

Sierra Signals

Sierra Foothills Amateur Radio Club
Auburn, CA
An ARRL Special Service Club

<http://sf-arc.org>

September 2006

P.O. Box 1005, Newcastle, CA 95658

Space Barnacle Due Back at Port

(Reported by Greg, KO6TH)

PCSAT-2, the amateur radio experiment attached to outside of the International Space Station, is due to be returned to Earth with the upcoming flight of the shuttle Atlantis. This will end a year of on-orbit operation and experiments.

PCSAT-2 was carried into space in August of 2005, part of a "suitcase" materials science experiment package that was bolted to the Station's P6 truss. The official objective of the mission was to study the effects of the space environment on some new solar cells, but Bob Bruninga WB4APR and his Naval Academy students apparently wouldn't pass up the opportunity to put something more useful in the role of the cell's "load" device, in place of a simple telemetry beacon.



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RESOURCES

REPEATERS

145.430 (-0.6 MHz/PL 162.2)

440.575 (+5.0 MHz/PL 94.8)

223.860 (-1.6 MHz/PL 100.0)

CLUB NET

Thursdays, 7:30PM, K6ARR/R
145.430

CLUB MEETINGS

Second Friday of the month,
7:30PM at the Library, 350
Nevada St, Auburn CA

CLUB BREAKFAST

Last Sat of the month at Susie's
Café, Cirby at Riverside, Roseville
- 8:00 AM

NET CONTROL OPS

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The satellite has a number of different and interesting experimental modes that have been enabled during its time in orbit. Besides the obligatory ARPS digipeater (what Bruninga satellite would be complete without one?), Packet BBS, and an FM voice repeater, PCSAT-2 has a 10 meter receiver and an

(continued on page 2)

2006 Calendar of Events

(Operating Events in Italics)

[Dates are local unless otherwise indicated]

Sept 2-3	<i>All Asian DX (SSB)</i>
Sept 8	Regular Meeting
Sept 9-10	<i>Worked All Europe (SSB)</i>
Sept 9-11	<i>ARRL Sept. VHF</i>
Sept 10	<i>No. American Sprint (CW)</i>
Sept 17	<i>No. American Sprint (SSB)</i>
Sept 18	<i>Run for the Bacon QRP</i>
Sept 23	<i>CQ WW DX (RTTY)</i>
Sept 30	Club Breakfast
Oct 13	Regular Meeting
Oct 28	Club Breakfast

We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

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Forty Years Ago At The SFARC

(Reported by Gary, KQ6RT)

September 21, 1966

There were five members present but no formal meeting was held. Carl Rolufs paid his dues for the year and we had a "bull session" for a while. Then we adjourned to the Koffee Kup where Carl treated us to cakes and Coffee.

Dick

73,

Gary, KQ6RT

Space Barnacle

(Continued from front page)

experiment in the use of PSK-31. The idea was to create a 10m to 2m PSK repeater in space. As an uplink, 10m would have a very low doppler shift, which would otherwise make the very narrow PSK31 signal unusable. And, because of the capture effect, the 2m FM downlink would also require little or no tuning by the receiving stations. Early checkout of the 10m receiver seemed to go well. 4 watts into a vertical antenna produced acceptable results, but after a short while they noticed that it was becoming increasingly deaf. Within weeks it took 100w to be heard. Nearly a year later, in one of the last configurations of the satellite, high power 10m stations (those with at least 100w AND a beam) were encouraged to try their hand at getting a signal through. Several tried, but there were no reports of success. It will be interesting to get the satellite back on the ground, to find out what happened to the receiver. This is not usually possible; very few satellites return to Earth in one piece...

The last experiment on PCSAT-2 was to attempt a cross-mode (as opposed to a cross-band) repeater, just for fun. Command stations on the ground would listen with their digital stations to the packet digipeater, and then respond via FM voice through the satellite's voice channel to the calling station. In operation, the calling station would send a packet up to the satellite on 2 meters, with the command stations listening for the digipeat on the ground. They would then respond through the satellite, with the acknowledgment coming as voice on the 70cm downlink. Seems kind of crazy to me, but Bob was never one to stick to convention.

PCSAT-2's mission, experiments, and operational status is very well documented on the Internet at

<http://web.usna.navy.mil/~bruninga/pcsat2.html> . The current plan is for PCSAT-2 to be turned off for the last time on Monday, 28-August 2006. The 3rd spacewalk of the Atlantis mission, during mission day 7, will retrieve the suitcase for safe passage back to Earth, its original port of call. Welcome home, PCSAT-2!

73s,

Greg KO6TH.

