

W6OTX

W6ARA

PAARA NEWSLETTER
VOLUME 70, NUMBER 12, December 2019

K6OTA

K6YQT

PAARAGraphs



The Official Newsletter of the
Palo Alto Amateur Radio Association, Inc.
Celebrating 82 years as an active amateur radio club—Since 1937



Eric Swartz, WA6HHQ

Eric will be giving a presentation and hands-on show/tell of our new K4 Direct Sampling SDR HF Transceiver.

Eric Swartz, WA6HHQ, is Elecraft's Chief Operating Officer, a co-designer of Elecraft's K3S and other transceivers, and co-founder of Elecraft in 1998 with Wayne Burdick, N6KR. Licensed 48 years, he credits his early interest in Amateur Radio with leading him to a career in electronic design and management. He received a B.S. in Engineering and Applied Science from Yale University, and has been involved in a number of successful Silicon Valley startups. Prior to Elecraft, Eric was co-founder and President of Verisys, a test equipment manufacturer of high performance protocol analyzers for the mass storage market.

Wayne and Eric have both been inducted into the QRP Hall of Fame, and also jointly received the ARRL's Technical Excellence Award in 2001 for their Elecraft designs.

Dec 6th, 7:00 PM, Cubberly Community Center Room H-6

Upcoming Events

Dec 6	PAARA General Meeting, 7:00 PM
Jan 3	Cubberly Community Center, Room H-6, 4000 Middlefield Rd, Palo Alto
Feb 7	
NO Dec Mtg.	Board Meeting, 7:00 PM
Jan 15	Everyone welcome!
Feb 19	Location: Marty, W6NEV, QTH



President's Corner

December 2019



Well, this is it - my last column in this space. Some of you may recall that I wrote another farewell column years ago, so you can read what you want into that. This time, though, it seems more weighty and abiding. I'm not exactly sure how long I've done this job, to be honest, but if I consult this one file where I keep all of these articles in serial form, I think I know.

I started in January of 2007 and there was one missing year. That means I've been your president for 12 of the last 13 years. You might be wondering why I'm retiring. There is no great mystery there. It's just time. I'm sure some of you are tired of me blathering on each month. It's time for new blood, as they say, and I wish Jim well in his tenure. I know he can continue the PAARA tradition of making it the Friendliest Club Around. I also want to see PAARA flourish as the premier Amateur Radio club we know it to be. I hope you will give the new leadership team the same support you did me.

(President — Continued on page 2)

(President — Continued from page 1)

Looking at this file again, I see that I will have over 97,000 words written here to you by the time I finish, representing 144 columns. I hope you've enjoyed reading at least some of them. There are also about 12,000 words worth of board meeting minutes. I suppose it could be turned into the most boring book around :). But it represents all of the years we have worked together for PAARA. Over that time we have had many adventures together, many Field Days, Flea Markets, meetings, trips, visits, Pacificons, some difficult times, and personal chats. I think I have enjoyed the last one the most. The members of our club have made all of the time and effort worth it in every way.

For my part, I will still be around, though perhaps less frequently. My life is very busy these days with my role at the ARRL, work, flying, travel, and other things going on in my personal life. I will always be there to support PAARA, however. I truly believe that we represent the best that Amateur Radio has to offer and we display the ham radio spirit in whatever we do.

I'm going to steal some of what I wrote from the December 2008 President's corner to express again the same sentiments. "... I have been honored to serve and do what I could to lead and facilitate the operation of this club. It has been a source of tremendous personal gratitude to see us evolve and continue to build on the successes that we inherited from all of the leaders that have made PAARA the successful organization that it continues to be. Along the way there have been many challenges for the club as a whole and personal challenges for me. I have always strived to do my personal best and to adhere to a set of principles which I believe best serve us as a club and as human beings. Of course, I can look back and find numerous areas where I believe I could have done better, but, rather than regret, I see those as opportunities for me to learn. If there is any consistent theme in this experience for me, it is how much I have personally grown through it." It still holds just as true today as it did 11 years ago.

Who knows, maybe I can give a talk or two at PAARA now. Take care everyone.

73 DE K6WX AR SK

Nov 20, 19 Board Meeting Minutes

The meeting was held at Marty's home QTH, commencing at 7:10 PM on November 20, 2019. In attendance were Kristen McIntyre, K6WX, (Pres), Marty Wayne, W6NEV (VP), Jim Thielemann, K6SV (Secretary/Membership), Darryl Presley, KI6LDM (Dir), Joel Wilhite, KD6W (Dir & Technical Coordinator), Walter Gyger K6WGY(Dir), and visitors Shrikumar (Shri) Hariharasubrahmanian, KA6Q and Ric Hulett, N6AJS, (PAARAGraphs mailing). A quorum was present.

