

# PAARAgraphs



The Official Newsletter of the

**Palo Alto Amateur Radio Association, Inc.**

Celebrating 81 years as an *active* amateur radio club—*Since 1937*



## Annual Home Brew Meeting

The January PAARA meeting is our annual HOME BREW meeting. Do you have any projects at home? Bring them and share your handy work. Bring completed or works in progress. This is a way to show what you can do. See you all there.

Marty, W6NEV

## Upcoming Events

|        |                                     |
|--------|-------------------------------------|
| Jan 4  | PAARA General Meeting, 7:00 PM      |
| Feb 1  | Cubberly Community Center, Room     |
| Mar 1  | H-6, 4000 Middlefield Rd, Palo Alto |
| Jan 16 | Board Meeting, 7:00 PM              |
| Feb 20 | Everyone welcome!                   |
| Mar 20 | Location: Marty, W6NEV, QTH         |



## President's Corner

January 2019

January came a little early this time. I'm writing this well before Christmas so that we can beat the deadline before the printer closes for the holidays. But Christmas came early too, at least for one PAARA member. Beyond that, though, it's been a headlong dash toward the end of the year.



As I mentioned to some of you, I spent most of November sick. I even missed one of my favorite contests of the year, the CQ WW DX CW contest. This year it fell on my birthday, so I was really looking forward to some fun contacts on that special day. Instead I spent the entire day in bed, unable to move. Oh well, there's always next year, right.

I only came back to life in December. It was just in time for the PAARA Dream to Reality Raffle, PAARA's biggest meeting and biggest raffle of the year. We had a great turnout this year. Much of that was because not only did we have a KX3 that you could win for just \$1, but we also had Eric Swartz, WA6HHQ, speaking to us about the history of Elecraft. It gave us some great perspective on how the company has grown and how they have developed their product line.

The Raffle itself drew a heap of tickets. Ultimately, though, it came down to just one. The big winner this year was Rachel, KK6DAC, who gets the KX3, autotuner, 2m module, and some hardware to put a VHF antenna on there. All she needs now is some wire and she will be on the air on all bands. A number of other members won the other prizes, so there was some December ham radio cheer to go around for everyone. Check the winners's picture here in PAARAgraphs to see what else was available.

*(President — Continued on page 6)*

## Mobile HF Doppler DF Project A Work in Progress

Andy Korsak KR6DD,  
 ARRL OOC, SCV, Pacific Division

### VHF/UHF DF'ing background

For about 20 years I have been using a Ramsey Electronics DDF-1 Doppler radio direction finder.

When I bought mine it cost \$150 and was unfinished by Andreas N6NU, so I completed the missing connections and have been using it at the Fremont fun T-hunts and as a tool for finding stuck VHF/UHF transmitters on packet or other frequencies, etc, and malicious jammers in the course of my volunteer duties as ARRL Official Observer Coordinator in the SCV section of the Pacific Division. It came with four antenna modules and an antenna switching module open to the weather with rather weak magnets on their bottom sides, so users have to build up enclosures with something like strong magnets pulled out of disk drives bonded at their bottom. I used four very strong 4" magnets removed from an aluminum H-frame mag-mount for large HF antennas like my 80-10m Webster Band Spanner. More recently I put those magnets on my 4-loop HF DF array frame and attached little magnets out of disk drives, sold at HSC in Santa Clara, at the bottoms of my VHF/UHF DDF-1 antennas. I put the 4" magnets back on the H-frame to support the 4-loop HF DF array. In the center of it I can still deploy the Webster Band Spanner if I want to go HF mobile.

The DDF-1 was a kit available for \$170 until around a year ago, and was also available built up at the factory for a higher price around \$250. One ham friend wanted one built up ASAP and paid \$400! Recently Ramsey sold off its DDF

product line, and it was available from MFJ for some time. A few years ago I bought a DDF-1 from a ham who was unable to use it because of injuries after a bad car accident. I was using the second DDF-1 mobile while chasing that infamous Mervyn jammer while watching my home installed DDF-1 display via Skype with a webcam pointed at it at home. I did that also in Maryland when visiting my daughter one year. I

had Skype running in my phone while checking into the PAARA net with Echo-link in my laptop. There is now a competing Doppler DF product for around \$400+ advertised in QST if you are interested in acquiring Doppler DF capability.

