

W6VIO Calling



Jet Propulsion Laboratory Amateur Radio Club
PO Box 842, La Canada CA 91012-0842

Volume 38, Issue 3 w6vio@arrl.net; <http://jplarc.ampr.org> Mar 2015

President:	Stephen Townes, WB4ILW	4-7525	EmComm. Mgr:	Christopher Carson, KE6ABQ	3-3888
Vice President:	Chuck Baker, WB6CWI	4-6816	W6VIO Trustee:	Rob Smith, W6GRV	3-7937
Secretary:	Rob Smith, W6GRV	3-7937	W6JPL Trustee:	Eric Archer, N6CV	4-7350
Treasurer:	Chuck Sarture, KG6NF	4-2706	WR6JPL Trustee:	Jim Lux, W6RMK	4-2075
Director at Large:	Jim Marr, AA6QI	3-1528	WR6AZN Trustee:	Bill Wood, W6FXJ	760-256-9576

Upcoming Events:

- Every Monday: Emergency Communications Net: Noon, on WR6JPL 224.08/(-)/156.7 & 445.20/(-)/103.5, or WR6AZN 223.96/(-)/156.7 on Table Mountain.
- JPLARC Board of Directors (BOD) meetings: Normally, the first working Friday, every month, from Noon to 1pm in 180-703C. Call-in: 818-354-4044 ID 992 285 811 (without the spaces). **Next is April 10th.**
- **QST, QST, QST**: JPLARC Regular Membership meetings: Second working Friday every month from Noon to 1pm in 180-703C. Call-in: 818-354-4044 Meeting Number: 992 285 811 (without the spaces). Slides (if any) broadcast via JPL WebEx. **Next is March 27th. Guest speaker: Courtney Duncan N5BF speaking on "Bicycle commute using APRS."**

In this issue:

Topics in this issue:

- President's message.
- Regular meeting Feb 27th
- February Treasurer's Report
- BOD meetings: Mar 13th.
- Membership: Past time to renew for 2015.
- 2015 Committees?
- ARRL Membership.
- Equipment for sale.
- Future membership meetings & speaker topics.
- Advertisements.

President's Message

By Steve Townes WB4ILW

We're off to a great start in 2015 with Kate Hutton's (K6HTN) earthquake talk in January and Scott Tripp's (KD8IPK) discussion of cubesat communication in February, so thanks to them! I look forward to Courtney Duncan's (N5BF) talk on Bicycle Commute Using APRS and encourage everyone to turn out to hear it in our general meeting on March 27. These meetings are a great time to learn something and interact with your fellow hams at the Lab. It's only an hour a month so come on out!

Progress is being made on our new shack location in the

vicinity of building 86. This location has changed a bit since it was originally closer to the former location of Building 143 but is now west of Building 86. Thanks to Chris Carson, KE6ABQ, for working the details on this with the contractors. Take a walk up there and check it out to see how it's going.

Regular Meeting Feb 27

By Jim Marr AA6QI

Present were: Chuck Baker[†]* WB6CWI, Matt W. Bennett KF6RTB, Walt Ciszczon[†] KK6DUL, Steve Collins[†] AG6YR, Bob Dengler NO6B, Mark Lysek AG6TD, Jim Marr[†]* AA6QI, Steve Noland[†] WA6KLC, Len Reder[†] KB6DVG, Dave Rider (no call), Chuck Sarture[†]* KG6NF, Lew Soloway[†] KK6QJE, Steve Townes[†]* WB4ILW, K. Scott Tripp KD8IPK, Bill Weber[†] N6CI. On the Phone were: Chris Carson[†]* KE6ABQ, and Stan Sander[†] N6MP.

Note: [†] indicates a 2015 regular member (i.e., JPL/Caltech/Retired & 2015 dues paid), and * Indicates BOD member. For a regular meeting quorum, the JPLARC Bylaws require a majority of the BOD (four or more) and at least five other regular members. We had five BOD members, seven other regular members, and five non-members, so a quorum was present.

