

W6VIO CALLING

NOVEMBER



NOVEMBER 1990 Volume 19 No. 11

Jet Propulsion Laboratory
W6VIO CALLING M/S 264-419
Attn: Eileen McKinney
4800 Oak Grove Drive
Pasadena, California 91109

BOARD

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CLOSED REPEATER TRUSTEE: WALT DIEM WA6PEA

EDITOR: EILEEN MCKINNEY KA6DGV

Club Meetings:

Everyone is welcome - Bring your lunch.
12 Noon in 238-543
Second Wednesday of month (Program)
Fourth Wednesday of month (Business)

Newsletter Article Deadline: The 5th. day of
each month. If the 5th. falls on a weekend,
the following Monday will be the deadline.

Your articles, ads, photos, diagrams, Letters
to the Editor, or technical instructions
should be submitted to Editor at address above.

EXCHANGE CLUBS: PLEASE NOTE ADDRESS ABOVE

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providing credit is given to "W6VIO CALLING".

NOMINATION COMMITTEE by Don Ritchie, K6PGT

Well I am overjoyed at the good response that resulted from the last W6VIO Calling. There are several members volunteering for the opportunity to provide the next year's leadership for our radio club. However I still need volunteers for the position of club president and secretary. Your club and its progress can be in YOUR hands! Please give me a call.

Now is the time to act. I look forward to hearing from you. Call me at 818-354-6305, or 818-352-1978.

PRESIDENT'S MESSAGE by Mark M. Schaefer WB6CIA

The response for new officers has been diverse. Several people are very enthusiastic about helping the club, but working off lab can make this a little difficult. Sometimes working on lab can make it difficult as well. Several people feel they can do more for the club in other capacities. Others people have come forth primed and ready to take on the job of managing the JPL Amateur Radio Club. There is still room for YOU if YOU'VE got the drive and desire to spend some of YOUR time and energy to aiding YOUR club and community. So contact Don Ritchie K6PGT at 818-354-3056 M/S 303-210 ASAP. The lucky members will be presented to the club at the December General Meeting.

DARC Annual Banquet

I was invited, on Sunday Nov. 4th, to the annual brunch of the Downey Amateur Radio Club. This is a big event for them, and it was for me as well. They invited me as the guest speaker. The DARC talked me in on 2 meters to the Rio Hondo Country Club where nearly 100 people enjoyed a terrific brunch buffet. After stuffing all those Hams, the President Ken Warenbrock presented some of the ladies in the audience with corsages for their contributions to ham radio with their time and efforts and/or their patience and toleration. My gal Carla Hall certainly fit in with her corsage. ARRL Southwestern Director Fred Hynes congratulated the old officers and presented the new officers. The new President is Wes Prince KA3DSE. I then gave my travel log on my trip to New Zealand, Australia, and Fiji showing a smidgen of the videotape I shot down under. The club did a fine job of setting up the video equipment for all to see. Then awards were given to those who had performed tirelessly for the club and door prizes topped it off. The Downey Radio Club is the first club I joined back when they held their meetings across from Woodruff Junior High where I went to school. I went from novice to extra taking summer school classes at Warren High in Downey. My first club Field Day was with the DARC. After a few years, a few of us kids formed the Bellflower Amateur Radio Association. Primarily to get a better score on Field Day. When I left home for college Ken Warenbrock was president back then. It's good to know the Downey club is still going strong with over 180 members, and that I can still get a higher score on Field Day than they can.

Strategic Planning Committee - Autonomous

As you will no doubt hear more about this group elsewhere, I will therefore make these comments brief. The Jet Propulsion Lab is looked upon all over the world as one, if not THE, leading center for

Science and Technology. The Amateur Radio community is no exception to this perception. To further this reputation will require some far reaching ideas and ambitious goals to propel the JPL ARC into the 21 Century. The SPCA intend to aid the JPL ARC in providing a State-of-the-Art communications system that will let the public know the latest and greatest in what's happening at JPL, NASA and other organizations looking to the future. The SPCA will do work outside the Board of Directors allowing each to perform its functions more efficiently. At the November General Meeting an entire reorganization plan will be put forth to the membership for discussion. The rest of the reorganization will be more familiar to the membership but please give us some feedback on the plan and how YOU would like to fit in.

FIELD DAY RESULTS

The 1990 Field Day results are published in the November issue of QST magazine. The Jet Propulsion Amateur Radio Club W6VIO/N6PBS came in 14th place in the 3A category. Just wait till next year. It is interesting to note that had we gone 4A category using one more station on the air but not making anymore contacts, we would have been in 14th place. We should consider a new category next year. CONGRATULATIONS to NO6B with Bob Dengler NO6B and Jan Tarsala WB6VRN as winners in the 2B (two operator) category. They came out on top from Mt. Pinos despite the typo in the listings.