### HF DF'ing

In early 2015 I built a 3.5' by 4.5' copper pipe loop receive-only loop for getting bearings on the bad guys jamming, playing music and recordings of other hams, etc, regularly on 75m and 40m. I mounted it on a board attached to an old fairly strong swiveling camera mount, and I was able to get fairly sharp nulls, so I swiveled the antenna in azimuth and elevation to get reasonable accurate bearings and incoming signal elevation angles out on my patio and even inside my family room. Unfortunately, this contraption was too unwieldy for going jammer hunting, so I wondered if the DDF-1 would work on the 75m and 40m bands with much reduced antenna spacing relative to the wavelength. The roughly 500 Hz tone imposed on signals by the Doppler effect, of which the DDF-1 determines its phase angle relative to a calibrated reference, enormously dominates the audio picked off inside the DDF-1 by using preliminary active filtering and then chopping the audio bandwidth right down to about 4 Hz using a switched 8-capacitor filter. This makes the

(Doppler — Continued on page 3)



Fig. 1 Ramsey Electronics Doppler Direction Finder, DDF-1

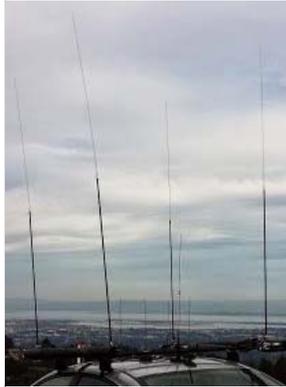
*(Doppler — Continued from page 2)*

DDF-1 extremely sensitive – it gets bearings on signals that are way below the noise floor. Note: Doppler DF'ing requires using FM reception mode, so when you tune in an SSB or CW signal you have to tune off to one side about 1 kHz away for the signal energy in the spectrum fall into the FM demodulator capture window. Before trying Doppler DF on HF I used my FT-857D in USB mode feeding audio to the DDF-1 during the 2m BOZO nets on 144.24 MHz. That worked great, even pointing correctly to net control Mike near Fresno using his huge moon bounce array pointed my way, and when he rotated it towards Santa Cruz participants, my bearings switched to the direction of bounced signals off Black Mountain and other directions of hills to the west or south west. The when Mike swung his array to guys over in the central valley I was getting bounces off Mt Diablo!

Ideal Doppler DF antenna spacing is around  $\frac{1}{4}$  wavelength, and on 75m that is 66', but my antennas cannot span beyond 6' apart on the car top. That computes to a bit over 10 dB drop in Doppler tone level, but amazingly, I was getting bearings using an array of four Ham Sticks mounted on a steel frame with airfoil wings to provide smooth air flow because when I first deployed the array at freeway speeds the whistling racket was intolerable (due I believe to mainly to many holes in the metal frame – sides 1" x 1" square, hollow, front and back L cross section). There was also significantly decreased gas mileage from my usual 50 MPG down to about 35 mpg! With the airfoil wings there was only a smooth swishing sound and the mileage rose back up to 45 mpg.

Unfortunately, however, that array was not practical for mobile DF'ing on HF. The Ham Sticks are too finicky about tuning, their Q is far too high, and if the bad guys QSY, as they typically do from 3840 to some frequency outside the

very narrow bandwidth of the Ham Sticks, or they go down to 3817 to bother Stan WG6K and his regular buddy evening net. Then I had to go to the trouble of re-tuning the Ham Sticks, which required folding them over (I had installed spring loaded pull up adapters – before then I had to unscrew each Ham Stick before driving!),



then hook up my AA-54 antenna analyzer and slide the rod in and out a few times to get each one tuned right – what a pain!. One day a rod fell out on the freeway, because I evidently hadn't tightened the two tiny setscrews, so I had to buy another Ham Stick!

