarding the special event station, surprisingly we didn't make many HF contacts. I sent our QSL card to Gary for updating. We have some new hams that checked in.

Standing Committees

Repeater chairman's report, Wally KA6YMD: I have nothing new to report about that noise problem.

Goetz K6GKB: The 2 m repeater had a horrible noise, nicknamed the "sewer pipe noise." Nick N6VOA said the RF cavities could use a little tuning. That didn't help. We put in a circulator. That didn't help either. We then removed my windmill generator and

the noise disappeared. After putting it back, the noise returned. So that was the cause.

Webmaster's report, Wally KA6YMD: I'm keeping the web site up to date, no significant changes.

Editor's report: Gary WB6YRU: Not much new, there weren't any SCCARA contributions to the March edition.

BBS Sysop's report: Gary WB6YRU: There's a minor forwarding issue with a nearby BBS, we're looking into it.

Old Business:

QSL certificate, Gary WB6YRU: A first draft was sent to the board with some samples of possible certificate paper. I added a line at the bottom for the SCCARA operator's name and call and slightly changed the size of the "100th Anniversary" title. There are two images of keys (as most seemed to want), those specific ones can easily be changed to some other kind of key as the board wants. I contacted a professional printer and they don't do raised ink (which was suggested for the black ink), and they want a minimum of 1000. I don't think we'll want that many so I'm going to look at other print shops. As for the paper, I favor one similar to the ARRL sample except blue instead of green and the border doesn't have to be quite as elaborate.

Any comments on the content, layout, or certificate paper?

Nick N6VOA: You might want to look into Vista Print (an on-line print shop).

Don K6PBQ: We won't need many certificates. I had some work done that turned out very well, I can send you their name.

Gary WB6YRU: We'll need offset printing, that's not something all printers can do. Email me their contact info.

Gregg KF6FNA: Nothing new to report regarding the antennas at the Red Cross.

Gregg KF6FNA: We probably should extend our special event station beyond February. We could include UHF and VHF for local people and those who don't have HF.

Don K6PBQ: We only got 23 contacts on HF during February, not too encouraging. VHF/UHF sounds OK, but I don't intend to run 2 m myself.

John W6JPP: I move we continue the special event station for the year.

Ben KK6CCU: second.

Lou WA6QYS: Most centennials are a year long, so yeah sure.

Gary WB6YRU: I originally thought we should have it for the year. No real reason why not especially if we didn't make many contacts during February.

AC6YY, N6TRU, K6PBQ, WA6QYS, KA6YMD, W6JPP, KK6CCU all voting yes.

K6GKB: (not voting)

The motion carries.

No New Business

Meeting adjourned 8:23 PM

Gary Mitchell, WB6YRU, recording for the Secretary

=====

Date: 10 Apr 2011 07:41

From: W1GMF@W1GMF

To: HUMOR@USA

Subject: Childish Thinking

Catching her in the act, I confronted our 4-year-old granddaughter, "Are you eating your little sister's grapes?" I demanded.

"No," she innocently replied, "I'm helping her share."

Need Help?

Amateurs have a long history of helping each other. An experienced amateur who helps another is traditionally called an "Elmer." If you have a question or problem, you are encouraged to ask one of SCCARA's Elmers. Below is a list of topics and who to contact for each. If your topic isn't listed, ask one of the Elmers under the topic that comes closest and we'll ask around.

If you consider yourself to be reasonably competent in at least one area of amateur radio and would be willing help others, please fill out an Elmer form (available from the club secretary or on our web site).

Topics:

Antennas, feed-lines, tuners: **NV6W, W6JPP, K6PBQ**

CW (Morse code): **NV6W, K6PBQ**

DX (long distance, propagation): **NV6W**

EchoLink: **K6GKB**

Emergency operating, preparedness: **WA6QYS**

HF operating techniques: **NV6W, K6PBQ**

Homebrew projects, construction: **WB6YRU**

Legal, FCC rules: **WB6YRU**

License testing, new amateurs: **W6JPP**

Lightning protection, grounding: **WB6YRU**

Packet Network (BBS, forwarding): **WB6YRU**

SCCARA (club inner workings): **K6PBQ, WB6YRU, WA6QYS**

Station set-up, equipment: **K6PBQ, W6JPP**

TVI, RFI: **WB6YRU**

Contacts:

K6GKB, Goetz Brandt, 408-259-7287

e-mail: goetz@ix.netcom.com

NV6W, James D. Armstrong, Jr.,

evening & msg: 408-670-1680

W6JPP, John Parks

e-mail: w6jpp@arrl.net

K6PBQ, Don Village, 408-263-2789

e-mail: donvillage7@yahoo.com

WA6QYS, Lou Steirer, 408-241-7999

e-mail: wa6qys@arrl.net

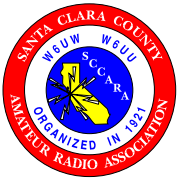
WB6YRU, Gary Mitchell, 408-269-2924

packet: home BBS N0ARY

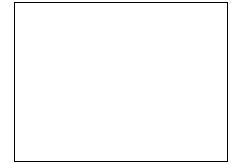
e-mail: wb6yru@ix.netcom.com

Packet Pieces

Downloaded from the BBS packet network:



SCCARA
 Santa Clara County Amateur Radio Association
 PO Box 106
 SAN JOSE CA 95103-0106



FIRST CLASS

ADDRESS SERVICE REQUESTED

SCCARA Membership Form for 2021

If renewing and none of your info has changed, we only need your name and call

Name: _____ Call: _____ Class: _____

Address: _____ Licensed since (year): _____

City: _____ State: _____ Zip+4: _____

Telephone: _____ New Member Renewal I'm also an ARRL member

E-mail: _____

only for club communications and the SCCARA-GRAM newsletter (pdf)

Membership type and dues: Individual, \$20 Family, \$25 Student, \$10 (under 18)

Memberships start January 1 and expire December 31.

Family memberships (more than one member per household): please include the above info for each member, use separate forms.

New members:

Dues are prorated: dues x (11 - month) x 10% For example: July would be \$20 x (11-7) x 0.1 = \$8)

If joining in November or December: normal dues for next year, the rest of this year is included free.

I want the paper newsletter delivered by U.S. Mail for an additional \$15 per year

(Prorated, \$1.25 per month. That's \$13.75 if starting in February, \$12.50 if starting in March, etc.)

\$ _____ **Total** enclosed

Give this completed form and payment to the Secretary or Treasurer at any meeting or mail to the club address.