BOARD MINUTES - October 24, 1990

By Sid Johnson, WB6VWH

Present: Jim Kesterson, Walt Mushaglan, Jerry Hawkes, Steve Jenkins, Randy Hammock, Jay Holladay, Walt Dlem, Larry Smith, Sam Weaver, Jan Tarsala, Mark Schaefer, Rick McKinney, Sid Johnson.

Walt Dlem opened the meeting by pointing out a problem with the budget. A VERY long discussion followed. Essentially the problem involved the ERC grant which is to be used for the purchase of a new tower and a new HF rig for the trailer. Due to a mix up only half of the amount requested by the club was granted. The club membership voted to spend this amount for the tower purchase so none is left over for the HF rig. Jim Kesterson is to try and straighten out the mix up with the ERC. If necessary purchase of the new HF rig will be shelved until next year.

Jay Holladay announced that the Santa Barbara Radio Club was to tour JPL on Friday 10/26 and he needed volunteers to help guide the 55 expected people.

Walt Mushaglan made an announcement about the upcoming JPLARC involvement with the county wide emergency disaster drill scheduled Monday 10/29.

Walt Dlem indicated that the Kendicom repeater was due to be returned to the factory in the next few days. Walt is currently working with procurement who will be handling the details of the return and warranty repair.

The meeting was adjourned at 1:00 pm.

Sid Johnson, Secretary

SATELLITE NEWS by Courtney Duncan, N5BF

The AMSAT Symposium and Annual Meeting, sponsored this year by the Johnson Space Center Amateur Radio Club (W5RRR), was a big success. The meeting was held on October 19-21, 1990, and was attended by amateurs from all over the world. As always, delegates were torn between interesting talks on various aspects of amateur satellite operation and the informal sessions held in and around the hotel wherever groups of like-minded enthusiasts found themselves together. But this year was even worse. Tours of the Johnson Space Center, which could easily consume an entire weekend in themselves, also competed for the attention of the attendees. For the first time since I've been able to attend AMSAT meetings, a working amateur station was available right outside of the meeting hall. The W5RRR club maintains a demonstration class satellite station in the main visitor exhibit building (Building 2). I was able to conduct Pacsat (AO-16) demonstrations and contacts from this station during the Saturday sessions.

All of the presentations and deliberations were important. After all, this is the one time in a given year when AMSAT members and leaders are able to get together for a few days of intensive interaction. Probably the most relevant events were a presentation on the AMSAT-OSCAR-13 orbit given by Tom Clark, W3IWI, and a decision by the Board of Directors to shelve the Phase IV project and enter into participation with the now beginning Phase III-D satellite project.

Tom Clark's presentation detailed an extensive super-computer study of the orbit of AO-13. Several users have noted that the perigee has been dropping, consistently and (amazingly) linearly, since 1988 when the final orbit was established. Intensive investigation of this phenomena yields a tentative prediction that the perigee of the highly elliptical orbit will continue to decrease until sometime in mid 1992 when it will bottom out (at around 500 Km above the surface) and start back up. Some atmospheric drag and possibly orientation maintenance problems are expected during this time. The perigee is then expected to increase for a couple of years and start back down, reaching a theoretical minimum of 50 Km below the surface sometime in 1997. Before that happens, probably in late 1996, the perigee will dip into the atmosphere, and the orbit will lose all of its energy in a few weeks or days, and ultimately a complete decay will occur. Luckily, this is in the time frame of the expected launch of the first Ariane V test vehicle on which AMSAT-DL has arranged for the launch of the Phase III-D satellite. Whether we do without a satellite for a year or have overlapping coverage for a year depends on what happens with the destructive perturbations on the AO-13 orbit and the Ariane V test schedule, each unpredictable from this far in advance.

The ultimate degradation of the AO-13 orbit is not due to orbital decay which results mostly from atmospheric drag, it is due to an increase in eccentricity (which makes the perigee lower and the apogee higher, not changing the average orbit altitude or energy) which is brought about by lunar and solar gravitational forces on the satellite. Clark had also analyzed the effect of these perturbations on the other orbital parameters (Right Ascension of Ascending Node, Mean Motion, Argument of Perigee, Inclination, etc.) with some interesting results. Unfortunately, as it turns out, if AO-13 had started with a different RAAN (in other words, if it had been launched several hours earlier or later or if the final maneuvers had been delayed until the transfer orbit had precessed to a different RAAN), it would have been placed into a different part of the luni-solar eccentricity modifying perturbation cycle and the perigee might now be rising rather than falling. Predictions of the effect are difficult because small changes in initial conditions result in large changes in later results. The analysis is a study in chaos which Clark actively demonstrated with his "chaos machine," a set

of dual pendulums that behaved radically differently though they were started in about the same way in several instances. This effect will be considered very thoroughly before the final orbit of another AMSAT spacecraft is selected.

If this newsletter reaches someone who is an expert in the field of luni-solar perturbations of earth orbits, AMSAT would like to hear from them as soon as possible. Please contact me at your earliest convenience.

