
W6VIO Calling



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

Volume 38, Issue 11 w6vio@arrl.net; <http://jplarc.ampr.org> Nov 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 | 626-794-9805 | WR6AZN Trustee: | Bill Wood, W6FXJ | 760-256-9576 |

Upcoming Events:

- **Emergency Communications Net:** Every Monday at Noon, on WR6JPL 224.08/(-)/156.7 & 445.20/(-)/103.5, or WR6AZN 223.96/(-)/156.7 on Table Mountain.

JPLARC Regular Membership meeting: Second working Friday every month from Noon to 1pm in 180-703C. Call-in: 818-354-4044 ID-number: **997 183 539** (without the spaces). Slides (if any) broadcast via JPL WebEx (same ID-number). **Next was to be Nov 20th, Guest speaker: Mike Roche N6XLK, "Digital mode DXing for the Beginner using PSK31 and JT65 HF modes"**, discussing his experience with setting up and operating PSK31 and JT65 modes.

Also: **nominating committee to present the slate of candidates for 2016 offices** and take additional candidates from the floor. If there is only one candidate for any office(s), voice voting will take place at this meeting. If more than one candidate for any office(s), follow balloting process described in club Bylaws (<http://jplarc.ampr.org/Bylaws-2014.pdf>) article VII Section 3.

- **JPLARC Board of Directors (BOD) meeting:** Normally, the first working Friday, every month, from Noon to 1pm in 180-703C. **Next is December 4th**. Call-in: 818-354-4044 ID-number: **997 183 539** (without the spaces).

In this issue:

Topics in this issue:

- Regular meeting Oct 23rd
- BOD meeting: Nov 6th
- EmComm - more Great Shakeout feedback
- Field Day 2015 Results
- Shack move
- ARRL Membership
- Equipment for sale
- Future membership meetings & speaker topics

Regular Meeting Oct 23rd

By Jim Marr AA6QI

Present were: James Bartok[†] KK6IHF, Matt Bennett[†] KF6RTB, Gary Block[†] KJ6IZX, Jonathan Cameron[†] KF6RTA, Steve Collins[†] AG6YR, Chris Gaylord[†] W6YTB, Steve Noland[†] WA6KLC, Chuck Sarture^{*†} KG6NF, Rob Smith^{*†} W6GRV, Lew Soloway[†] KK6QJE, Steve Townes^{*†} WB4ILW. On the Phone: Chris Carson^{*†} KE6ABQ, Merv MacMedan N6NO, Jim Marr^{*†} AA6QI, Walt Mushagian[†] K6DNS, Mike Roche[†] K6XLK.

Note: [†] indicates a 2015 regular voting member (i.e., JPL/Caltech/Retiree & 2015 dues paid), and ^{*} Indicates a 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, ten other regular members and one non-member (total of sixteen attendees), so we **did** have a quorum.

President Steve Townes opened the meeting with introductions.

Steve welcomed new members James Bartok KK6IHF and Chris Gaylord W6YTB.

Treasurer's report for the month of September showed no income and no expenses, with an opening and closing balance of \$4,853.69.

Steve discussed the Great ShakeOut exercise. We had more people show up than had indicated they would beforehand. Steve sent out an email this morning in which he tried to list everyone who participated, including some from off Lab [*ed - Steve's email is included in this month's EmComm article later in this newsletter*]. Steve thanked everyone who participated.

Steve has a lot of lessons learned in the form of notes from Lew Soloway, Jonathan Cameron, Jan Tarsala and Jim Marr. We will take a look at these and look for ways to implement some things we can do to improve. Perhaps we can dedicate a few meetings to this next year.

Steve has been working on speakers for next year and is still looking for suggestions.

Guest speaker: Matt Bennett KF6RTB speaking on "From Classroom to Space: Bringing students the excitement of science and amateur radio through live radio contact with astronauts aboard the International Space Station (ISS)."



Figure 1: Matt Bennett KF6RTB giving his talk.