Kristen, K6WX, opened with a discussion reflecting on the past rather busy year. Wonderful activities, in no particular order, Jeremiah O'Bryan Field Trip, Special Event Station at Pacificon, Field Day, two Electronic Flea Markets, and the Life Membership award. On the less desirable side, lack of volunteers to assist with the activities of the club, a decline in meeting attendance, and a decline in 9 AM Talk Net check-ins. She mentioned the ARRL has noticed similar changes. This bodes the question, are we on the cusp of a change in amateur radio, or like sunspots, is this a cyclical event that will swing back up at some point? Only time will tell.

Kristen mentioned her reserve of stories is a bit lacking, thus there is an ongoing need for more. Please, if you've committed to a story but not submitted it (there are several people out there fitting this category) put pen to paper or fingers on the keyboard and let your creative juices flow! Do you have any projects, Field Day experiences, technical articles, hints n kinks, DX contacts, or experiences setting up your station or antenna, on the air experiences that might be of interest? If you have not previously drafted that story or have a new story, now is the time to get a byline of your own in PAARAGraphs and get that story submitted to Kristen for publication. "Remember it is 'homegrown' stories that make PAARAGraphs great", she said.

Vice President's Report: Marty, W6NEV, asked about Jim Brown's, K9YC, talk at the last meeting entitled "An Overview of Inter-station Interference". Kristen mentioned the talk was en-

(Minutes — Continued on page 3)

The 2019 PAARA Election Slate

Office	Name	E-mail	Phone	Call sign
President	Jim Thielemann	thielem@pacbell.net	408-839-6815	K6SV
Vice President	Marty Wayne	mcwayne2@comcast.net	408-246-7531	W6NEV
Secretary	Rick Hulett	energyconserved@sbcglobal.net	408.332.4593	N6AJS
Treasurer	No One			
Director A (2 Yr)	Walt Gyger	walt@tradewindsaviation.com	408 921-5901	K6WGY
Director C (1 Yr)	No One			
Director D (1 Yr)	Darryl Presley	KI6LDM@arrl.net	650-255-2454	KI6LDM

Clark Martin KK6ISP

(Minutes — Continued from page 2)

joyed by the attendees. Marty reported the December Dream to Reality meeting will feature Eric Swartz, WA6HHQ, who will be telling us all about the new K4 radio introduced earlier this year and even bring one for demonstration. Marty has a good start on speakers for early next year but is still in the hunt to fill the latter half of the year. Please reach out to Marty if you have any suggestions for someone who can provide an interesting presentation at an upcoming meeting.

Secretary's report: Jim, K6SV, reported the membership now stands at 204. Three new members joined and one rejoined at the November meeting. He reminds everyone that it's time to renew your membership for 2020. Look at your PAARAGraphs mailing label to see when your membership expires. You can always renew through our web site, www.paara.org via PayPal or at a meeting.

Ron Chester, W6AZ, wasn't able to attend the meeting but mentioned, via email, that the finances are in fine shape. He also reported filing and paying the Sales and Use Tax.

Under Old Business:

Marty, W6NEV, reported having met with Jim Rice, K6AK, to collect the Raffle "stuff" Jim had. For many years Jim has been the raffle master and is now officially "retired". The board wishes the thank him for all the effort in supporting the club all these years with great raffles. Untold numbers of radios were raffled off under Jim's tutelage. Marty mentioned that he'll cover the position for a few months but a new volunteer(s) needs to step forward to cover this important role. Please see any board member if you're interested. Note, more than one person can take on the role, in fact, the board encourages more than one person to volunteer for the position thus spreading the responsibility.

The board had a short discussion regarding the December Dream to Reality Raffle and what other prizes should be raffled off besides the grand prize of an Elecraft KX3 with a few options and accessories. You'll have to come to the meeting or look elsewhere in PAARAGraphs for the answer. The board also discussed, and agreed, that the number of prizes

(Minutes — Continued on page 4)

(Minutes — Continued from page 3)

needs to be reduced to 5 and the quality of prizes increased to the level of past years.

Shrikumar (Shri), KA6Q (KFS interface) has embraced the project of working with the City of Palo Alto (PA) to save the old KFS Historic radio station transmission site next to Bayshore freeway south of Oregon Expressway. Shri provided an update to the board on his efforts last month. There's a lot of work to be done interfacing with the City to even stand a chance of saving the site and antennas or the building. Contact Shri if you have any input or can assist.