Note: This year's annual Amsat Conference will be held in the SF Bay Area, which is within an easy day trip from here. The conference is October 5-10, and details can be found at: <http://www.amsat.org/amsat-new/symposium/>

Contesting News

(Reported by Fred, K6DGW)

Selected Contests for September 2006

All Asian DX (SSB): (2 Sep 0000Z – 3 Sep 2400Z)
www.jarl.or.jp/English

Worked All Europe (SSB): (9 Sep 0000Z – 10 Sep 2359Z)
www.waedc.de

ARRL September VHF: (9 Sep 1800Z – 11 Sep 0300Z)
www.arrl.org/contests/2006/sepvhf.html

North American Sprint (CW): (10 Sep 0000Z – 04000Z)
www.ncjweb.com/sprinrules.pdf

North American Sprint (SSB): (17 Sep 0000Z– 0400Z)
www.ncjweb.com/sprinrules.pdf

Run For The Bacon QRP: (18 Sep 0100Z – 0300Z)
fpqrp.com/fpqrpun.html

CQ WW DX (RTTY): (23 Sep 0000Z– 24 Sep 2400Z)
www.cqww.com

Contest Comments

We've already covered everything on the list except the Run For The Bacon mini-contest. It is sponsored by the Flying Pigs QRP Club who's motto is, "No Dues, No Rules, Just Fun – and if we don't like it, we fix it!" and the club call is W8PIG. Like the Spartan Sprint, it is a monthly contest. 5 watts max, CW only, all non-WARC bands. If you're a pig, the exchange is RST, <state/province>, and your FP#. If you're a non-member, substitute your power (e.g. "5W") for the FP#. QSO's with pigs in NA count 3 points, with pigs on another continent count 5 points, and with non-pigs count 1 point.

Other Ramblings

ARRL 10 GHz: The weekend of 16-17 Sep is the second half of the ARRL 10GHz and up contest. I'm not aware of any SFARC members operating on the ham microwaves so I didn't include it above but if you'd like to hear how it works, you have a front-row seat if you have a 70cm receiver. These mountain toppers make good use of the Cactus Intertie for

coordination. Just listen to 443.975 (Squaw Peak), 443.550 (Bald Mt), or 440.325 (Mt. Diablo). Pick the one you hear best, they're all linked together. In fact, they're linked with about 160 others ranging through So. Cal, across the southwest and into parts of UT and CO, and throughout TX, so you hear a lot of chatter. If you're interested in the Cactus system, drop me an email at k6dgw@arrl.net

“When is the contest over?” Ham operating contests are, for the most part conducted under the honor system. Organizers can and do compare logs to spot busted calls or exchanges and to check QSO times, however, except for WRTC which does have referees at each station, everyone trusts everyone to be honest. The rules for the NA Sprint say “0000Z – 0400Z” but what does that really mean? We all keep time in our logs in hours and minutes, and our logging software universally logs the time when the QSO is completed (anything else doesn't make sense). The start is fairly clear – you should not begin transmitting (CQ or to call someone) until the start time has passed. Theoretically, you could get one more Q in your log if you called a buddy before the start time, and completed the exchange and logged the Q right at the start time. You could, but it would not be honest.

The end time is a little more fuzzy. You might begin a contact at 0358 and, because of QSB, need some fills and finally press the Enter key at 04:00:25, logging the Q at 0400. Does it count? If you're in the Cal QSO Party (first full weekend in Oct, the answer is yes. NCCC's policy is to give the operator all the benefit of doubt possible. For most contests, however, the official end time of 0400 means that the contest ends when the clock advances to 04:00:00: ... 00:00:). Thus, you must complete a contact before that time, and a QSO with a time of 0400 in your log would not count. It's pretty minor, but when rabid contesters are not operating simultaneously operating two radios at 30WPM, they worry about little things like this.

9K2/KB9LLO: Drew is a Captain in the WI Guard, and currently based out of Kuwait (for about 90 more days), however he seems to spend quite a bit of his time in Iraq doing things he doesn't talk about. Andrea and I adopted him and his unit and send them packages, so we've gotten to know him. Drew has an Elecraft KX1 trail radio and the HF Packer Amplifier (for about 30W), and he's got a stealth antenna strung between two tents in an unoccupied part of his 9K base. HF conditions are about as rotten as they can get and he has yet to even hear North America through the EU racket, but he is making some QSO's as far as western EU. 9K is Zulu+4, which puts him 11 hours ahead of us. This suggests that even though the MUF occasionally doesn't even get to 20m right now, a gray line QSO might be possible right around sunrise or sunset. So far no joy, but I keep trying.