In this talk, Matt shared his opportunity to arrange an interview with an astronaut on board the ISS with his old alma mater, Mission Viejo High School, which is here in Southern California, using amateur radio for communications.

Matt obtained his Technician license in 1998 when he was in the 7th grade. When he went to college, he was the UCI Amateur Radio Club president for several years. He was also the student project manager for two cubesats with amateur radio on board, one at UCI and one at U of Michigan. While at UCI, he built three operational cubesat ground stations, one at UCI and two at Michigan. He also built the cubesat ground station here at JPL with the help of Scott Tripp KD8IPK and Andy Klesh KD0DLH. Scott currently holds an Amateur Extra license and has ham radio interests in contesting, APRS and satellite. Other interests: he's an airplane pilot, a wing-suit flyer and a wing-suit instructor, he's an amateur tri-athlete, a scuba diver, and he also plays in a band. He uses APRS a lot as a pilot and is planning to set up APRS on his wing suit in

a couple of months to see if people can pick him up in flight.

For those not familiar, ARISS got started in the late 1990's but really got implemented in early 2000. It was designed to provide communication between astronauts in orbit and hams and students on the ground. ARISS is sponsored by ARRL, AMSAT and NASA. There are contacts conducted regularly from eight different countries (U.S., Japan, Canada, Russia, and several European countries). At the time that Matt gave this talk at the ARRL Southwestern Conference back in 2007, there had been 300 contacts, but that number has easily doubled by now. They're still doing one contact per week and they've been doing that for a long time.

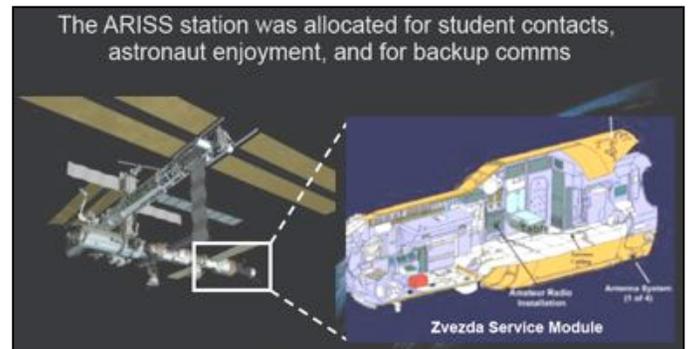


Figure 2: ARISS station location on the ISS



Figure 3: ARISS station components

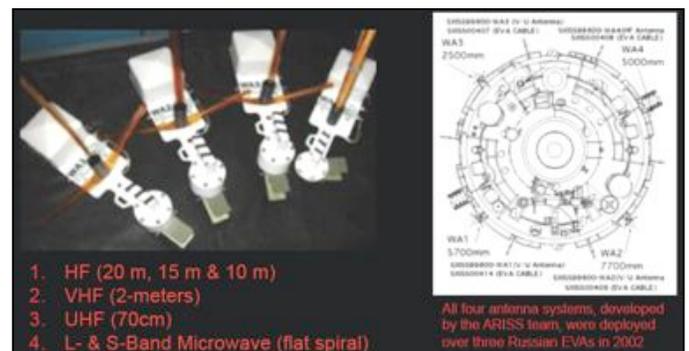


Figure 4: ARISS antennas on the ISS.

The ARISS station is located in the Zvezda Module (see Figure 2), one of the original modules in the station. The ARISS station itself is shown in Figure 3. The FT-100 HF rig isn't used very much. The real workhorse is the Kenwood D-700E.

The four ARISS antennas are shown in Figure 4, one for HF, one for VHF, one for UHF and one for S and L bands. The HF, S and L band antennas aren't used very much. These were installed outside of the Zvezda module over three different EVA's starting in 2000. Our story begins with astronaut Michael Lopez-Alegria (Figure 6). Important for our story is that he was on Expedition 14 from September 2006 to April 2007.

