

# Sierra Signals

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

October 2008

P.O. Box 1005, Newcastle, CA 95658

## Pixels to Rain Down From Outer Space

(Submitted by Greg, KO6TH)

Yes, that's right, Pixels. Mega-Pixels, in fact. At least, we are hoping that is what will happen. And, no, you won't need to duck under an umbrella.

The October 12<sup>th</sup> launch of a Soyuz rocket will bring the next Space Tourist - NASA calls them "Spaceflight Participants" - Richard Garriott, and a Slow Scan TV camera to the International Space Station. Richard, W5KWQ, will be accompanied by Mike Fincke, KE5AIT, and the rest of the Expedition 18 crew, on this crew-change flight. He will spend about 10 days on orbit, and then return to Earth with the Expedition 17 crew, leaving behind the Expedition 18 crew and that all-important camera.

At the Key of S.F.A.R.C.

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#### REPORTERS

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**History:** Gary, KQ6RT  
**Misc Radio:** Fred, K6DGW

### 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

Dave Jenkins, WB6RBE  
Gary Cunningham, KQ6RT  
Norm Medland, W6AFR  
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If the Garriott name sounds familiar, it should be. Richard is the son of Owen Garriott, W5LFL, who was the first Amateur Radio operator to use Ham radio in space. Owen mounted a 2 meter antenna in the window of the Space Shuttle Columbia in 1983, and chatted with hams on the ground with a hand-held transceiver. That event opened the doors for further use of Amateur Radio in space, including the many scheduled Q & A sessions with schools across the planet, and the incorporation of Amateur Radio as an official backup communications link.

(continued on page 2)

### 2008 Calendar of Events

Oct 4	<b>VE Session – 8:00 – 10:00am</b>
	<b>Raley's - Douglas/Auburn Folsom</b>
Oct 10	<b>Regular Meeting – White Elephant Sale</b>
Oct 25	<b>Club Breakfast – Susie's – Cirby/Riverside</b>
Nov 1	<b>VE Session</b>
Nov 14	<b>Regular Meeting</b>
Nov 29	<b>Club Breakfast</b>

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## 50 Years Ago At The SFARC

(Reported by Gary, KQ6RT)

The Sierra Foothills Amateur Radio Club held its regular meeting on Oct. 1 1958.

Harry Grieb and Woody gave favorable reports of the club activities at the district fair. An auction and sale of radio parts was held and there will be a bulletin board for club members to either auction, sell or trade the items they have no further use for.

Bill Lake, K6CDI, the new chief of the Naval Reserve Electronics Bldg. was introduced. Ted Pantages of California Radio and T.V. Supply, North Sacramento, was our special guest of the evening. He gave a rundown of the list of parts and equipment he carries at his place of business. Mr. Pantages also donated two \$5.00 merchandise certificates to be drawn for by the club members at the Nov. meeting.

Films were shown on guided missiles, antennas, ground waves and components, which were all of interest.

After refreshments were served the meeting was adjourned until Nov. 5.

These minutes are respectfully submitted for correction and approval.

Arlene Murch  
Secretary

73,  
Gary  
KQ6RT

P.S. - As part of a work experience project in my high school electronics class I worked for Ted Pantages at Cal Radio for two weeks. At the end of that two weeks Ted presented me with my very first paycheck. A whopping \$50, which was actually very good pay for the time.

Gary

## Pixels...

(Continued from front page)

The camera Richard will carry to orbit is a Kenwood VC-H1 "Video Communicator". It includes a small camera, and all the electronics and software to format and interface the camera to the existing on-board Kenwood D700 transceiver. It also represents a change in approach to Amateur Radio equipment on the ISS. The previous SSTV strategy of using a USB-driven WebCam and an on-board laptop kept running into trouble, as the laptop kept getting redeployed to other tasks. As a result, the use of SSTV on board the ISS has never been possible. The VC-H1 is a dedicated camera, and can't be "redeployed" elsewhere!

Richard's plans include the deployment of the camera early in the mission. The camera has an automatic mode, where it will transmit a new picture every 3 minutes. Reportedly they will initially point the camera out a window, taking pictures of Earth as they fly by. Hopefully they will turn it inward later, to give us a view of what life is like on the Space Station.

For those unfamiliar with SSTV, this isn't the same as full motion ATV. The process for transmitting an SSTV picture via Ham radio is basically a variation of the good old office Fax machine. The picture is scanned into a number of lines, and the picture information on each line is translated into a sequence of audio tones, with different tones for different picture element brightness. Each line is scanned several times, to give the picture information for a color image. The lines are then strung end to end, with a "sync tone" in between to allow the SSTV software on the receiving end to put things back together. The whole process for sending a picture takes about a minute or so, depending on the particular format being used. There are quite a few formats, in fact, with different trade offs for speed, resolution, and susceptibility to noise. The VC-H1 uses a format called "Robot 36".

