



THE HAMCALL



Volume 44

Number 11

November 2005

The Presidents Corner...

By Jeff Martin, WB4JM



Welcome to the November issue of the HamCall. It hardly seems fair that Thanksgiving and Christmas are just around the corner. I hope you and your families will have an opportunity to get together during these holidays.

During last months meeting we held elections for the 2006 year. Congratulations to the electee's.

Here are the results:

- Vice President:
Tim Robinson, KF4MGU
- Board Members:
Mike McClure, KI4JGQ
Bill Feldkamp, KI4B
- Appointments:
WebMaster: Dean Maggard, K4NQQ
Sec/Tres: Claire Rinehart, KF4IWX
HamCall Editor: Jeff Martin, WB4JM

In addition to elections we planned for the annual Bridge Watch. Hank Cantrell, W4HTB did a wonderful job

and the event was a huge success. Thanks to all who worked... sorry about the cold pizza. Photos on the KCARC Yahoo site.

KI4B, W4BWG, KF4TOO, KI4ANC, KY4COE, KF4IWX, WA4BFL, KI4MHB, WA4RRD, WA4RRR, NU4Q, KC4WFN, KI4JJT, KI4HEJ, KI4DQS, WB4JM, N5GER, KD4SGY, W4HTB, KC4HDG, & K4CIT.

We also talked about the new "Yahoo KCARC" group. Most of you are already members but for those of you who are not you will be missing out on important club information and starting in January we will be posting the HamCall to the 'files' section for those of you receiving it by E-mail. The small group of you receiving the HamCall via USPS will continue to do so until Claire has the 2006 membership forms in and we hope to be able to reduce this group down even further. So, if you are not a member please sign up, its free and it is a great resource! Go to <http://groups.yahoo.com/group/kcarc-bg/> and join.

There will be a Board of Directors meeting the morning of December 3rd (Saturday) at the Bowling Green Police Station, members invited.

Don't forget the Dinner this Friday evening. The awards committee has all in order.

See you at the Dinner!

73's
- Jeff

Minutes & Sec/Tres Report

By Claire Rinehart, KF4IWX
Secretary/Treasurer

No Submission.

2006 Annual KCARC Dinner

*Where: Lone Star Restaurant
- Alamo Room*

When: November 18th (Friday)

Time: 6:30pm

*We will be ordering off the menu.
Bring a guest!*

Local Ham SK

November 8th, 2005

(KCARC will be sending a donation. If you would like to participate, please send a check to Claire Rinehart, KF4IWX.)

Gerald Ray Crow, NW4T, 67, of Utica, (Davies County) Kentucky died Saturday, Nov. 5, 2005, from a fall from his tower at his home while working on an antenna in preparation for the ARRL November (CW) Sweepstakes.

Gerald had been a ham for over 40 years and loved to work CW. He participated in the 2005 Field Day under the call of KY4CW which finished in first place in the Great Lakes Division and fifth nationally in class 1A. He was a long time member of the Owensboro Amateur Radio Club and an Elmer to anyone who needed help, especially learning CW or with an antenna project. He was retired from Maxell Corporation of America where he worked as an electrical engineer.

Survivors include his wife of 46 years, Sally Nalley Crow of Utica; a son, Robert Todd Crow of Beaver Dam; a sister, Susan Carol Frank of Versailles; four stepgrandchildren; three stepgreat-grandchildren; a brother, William Lee Crow of Hartford; a sister, Patricia "Patty" Jolene Burden of Hartford; and several nieces and nephews.

Services are at 2 p.m. Tuesday at Miller-Schapmire Funeral Home in Hartford, Kentucky. Visitation will be from 4 to 8 p.m. today (Monday) and after 9 a.m. Tuesday at the funeral home. His wife, Sally, has asked that expressions of sympathy take the form of donations to the Owensboro Amateur Radio Club, c/o Steve Morgan, 1124 W. 12th St., Owensboro, KY 42301.

73,
Jim Mason, W4RCX
OARC President

How to be successful with the ISS Slow Scan TV (SSTV) Imaging system.

By G. Miles Mann, WF1F

There are currently two projects on board the International Space Station that will support Slow Scan TV (SSTV). These projects are called SuitSat and SpaceCam. The SuitSat project may be activated in December 2005 and SpaceCam in 2006 (all dates are subject to change without notice). The goal of

this series of memos is to get the world ready to start decoding SSTV images from Space. If you want to get Ready for SuitSat and SpaceCam Slow Scan TV, then now is the time to start getting ready.

How to Slow Scan TV from Space, Part 1.

Slow Scan TV on the International Space Station: The ISS Slow Scan TV system will support two-way SSTV image transmission. SSTV is a form of sending still images via an Analog format by radio. Amateur Radio operators have been using SSTV since the 1950's. Today there are many software applications available that will allow you to connect your home computer to a radio and allow you to decode images from space.