Cycle 24? For those of you who are new to ham radio, rest assured that HF conditions will not remain as crummy as they are right now indefinitely. Cycle 23 is either at or close to its minimum and 24 should be cranking up, maybe next year. In fact, a small furor arose in the middle of August when a baby sunspot bubbled up and was found to have a reversed magnetic field from all the Cycle 23 spots, one of the two primary signals of a spot from the new cycle. Alas, the little guy lasted only 3 hours, they didn't even give him a number, and he surfaced at a solar latitude of 15° which is the other primary

signal. Spots in the new cycle generally surface at higher latitudes (~30°) so now there's a mini-controversy as to whether or not we should be rejoicing.

I ran across a very readable explanation of how the amplitude of a cycle can be predicted on a NASA web site at science.nasa.gov/headlines/y2006/15aug_backwards.htm?list84177 (In the story about the Littlest Sunspot, click on “full story”). It seems there is a “conveyor” of hot plasma on the sun that circulates material from the surface down to the core and back up. It takes a gob of plasma around 30 - 50 years to make the circuit ... sometimes the conveyor runs faster and sometimes slower. Sunspots have intense and highly knotted magnetic fields which persist as sunspot corpses after the spot has dissipated. The conveyor sweeps up the magnetic corpses and recycles them to the interior where they get amplified by the sun's central dynamo and form new spots. When the conveyor is fast, it does a better job scarfing up the magnetic corpses, and thus the cycle that will result from recycling those fields will be bigger. It appears that spots appearing around 2010 at the maximum of Cycle 24 will be built from fields swept up when the conveyor was quite fast. We can only hope!

73 for this month,

Fred K6DGW

August Meeting Minutes

(Reported by Leslie, K7NYE)

Minutes of the SFARC Board and General Meeting, August 11, 2006 at the Auburn, CA main library:

Board of Directors meeting began at 6:45 PM with quorum of officers in attendance. No new business was discussed. Mention was made regarding preparations for upcoming club events, including the club picnic on August 19th in Rec Park in Auburn and the club breakfast on August 26th. Board meeting was adjourned at 7:25 PM.

SFARC General Meeting Minutes:

7:30 PM Meeting started by W7IB, President, Casey McPartland; Meeting started with Pledge of Allegiance, Introduction of SFARC Board Members and introductions made of all club members and guests, total of 34 in attendance; Officer reports were given by President and Treasurer, but VP was absent and Secretary were not present at that time. Committee reports were made. These included ARES, VE and Repeater reports by the designated representatives. Satellite report was not provided, as representative was not present. Mention was made of the upcoming dates for club events- the club picnic on August 19th, the next club breakfast August 26th and September 8th club meeting. Marianne, KE6EST provided the club some information about the results of the Tevis event. Out of 160 horses entered this year, only 87 horses finished. John Crandall from Virginia, riding horse #51 won the top two

prizes, the Tevis trophy for best time and the Haggin Cup for Best (horse) Condition. APRS technology was not used on the SOS sweep rides this year and it was mentioned that further work will need to be done before the technology can/will be used for future events.

New Business:

No new business was introduced.

Presentation:

Richard Kuepper, WA6RWS, led a brief review of the "Fundamentals of Ham Radio", a presentation that was a good review for all members, but especially targeted at newer hams. Richard defined modulation (FM/AM), the history of modulation and beginnings of AM and FM, as well as other. He discussed how the use of repeaters began, the meaning of QRN (atmospheric noise), as well as OSCAR, the first beacon/repeater launched into space back on Oct. 12, 1961. Richard also talked about the history of amateur radio, specifically about the early days of repeaters and how that impact amateur radio. Finally, he provided the members with an excellent review of repeater quality and the complexities involved with using repeaters, including antennas, coax, frequency, signal strength, as well as other variables connected to the use of repeaters. Mention was made of CW as a useful tool in communications within amateur radio.

Gene, KG6NYH held the monthly Drawing. Meeting was adjourned approximately 9:30 PM.

Respectfully submitted:

Leslie, K7NYE

Secretary

Scanner Talk Groups

(Reported by Matt, KC6RUO)

Hello fellow Amateur Radio Operators.

For those that are scanner freaks, such as myself, here are the talk group numbers for the newly formed Citrus Heights Police Department. They are on the Sacramento County 800 MHz trunked radio system, so no need to add frequencies, just add the talk groups below.