**Fig. 3 View of Ham Sticks deployed prior to adding airfoil wings**

If you blow up the picture you will see also my VHF Doppler DF sticks and a 2m/73cm Larsen magmount for communicating. The view is at the Canada College parking lot having a sweeping view from San Mateo to San Jose where I used to drive to get initial bearings on jammers when I lived in Emerald Hills.

Another problem with the Ham Sticks array was that my Honda Civic Hybrid car makes so much electrical noise that reception was practically impossible on 75m. My FT-857D S-meter was being saturated up to S9+20 while the motor is running, and when stopped with only accessory mode it was still too noisy. I ended up feeding the DDF-1 from a small 6V gel-cell battery to have no car radio noise when parked to take bearings.



**Fig. 2 View of the rear – the front one is a similar airfoil**

*(Doppler — Continued on page 4)*

(Doppler — Continued from page 3)

### Horizontal loop antenna array to reduce noise pickup

After moving to a one bedroom apartment with my new wife in Mountain View in August 2016, it occurred to me that maybe four 1 foot diameter broadband loops would pick up a lot less of the noise radiated by all the electronics in my hybrid car.

So, I went to the local hardware store on El Camino near Shoreline, bought a bunch of wood sticks and various required hardware, and went to work building the contraption in Fig 4. I built a wooden collapsible frame using bolts with wingnuts for easy folding inwards of the arms extending out to spread apart the four loops, in case I need to store the contraption within the car during a transmitter hunt for bad guys, or carry it inside while staying overnight in a motel in their neighborhood.

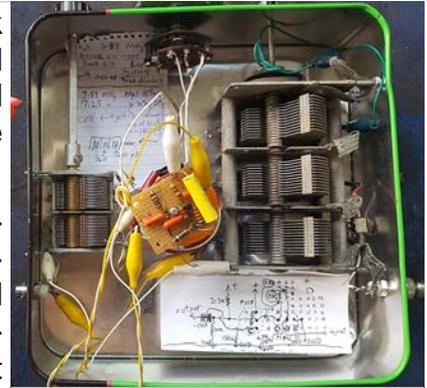


**Fig. 4 HF Doppler DF array using four small horizontal loops and 2m DF vertical sticks**

Unfortunately the one foot diameter loops pick up much less signal than the Ham Sticks did because the loops are much too small for the wavelength on 75m and 40m and not resonant. I preferred not to attempt tuning them to resonance as that would entail constant getting out of the car to re-tune them. It was bad enough with my large copper pipe loop that had a very high Q, so I pursued the idea of active antennas wherein low signal reception is compensated by deploying a high gain low noise preamp at the antenna. Note that these loops are not individually active antennas in the usual sense – there is not a low noise preamp at each antenna – but the wiring is so short that the single preamp in the tuning box basically makes the selected antenna (one of four loops being switched on about 500 times per second) become an “active antenna”. The wiring consists of shielded twisted pair (grounded only at the switching box, where there are cylindrical toroidal baluns – 7 turns -- next to BNC connectors), then RG-58 coax

down to a pi-tank tuning box ahead of a preamp and the FT857D in the car.

I built a two transistor preamp using a pair of old junk box transistors, an NPN at the front end of unknown noise figure and a PNP to drive the 50 ohm input impedance of the FT-



**Fig. 5. Pi-tank tuner and two transistor preamp – temporarily connected via clip leads for testing**

857D. The preamp appears adequate to raise the noise indicated at the radio S-meter on 75m from S0 up to around S7 with a short piece of wire antenna connected. Signals that were too weak to be heard without the preamp come through the 857 in LSB mode, but the sensitivity of this arrangement appears still too poor to get bearings on signals below the noise floor, which is a very useful capability I benefit from in the case of VHF/UHF T-hunting. I built a pi-tank circuit inside a steel sweets box. It has a coil inductor wound on a medicine pill box, a rotary switch to select full coil or one of two taps, and two variable tuning capacitors; two gangs totaling over 500 pf at the radio side and three gangs over 1500 pf at the antenna side. It matches well the very low radiation resistance of the short loops to about 50 ohms at the radio. It tunes to both 40m and 75m.



