

# PAARAgraphs



The Official Newsletter of the

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

Celebrating 77 years as an *active* amateur radio club—Since 1937



## Ham Radio and Modern Micros

### Leigh Klotz WA5ZNU

Microcontroller technology has exploded in popularity among ham radio operators. The new generation of single-board microcontrollers is easier than ever to use, bringing together hardware and software for project-building most radio amateurs can easily dive into. With inexpensive microcontroller platforms – such as the popular open-source Arduino board – along with readily available parts, components and accessory boards, the possibilities are limitless: beacon transmitters, keyers, antenna position control, RTTY and digital mode decoders, waterfall displays, and more.

#### About Leigh

Leigh WA5ZNU is editor of ARRL's new book Ham Radio for Arduino and Picaxe, and a contributor to open-source ham radio software packages such as fldigi and quisk. Leigh has been licensed since age 7, and operates on HF and VHF/UHF.

**Mar 7, 2014 — 7:00 pm**

**Cubberley Community Center, Room H-6  
4000 Middlefield Road, Palo Alto, CA 94303**

## President's Corner

March 2014

Spring is nearly here and the contest season has begun. It's time to get out there and get on the air. The sunspot numbers are probably at their peak. I just returned from Yuma, where I got to see a little moonbounce fun, and don't

forget about our fun trip coming up to the MVTF.

The weather is warming up just a tiny bit at this point, and that's a reminder for me to get on the air for the spring contest season. At the time of this writing the ARRL International DX Contest, SSB is about to start. This is what I call the 59-Kilowatt contest, because that's the exchange you hear most often. It's a very easy contest to work since the exchange is so easy. You only have to give a 59 and your state, if you are in the US or Canada. Pretty simple. There is a high probability that there will be DX to work in the contest too, so it's easy. Of course, by the time you read this, it will likely be over, but there is another great one at the end of the month: the CQ World Wide WPX Contest, SSB. This is the world prefix contest that takes place on March 29th and 30th, and it's another great one for DX. The exchange is a bit more complex, but only a bit: 59 and a serial number. You can just start at 1 and count up. Not hard at all. Propagation should be ramping up by the end of the month too, so it might be even more fun.



Latest sunspot reports show numbers above 200 from time to time, and we recently had a CME (coronal mass ejection) and X4.9 flare. That's the strongest flare yet of solar cycle 24. While the geomagnetic field is unsettled

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## Cross Band Repeat for Emergency Communications

Emergency communications requires reliable channels which can be challenging with terrain composing of hills, valleys, and canyons. 2 meter FM is typically the primary band for most ARES and RACES communications using several simplex frequencies. 2m repeaters might also be used as well depending on the situation. The 70cm (440) band can also be used but has several challenges of its own. Not all handy talkies (HT) have the 70cm band and most repeaters on this band run low power since the amateur service is secondary. The low power is to reduce RFI with Beal Air Force Base who uses the 70cm band for PAVE PAWS, run by the 21<sup>st</sup> Space Command, monitoring objects orbiting around earth.

However, these two bands can be used together to deal with rough terrain situations and with no RFI with PAVE PAWS. I volunteer with the Cupertino Amateur Radio Emergency Service (CARES) ARES / RACES group for emergency communications support. Recently, the City of Cupertino conducted its annual earthquake drill that involved various citizen core groups including CERT, MRP, Search and Rescue and CARES. The drill took place in the Linda Vista Park on the west side of Cupertino located in a valley with hills between City Hall and Linda Vista Park.

For the drill, Linda Vista Park served as the staging area and the CARES communications van (ComVan) set up at City Hall. The ComVan is located at City Hall to provide a local WiFi network for the staff at City Hall since internet service is down for the drill scenario. As described earlier, 2m or 70cm simplex is challenging for reliable communications. Those with HTs attempting to contact the ComVan directly found it spotty at best and communication using this method was unreliable. Even opening the squelch on FM did not help with the audio.

To address the communication issue, a Kenwood **TM-V71A** with Cross Band Repeat allows

for a communications “bridge” to be formed using both the 2m and 70m bands to communicate with the ComVan. This was a mobile radio placed on top of one of the hills at Linda Vista Park for more direct communications with the ComVan. It also addresses these issues:

- HTs could use either the 2m or 70m frequency assigned depending on the HT's band capability
- HTs can be placed into low power due to the close proximity of each field responder and the cross band repeater radio.
- Transparent for all field communicators so no need to change frequencies

For the purpose of the drill, all field HTs were tuned to 446.500MHz simplex (no PL) except for any HT that did not have 70cm capability. All 2m radios including the ComVan were tuned to 146.460MHz simplex (no PL). The Kenwood **TM-V71A** was configured to cross band repeat between these two frequencies. If someone transmitted on 146.460MHz, the Kenwood would retransmit that signal on 446.500MHz. If someone transmitted on 446.500MHz, the Kenwood would retransmit that signal on 146.460MHz. To satisfy Part 97 of the FCC rules pertaining to this station, we manually identified the cross band repeater station using the CARES club call sign K6KP every 10 minutes. The control operator ensured that the identification was performed.