The other items on the agenda that haven't been worked on very much or weren't as critical will be topics for next month

Under New Business:

The board had a general discussion on the upcoming election at the December meeting and the lack of candidates for two important posts, treasure and one director's position. Jim, K6SV, mentioned having an email exchange with Ron Chester, W6AZ the current treasure, about his willingness to continue taking care of the various governmental filings and accounting tasks. He's agreed to do that for a while so long as we can find someone to sit on the board as treasurer, collect and deposit monies and pay bills. Ron anticipates creating some forms in January to streamline the process of

reporting transactions to him.

Thus, the revised definition of "treasure" wouldn't include the governmental filings or the accounting but sitting on the board to report on the financial condition of the club as reported to them by Ron and take care of all the monetary transactions which would be reported to Ron to keep the books current. The board hopes a member will step forward who's interested in covering this important role. Please see any board member if you have any questions or are interested in the position.

Kristen, K6WX, asked the question regarding the December board meeting. After a short discussion, the board voted to cancel the December board meeting and wish everyone a wonderful Holiday season. The next board meeting will be on January 15, 2020.

The board meeting was adjourned at 8:46 PM.

Jim Thielemann, K6SV
 Secretary/membership

Please join me in welcoming new members:

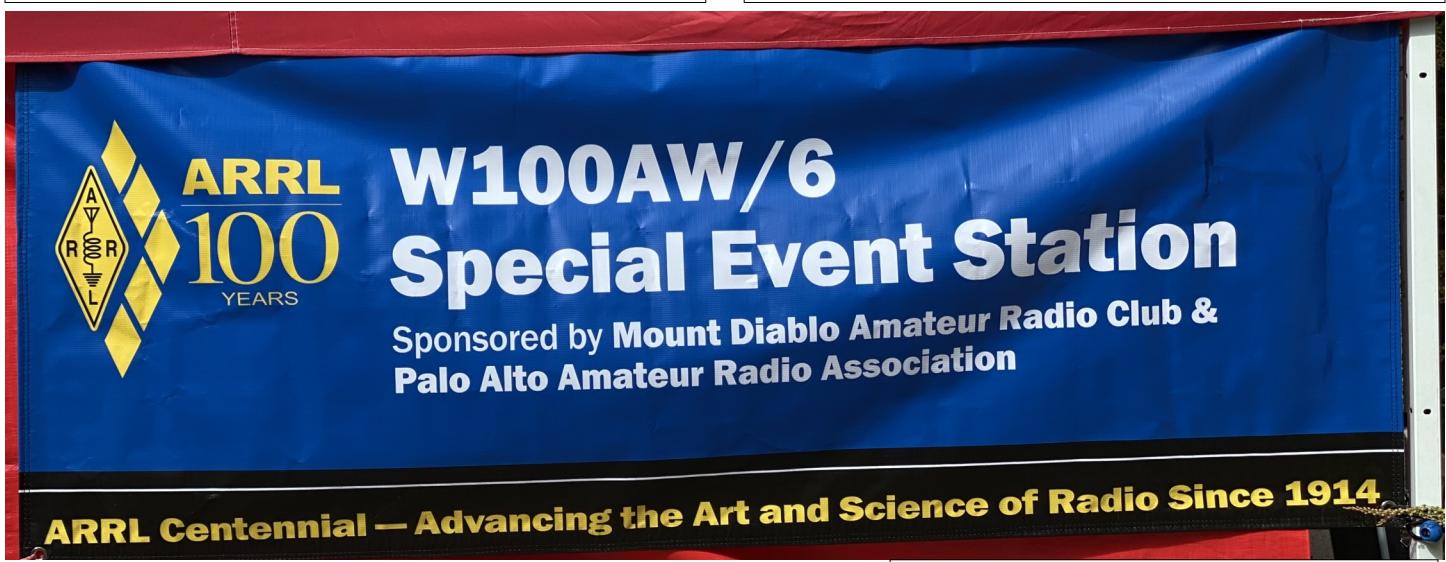
Bob Leichner WO6W, Kathy Arnold N6IDV,
 Dave Arnold WA1IAM

And returning member:

Jason Mills, W6WUF,

Call sign correction from last month:

Alessio Sangalli KE7JDE



PAARA December 6 Dream to Reality Raffle

1st Prize Elecraft KX3; with 2 meter module, 20 watt automatic antenna tuner, MH-3 hand mike, Diamond SRH77CA Dual band T Antenna, Right angle antenna adapter.



2nd Prize BTECH AMP-25, VHF 25-30 Watt output power amp.



3RD Prize NanoVNA, 50KHz to 900MHz vector Network Analyzer.