Astronaut Bio: Michael Lopez-Alegria

- Born in Madrid, Spain, and grew up in Mission Viejo, CA.
- Graduated from Mission Viejo High School in 1976
- B.S., Systems Engineering, U.S. Naval Academy, 1980; M.S., Aeronautical Engineering, U.S. NPS, 1988.
- Served as a flight instructor, test pilot, and mission commander at Naval bases across the country, logging over 5000 flight hours aboard over 30 different types of aircraft from 1981 and 1986.
- Flown four total missions:
 - STS-73 *Columbia* (1995)
 - STS-92 *Discovery* (2000)
 - STS-113 *Endeavor* (2002)
 - Expedition 14 on ISS (09/06 to 04/07)
- Mission objectives ranging from materials science, biotechnology, combustion science, fluid physics, and assembling the International Space Station.



Callsign: KE5GTK

Figure 5: Astronaut Bio for Michael Lopez-Alegria

Expedition 14 launched September 18th, 2006 on the Soyuz TMA-9 mission to the ISS (see https://en.wikipedia.org/wiki/Soyuz_TMA-9). Expedition 14's mission was to perform a number of experiments and to reconfigure a number of electrical and thermal systems in preparation for the arrival of new European and Japanese laboratory modules. After this mission, Michael holds U.S. records for: the most space walks (10 total); the most spacewalk time (67 hours, 40 minutes); and held the longest mission for a U.S. astronaut (record broken by Scott Kelly in 2015).

So how did Matt get involved in this? Every time a ham radio operator goes up to the ISS, ARISS asks the astronaut whether there is a specific school that (s)he would like to speak to when they're up there. Michael said that he would love to talk to his old high school, Mission Viejo High School. ARISS contacted ARRL asking who might be in the vicinity of Mission Viejo High School who could facilitate this. ARRL contacted the ARRL Section Manager at the time, Carl Gardenias (W6UD), who also worked at UC Irvine, so knew Matt and knew that he had set up the satellite station at the UC Irvine amateur radio club. Carl asked Matt whether he would be interested in facilitating the call to the ISS and, after thinking about it for about 30 msec, Matt agreed to do it.

As Matt was putting together the team, he realized that this was not an easy, one or two-person job. There were 20 students who were asking questions, they wanted to do it on television, and there were newspapers. It was a media frenzy. Plus, the station had to be moved from UC Irvine to the actual site and that took a lot of people. So Matt had people from the UCI Satellite team, both students and staff, and even got help from the South Orange Amateur Radio Association (SORAS) (Figure 6). Some people had satellite experience and some didn't. Some had electrical experience who were really helpful in soldering coax and things like that. This team also wanted to get this out to people who couldn't be there so they set up a streaming web site to stream the event.



Figure 6: Some of the folks that made it happen.

The ISS makes about 16 orbits per day but only a couple of those provide sufficient communications time, windows of 5 to 10 minutes, during which 20 or so questions need to be handled.

ARISS requires that you actually have two stations on site. Station 1 needs to have: at least 75W, receive pre-amp, OSCAR-style circularly polarized beam antennas with automated azimuth/elevation antenna control. Station 2 needs to have: at least 75W, receive pre-amp and a vertical or eggbeater style antenna.

The primary station setup is shown in Figures 7, 8 and 9. Figure 7 shows the RF System. Figure 8 shows the Tracking System, and Figure 9 shows the station setup in the broadcast room of the Mission Viejo High School television station.



Figure 7: Primary RF System used for the ARISS contact.

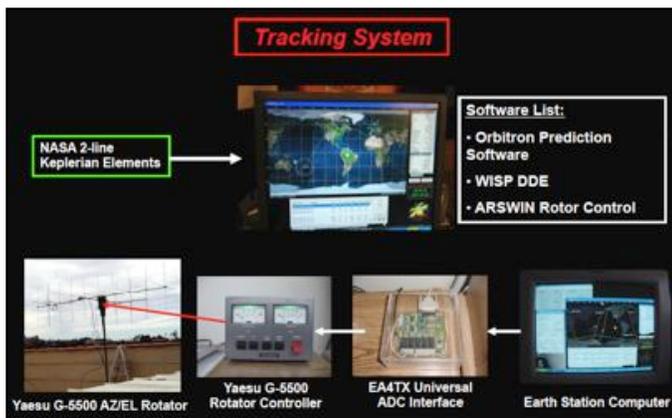


Figure 8: Tracking system used for the ARISS contact.