The Basics:

The Slow Scan TV system on the International Space Station that I will be focusing on is called SpaceCam1. The SuitSat Project may be activated first, however the functionality is very similar. The SpaceCam1 project is a PC based application that will be running on board the International Space Station. The system will be connected to an Amateur Radio transceiver called the Kenwood D700. This radio will transmit on the Amateur radio 2-meter satellite band from the ISS (The exact uplink and down link frequencies will be posted later). The transmission mode will be FM (aprox 4k deviation) and will be sending images in the Slow Scan TV format called Robot-36. When SpaceCam becomes operation, it will be transmitting over 400 images per day from the International Space Station. The crew will load a directory full of still images taken earlier and then tell SpaceCam to run "Slide Show". SpaceCam will then keep sending the images from the directory over and over again. This will allow people on earth several chances to decode all of the images from the directory on board the International Space Station.

The SpaceCam slide show will be configured for a specific delay between images. Lets assume the delay is set for 3 minutes. The Space Station will pass within radio range of your house

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2005 KCARC Meeting Dates (Third Friday)

January 21

February 18

March 18

April 15

May 20

June 17

June 25-26 (Field Day)

July 15

August 19

September 16 (Picnic)

October 21 (Elections)

October 31 (Bridge Watch)

November 18 (Annual Dinner)

December 17 (Sat Morning)

several times a day for up to 10 minutes per pass. During a typical 10-minute window you will have the opportunity to receive 2-3 images per pass.

SpaceCam & Kenwood D700 System:

The Kenwood transceiver that has a built in Packet modem. This system is located in the Service Module. The Kenwood model D700 supports two Amateur radio bands: 2-meter FM (144 - 146 MHz) and the 70-centimeter FM (435 - 438 MHz). The built-in modem or TNC supports 1200 and 9600 baud data rates. The D700 is currently connected to one of the 4 Amateur Radio antennas mounted outside of the Service Module. The typical power output of this system is 5, 10 or 25 watts. The Kenwood D700 system was activated in December 2003. The D700 will also be the primary radio for the SpaceCam SSTV project. The ISS crew will connect the D700 to a laptop computer via a custom designed adapter module made by ARISS. The VOX-Box will match the audio signals from the laptop computer to the D700 radio. The VOX-box will also signal the radio when it is time to transmit.

What do I need at home?

To work ISS from your home, you should have at least the following

Amateur Radio equipment:

A 2-meter FM radio with an output rating of 25 to 50 watts.

An Omni-directional antenna or small beam (the higher the gain the better).

A short run of good quality coax (RG-213, 100 feet or less).

A PC running one of the common Slow Scan TV decoding applications.

(In this memo I will not go into the details of any one specific SSTV

applications at this time.)

And that is it for radio equipment. I use an inexpensive Laptop computer

with a 233 MHz CPU and Windows 2000. The software I use is either CPIX

by Silicon Pixels or an engineering version of SpaceCam1 (Sorry, SpaceCam1 is not for sale).

Slow Scan TV Decoding Software

Here are just two of the many Share-Ware SSTV applications on the market. There may be many more.

W95SSTV by Silicon Pixels

<http://www.barberdsp.com/w95sstv/w95dload.htm>

MMSSTV

<http://mmhamsoft.ham-radio.ch/>

There are also many High quality pay software applications that offer many more features, such as multiple windows that allow you to simultaneously receive an image while preparing your next image that you want to transmit.

CPIX

<http://www.barberdsp.com/>

Timing:

You will need access to a computer or web to tell you when ISS is in range of your station. The timing of your contact is the most important part of a successful contact with ISS. There are many tracking programs out in the market place today. The ARISS team does not endorse any specific tracking program. Some programs are share-ware (STSPLUS); others cost a few bucks. I recommend using the DOS InstantTrack, program by AMSAT. www.amsat.org This program is very easy to use and works very well with older style computers such as 80286

style PC's. The cost of most tracking software applications is approximately \$50-100.

Doppler Shift:

The ISS Space Station is traveling around the Earth at over 17,500-mph (28,000 Kph). This great speed will make radio signals appear to shift in frequency. This phenomenon is called Doppler Shift. Many of us have radios that are Channel locked. This means you cannot make any fine tuning adjustments to your receiver or transmitter's frequency. Most Mobile and HT radios cannot make any frequency changes less than 5 kHz channel steps (lets hope that radio manufacturers will add 1 or 2 kHz channels steps in the future). This Doppler shift will cause the ISS transmit frequency (145.800) to look as if it is 3.5 kHz higher in frequency when ISS is approaching your location. Fortunately we will be using the FM mode, and this mode does help compensate for part of the Doppler frequency drift automatically. If you are fortunate enough to have a radio with the ability to make smaller channels steps then you should take advantage of this feature. You will need to review the owner's manual for your radio to learn how to program "Odd-Splits" channel combinations and program the following consecutive frequencies into your radios' memories.