The decision of the AMSAT-NA Board to discontinue active work on the Phase IV geosynchronous satellite project was not made easily. Although there is a desire to provide a fixed-position satellite for amateur use in the western hemisphere, AMSAT (being comprised mainly of engineers, technicians, and hobbyists) has been unable to find within amateur radio a means of raising sufficient funds (several million dollars which exceeds AMSAT's usual funding by an order of magnitude) for the project. Phase III-D, a bigger and better follow-on to the popular AMSAT-OSCARs 10 and 13, is already an international project with participation from countries too numerous to name exhaustively here. As such, it has a much larger funding base. The drawbacks are, however, that the diversity of participants leads to a diversity of goals and, more importantly, the satellite cannot be placed into an orbit that is fixed over one region of the earth or another and still provide worldwide service.

The primary goal of the Phase III-D project is to improve uplink and downlink performance at the satellite by 10 dB over AO-13 on all bands. This will be difficult or impossible on the operating modes that use a 2 meter downlink, but there will still be some improvement. There may be a 10 meter AM or SSB beacon on board, but no transponders using HF frequencies. On the bands at and above 435 MHz, the link improvement goal will be met or exceeded. The hope is that this improvement in signal (coupled with selective or punitive AGC designed to actively prevent high power users from dominating the transponders) will allow ground stations without tracking antennas to be constructed, significantly simplifying user installations and therefore allowing for a larger user base and a greater diversity of utilizations.

Software work continues on all of the microsats. As this is being written, Packet BBS software has been loaded to AMSAT-OSCAR-16 and LUSAT-OSCAR-19 and ground stations are beginning to experiment with their file handling capabilities. With the new file system on board the satellites, DOVE-OSCAR-17 now has the capability to carry bulletin and orbital information for packet transmission. Digitized voice transmission experiments will be next. There are special control considerations requiring that special care be taken in handling DOVE. Finally, WEBERSAT-OSCAR-18 pictures were presented but it was noted that, for some unknown reason, the spin rate on the satellite has dropped to zero and the complex resulting motions are so hard to understand and predict that the camera experiment has been temporarily halted pending a change in status or better understanding of the dynamic behavior.

A local group of AMSAT members, led by Gene Davies, AA6NP (AMSAT-NA Regional Coordinator) and myself in conjunction with members of the World Space Foundation have placed a bid with AMSAT to host the 1991 Symposium and Annual Meeting at JPL with accommodations in Pasadena. If we get the nod from the AMSAT Board, we will be asking club members to help out with arrangements and logistical support. The World Space Foundation is attempting to raise sufficient funds to fly a demonstration solar sail mission sometime in or after 1992. AMSAT has an agreement with the Foundation to provide radio equipment to control and monitor the sail spacecraft. If you are interested in participating in any aspect of this fascinating mission, contact me for more information.

Several XT class computers are being surplused from various sections on Lab. The radio club can use as many of these as can be made available. If you know of any PCs that might be made available to the club and haven't already done so, please contact Steve Jenkins, N6UNI, or Jon Adams, NW6H. The fact that several XTs have already been acquired for the club in this way has inspired several of us to begin thinking of ways in which we might improve the capabilities of our club station on several different fronts, both immediate and long term. If you would like to help out with these improvements, contact Jon Adams or me.

Courtney Duncan, N5BF
354-8336
238-600

DX NEWS By Bob Polansky, N6ET

As the winter draws closer, the HF bands are really showing signs of life. I've spent the last several mornings with the beam pointed at Europe listening to dx stations from all sun-lit parts of the world. Hope it never ends! 40 meters in the evenings has also held its share of dx delights. The upcoming CQ WW CW Contest on the weekend of 24 and 25 November should be a real blast! Here's what's in store for the coming month.

ASCENSION ISLAND - ZD8Z promises all band operation from this remote spot in the Atlantic from 15 to 29 November.

CROZET - FT4WC is moving to this Indian Ocean location in mid-November for about a year. Hope he's very active.

EAST MALAYSIA - 9M600 operated by N200 will be active from 16 to 30 November on all bands, mostly on cw.

GAMBIA - C56/G40DV will vaporize the ether from 22 November until 6 December. On cw, he will be on the low band edges + 2 kHz. On ssb, look for him on 7070, 14270, 21270, and 28470 kHz.

ISLE OF MAN - GD4UOL will activate this tiny UK island from 17 to 30 November on cw only.

MAYOTTE - Look for FT5EJ on weekends on or near 28020 kHz. He's easily workable from here between 1600 and 2000Z.

SVALBARD - JW7SI, JW8XM, and JW9XG will all try their luck in the upcoming CQ WW Contest. Their presence will be evident on all bands.

WALVIS BAY - ZS9A is frequently on 28610 kHz on Sunday mornings from 1500Z. I ran across him also on 28030 kHz during the week calling CQ with no takers. He was a new one on CW for me!

Enough said for now. I've made a few extra copies of The DX Bulletin, the source of most of the information in this column, and left them in the ham shack for anyone that wishes his own copy. I'm certain that Chod Harris, the editor of this fine publication would love to have you order a subscription of your own.

73,
Bob, N6ET