Figure 9: Station setup in the Broadcast Room.

The team did a rehearsal two days before the scheduled contact (Figure 10).

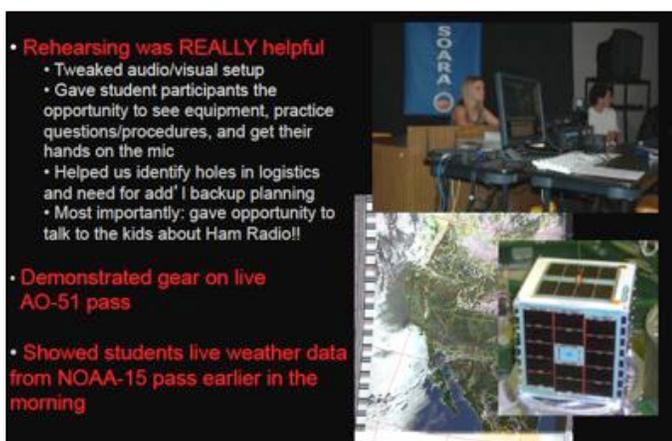


Figure 10: Rehearsal

The big day arrives and everyone is very excited. Students got their final briefing. Cameras were set up for the media event. Ready for action!

Matt began calling NA1SS and eventually heard NA1SS calling K6UCI. Matt returns the call but NA1SS keeps

calling for K6UCI (can't hear K6UCI). After the pass completed, two way contact was never completed. Matt was so frustrated and scrambling around checking connections but couldn't find anything wrong, thinking that perhaps NA1SS had goofed up on their end. Then, going through the system, they found out that Matt had programmed in an incorrect uplink frequency into the radio!

Next NASA JSC calls asking what went wrong and Matt had to explain to the what went wrong, knowing that you only get one shot at this (you don't get second chances on ARISS contacts) and it's at least a one-year queue to get back in there to do this thing again. Matt begged for a second chance anyway and JSC agreed to talk to Mike before he was scheduled to go to bed and would leave it up to him to decide whether he wants to change his schedule and JSC would let Matt know at 4AM the next morning. Matt held out hope and, sure enough, JSC called and said that Mike wants to do it.

Matt called the students and media, and they all showed up at 4AM for the second try. Matt then showed part of a 10-minute video of the actual event during which 11 questions were asked and answered. While some of the students didn't get to ask their questions, since their questions were all sent to Mike before the pass, Matt assured them that Mike had actually thought about their questions and had prepared an answer to them. After the pass, the students were ecstatic!

Matt was asked by folks attending the jplarc meeting about Doppler tracking of the ISS signal. Matt explained that the FT-847 is a satellite radio capable of split frequency operation but the software he was using didn't know how to operate the radio with the ISS with VHF for both uplink and downlink. To accommodate that, Matt programmed into memory a number of split frequencies that covered the expected Doppler shift and changed memories every couple of minutes during the pass to track the Doppler shift, pretty easy to do with FM.

When Matt gave this talk at the ARRL convention, where the theme was how to get young people interested in ham radio, Matt emphasized that ARISS is a great way to get young people interested. Today, there is an abundance of readily obtained entertainment and talking to people in other countries is nothing new for students but, if you give them something that looks to be out of this world, it gets people really excited.

As an indication of the outreach that resulted from this event, 30 or 40 students picked up ham radio fliers that week, two UCI students who were assisting in the event actually obtained their licenses as part of the event and two upgraded, so it stimulated interest within the organization that was helping with the event. Hundreds of students were following Michael's mission until he

returned to Earth and he became sort of a local hero. Most people didn't know about Michael until this event happened and so Mission Viejo was pretty proud that their city had produced an astronaut.