The result of this setup allowed for very reliable communications with the CARES ComVan and the field responders at Linda Vista Park. The Kenwood **TM-V71A** was using 5 watts of power and could still be received at the ComVan with “full quieting”.

The Kenwood **TM-V71A** cross band repeat was easy to set up and quickly addressed the communication need. It shows that field communications can be maintained and yet provides a reliable link to the ComVan at City Hall. Cross band repeat can be used for a variety of purposes, not just for emergency communications.

Darryl

## **Military Vehicle Technology Foundation Museum Tour**

Join us on an exciting tour through the world of military vehicles. PAARA is taking a tour of the Military Vehicle Technology Foundation Museum. They have over 240 operating military vehicles. The tour is approximately 2 hours walking among several buildings housing the equipment. There are two tours. The 10 AM tour can handle 32 PEOPLE and the 1 PM tour 34. Donations are taken at the MVTF facility. It is \$20 per person; \$10 for under 12 and over 65 years.

Because parking is very limited at the museum, we have been asked to arrange for carpools if possible. We will meet at the **Cubberley Community Center's main parking lot**. The trip time from Cubberley to the museum is about 35 to 40 minutes.

For the 10 AM tour, be at Cubberley no later than 8:45 AM with a planned departure of 9 AM. For the 1 PM tour be there no later than 11 45 AM with a planned departure of 12 Noon. I will have directions available at the parking area.

I am looking for volunteers with large seating capacity vehicles who can share a ride with others who are going. There are no formal car pools, just cram as many into your vehicle as possible and go. Please contact me by email or phone and let me know if you can drive. Thanks.

**Marty Wayne**  
**W6NEV**  
**w6nev@arrl.net**  
**408-234-8023**

## **Military Vehicle Technology Foundation Museum Directions**

1. Turn left out of Cubberley parking lot onto **Middlefield Rd**. Go 0.2 Miles to **E. Charleston Rd**. **Turn Left**.
2. Continue on **E Charleston Rd** 1.0 mile to **Arastradero Rd**. (E. Charleston turns into Arastradero as you cross El Camino Real.)
3. Continue on **Arastradero Rd** 1.0 miles to Foothill Expy. **Turn Right**.
4. Continue on **Foothill Expy** 1.3 miles to Page Mill Rd. **Turn Left**.
5. Continue on **Page Mill Rd** 1.7 miles to Arastradero Rd. **Turn Right**.
6. Continue on **Arastradero Rd** 2.0 miles to Alpine Rd. **Turn Left**.
7. Continue on **Alpine Rd** 0.6 miles to Los Trancos Rd. **Turn Left**.
8. Continue on **Los Trancos Rd** 2.5 miles to Ramona Rd.. **Turn Left**.
9. Continue on **Ramona Rd** 0.7 miles to Vista Verde Way. **Turn Left**.
10. Continue on **Vista Verde Way** 0.3 miles to Old Spanish Trail. **Turn Slight Right**.
11. Continue on **Old Spanish Trail** 0.1 miles to a wrought iron gate. A sign reading "**Pony Tracks Ranch**" will be on the left. Pull close to the gate and it will open automatically.
12. Proceed on ranch road and take the **First Left**. Follow the posted signs down the gravel road, past a wooden structure labeled "Office" until reaching **FOUR LARGE METAL BUILDINGS**. You have arrived.

**PLEASE RESPECT THE 5 MPH SPEED LIMIT ON ALL RANCH ROADS**

## Feb 2014 Board Meeting Minutes

The Board Meeting was held at the Round Table Pizza Parlor in Menlo Park, commencing at 7:45 PM on the 19<sup>th</sup> of February, 2014. Attending were Kristen McIntyre K6WX (Pres), Marty Wayne W6NEV (VP), Jim Thielemann KI6KVV (Sec, Membership), Ron Chester W6AZ (treasurer), Darryl Presley KI6LDM (Dir), Rob Riley (Dir) KI6INR; and non board members, Joel Wilhite KD6W (Technical Coordinator), Gerry Tucker N6NV (Property Manager), Doug Teter KG6LWE (Field Day Coordinator). A quorum was present.