Steve Townes welcomed everyone to the meeting, followed by around the room introductions. Since our guest speaker wasn't able to arrive until 12:30pm, Steve reviewed the Treasurer's report and reviewed the upcoming guest speaker list.

Bylaws change proposal:

Jim Marr discussed a proposed Bylaws change that the Board has been discussing over the previous week that addresses the issue of what constitutes a quorum at a regular membership meeting. The reason that this change is being proposed is that attendance at regular membership meetings is often below that required for a quorum, a situation that can prevent issues from being handled in a reasonable amount of time.

The Bylaws currently require a majority of the Board of Directors and at least five other voting members in order to constitute a quorum. This was probably fine back in the mid-1990's when the club had around 250 members but is difficult to achieve on a regular basis when the club only has about 30 voting members as we do now.

The Board has been discussing reducing the quorum requirement to a single Board member and two other voting (non-Board) members.

Bob Dengler suggested instead that we consider a quorum to be 10% of members (rather than a fixed number) (which is what TASMA does) which allows the quorum size to fluctuate with the size of the club. For the current size of our club, that would be roughly what the Board was considering (10% of 30 is 3). For a club the size of what it was in the mid-1990's, that would be a lot more restrictive than what we have now (10% of 250 is 25), so, while positively received by those present, this proposal probably requires some more discussion before going to the membership for voting (as required for Bylaws changes).

Guest Speaker:

K. Scott Tripp's talk on the "JPL CubeSat Ground Station" arose from a conversation about whether there was any possibility that JPLARC members might be able to use the JPL CubeSat ground station for amateur satellite communications during periods when it wasn't being used to track project satellites. Since we didn't really know whether or not this was even feasible, we asked Scott to give an overview briefing, which he graciously agreed to do.

Scott (Figure 1) first gave a brief overview of the building 125 CubeSat station that was developed to support near-Earth JPL and partner university cubesats. Initial assembly was done by Matt W. Bennett KF6RTB and Andy Klesh KD0DLH in 2013 and was used to track MCubed-2 and IPEX during the winter of 2014.

The antenna system consists of 437MHz and 450MHz circularly polarized Yagis at roughly 16 dB gain each, a Yaesu GS-5500 two-axis rotor, and an SSB Electronics low noise amplifier on the mast. The receiver is a Kenwood TS-2000 amateur transceiver with a Kantronics KPC-9612 terminal network controller (TNC). Station control uses the free Gpredict real-time tracking and orbit prediction software (<http://gpredict.oz9aec.net>) with drivers from HamLib (<http://hamlib.sourceforge.net>) and custom telemetry decoders for each mission.

Scott then described a few shortcomings of the current system. It is not truly autonomous in that it can only track one satellite at a time and cannot automatically switch between satellites; the TS-2000 cannot handle non-amateur frequencies well; the Kantronics KPC-9612 is not a very high performance TNC; and building 125 is actually a pretty bad site for a station.



Figure 1: K. Scott Tripp KD8IPK giving his talk on the JPL CubeSat Ground Station

To address these shortcomings the CubeSat team plans to upgrade the station in the near future. These upgrades will include: replacing the TS-2000 with a USRP software defined radio (http://en.wikipedia.org/wiki/Universal_Software_Radio_Peripheral) that can track multiple satellites, weaker signals, and with more efficient decoding; replacing the Gpredict software with another open source software package called Mercury (<http://mgsn.sourceforge.net/index.php>) that can handle multiple satellites autonomously; and finding a better location for the ground station. Scott and Matt W. Bennett both said that they would really like to have two ground stations, one for training and one for production.

We asked Scott to keep the JPLARC in mind as a recipient for any equipment that they no longer need.

Scott commented that CubeSats that operate on non-amateur frequencies typically operate half duplex and only respond when requested since, unlike ham cubesats, the non-amateur frequencies are not allocated for satellite use worldwide, so they cannot continuously transmit telemetry as amateur satellites do.