Michael came back to talk to the high school. They even had a drug prevention parade and Michael was the man of honor, was leading the entire parade and was signing autographs afterward. Matt even got to meet him and thank him for the second chance that he gave them. Mike gave Matt an autographed picture of Mike in his space suit that Matt now has hanging in his room that says "Matt, thanks for calling ISS".

Matt provided some suggestions for future ARISS operators: 1. Since planning and operations can distract from outreach, elect an 'education coordinator' to promote both science and amateur radio at the school; 2. Maintain contact with the school; 3. Offer mentorship to interested students; and 4. Allow help in station setup.

Matt provided some tips on how to participate in ARISS. 1. Fill out the Educational Proposal (available on the ARRL website). The proposal includes such things as: how the activity will be integrated into the curriculum; how wide a range of grade levels will be involved; a description of the student selection process (essays, contests, etc.); 2. An ARISS panel, along with the ISS crew, selects from among the applications; 3. The ARISS coordinator contacts the selected schools. The notification time as to whether you got selected is about one year and waiting list is about two years. The only way you get to jump to the head of the line is if an astronaut asks to speak to a particular organization. Otherwise, it's a long time.

Matt next talked about what's happening on the ISS now. ISS APRS seems to be regular, SSTV was a hit back in July, and school contacts are happening about once per week. Additionally, there are a few unscheduled astronaut contacts.

Thanks to Matt for a great talk!

BOD Meeting Nov 6th

By Rob Smith W6GRV

Present were: Jonathan Cameron† KF6RTA, Chris Gaylord† W6YTB, Rob Smith* W6GRV. On the Phone: Jim Marr* AA6QL, Chuck Sarture* KG6NF.

Note: † indicates a 2015 regular voting member (i.e., JPL/Caltech/Retiree & 2015 dues paid), and * Indicates a BOD member. For a BOD meeting quorum, the JPLARC Bylaws require a majority of the BOD (four or more) to be present. We had three BOD members and two other regular members (total of 5 attendees), so we **did not** have a quorum.

Secretary Report: One member (Jonathan Cameron)

recently renewed his ARRL membership, bringing the club to 73% ARRL members. The renewal was not made through the club. Jim Marr reminded us that the club gets a portion of the renewal amount if the renewal is made through the club. Have 50 members; 45 are voting members; ARRL Membership is at 73% (This is the percentage of Licensed & voting members who are also currently ARRL members).

Treasurer report: No funds were received. No funds were spent. Balance is \$4,853.69.

Discussion Topics:

2016 Elections: Did not have a status update from the club officer nominating committee. Candidates are to be announced at the regular membership meeting in less than 2 weeks. To be included in the general meeting announcement.

The current board needs to put together a budget for 2016. Of the 2015 budget, the total spent so far this year is significantly below the planned expenses.

* For the setup of the new shack (Building 329), the funding should come from the '203A' account (Will Michael's account).

* Need to ask Chris Carson for the status of the repeaters to understand the amount needed for 2016.

* The 2016 Budget should be a discussion topic for the general club meeting in 2 weeks. To be included in the general meeting announcement.

Need to get the committees spun up and working better than they did this past year. Each committee has items that need to be addressed in the near future.

Need Speakers for next year.

* Chris Gaylord volunteered to lead a JEARS working meeting for the January 2016 club meeting.

* A walking tour of the club facilities was suggested for February (if the weather allows). Tour would include Container-7111 (current equipment storage in south east on-lab parking lot), 180-R6, building 329, and the trailer next to the new shack.

* The ARRL has a video it suggests as a club meeting topic. The video discusses how to work with private owners (such as home owners associations) regarding putting up amateur radio antennas.

The room 180-R6 will be re-keyed to the same key as the shack.

The side door of the new trailer is the only access point. The end door of the trailer (on the east side) is blocked.

Had a work party last Saturday. Were able to move all the boxes, loose materials, and filing cabinets out of building 173 and into building 329. The equipment that

was connected remains connected in building 173, and remains to be moved in the future. Need to have individuals who understand the equipment configuration present at the work party to be able to move the radios and cables and re-connect them.