President's Report: Kristen, K6WX, reported that the February 7<sup>th</sup> General Meeting was well attended. There was lots of interest in Art Lange's talk on GPS III. She also reported that PAARA continues to be recognized as the friendliest club around. She recently returned from the Yuma convention which was quite successful. She emphasized that PAARA continues to be a top notch club.

Kristen indicated her reserve of articles for the newsletter is very thin and in need. She could really use the stories members have committed to write and haven't yet done so. The board wishes to encourage the general membership to submit articles to be published in upcoming issues of PAARAgaphs. Do you have any projects, technical articles, hints n kinks, DX, on the air experiences that might be of interest? We can even help you write them up, "even if it's only 4 sentences", says Kristen.

Vice President's Report: Marty, W6NEV, informed us that the presentation for the March meeting will feature Leigh Klotz, WA5ZNU, speaking on "Ham Radio and modern macros". Marty also indicated he's got a couple of speakers lined up and a couple more in his sights but is still looking for additional ideas from the membership to fill out the year.

Announced last month, plans have come together very quickly for the next field trip on March 16<sup>th</sup> to the MVTF (Military Vehicle Technology Foundation) in Portola Valley. At the time of the board meeting, of the 66 tour slots,

there were only 3 slots open for the morning. Marty is going to contact the MVTF to see if they can accommodate additional people in either the AM or PM slots.

Marty reminded the board that PAARA members will once again participate at Pacificon hosting the W100AW/6 special event station. Marty is attending the MDARC Pacificon meetings and is looking for interested parties to help in station activities during Pacificon. Setup this year will commence on Thursday which gives 2 full days of operation. He intends on setting up 4 HF stations this year and possibly a VHF station.

Secretary's Report: Jim, KI6KVV, reported that there was 1 new member and eleven renewals at the February 7<sup>th</sup> meeting. He also reports that there are 70 2013 members and 100 that have renewed for 2014 bringing the total to 170 current members. Mailing labels for the March issue of PAARAgaphs have the member until year "2013" highlighted. Should you receive a highlighted year, it's time to renew.

Treasurer's Report: Ron, W6AZ, was back from his travels. He provided information on the club finances for last year. The club remains in good financial condition. One area that needed remediation is the cost of badges. The board voted to increase the cost of badges to \$15 effective June 1<sup>st</sup>.

Under New Business, the board discussed adding a contribution button via PayPal to the web site. We also discussed adding a method for international hams to join. Both items were voted on and approved by the board. Jim will work with John Miller (K6MM) on the implementation.

The topic of adding a secure area to the web site which would provide access by members to the membership roster was discussed. The topic of publishing member's information in a secure yet public fashion was discussed. As the membership form has a "don't publish" check box and the membership database tracks members that don't want email and

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phone numbers published, at this time the board feels there wouldn't be a problem. The board agreed to explore the logistics of adding this feature to the web site. Jim will also work on this with John.

Rebar informed the board, in absentia; volunteers had taken down 2 of the 4 sizeable beam antennas from the tower of Bob Vallio (W6RGG) on January 25th. He is in the process of gathering volunteers for a second trip in the next couple of weeks to hopefully finish the job.

Joel informed the board that he is very close to having a location (besides his cottage) for the D-Star repeater the club was given a few years ago. The logistics were discussed and some action items created before the board will make a decision.

Doug talked about field day and the 1<sup>st</sup> antenna party. He plans to have the 1<sup>st</sup> party next month and keep it to the core group as most of the work will be to clean up from last year and sort out the K3 antenna parts into sets which will then be identified as a set. This should alleviate the problem we had last year with mixing the parts of several antennas together incorrectly.

The meeting was adjourned at 9:45 PM.

**Jim Thielemann**  
**KI6KVV**

**New Members**

Don Corral                      KK6JJX                      Menlo Park

**Badge List**

Art	KI6GYG	San Jose
Byron	N6UOB	Campbell
Chuck	KF6SRD	Palo Alto
Francis	KG6QKN	Palo Alto
George	K6TSR	Portola Valley
Henri	KG6ZWO	Palo Alto
Joani	N6JCY	San Jose

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*(President's Corner — Continued from page 1)*

after these CMEs because of the resulting particle flux, the ionization levels in the ionosphere often peak several days after the flares subside, so propagation can be quite good. It's not a bad idea to check the bands frequently after we get a bad solar storm and see how CONDX are after that. They can be surprisingly good sometimes. The sun is entering another active period, after a bit of a lull, so we may see some good F-layer propagation on 10 meters again, if we are lucky. That may bode well for Field Day, and for the contest season.