Finally, Scott indicated that he was willing to explore

JPLARC member use of the JPL CubeSat station if there was interest. If you would like to learn more, please contact K. Scott Tripp directly.

Many thanks to Scott for a very interesting talk!

Feb Treasurer's Report

By Chuck Sarture KG6NF

The February 2015 JPLARC Treasurer's Report follows:

Beginning Balance:	\$4,347.19	
Deposits:	+	\$155.00
		2015 Membership Dues
	+	\$2.00
		Commissions on ARRL individual memberships
	+	\$0.00
		Used Equipment Sales
Subtotal		\$157.00
Withdrawals:	-	\$0.00
Subtotal		\$0.00
		No withdrawals
Ending Balance:	\$4,504.19	

Board Meeting Mar 13th

By Rob Smith W6GRV

Present were: Chuck Baker†* WB6CWI, Jim Marr†* AA6QI, Rob Smith†* W6GRV, Steve Townes†* WB4ILW. On the phone: Chris Carson†* KE6ABQ and Bob Dengler† NO6B.

Note: † indicates a 2015 regular member (i.e., JPL/Caltech/Retired & 2015 dues paid), and * indicates Board member. For a Board meeting quorum, the JPLARC Bylaws require a majority of the Board (four or more). We had five Board members so we did have a quorum.

Steve Townes opened the meeting with introductions and a planned agenda with three significant topics: (1) new shack status; (2) a proposed Bylaws change discussion; and (3) what to do about the currently open April regular meeting guest speaker slot.

New Shack Status:

Chris Carson reported that the new shack will be situated next to but a bit to the southwest of building 86, up against the trees (Figure-2). AT&T has walked the path for the hardline to the Mesa antenna farm, that path going south and east of building 86 and then up to the Mesa. AT&T still needs to procure the hardline so Chris expects that it will be several months yet before the shack is ready to occupy. The shack will have windows facing north, will have a generator, and a nearby storage trailer.

Bylaws Mod Discussion:

This was a continuation of the discussion from the February regular meeting (see above) about changing the specification in the Bylaws for what constitutes a quorum at regular meetings. Several additional versions of the proposed modification (beyond those discussed at the February regular meeting) were discussed and all found wanting in one respect or another.

One significant issue was that any option proposing that a quorum consist of a percentage of the regular membership required the presence of someone who actually knew the exact number of regular members in the club at that time.

This led to a discussion of the need to publish a membership list with the name, call, and membership status (regular, associate, guest, or honorary), of which only "regular" members are eligible to vote. Steve Townes suggested that we table the quorum discussion until after we solve the published membership list issue sometime in the future.

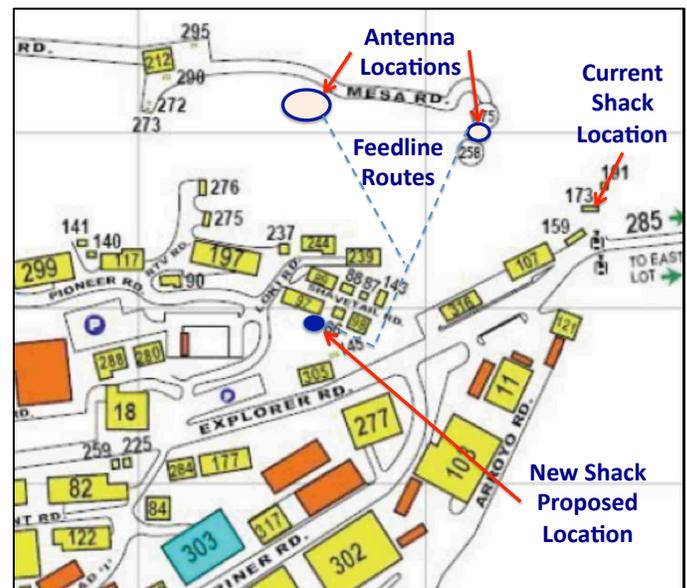


Figure 2: Currently proposed location for the new JPLARC radio shack, also showing the proposed feedline routes to the mesa antennas.