When sending SSTV, the plan is for the on-board Kenwood transceiver to remain on the usual ISS downlink frequency of 145.800 MHz. To receive a picture, you will need a radio capable of receiving the 2 meter FM mode downlink, a computer with a sound card and SSTV software, and an interface between the receiver and the sound card. Simply plugging a cable from the audio output of the radio to the line-input of the computer can work well, but be sure to keep the volume level on the receiver low to prevent overdriving the computer's audio system. Fancier interfaces, with ground isolation and filtering, are also available, but I find that simple is often the best. If your receiver has a data jack intended for use with a TNC, use that; they tend to be perfectly adjusted for this task. If all else fails, aiming the PC's microphone at the radio's speaker can work too.

You may need to adjust the receiver slightly due to the Doppler shift (plus or minus 5 kHz should do it). A beam antenna aimed at the ISS as it passes by is ideal, but a simple omnidirectional vertical whip should be enough. Predicting when the ISS will pass by can be done with your computer and some software, but the easiest way is to go to the AMSAT website (<http://www.amsat.org>) and click on the "Passes" box in the upper center, just under the logo. Choose ISS from the "Show predictions for" box, and enter your location. Auburn is in grid

CM98, and that should be close enough. Or, you can just leave the computer and radio on, and see what shows up!

SSTV software is widely available on the Internet. The MAREX team has a web page with links to some of the more popular programs at:

<http://www.marexmg.org/fileshtml/sstvlinkpage.html>

For Windows computers, I recommend the MMSSTV package, and for my Linux system I use QSSTV. (Sorry, Mac folks, I have no experience there...) Configure the software for Robot 36 mode, or leave it on Automatic Detect (sometimes called VIS).

So, dust off that radio and computer, and string up the cables. Once they've launched the Soyuz, park your rig on 145.800, and wait for the pixels to come raining down from outer space!

73s,

Greg KO6TH

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## September Meeting Minutes

*(Reported by Wayne, W6DT)*

### Minutes of the Meetings of September 12, 2008

#### Board of Directors Meeting

The meeting of the Board of Directors convened at 7:10 PM, a quorum being present.

The bylaws need to be reviewed. It would be brought up with the general membership. Next month, October is the annual "White Elephant" sale. The sign up for the meeting room needs the input of the general membership as the cost exceeds \$100, and we need to sign up timely. Gene, KG6NYH, returned \$100 to the treasury as proceeds accumulated from the prize drawings.

The meeting adjourned at 7:25 PM.

#### Meeting of the General membership

The membership meeting convened at 7:32 PM. Flag salute was followed by introduction of officers, members and guests.

Chuck, KG6FFK, gave an ARES report.

Leslie, K7NYE, gave the treasure's report. The current balance is approximately \$2300. Expenditures made last month included \$400 for the picnic, which included the drawing prizes, \$30 for PG&E and \$50 for the repeater.

Richard, WA6RWS, the election committee as well as the official greeter, reported that there were candidates for all positions for the club's November election.

Birton, N6UG, reported that the second repeater had been up and running from a temporary location on Mt. Vaca. The tests were a success but that location now needed to be shut down

and the repeater moved to a new location and that the acquisition of a controller and duplexer would be required.

The club's continued use of the library for meetings was brought up and a **motion** was made by Bob, WA6ULL and seconded by Dave, NO6NO that we try to schedule the room for next year and approve the funds. The motion passed by voice vote.

The club was reminded that the White Elephant sale was to be held at the October meeting and requested the members bring their items to the meeting with all proceeds going to the club, historically used to fund the Christmas party.

President Don, WB6LPJ, advised the members that the bylaws needed to be reviewed. Copies were passed out. After a review, a motion was made by George, KG6LSB and seconded by Richard, WA6RWS, that the word "Raffle" be changed to "Drawing". The motion passed by voice vote. Don asked the members to take the copies home and report back any additional changes or suggestions for change, if any, at the next meeting.

The meeting was adjourned at approximately 8:50 PM.