The Yuma Hamfest was another wonderfully fun time this year. I had great fun seeing all of my new found friends there, and also got to see our old friend Pink, K7ILA, who made the trip from her new home in Wickenburg, AZ to Yuma. I also spent time with my fellow IOOK Vice Presidents, and posed for our group photo (<http://iook.org/photos/> look for Yuma 2014), while almost missing my talk! I had fun giving my Pacificon talk again and my PSK talk as well. During one of the talks, I happened to mention my sleep problems, and a ham who is also a sleep specialist at Scripps Sleep Disorders Center appeared after the talk, and we had a very interesting conversation. I might be taking a trip to La Jolla soon. Lastly, but not least, after the Buzzard BBQ (no, I didn't win anything this year), there was a moonbounce demonstration. There was a large crowd gathered to watch the QSO, but of course it didn't happen right away. In fact, nothing happened for a couple of hours, and finally it was just Pink and I watching the OP trying to work just one Q. He was QRP (100W) on 2 meters, and the best we got was one call, and seeing several traces on the JT-65 waterfall. Still, it was wonderfully exciting to see signals that came off the moon. What a thrill!

For those of you who signed up for the tour to the Military Vehicle Technology Foundation, I'll see you there on the afternoon tour. It's going to be an unforgettable experience. A real PAARAtip not to be forgotten. Before that, though ... CU AT PAARA IN MARCH DE K6WX



**February Raffle Winners**

**Front Row**

5<sup>th</sup> Prize: Cliff Almeida — Two FRS Radios

**Back Rows**

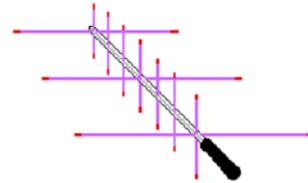
- 8<sup>th</sup> Prize: Two Rolls of Rescue Tape — Bill Gray, AF6AE
- 3<sup>rd</sup> Prize: Battery Tender Junior Charger — Jim Thielemann, KI6KVV
- 4<sup>th</sup> Prize: HT Mount — Walter Gyger, K6WGY
- 1<sup>st</sup> Prize: Wouzon Dual Band HT — Michael Gold, KJ6ZOM
- 7<sup>th</sup> Prize: Bongo Ties — Bob Van Tuyl, K6RWY
- 6<sup>th</sup> Prize: ARRL Repeater Directory — Dave Cooper, K6WA
- 2<sup>nd</sup> Prize: HT Antenna — Apostolos Dox, K6DOX

*(Badge List — Continued from page 5)*

Joanne	KI6JLS	Palo Alto
Kali	KG6QKO	Palo Alto
Mark	K6FTF	San Jose
Rob	KC6TYD	Redwood City
Scott	KI6QWM	Palo Alto
Sreenidish	KJ6GBE	Redwood city
Vincent	K6VVK	Palo Alto
Xainde	KJ4SGT	Campbell

**March Raffle Prizes**

1<sup>st</sup> Prize: Wouxon KGU3D-2-UHF HT Transceiver  
 2M/440 DUAL BAND HT  
 128 Memories 1700 mAh  
 LI-ON BATTERY

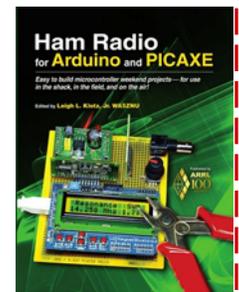


2<sup>nd</sup> Prize: Arrow Yagi / 3 Element VHF / 7 Element UHF / Max Gain

3<sup>rd</sup> Prize: Daiwa CS-201 2-Position Coax Switch  
 DC-600 MHz  
 1KW CW / 2.5kW (PEP)  
 Insertion Loss: < .2 dB of Loss  
 Isolation: Better than 50dB @ 300 MHz  
 Unused Position Grounded  
 Connectors: SO-239 (UHF-Female)



4<sup>th</sup> Prize: “Ham Radio for Arduino and PICAXE” Book



5<sup>th</sup> Prize: Hints & Kinks for the Radio Amateur Book

6<sup>th</sup> Prize: ARRL Repeater Directory 2012-2013

7<sup>th</sup> Prize: Bongo Ties

## Palo Alto Amateur Radio Association, Inc.

PO Box 911 Menlo Park, CA 94026

### Officers

President .....	Kristen McIntyre, K6WX	510-703-4942
	kristen@alum.mit.edu	
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	w6nev@arrrl.net	
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	thielem@pacbell.net	
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	ron@taxhelp.com	