Finally, a motion was made, seconded and approved to leave the Bylaws unchanged for the time being. Thus, the regular meeting quorum requirements remain as they are today (a majority of the Board of Directors, i.e., four or more out of our six Board members, and five additional regular members).

April Guest Speaker:

A few options for an April guest speaker were discussed leading to a decision by Steve Townes that, instead of a guest speaker, he would lead a discussion about current issues facing the club.

Past Time to Renew for 2015

By Jim Marr AA6QI

The JPLARC Bylaws (<http://jplarc.ampr.org/Bylaws-2014.pdf>) specifies annual membership renewals are due by the end of January each year.

Membership renewal consists of filling in the membership application form (<http://jplarc.ampr.org/applic.pdf>) and submitting the form along with your annual dues to our Club Secretary, Rob Smith W6GRV.

Note that the Board voted to increase the annual dues to \$20 for members but left family members at \$5 as before. This is the first dues increase since January 1991.

Recall that the liability waiver on the back of the membership application form does NOT need to be signed by active JPL or JPL Contractor employees. All others need to sign the waiver.

Also recall that newly licensed members do not pay dues for the first year of club.

2015 Committees?

By Jim Marr AA6QI

Operation of the Club depends upon the active workings of a number of committees. Committee chairs are appointed by the President. Club members interested in those committees volunteer to participate (just let any Board member or any member of that committee know that you'd like to participate).

Please consider volunteering to support one or more committees that are of interest to you. The Club needs your help!

Committees include:

Repeater Committee. Operates, maintains and improves the club's many VHF/UHF repeaters, with some exciting developments coming in 2015.

EmComm/JEARS Committee. Works with JPL emergency operations to provide support to JPL during emergencies. Includes organizing participation in the annual Great ShakeOut exercise in October.

Station Facility Committee. Maintains and improves the club's four operating stations and antennas. The big news in 2015 will be the move of the main shack (building 173) to its new location where buildings 87 & 88 were (now completely demolished) and restoration of feed lines to our antenna farm on the JPL Mesa.

Field Day Committee. It is already past time to begin planning our 2015 ARRL June Field Day participation. This committee will lead those activities. Last year's field day

committee chairman won't be able to serve as chair this year due to his retirement, so this is your chance to make field day what you would like it to be.

Publicity/Membership Committee: Maintains membership records, advertises activities and special events, and coordinates with other area amateur radio clubs.

Internet Services Committee: Operates, maintains and improves the JPLARC internet-based services, including our web site, email exploder, and ARRL affiliated club web presence.

Club Bulletin: Prepares and publishes the monthly JPLARC club bulletin: W6VIO Calling. If you would like to serve as either an editor or contributor to the monthly club bulletin, now's your chance.

Meeting Program Committee: Arranges for interesting guest speakers at the monthly regular membership meetings.

Nominating Committee: Recruits the slate of officers for the next calendar year (starts activities in October).

Education Committee: Provides training for the use of club facilities and license upgrades. Volunteer Examiner credentials are a plus for membership in this committee.

Public/Special Events Committee: Arranges for special operating events (e.g., commemorative operating events like landings, launches, flybys, etc.). We should be able to begin doing these again once our feedlines to the Mesa antenna farm are restored.

Refreshments Committee: While we list this committee, it did not operate in 2013 or 2014 and may or may not operate in 2015 unless someone is interested in doing it.

Holiday Banquet Committee: We haven't had a December holiday banquet for the past couple of years. These used to be held at a local restaurant and were a lot of fun. It would be good to get these going again.

Historian: Bill Wood W6FXJ (retired member) has been implicitly serving as the club historian but has indicated a desire to pass this on to someone new.

ARRL Membership:

By Jim Marr AA6QI

As an ARRL affiliated club, at least 51% of our membership must be ARRL members.

As of February 26, 2015, of our 32 CY2015 members, 25 (78%) are either Life (7) or Regular (18) ARRL members, and 7 are not currently ARRL members. Note that 82.8% of our voting eligible members (i.e., JPLARC Regular members) are ARRL members.