**Fig 6. Antenna analyzer sweep after tuning up the DF array**

(Doppler — Continued on page 5)

(Doppler — Continued from page 4)

For HF Doppler DF'ing with my Ramsey Electronics DDF-1 I needed to build another antenna switching circuit in a tuna can because the VHF/UHF switching board that came with it has capacitors and inductors suitable for VHF and UHF to divert RF from the antennas to a receiver and the switching control signals from the DDF-1 box to select one of four antenna PIN diode pairs (one at the switch box and a second on at each antenna base) at around 500 Hz rate. I copied the DDF-1 switching board circuit using about 35 to 40 times higher L and C values to compensate for the ratio of 2m to 75m.



**Fig. 8 Antenna switching circuit in tuna can (antennas disconnected, turned upside down)**

So far I have tested the HF DF loops array mainly on our apartment porch, but yesterday, May 10 2018, I drove to the QTH of Andy WB6CLS in Los Altos Hills, asked him to key up on 75m, and I was getting somewhat meaningful bearings towards his 75m antenna out in his large front yard. A couple of years ago I bought a programmable HF TX kit from QRP Labs but never got around to wiring and assembling it. Alexa and I are flying to Poland May 15 and returning June 15, so I intend to build a 75m tiny "fox box" that I can hang in a tree out in some park, then drive around in circles to calibrate my DDF-1 and see how well the HF DF array points to the signal source. I've been doing that for many years on VHF using a 15mW fox box, which I also deploy as a hidden transmitter at the annual SARES August picnics.

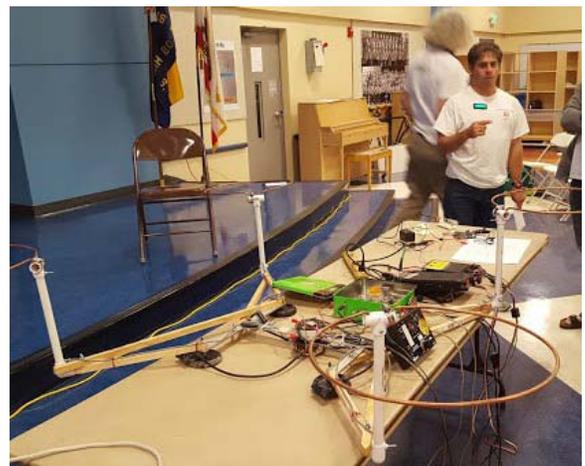


**Fig. 9 QRP Labs HF "fox box" kit**

When Alexa and I return from Europe June 15 I will need to continue perfecting the HF DF array. Perhaps a better preamp having higher

gain using a low noise FET at the front end would help pull out weak signals from noise. Another thing to try is short vertical sticks. If that works, I can add switching between verticals and loops, and possibly provide a third option to connect both vertical and horizontal antennas. Once my HF DF array is "ready for prime time", HF miscreant hunting trips will begin.

There was an earlier time I somewhat checked out the DF array before the preamp was installed. The Foothills Amateur Radio Society (FARS) holds an annual home brew contest during September meetings at Covington School in Los Altos. I submitted my HF Doppler DF array package as a contest entry and won 4th prize September 2017. At the end of the table in Fig 10 is Mike (a 4th region call sign I can't recall) whose entry was a QRP 40m transmitter. I asked him to turn it on during the setup time so I could test my DF array. Each contestant was allowed a brief few minutes to describe the entered project. During my presentation Mike turned on his QRP TX and walked around the room. My DDF-1 was pointing in the general direction of where Mike moved.