Respectfully submitted,

Wayne Stilwell, W6DT

Secretary

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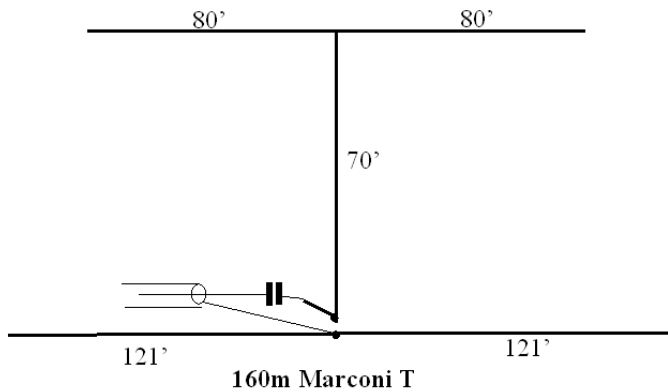
## Miscellaneous Radio

### Low Band Antennas

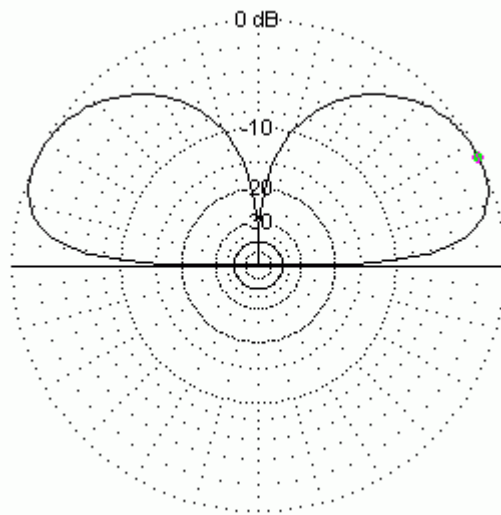
First off, on the outside chance that Sierra Signals will make it to you before the weekend of 4-5 Oct, remember, The California QSO Party is that weekend. This is our contest, everyone wants to work CA stations in as many of the 58 counties as possible so if you've never been in a pileup as the DX station, here's your chance for some real fun. It starts at 0900 PDT on Saturday and ends at 1500 PDT on Sunday. Single operators can operate 24 of the 30 hours. You can work a station on each band, SSB and CW, 3 points for CW Q's, 2 points for SSB. Our multipliers are the 50 states, and 8 Canadian "areas." All the info is at [www.cqp.org](http://www.cqp.org) including a list of 4 letter county abbreviations. Nearly all of the major logging programs support CQP. One note, you can work other CA stations for QSO credit, and the first one gives you the CA multiplier. You are required to log their counties, however. In years past, Placer and Nevada counties are often somewhat sparsely represented making you really rare!

We are heading into the winter months and noise on 80 and 160 meters will be declining in the evenings. And, although we are all waiting with anticipation of the start of sunspot Cycle 24 and openings on the higher frequency bands, low band propagation is actually better at the bottom of the cycle. This occurs primarily because with low solar activity, the D-Layer, which absorbs low band RF is much weaker than near the top of the cycle. As I write this [Fri afternoon, 26 Sep], there actually is a coupled pair of Cycle 24 spots rotating around the eastern limb of the sun and we may have some rising solar activity by next fall, so this is a good time to exercise your low band skills.

Unlike 20m and above, dipoles are not even close to the antenna of choice for 80 and 160. They are inevitably low [electrically] and they split your power between warming the clouds overhead and the worms under them. Using my sloping Vee [essentially a dipole] on 160, I find I can work to Colorado. I've worked one JA on 160 CW from this location with that antenna and we've been here for 32+ years. A much better antenna is either the Inverted-L or a Marconi-T. I'm a bit more partial to the Marconi-T because the azimuth pattern is a little more symmetric, but either will work well for you.



The Marconi-T is an old antenna design [you possibly surmised that from the name], and consists of a vertical wire with a horizontal section at the top and a ground radial field at the bottom. The diagram is mine for 160, you can scale it by half for 80. I suspend mine from a pair of ropes, one on the tower and one in a tall oak tree. It just so happens mine turned out to be about 70' high, but it doesn't really matter a lot, as usual, longer is better. Most of the radiation occurs from the vertical wire. The horizontal top is really acting as a capacity hat rather than a radiator. I use two temporary radials [electric fence wire] that I unreel on the ground when I'm going to get on the air. More will improve the efficiency some, but two work just fine. Don't ground the radials at the feed point, leave them elevated 6" to a foot, and stretch them out to ground stakes at the ends.



The elevation pattern is shown above. There is no gain of course, its azimuth pattern is omnidirectional, but then we don't expect short antennas to exhibit gain. The maximum radiation is at an angle of between 20 and 30 degrees which is way better than a dipole!