While there are no requirements to maintain ARRL membership, there are some clear advantages to having ARRL membership. Some of these are:

- Receiving the monthly QST magazine and having access to all back issues electronically.
- Being able to subscribe to weekly ARRL news, propagation forecasts, and satellite ephemeris notifications.
- Being able to subscribe to the electronic monthly Amateur Radio Emergency Service (ARES) newsletter that may be of interest to members who wish to stay current on emergency communications.
- Member discounts on materials and training. For example, the ARRL Introduction to Emergency Communication Course is \$85 for non-members but only \$50 for members.
- You support ARRL, the only significant amateur radio advocacy organization in the U.S. that is fighting to protect our access to the airwaves.

Should those of you who are not already members and may wish to join, please do so through the Club rather than joining directly through ARRL. Why? If you join through the Club (new members), the Club retains \$15 of your membership fee to support Club activities. From your point of view, the amount you pay is the same either way. Even if you are a member who is just renewing, doing so through the Club nets the Club \$2, again without changing your costs at all.

To renew through the Club, see Secretary Rob Smith who will help you with the paperwork (don't worry, it's really simple!).

Thanks in advance for considering joining ARRL or for maintaining your membership.

Equipment For Sale

By Jim Marr AA6QI

The sale of the following items of surplus JPLARC equipment was approved by the quorum present at the October 24th regular membership meeting. Please make or send your best offers to Club Treasurer Chuck Sarture at JPL. All equipment is sold as-is with a receipt from the JPLARC.

- ICOM IC-27H 25W 2m FM transceiver, asking \$60.
- ICOM IC-281H 50W 2m FM transceiver with 70cm receive, asking \$80.
- Kenwood TR-9130 all-mode 25W 2m transceiver, asking \$100.
- ICOM IC-471A 1W to 25W 70cm all-mode transceiver with external PS-30 power supply, asking \$200.
- ICOM IC-471H 10W to 75W 70cm all-mode transceiver with internal power supply, asking \$250.
- ICOM AG-35 70cm mast mounted preamp, asking \$20.

- Packet Station consisting of an MFJ-8621A 2m Data Radio with crystals for 145.01 MHz & 145.09 MHz, and an AEA PK-232 MBX TNC, asking \$30 for the pair.
- RS232 to RS422 level converter, EASY model IC456A-R2, asking \$5.

Future Meetings

By Jim Marr AA6QI

All JPLARC meetings are being held on non-RDO Friday's from Noon to 1 PM in 180-703C. Upcoming talks (subject to change, as always):

April 24th: JPLARC President Steve Townes WB4ILW will lead a discussion about "Current issues facing the club".

May 22nd: Marty Woll N6VI, Vice-Director of the ARRL Southwestern Division, topic still TBD (somewhat our choice from presentation topics on Marty's web site <http://n6vi.com>). *Please let any JPLARC Board of Directors member know if one or more of these presentation topics are of interest to you.*

Potential topics for the rest of the year include (although not all speakers are confirmed yet and always subject to change):

June 19th: Contest software, rig connectivity, computer logging/ADIF/LoTW/eQSL (options & how), speaker TBD.

July 17th: DX for the Beginner, Vaughn Cable K6ZTA

August 28th: Digital communications (RTTY, PSK31, JT-9, JT-65, & others), speaker TBD.

September 25th: JEARS progress update, Will Michael KC6LOK.

October 23rd: Amateur Satellite Communications for the beginner (focus on how to get started), speaker TBD.

November 20th: HRO Burbank - gear demo, HRO's Eric Christensen K6EJC. *Please let any JPLARC Board of Directors member know if there is some particular piece of new gear that is of particular interest to you.*

Advertisements:



<http://www.hamradio.com>

The Burbank HRO store may offer up to a 5% discount on some ham radio "accessories" to JPLARC members, upon presentation of a valid JPLARC membership card.