**Fig. 10 My HF Doppler array entered in annual FARS home brew contest**

*(President — Continued from page 1)*

The December meeting has one more important function for our club. It is our annual PAARA Leadership Election meeting. This is where the membership gets a chance to choose who will guide our more than 80 year old club into the future. This year, like the last few, the election was uncontested for every single leadership position. While this certainly makes things easy for our Election Committee chair Clark, KK6ISP, it means that we need to get more people involved in our club. I would love to see some new people interested in making PAARA be all that it can be. It's not that I am in any way dissatisfied with the current leadership team. Instead, I think organizations need fresh ideas and new contributors to keep them healthy and vibrant. Even though elections are over until next fall, please consider joining our team as an appointed part of what makes PAARA great. We'd love to have you help us out. And a big shout out to one of our unelected but very hard working team members, Clark. He is our ASVARO (the Electronics Flea Market) representative and has served as Election Chair, as well as other roles throughout the year. Thank you Clark.

As we move into 2019, the first big event is the annual PAARA Homebrew Night. This is one of my favorite events because I get to see your creativity on display. Each year we have a dazzling display of technology as you all bring in the things you've built through the year. I hope to see that again in just a few short weeks, on January 4th. Start thinking now about what you want to bring.

With the New Year, there will be plenty of ham radio events to make your 2019 full of fun. Quartzfest and the Yuma Hamfest are coming up in January and February respectively. March will be the PAARA sponsored Electronics Flea Market. Don't forget that the Visalia DX Convention is coming up in April. That is always well attended, so get your hotel reservations early. I hope to see you at one of these events early next year. CU SOON BT MERRY XMAS ES HNY DE K6WX 73

## December 12, 2018, Board Meeting

The meeting was held at Marty's QTH, commencing at 7:20 PM on December 12, 2018. In attendance were Kristen McIntyre, K6WX (Pres), Marty Wayne, W6NEV (VP), Jim Thielemann, K6SV (Secretary/Membership), Ron Chester, W6AZ (Treasurer), via videoconference, Larry Rebarchik, N6DB (Dir) via videoconference, Darryl Presley, KI6LDM (Dir), and non-board member Mikko Sannala, AB6RF. A quorum was present.

Kristen, (K6WX), opened the meeting with a short discussion on what a fun and active year PAARA had. Mentioning the two field trips, successful Field Day, and great Special Event station at Pacificon as a few of the highlights of the year. She's looking forward to another fun packed year. She also welcomed the newly elected board to the 2019 PAARA leadership.

Vice President's Report: Marty, W6NEV, mentioned what a fun talk Eric Swartz, WA6HHQ, gave at the December meeting. He's starting to work on next year and only has a speaker for April. The board mentioned a couple of people that he will be contacting to see if they're interested. Please let Marty know of anyone who'd be interested in presenting at a PAARA meeting.

Secretary's report: Jim, K6SV, reported that there were 2 new members, 2 new family members and 1 returning member joining in December. The current membership stands at 208. He also mentioned how nice it was to see so many youths at the December meeting. He also reminded everyone that it's time for all 2018 members (currently 139 of them) to renew for 2019. Look at your PAARAGraphs mailing label for the year your membership expires. You can renew anytime through our website, <http://www.paara.org/pages/members-current.html>, drop a check in the mail or at a meeting.

Treasurer's Report: Ron, W6AZ, reported that the proceeds from December are on par for

*(Minutes — Continued on page 7)*

(Minutes — Continued from page 6)

this time of year. The raffle proceeds were very close to breaking even, dues were high as one would expect in December with renewals afoot, a few T-shirts and a couple of badges were sold.

### **Under Old Business,**

Marty, W6NEV, updated the board, on the SS Red Oak Victory, field trip. There weren't as many participants as hoped for. The final totals aren't in on the expenses but there were 22 attendees who enjoyed the day on the ship. A discussion ensued regarding field trips next year and where we should go. Several ideas were floated out and a couple sank due to restrictions. It's likely there will only be 1 field trip next year as it's quite challenging to have two in the same year.