Feeding the Marconi-T is very easy. The real part of the impedance at the bottom between the vertical wire and the ground radials will be close to 50 ohms, close enough for a direct coax connection. Because the antenna is electrically short at these frequencies, the impedance will include some inductive reactance, hence the capacitor. Something in the 300-400 pf range will be needed for 160, less for 80. I use an air variable mounted in a sterilite box to keep the capacitor out of the weather.

My supports for the antenna are far enough apart that I have two Marconi-T's for 160 and 80. I put them up in October and take them down around April. I store the capacitor boxes in the basement in the summer. I've left the radials out a couple of times since the grass doesn't need cutting in the winter, but Andrea and I get along a bit better if I roll them back up after the contest weekendsJ

73,  
Fred K6DGW

### Accident Injures SFARC Member

On Tuesday evening 8/26 Mary Anne and Bob Balthrope were in a serious car accident. Everyone in the car was transported to Kaiser ER on Morse Ave. Bob was a little banged up, but o.k. Mary Anne was moved to Kaiser in Roseville for surgery. Mary Anne had to have her left hip joint replaced since her socket had been shattered. A few days later she was moved from Kaiser to Eskaton Rehab center in Greenhaven on Florin Rd. for 2 weeks and is now recuperating at a 24 hour board and care facility close to home. Bob says she is coming along very well (although not fast enough for her!). She will see her

surgeon on Oct. 10 to find out if she can begin to put a little weight on the joint. Please keep them both in your thoughts and prayers.

## Montana Ham Assists in Rescue of Fellow Amateur 600 Miles Away

*(Reprinted from ARRL Letter, Vol 27, No 38)*

On Sunday, September 21, Bob Williams, N7ODM, of Bozeman, Montana, was just tuning around on 40 meters, giving his rig a test just before a scheduled QSO with his brother Rich, K7URU, in Spokane, when he heard a faint CW signal around 1 PM (MDT): Glenn Russell Ruby Jr, W7AU, of Corvallis, Oregon had broken his leg and was using a portable radio and Morse code to send out a call for help. Williams said he was able to understand the injured man's code even when his signal became very weak.

"He called me. He must have heard me testing out the radio. When I finished, I signed off with my call, and then I heard, 'N7ODM, this is W7AU/7,' so I answered," Williams told the ARRL. "I told him to go ahead, I had solid copy. He told me that he was a hiker that had fallen and broken his leg. He identified himself as Russ, provided information as to his GPS coordinates, the shelter, food and water on hand, as well as his detailed physical condition. He told me exactly who I needed to contact for assistance."

According to Williams, Ruby had slipped on a wet rock and broken his leg while out hiking in the Buck Creek Pass area of the high Cascades in Western Washington, 600 miles away from Williams. "Russ really had his act together," Williams said. "Before he even called for help, he set up his tent. It was raining when he fell, so he climbed into his tent and got into some warm clothes and had a snack of sunflower seeds and dried apricots. After that, he strung up a wire antenna, fired up his Elecraft K1 and called me." Williams said that Ruby told him he had a "couple of weeks worth of battery power" for the radio.

Ruby asked Williams to notify the Snohomish County Search and Rescue in Washington State. "I didn't have their number, so I called my local 911 dispatcher. All they had was the info for King County in Washington, so I called them and they gave me the number for Snohomish. When I got a hold of Snohomish County Search and Rescue, they asked me to obtain additional info from Russ, such as the color of his tent and if he was in a clear or wooded area, and remain in contact with him as long as possible," Williams said.

"Russ and I were able to maintain contact until about 8 PM on Sunday, during which time I was able to pass additional traffic between Russ and Search and Rescue, but then his signal got so weak where I couldn't copy it anymore. Before he faded, we had agreed to try and make contact in the morning. I tried, starting around 6:30, but he never heard me. I finally heard him calling me around 9 on 7.051 MHz. We kept in contact until he was evacuated from the site by Search and Rescue at about 10:35 AM," Williams told the ARRL.

On Sunday, rescue crews reached Ruby, who had set up camp on Buck Creek Pass, at about 6000 feet just west of the Chelan County line. He was taken to safety Monday on horseback. Williams said that bad weather Sunday prevented a helicopter rescue: "It was snowing all night; Russ told me that when he woke up Monday morning, his tent was all covered in snow."

"I just happened to be at the same frequency," Williams said. "It's just a stroke of luck that turned out great. It was quite an experience. I'm just glad that he was a ham radio operator and that I was able to talk to him. It made the difference for him. What I did was not anything special. I'd like to think that any ham in Montana would've done the same thing."