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	ki6inr@arrrl.net	
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	n6db@arrrl.net	
Director ('14).....	Darryl Presley, K16LDM	650 255-2454
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### Appointed Positions

Membership.....	Vic Black, AB6SO	650-366 0636
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Database .....	Jim Thielemann, K16KVW	408-839-6815
	thielem@pacbell.net	
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	k6rdm@arrrl.net	
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	
Fund Raising Coordinator .....	Bob Korte, KD6KYT	408 396 4745
	bob@rgktechsales.com	
Badge Coordinator .....	Doug Teter, KG6LWE	650-367-6200
	dteter@wcvl.com	
Historian Position .....	<i>Position Vacant</i>	
Raffle Coordinator .....	Jim Rice, K6AK	650-851-2274
Ticket Master.....	Marty Wayne, W6NEV	408-246-7531
Field Day Coordinator .....	Doug Teter, KG6LWE	650-367-6200
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Photographer.....	Bill Young, K6VWO	
	jdsinger@sbcglobal.net	

### Future PARRA Meeting Dates

April 4<sup>th</sup>, May 2<sup>nd</sup>, June 6<sup>th</sup>

## VE Exams

3rd Saturday each month, 10:30AM, 145.23- PL=100Hz  
 Redwood City Main Library, Community Conference Room  
 1044 Middlefield Road, Redwood City, CA  
 Contact: <http://amateur-radio.org> or 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-October, 6am-2pm  
 Howard M. Krawetz, N6HM 650-856-9761  
 Contact: <http://www.electronicflea.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.k6ya.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, 442.425+ (pl 107.2) Thur.  
 Meets 2<sup>nd</sup> Mon each month @ 7:30 PM  
 Contact: <http://www.qsl.net/sccara> or Clark Murphy KE6KXO 408-262-9334  
 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 3<sup>rd</sup> Wednesday of every month.  
 Contact: <http://wvara.org>, Bill Ashby N6FFC, 408-267-3118, [N6FFC@Juno.com](mailto:N6FFC@Juno.com), or [N6FFC@ARRL.NET](mailto:N6FFC@ARRL.NET)

## American Red Cross, Santa Clara Valley Chapter

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

(Please send changes to [PAARAgaphs editor](mailto:PAARAgaphs editor))



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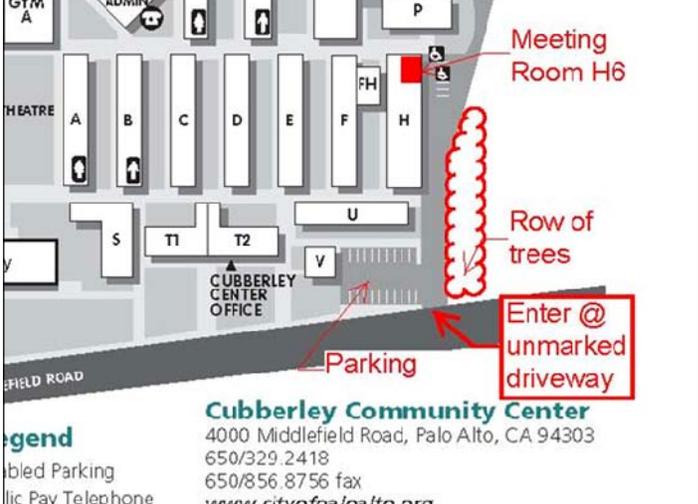
**Badges are ready for pickup.**

If you would like to order a badge, see **Doug Teter, KG6LWE.**

**PAARA Weekly Radio Net**  
 Info and Swap Session every Monday evening at 8:30pm on the N6NFI 145.230 MHz repeater

<u>Week</u>	<u>Control Operator</u>
1 <sup>st</sup>	Open
2 <sup>nd</sup>	Doug - KG6LWE
3 <sup>rd</sup>	Jack - N1VSL
4 <sup>th</sup>	Marty - W6NEV
5 <sup>th</sup>	Up for Grabs!

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.



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

<http://www.foto.mail.ru/list/shkurkin>

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 shkurkin@ix.netcom.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 \$20.00 per calendar year, which includes one subscription to PAARAgaphs \$6 for each additional family member (no newsletter).  
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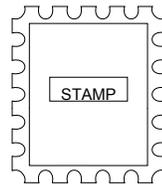
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# PAARAgaphs — March 2014

Accept no substitutes. Produced and printed in California USA



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 PAARAgaphs Newsletter  
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