CHPD TALK GROUPS

- 48560 PATROL PRIMARY
- 48592 CHANNEL 2
- 48624 TAC 1
- 48656 TAC 2

- 48688 TAC 3
- 48720 DETECTIVES
- 48752 VOLUNTEERS
- 48784 SERVICE 1 (whatever that means)

Matt
KC6RUO

Baker to Vegas Run

(Forwarded by Chuck, KG6FFK)

The Roseville PD has put together a team of 23 officers (20 runners and three alternates) to run a relay race from Baker, CA to Las Vegas, NV on April 21, 2007. We also have 24 other employee volunteers to go as part of the support team. We are in need of licensed Ham Radio Operators to assist us in the race for communications and above all safety. It is required that a radio operator be in the van that follows each runner the entire race. We would like to find 2 or 3 operators for this function and 2 operators to help out at the Net Control Station in Las Vegas. It is a very fun weekend. We ran the race back in 1999 (we came in 3rd place for our agency size) and was able to share the resources of the Freemont RACES. They are not able to supply us with operators this year but are available for advice and support and I can pass on names and phone numbers. Here is their website address:

<http://www.baker2vegas.org/>

The benefit of all of this is a great training exercise for your operators. The down side is there are no funds to pay for travel, lodging or meals for any of the participants. Everyone is paying their own way which I realize makes it very difficult to find volunteers. I can promise a t-shirt and a certificate of participation. I'd be happy to attend a meeting to talk about the race to your members if you think it would help. Thank you very much for your assistance in this matter.

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The following information is from Norm Medland about the Baker to Vegas Race. Sounds like there will be some relaying going on.

Chuck

FYI. I've traveled that road numerous times. It's Interstate 15 and has parallel trails for pipelines and powerlines, all marked for 4WD. I-15 has been engineered for better motoring, but is still a very steep climb for the first 35 miles out of Baker toward Nevada until the summit which is over 4700 feet. From there you are up and down rather abruptly over several mountains until the final 10 miles when you drive from a higher elevation to the valley floor in Nevada. It's a good thing it's in April because June-October it's hottem' hades. Baker is the southern entry point to Death Valley. I'm assuming they would stay close to I-15. Incidentally, there are two primitive airstrips on the California side, one at Halloran Springs, the other at Valley Wells near the rest area. Next landing strip is in Nevada at Jean, but by then you are back in civilization. Too far down the road for me to say yes or no. Not sure I've got the right equipment or knowledge to help at any rate.

Norm

Indiana, Australian Youngsters step up to the Microphone to Space

(Reprinted from ARRL Letter, Vol 25, No 33)

Pupils at Robinson Elementary School in Anderson, Indiana, and at Teven-Tintenbar Public School in New South Wales, Australia, learned more about life in space when they spoke via ham radio earlier this month with ISS crew member Jeff Williams, KD5TVQ. The Amateur Radio on the International Space Station (ARISS) program arranged both direct VHF contacts. During the August 2 QSO between W9VCF at Robinson Elementary and NA1SS in space, one youngster offered a new twist on the typical "food question." He wanted to know how the space station crew was able to eat without their meals floating away.

"Well, it does float if you let it go," Williams allowed. "Wet food, if you fish it out of the container with a spoon, will stick to the spoon. Sometimes dry food you can let float and catch it in your mouth." He said moist food is easier to consume because it will stick to a utensil or the container. "We are well supplied with food," he said in reply to another pupil's question.

Williams told the youngsters he enjoys being an astronaut because "we do some pretty cool things, and that's what my passion is." He said he became an astronaut because he believes in space exploration that eventually will take human beings outside of Earth orbit and on to the planets.

Responding to another question, he told the youngsters that all three space travelers now onboard the ISS get along very well. There are three crew members on the ISS: Williams, ISS Expedition 13 Commander Pavel Vinogradov, RV3BS, of Russia, and Thomas Reiter, DF4TR, of Germany.

On August 11, an audience of nearly 400 was on hand at Teven-Tintenbar Public School to witness the contact between VK2ZTY and NA1SS. The youngest student, Amy, VK2FCAT, a recent Foundation licensee, had the honor of

establishing contact with NA1SS. Williams told one youngster that there's no single most-important experiment under way aboard the ISS.

"We have a whole bunch of experiments that we're doing that will help us understand what it takes to counter the weightless environment for people in long-durations in space," Williams explained, "primarily in preparation for going back to the moon and staying there and on to Mars, because it takes a long time to get to Mars, do the mission and come back."

Williams said he misses his family most of all during his space mission. "I also miss the smells of Earth," he continued, "the smells of nature -- flowers, the wind. I miss quietness."

After the ISS went out of range, ARISS mentor Tony Hutchison, VK5ZAI, picked up where Williams left off, answering a half-dozen questions that the students weren't able to fit in during the nearly eight-minute pass. He also took more questions from the audience. Just after sunset, those gathered at the small school were treated to a clear view of the ISS passing overhead on its next orbit.

ARISS <<http://www.rac.ca/ariss>> is an international educational outreach, with US participation by ARRL, AMSAT and NASA.