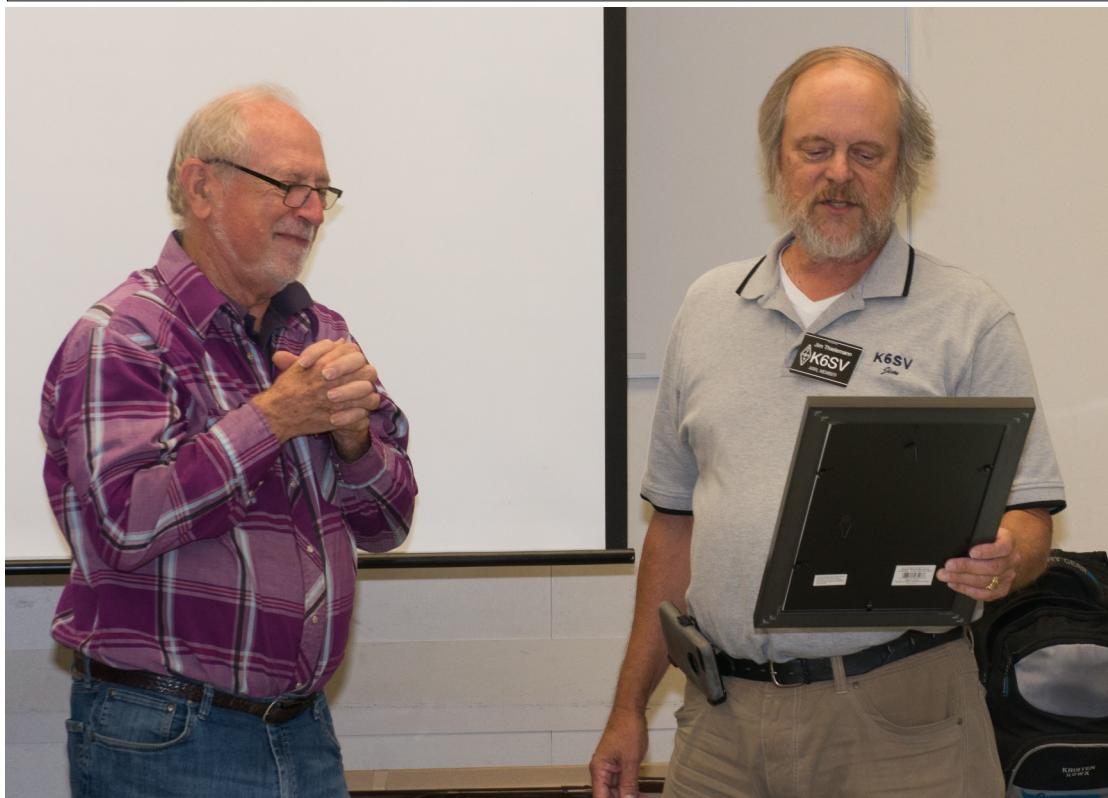
4th Place HyperTough 2-Pack Interlocking Organizers.

5th Place Hyper Tough 200-Lumen LED Work Light.

PAARAGraphs — December 2019
Celebrating 82 years as an active ham radio club—Since 1937



Clockwise from above, Boy Scouts in PAARA sponsored special event station at Pacificon, 1st antenna party before Field Day, 1st Electronics Flea Market w/rain, 2nd Electronics Flea Market, Jeremiah O'Bryan engine room, PAARALunch in the Jeremiah O'Bryan mess hall, presentation of Life Membership in PAARA to Gerry, N6NV. In the center, old glory fly's high on the 40M tower at Field Day.



PAARAGraphs — December 2019
Celebrating 82 years as an active ham radio club—Since 1937

7



Palo Alto Amateur Radio Association, Inc.

PO Box 911 Menlo Park, CA 94026

Officers

President	Kristen McIntyre, K6wx kristen@alum.mit.edu	510-703-4942
Vice President	Marty Wayne, W6NEV w6nev@arrl.net	408-234-8023
Secretary	Jim Thielemann, K6sv thielem@pacbell.net	408-839-6815
Treasurer	Ron Chester, W6AZ ron@taxhelp.com	408-243 2221

Directors

Director ('19-'20).....	Joel Wilhite, K6W kd6w@arrl.net	408-839-5948
Director ('18-'19).....	Walt Gyger, K6WGY walt@tradewindsaviation.com	408-921-5901
Director ('19)	Larry Rebarchik N6DB n6db@arrl.net	650 465-8210
Director ('19)	Darryl Presley, KI6LDM ki6ldm@arrl.net	650 255-2454