Need to update the equipment list with the new location(s) as it is moved. Chuck Sarture volunteered to update the list.

Chuck volunteered to lead a work party to take down the R7000 from building 173 and put it back up at building 329. Jim Marr will send Chuck the procedure (which was used to put up the R7000 initially at building 173). Jonathan offered to help.

Need to determine whether we will need a new trustee for WR6AZN, Table Mountain. Bill Wood, who is retired, is the current trustee and may or may not want to continue doing this (need to ask him). The license comes up for renewal in June 2016. A trustee is more than an individual who holds the license. They are also responsible for the equipment and the legal operation of the repeater. They need to actively monitor the use of the repeater, and be able to shut it down (or take other action) when needed. Scott Howe, KJ6OUL, had expressed interest in the past, but have not heard from him in awhile. Rob will call Scott to see if he is still interested.

Discussed posting of the W6VIO Calling to the club website. Rob Smith stated that he would be willing to post the newsletter. He may not be able to respond as quickly as Bill. For the next newsletter, Jim will request that Bill not post it until Rob reports that he has had difficulty posting the newsletter.

Discussed the process for issuing keys to the new shack. Since this is tied to JEARS, we need to re-look at process for issuing the keys to the facility. Rob will check the bylaws for items relating to issuing keys.

FYI, From the bylaws: "The Secretary shall, in the absence or disability of the President and Vice President, act as and have all the powers of the President in the conduct of the affairs of the Club, shall keep the Minutes of the meetings of the Board of Directors and of the regular membership, record the votes in all elections, maintain the records of the membership of the Club, and authorize the issuance of each key to the Club Station and keep records thereof."

Note: The secretary was involved in the recent issuance of keys for B329. Better records may need to be kept, although records for keys do exist institutionally (online).

Merv Mac Medan, N6NO, suggested that the club hold a special event for the 40th anniversary of the Voyager Launch. This would be August 13, 2017.

Next meeting announcement: At the next club meeting:

- Candidates for the JPL ARC 2016 club officers will be announced.
- Will discuss the club 2016 budget .
- Start the discussion of members and leadership for club committees

Speaker for the next meeting: November 20th: Mike Roche, N6XLK, "Digital mode DXing for the Beginner using PSK31 and JT65 HF modes"

EmComm

By Steve Townes WB4ILW

A belated thanks to all JPLARC members and other hams who participated in the 2015 Great ShakeOut.

I would first like to thank and congratulate Lew Soloway KK6QJE for a great job as Net Control.

I would also like to recognize the participation of the following: Steve Jenkins N6UNI at the Incident Command Post (ICP); Jan Tarsala WB6VRN who led the HF activity from Building 173; Jonathan Cameron KF6RTA who "secured" the building 329 shack and then assisted Jan in building 173 relaying traffic via the UHF links and was the control operator for the contact with Goldstone on HF; Walt Mushagian K6DNS who supported the HF communications from off-Lab; Chris Carson KE6ABQ who operated the Table Mountain Repeater link from building 233; Charles Rhoads WB6KZE in building 11; Kevin K1KMO who was a visitor check in from off-Lab; and Steve Townes WB4ILW at the Logistics table in the Emergency Operations Center (EOC). I think we also had Gary KE6JSZ operating the Goldstone station KI6NSG on HF.

I would also note that Will Michael KC6LOK, Ian Pinkham KE6RFV, and Chris Gaylord W6YTB were doing their day jobs related to emergency coordination activities on Lab during the Shakeout so couldn't participate directly but are our JEARS sponsors and catalysts.

Did I miss anyone? Corrections? Please speak up.

More to come on lessons learned. -- Steve

Field Day 2015 Results:

By Jim Marr AA6QI

Field Day 2015 results are finally out. This year there were 2,720 Field Day logs submitted, with 42 of those operating category 6A (six simultaneous transmitters operating off of commercial power), as was our Pasadena ARC, JPLARC, CITARC team operating as W6KA (see the Field Day 2015 Recap article in the July

2015 issue of W6VIO Calling – available on the jplarc.ampr.org web site).