Marty reminded the board that a new champion is needed for the special event station at Pacificon next year. He mentioned that it's not that hard but does take a dedicated individual to put it together. Please contact Marty or any board member if you're interested in this important role. Though Pacificon seems like a long time from now, MDARC is already in the planning stages for 2019.

The topic of the "PAARA stuff" that Gerry has stored at the farm came up. Several ideas were discussed as to what to do about the stuff. The thing that's very clear, no more PAARA stuff can go to the farm for storage as it needs to be thinned down to nothing. Ron committed to calling Gerry to discuss what the board's thinking is and see what Gerry's thoughts are and what his plan is. This will continue to be a work in progress for a while.

The Raffle was also a topic of discussion. A few ideas for prizes were mentioned. Please let a board member know or Jim Rice, K6AK, know of any prizes you'd like to see in the raffle. One of the hardest parts of running the raffle is coming up with new relevant prizes.

There are several other items on the agenda

that haven't been worked on very much. Thus, there was no new information on them.

### **Under New Business:**

Mikko, AB6RF, mentioned that the 2M repeater is still down and the 70cm is no longer registered with BrandMeister. Seems Joel, KD6W, hasn't had the time to repair the 2M repeater as work is dominating his time. Mikko indicated he'll contact Joel to assist in getting it repaired and reinstalled. Once at the shack, they can look at the BrandMeister issue. Mikko also talked about creating a web page with DMR information on it so members had it as a reference. The board thought it was a great idea and encouraged Mikko to put something together.

Jim, K6SV, mentioned having read the meter at the repeater site in September when last there to prep for winter. The board voted to pay the \$161 power bill that's been accumulating for almost a year. We also agreed to pay forward the power bill every quarter based on the average daily power consumption and track the meter reading as site visits are made and making any payment adjustments as needed.

The board meeting was adjourned at 9:02 PM.

Jim Thielemann, K6SV  
Secretary/membership

### **Please welcome**

#### **New members**

Shrikumar Hariharasubrahmanian AJ6GV,  
Jason Minnich KM6KTK

#### **New family members:**

Hannah DeNeveu KM6NTA,  
Joshua DeNeveu KM6JUP

#### **Rejoining member:**

Chuck Hein N6BO



## **Fabulous Dream to Reality Raffle Winners**

### ***Front to Back, Left to Right***

- 8<sup>th</sup> prize            Kristen, K6WX, Power-pole cigarette lighter power adapter
- 4<sup>th</sup> prize            Bill, KM6QCS, Daiwa coax switch
- 2<sup>nd</sup> prize            Andrew, KM6PNK, Arrow portable dual-band beam antenna
- 5<sup>th</sup> prize            Andrew, N6DRU, ARRL Handbook
- GRAND prize       Rachael, KK6DAC, Fully loaded Elecraft KX3 transceiver
- 9<sup>th</sup> prize            Frank, AF0XX, Hand-wound filament light bulb (very cool!)
- 6<sup>th</sup> prize,            Rebar, N6DB, ARRL repeater directory
- 7<sup>th</sup> prize            Ralph, KC6YD, Hard-shell outdoor case

### ***Not Shown***

- 3<sup>rd</sup> prize            Ric, N6AJS, Weller solder station

**Palo Alto Amateur Radio Association, Inc.**

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|                      | thielem@pacbell.net    |              |
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|                      | ron@taxhelp.com        |              |

**Directors**

|                          |                             |              |
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| Director ('18-'19) ..... | Walt Gyger, K6WGY           | 408-921-5901 |
|                          | walt@tradewindsaviation.com |              |
| Director ('19).....      | Larry Rebarchik N6DB        | 650 465-8210 |
|                          | n6db@arrl.net               |              |
| Director ('19).....      | Darryl Presley, K16LDM      | 650 255-2454 |
|                          | ki6ldm@arrl.net             |              |