Appointed Positions

Membership	Vic Black, AB6SO ab6so@smrn.com	650-366 0636
Database.....	Jim Thielemann, K6sv thielem@pacbell.net	408-839-6815
Chaplain	Rick Melrose K6RDM K6RDM@yahoo.com	408-341-9070
Public Affairs	<i>Position Vacant</i>	
Station Trustee W6OTX, K6YQT, W6ARA....	Gerry Tucker, N6NV	
Station Trustee K6OTA...Ron Chester, W6AZ		
Property Manager.....Gerry Tucker, N6NV		
Asst. to the Treasurer....Bob Korte, K6KYT bob@rgktechsales.com	408 396 4745	
Badge CoordinatorDoug Teter, KG6LWE dteter@wcwi.com	650-367-6200	
Historian Position	<i>Position Vacant</i>	
Raffle Coordinator	Jim Rice, K6AK	650-851-2274
Field Day Coordinator....Doug Teter, KG6LWE	650-367-6200	
ASVARO Rep.....Clark Martin, KK6ISP kk6isp@comcast.net		
Webmaster.....John Miller K6MM webaron@gmail.com		
Technical Coordinator ...Joel Wilhite. K6W kd6w@arrl.net	408-839-5948	
QSL Manager	Marty Wayne, W6NEV	408-234-8023
Speaker CoordinatorMarty Wayne, W6NEV	408-234-8023	

PAARAGraphs Staff

Editorial Board	
Bob Van Tuyl K6RWY	Kristen McIntyre K6wx
Ron Chester W6AZ	Vic Black AB6SO
Joel Wilhite, kd6w	
Editor.....Bob Van Tuyl, K6RWY rrvt@swde.com	408 799-6463
Back Up Editor	Jim Thielemann, K6sv thielem@pacbell.net
Advertising	Walt Gyger, K6WGY walt@tradewindsaviation.com
Member Profiles	Diana Lloyd, KK6YGM dianalloyd76@gmail.com
Technical Tips	Vic Black, AB6SO ab6so@smrn.com
Photographer	<i>Position Vacant</i>

VE Exams

Redwood City Main Library, Community Conference Room, 4th Saturday 10:30 am each month and De Anza Park, Sunnyvale, 2nd Saturday 10:30 am each month except November and December. See website for details and exceptions: <http://amateur-radio.org> or Contact Al, WB6IMX@att.net

Electronics Flea Market

Sponsorship by A.S.V.A.R.O. — Association of Silicon Valley Amateur Radio Organizations
Second Saturday of month, March-September, 6am-12 noon
Contact: <http://www.electronicsfleamarket.com/>

PAARA — Palo Alto Amateur Radio Association

Meets 1st Friday 7:00pm each month at Room H-6, Cubberley Community Center; Net 145.230 - PL 100Hz Mondays at 8:30. See our website at <http://www.paara.org> for more information or contact: Joel Wilhite KD6W, KD6W@ARRL.NET, 650-325-8239

FARS — Foothills Amateur Radio Society

Meets 4th Friday each month at 7:30pm
Contact: <http://www.fars.k6ya.org>

NCDXC — Northern California DX Club

Meets 3rd Thursday 7:30pm each month,
Repeater for member info 147.360, Thursday 8:00PM
Contact: <http://ncdxc.org> or Mike Gavin W6WZ, (650) 851 8699

QCWA Chapter 11

Northern California Quarter Century Wireless Association

Meets third Wednesday monthly at Harry's Hofbrau in Redwood City @ 11:30 AM.
Guests are welcome. Saturday morning net on 146.850 MHz, PL 114.8

50 MHz & Up Group

Meets 1st Thursday each month at 7pm in the Summit Room at the Sunnyvale Sports Basement, 1177 Kern Ave, Sunnyvale
Contact: <http://50MhzandUp.org>

SPECS

Southern Peninsula Emergency Communication System

Meets each Monday 8:00pm on Net 145.27, 440.80 MHz
Contact: <http://specsnet.org> or Tom Cascone, KF6LWZ, 650-688-0441

SCARES

South County Amateur Radio Emergency Service

Meets 3rd Thursday 7:30pm each month, Belmont EOC, Belmont City Hall, One Twin Pines Lane, Belmont CA 94002. Net is on 146.445 [PL 114.8] & 444.50 (PL-100) 7:30 Monday evenings. Contact: President Gary D. Aden, K6GDA 650-743-1265 (D), 650-595-5590 (N)
Web: <http://k6mpn.org> E-mail: pres@k6mpn.org

SCCARA

Santa Clara County Amateur Radio Association

Operates W6UU & W6UU/R, repeater 146.985-pl
Nets: 2m, 7:30pm Mon; 70cm, 10M (28.385) 8PM Thur.
Meets 2nd Mon each month @ 7:30 PM.
ARRL/VRC license testing contact 408-507-4698

SVECS — Silicon Valley Emergency Communications

Operates AA6BT repeater (146.115 MHz+)
contact: <http://www.svecs.net> or Lou Stierer WA6QYS 408 241 7999

TEARS — The Elmer Amateur Radio Society

Dedicated to operational training, knowledge building & FCC exam testing.