We had 1,821 total contacts (1,078 CW, the rest SSB, satellite or handling NTS traffic) generated by 46 operators, resulting in a total score of 7,248 (note that the CW station was the only station that operated the full 24 hours of the event).

To put this score in perspective: we were #118 out of all 2,720 entries; #10 out of all 42 category 6A entries; #10 out of 197 entries from the ARRL Southwestern Division (Southern CA and Arizona); and #3 out of 45 entries in the LAX ARRL Section.

As a challenge for next year, the highest score in category 6A was 16,466 by K7LED, which had 4,941 contacts made by 70 operators, and included a GOTA station. The highest Field Day 2015 score in any category was 31,452 by W3AO which operated category 18A with 91 operators who made 9,700 contacts.

The full results database can be found at http://www.arrl.org/results-database?event_id=68929

The Field Day results article that will appear in the December QST issue can be found at <http://www.arrl.org/files/file/ContestResults/2015/FieldDay.pdf>

Thanks again to everyone who participated in this year's Field Day event (operators, setup/teardown teams, and refreshments providers).

We expect that Field Day 2016 will be again held in the Art Center south parking lot, just across the 210 freeway from JPL. We hope that we can get folks out to keep the phone stations operating for the full 24 hours so that we can do even better next year.

Shack Move

By Steve Townes WB4ILW

JPLARCers,

Thanks to Jonathan, KF6RTA, Eric, N6CV, and Chris, KE6ABQ, we got a lot accomplished over the weekend.

Jonathan, Eric and I hauled most of the boxes and equipment out of building 173 and put them in the storage trailer next to Building 329 (the new shack). Mostly what is left in building 173 is a couple of old computers, the current HF operating position, the antenna patch panel and assorted other antenna switches & controls, the HF vertical outside 173 and the antenna on building 159.

Chris got started connectorizing the cables from the Mesa.

W6VIO is on the air from 329! Jonathan got the VHF/UHF radio hooked up in 329 with an antenna

stuck out the window and we were able to get into the repeater. We'll need a more permanent antenna installation.

Things we still need to do:

- Computers in 173: Does anyone have any information on what is on these computers? Is there anything that we need? Would someone like to backup the information, if needed, before we surplus the computers?

- HF operating position: Disassemble and reassemble in 329.

- Antenna patch panel: The panel may actually be the right size to use in 329 (rotated 90 degrees) so we may just need to disconnect, dismount and remount in 329. (What about the K9AY switch, etc.?)

- Move antennas from the 173 area.

- Continue to work the cables at 329

- Check out antennas and connect the cables on the Mesa.

I'm sure that there is more to do but these are the major ones.

Thanks again. -steve-

ARRL Membership:

By Jim Marr AA6QI

As an ARRL affiliated club, we need to maintain at least 51% ARRL membership among our voting members.

As of October 19, 2015, of our 50 CY2015 members, 35 (72%) are either Life (7) or Regular (29) ARRL members. Note that 73% of our 45 voting-eligible members (i.e., JPLARC Regular members) are also 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 24, 2014 regular membership meeting. Please make your best offer 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 \$40.
- Kenwood TR-9130 all-mode 25W 2m transceiver, asking \$60.
- ICOM IC-471A all-mode 70cm 25W transceiver with external PS-30 power supply, asking \$100.
- ICOM IC-471H all-mode 70cm 75W transceiver with internal power supply, asking \$150.
- ICOM AG-35 70cm mast mounted preamp, asking \$10.
- 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 \$15 for the pair.

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):

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

December 18th: We haven't been having December regular meetings for a while as a consideration to the heavy holiday schedule that most of us have and don't currently plan to have one this year either.

2016 meeting presentations: The Board is seeking ideas for 2016 regular membership meeting guest speakers. If

you have suggestions or are willing to give a talk yourself, please contact Steve Townes as soon as you can to give the Board time to make arrangements with the speaker(s). Thanks in advance for your help with this.

Advertisements:



<http://www.hamradio.com>