**Appointed Positions**

|   |                        |              |
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| Database .....                          | Jim Thielemann, K6SV   | 408-839-6815 |
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| Chaplain .....                          | Rick Melrose K6RDM     | 408-341-9070 |
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| Public Affairs .....                    | <i>Position Vacant</i> |              |
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| Station Trustee K6OTA...                | Ron Chester, W6AZ      |              |
| Property Manager .....                  | Gerry Tucker, N6NV     |              |
| Asst. to the Treasurer....              | Bob Korte, KD6KYT      | 408 396 4745 |
|   | bob@rgktechsales.com   |              |
| Badge Coordinator .....                 | Doug Teter, KG6LWE     | 650-367-6200 |
|   | dteter@wawi.com        |              |
| 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, KD6W     | 408-839-5948 |
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| QSL Manager .....                       | Marty Wayne, W6NEV     | 408-234-8023 |
| Speaker Coordinator .....               | Marty Wayne, W6NEV     | 408-234-8023 |

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**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](mailto: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.electronicfleamarket.com/>

**PAARA — Palo Alto Amateur Radio Association**

Meets 1<sup>st</sup> 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](mailto:KD6W@ARRL.NET), 650-325-8239

**FARS — Foothills Amateur Radio Society**

Meets 4<sup>th</sup> Friday each month at 7:30pm  
 Contact: <http://www.fars.k6va.org>

**NCDXC — Northern California DX Club**

Meets 3<sup>rd</sup> 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 1<sup>st</sup> Thursday each month at 7pm in the Texas Instruments Building E conference room in Santa Clara.  
 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 3<sup>rd</sup> 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](mailto: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 2<sup>nd</sup> Mon each month @ 7:30 PM.  
 ARRL/VEC 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: [AA6T@ARRL.NET](mailto:AA6T@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 ctcss UHF:  
           147.39 (+600) 151.4 ctcss           441.35 (+5.0) 88.5 ctcss  
           223.96 (+1.6) 156.7 ctcss       1286.20 (-12m) 100.0 ctcss  
 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](mailto:president@wvara.org)

**American Red Cross,  
 Santa Clara Valley Chapter**

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

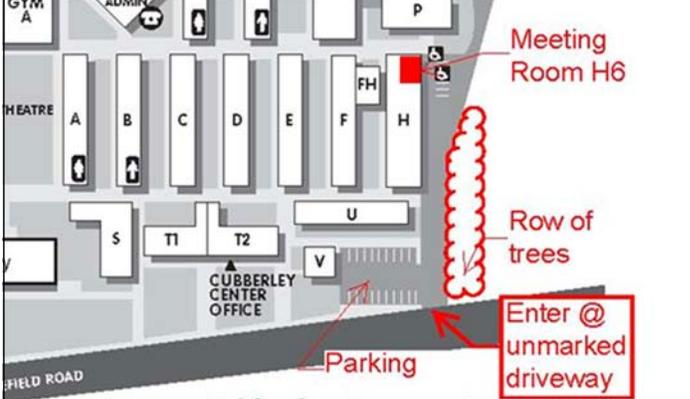
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**Cubberley Community Center**  
 4000 Middlefield Road, Palo Alto, CA 94303  
 650/329.2418  
 650/856.8756 fax  
 www.cityofpaloalto.org

## 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 <sup>st</sup> | Joel KD6W        |
| 2 <sup>nd</sup> | Doug - KG6LWE    |
| 3 <sup>rd</sup> | Jack - W1VSL     |
| 4 <sup>th</sup> | Rob - KC6TYD     |
| 5 <sup>th</sup> | Rob - KC6TYD     |

If you're interested in trying out at Net Control, Contact Doug, KG6LWE. It's good practice,

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

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**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



**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 PAARAgaphs \$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

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NOT A CLUB, CLOSED GROUP OR CLIQUE; AMATEUR RADIO OPERATORS AND FRIENDLY PEOPLE ARE ENCOURAGED TO ATTEND!

**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.




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**PAARA W6OTX DMR Repeater Frequencies**

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



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 Photos: jpg, png or tiff

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 408-839-6815, [thielem@pacbell.net](mailto:thielem@pacbell.net)

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