KV6R repeater under construction.

Contact: A6GT@ARRL.NET

Most members are Extra Class or VE's. See QRZ dot com/kv6r for class info

WVARA — West Valley Amateur Radio Association

W6PIY six-meter repeater on 52.58MHz. Normally, six-meters is linked with 147 and 223, while 441 and 1286 repeaters are linked.

VHF: 52.58 (-500) 151.4 ctss UHF:
147.39 (+600) 151.4 ctss 441.35 (+5.0) 88.5 ctss

223.96 (+1.6) 156.7 ctss 1286.20 (-12m) 100.0 ctss

Meetings are 2nd Wednesday of every month except July, August and December.
Contact: <http://wvara.org>, Bill Ashby N6FFC, 408-267-3118, president@wvara.org

American Red Cross, Santa Clara Valley Chapter

Contact: <http://santaclaravalley.redcross.org> or Scott Hensley KB6UOO, (408) 967 7924
fshensley@Novell.com

(Please send changes to PAARAGraphs editor)

**WE ARE PLEASED TO ANNOUNCE
THE NEXT CHAPTER FOR US:**

**HSC HAS SOLD TO
EXCESS SOLUTIONS!**



That's right!

- ❖ Halted Specialties Co., Inc. has sold HSC Electronic Supply to Excess Solutions of San Jose...making the biggest surplus electronics store in the Bay Area!
- ❖ Much of the millions of parts seen on HSC's shelves will be showing up soon on Excess Solutions' shelves...for your electronic needs.
- ❖ Techs, Developers, Experimenters, Hobbyists and Creators will once again have access to the basic parts that Silicon Valley was built upon!
- ❖ Support your local surplus store...there are few left, and you know how much this Silicon Valley resource is needed!

**Excess Solutions
and HSC Electronic Supply**

Now under one roof!

1555 S. Seventh St.

San Jose, CA 95112

(Diagonally across intersection from Spartan Stadium)

1-408-262-3900 www.excesssolutions.com





James Farrey
Sales Manager

James Electronics Ltd
1355 Shoreway Road, Belmont, CA 94002
Tel: 650•592•6718 x 350 Fax: 650•802•1520
Direct: 650•802•1511 jfarrey@jameco.com

w w w . j a m e c o . c o m

PAARA Weekly Radio Net

Info and Swap Session
every Monday evening at 8:30pm
on the N6NFI 145.230 MHz repeater

Week	Control Operator
1 st	Joel KD6W
2 nd	Doug - KG6LWE
3 rd	Jack - W1VSL
4 th	Rob - KC6TYD
5 th	Rob - KC6TYD

If you're interested in trying out at Net Control,
Contact Doug, KG6LWE. It's good practice,
and lots o' fun! Give it a try.



THE SKY IS NO LIMIT!
SCHEDULE YOUR
INTRODUCTORY
FLIGHT LESSON TODAY
AT



Your One Stop Shop For
Aviation Services
 ➤ Flight Training
 ➤ Aircraft Rental
 ➤ Pilot Supplies
 ➤ Maintenance
 ➤ Aircraft Sales

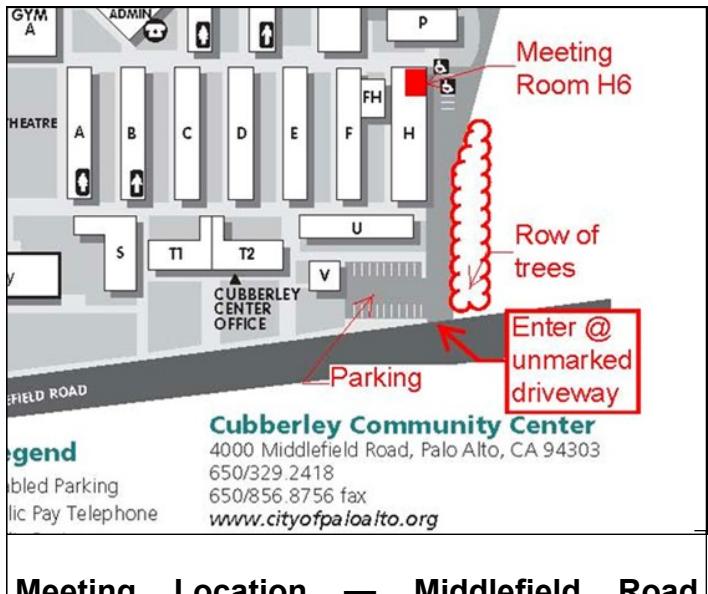


Contact
Maya and Walter Gyger
1-408-729-5100
mail@tradewindsaviation.com

Address
2505 Cunningham Ave, San Jose, CA 95148

Information
www.tradewindsaviation.com

Opening hours
Monday-Friday: 8 AM – 7 PM; Saturday-Sunday: 8 AM – 6 PM



Meeting Location — Middlefield Road between San Antonio and Charleston in Palo Alto. 4000 Middlefield Road

Your grandfather told your father and your father told you. If he had invested his money in real estate he would be a rich man today — what will you tell your children?

Whether to invest or reap the rewards of having invested in Real Estate, Call **KARL DRESDEN**, KJ6GUK, full time Realtor since 1976 — BRE#00525686

Terrace Associates, Inc., 777 Woodside Rd., Suite B, Redwood City, CA 94061; Office Ph: 650-369-7331, Fax Ph: 650-369-7339,

KARL Cell Ph: 650-274-8155 General License KJ6GUK
Email: KARLDRESDEN@juno.com

Palo Alto Amateur Radio Association
P.O. Box 911, Menlo Park
California 94026-0911

Club meetings are on the first Friday of each month, 7:00pm at the Room H-6, Cubberley Community Center.

Radio NET & Swap Session every Monday evening, at 8:30pm, on the 145.230 – 600 MHz repeater, PL 100Hz.

Membership in PAARA is \$25.00 per calendar year, which includes one subscription to PAARAGraphs \$6 for each additional family member (no newsletter).

Make payment to the
Palo Alto Amateur Radio Association,
P.O. Box 911, Menlo Park, CA 94026-0911

Permission is granted to reprint from this publication with appropriate source credit.

ARV'S, WA6UUT (SK)
WEDNESDAY
HAM RADIO
LUNCHEON
Our 11th year!
- Since May 2, 2007 –

BLACK BEAR DINER
Sunnyvale, California
415 East El Camino Real
(Just "North" of South Fair Oaks Avenue on El Camino Real)
11:30 AM ~ 3:00 PM

Website: www.blackbeardiner.com

Many food choices available from the breakfast, lunch or dinner menus. Ample parking is available. Walk in & "bear" left for our location in the restaurant!

NOT A CLUB, CLOSED GROUP OR CLIQUE; AMATEUR RADIO OPERATORS AND FRIENDLY PEOPLE ARE ENCOURAGED TO ATTEND! Call in on the N6NFI Repeater, 145.230 MHz, PL® 100Hz

PAARA Badges

You can order a \$20 badge from the PAARA web site or at a meeting through Doug Teter, KG6LWE, and usually pick it up at the next meeting.

This space is available.



Have you discovered us?
Silicon Valley's favorite brick'n'mortar for components and supplies for prototyping
(408) 727-3693

Anchor Electronics 2040 Walsh Ave, Santa Clara
Download our Price List PDF
www.anchor-electronics.com

PAARA W6OTX DMR Repeater Frequencies

144 – 144.9625 up 2.5 MHz	DMR—NOR CAL Brandmeister
440 – 444.475 up 5 MHz	DMR
1.2G – 1284.15 down 12MHz	Off line
1.2G – 1249.15 half duplex	Off line

PowerFlare®

PowerFlare® safety lights:
Ultra-rugged 360 degree LED beacon
for your emergency kit, car, home ...
www.powerflare.com

Silicone
RESCUE TAPE
NO ADHESIVE! **8,000 V** **500° F**
NO STICKY RESIDUE! **ELEC. INSULATION** **HEAT RESISTANCE**
The highest quality coax sealing tape on the market!
ENTER YOUR SPECIAL COUPON CODE TO GET THE PAARA DISCOUNT
Order online at www.rescuetape.com - (702) 953-0968

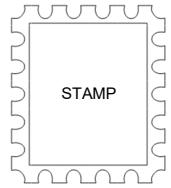
Submit items to **PAARAGraphs** by the
3rd Wed to: rrvt@swde.com
Text: .doc, .rtf, or .txt
Photos: jpg, png or tiff

Subscription Problems? Contact Database Manager: Jim Thielemann, K6SV, 408-839-6815, thielem@pacbell.net

PAARAGraphs Ad Rates
PAARAGraphs accepts paid advertisements from non-members. (short personal ads remain free for members in good standing). **All ad rates listed are per issue.**
1. Not-for-profit ads by association members for ham-related items and wants. No cost for business card-size ads (additional space at \$2.50 per business card size per issue).
2. For Profit organizations and/or individuals: \$5-business card size, \$14.00-quarter page, \$25-half page, \$50 full page or back cover per issue.
These fees may be reduced or waived in exchange for a valuable consideration that is given to the Association or its general membership. Such consideration must be in addition to any existing arrangements with the association. The PAARAGraphs editors reserve the right to reject any ad deemed to be not in the best interest of the Association.
All fees payable in advance by the year with "scanner-ready" copy or text-only ads. **Give payment and copy to Walt Gyger, K6WGY.**

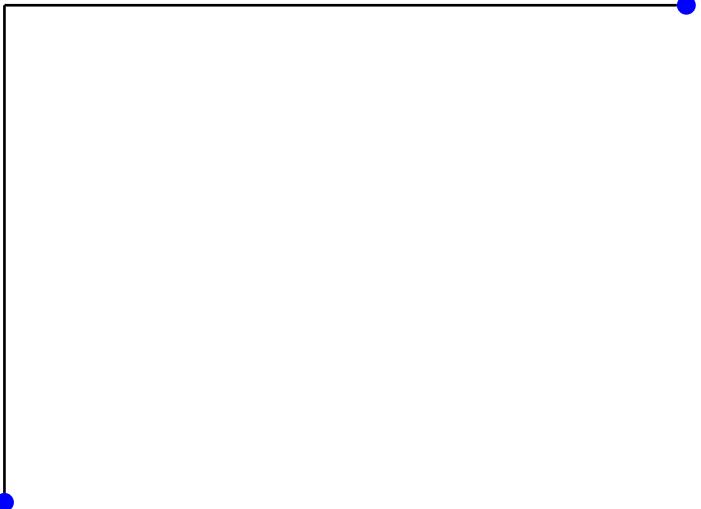
PAARGraphs — December 2019

Accept no substitutes. Produced and printed in California USA



Palo Alto Amateur Radio Association, Inc.
PAARGraphs Newsletter
P.O. Box 911
Menlo Park, California 94026

FIRST CLASS MAIL



ANAHEIM, CA (800) 854-8046	OAKLAND, CA (619) 592-1745	PORTRLAND, OR (800) 765-0267	PHOENIX, AZ (602) 559-7388	MILWAUKEE, WI (800) 558-0411	WOODBRIDGE, VA (800) 444-7179	PLANO, TX (877) 955-0750
BURBANK, CA (877) 882-1748	SAN DIEGO, CA (800) 550-9623	DENVER, CO (800) 444-9476	ATLANTA, GA (800) 444-7927	NEW CASTLE, DE (800) 444-4476	SALIN, NH (800) 444-0047	ONLINE STORE WWW.HAMRADIO.COM



ID-51A PLUS2
VHF/UHF D-STAR Portable



TH-D74A
2M/220/440 HT



ID-5100A Deluxe
VHF/UHF Dual Band Transceiver



IC-7100
All Mode Transceiver



TM-V71A
2M/440 DualBand



TM-281A
2M/440 Mobile



TH-704
2M/220/440 HT



FT-70DR
C4FM/FM 144/430 Xvar



- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 8:00AM - 6:00PM
- FAX – All store locations
- ONLINE – WWW.HAMRADIO.COM

HAMRADIO.COM
is family owned and
operated by active hams!

Order HRO by promotional code: Taffine holding Ham, Radio and Canada. Call all 24 hours to the moment when. An HRO 2000 user can assist you if the first you call is busy, you may call another. Prices, specifications and descriptions subject to change without notice.

HAM RADIO OUTLET

MULTI-STORE BUYING POWER!

ICOM
The radio

KENWOOD

YAESU
The radio



IC-9700
All Mode Tri-Band Transceiver



TS-590SG
HF/50MHz Transceiver



FT-991A
HF+50 MHz All Mode Transceiver



IC-7300
HF Transceiver



TM-D710G
2M/440 Dualband



FT-891
HF+50 MHz All Mode Transceiver



IC-704
All Mode Transceiver



TM-V71A
2M/440 DualBand



FT-450D
A100W HF + 6M Transceiver



IC-708
HF Transceiver



TM-281A
2M/440 Mobile



FT-400D
C4FM/FM 144/430 Xvar