For 5 kHz channel step radios do not try to adjust for Doppler. The

exact frequency for Slow Scan TV has not been announced at this time.

(Region 2--North & South America, Region 3Asia, Australia)

Channel 1 145.800.0 RX 144.490.0 TX
Voice

Channel 2 145.800.0 RX 145.990.0 TX
Packet (Worldwide)

Channel 3 145.800.0 RX 145.200.0 TX

Voice (Region 1 Europe, Africa)

For VOICE (Region 2 North & South America, Region 3 Asia, Australia)

2.5 kHz channel step radios

Channel 1 145.802.5 RX 144.487.5 TX

Channel 2 145.800.0 RX 144.490.0 TX

Channel 3 145.797.5 RX 144.492.5 TX

For Packet 2.5 kHz channel step radios (Worldwide)

Channel 4 145.802.5 RX 145.987.5 TX

Channel 5 145.800.0 RX 145.990.0 TX

Channel 6 145.797.5 RX 145.992.5 TX

For VOICE (Region 1 Europe, Africa) 2.5 kHz channel step radios

Channel 7 145.802.5 RX 145.197.5 TX

Channel 8 145.800.0 RX 145.200.0 TX

Channel 9 145.797.5 RX 145.202.5 TX

Let's assume ISS is approaching your location (QTH) and the Slow Scan TV system is active. Use channel #4 at the beginning of the pass, then when ISS is over head, use channel #5 and when ISS passes your QTH use channel #6. For best results, use an updated tracking program, which displays the current Doppler shift. This will assist you in determining when it is best to change channels.

As you may have noticed, it is not recommended for you to adjust your uplink frequency on 5 kHz radios. You may have better results if you leave your receiver on 145.800 and your transmitter on 145.990. The Doppler shift is only at the +3.5 kHz setting for a few seconds, then it will slowly begin to approach zero. After 5 minutes or less, the Doppler shift will be 0 for a few seconds, and then it will begin to swing towards -3.5 kHz.

What is Slow Scan TV:

On this web page you will find many links to help you learn more about

Slow Scan TV

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

Practice Practice Practice:

If you want to be successful in sending and receiving Slow Scan TV from ISS you must be fully proficient in using Slow Scan TV on Earth first, before you make any attempt to use the Slow Scan TV on ISS.

If you can not find any friend locally to test with on 2-meter, you can always try 20-meter (14.230 USB, assuming you have license privileges and equipment). During most of day and night you can easily hear people sending SSTV images on the 20-meter band. On HF the most common SSTV analog mode is called Scotty-1. Most SSTV applications support several of the common SSTV modes.

You can also experiment with SSTV by plugging two computers together, PC to PC via the sound card audio cables.

Receiving Images from Space:

The SuitSat project will only be sending an image. The SpaceCam project

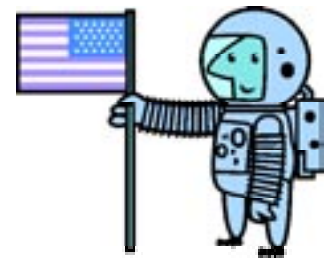
later on, will allow both Uploading and down loading of images from

ISS. The Schedules for SpaceCam will be posted early next year. For now you will just need to concentrate on receiving SSTV images from space.

Picking A Pass:

Use your computer program to select a good pass with high elevation angles. When ISS first appears on the horizon, the satellite will be 1500 miles (2400 km) away. When ISS is directly over your house, it is only 240 miles (384 km) away. Using your tracking

program, pick a pass with a maximum elevation of over 40 degrees. These are typically the best passes because ISS will be closer to your QTH. For low elevation angles, your radio signal will have to travel along the ground, where it will be affected by trees, buildings and hills. When ISS is high above the trees, you will have a clear line-of-site shot to the ISS antenna. A 1000-mile contact on 2-meters is easy, that is if there is nothing between you and the other station. A good pass is only 10 minutes long.



Receiving SuitSat:

The SuitSat Transmitter is preprogrammed to send a series of Voice messages, Telemetry and a single SSTV image, every 8:46. Then the whole process then repeats from the beginning. This means that each orbit over your house you will have one or two chances to receive and decode the image from SuitSat. You may also want to have your tape recording device handy to record the rest of the messages. The exact location of the image is approximately 6:42 seconds from the start of the first message.

Don't wait to try SSTV:

As more information becomes available on the activation dates of the project, the information will be posted. It is possible that SuitSat may be activated in December 2005. If this is true, they you only have a few weeks to get your home station ready to receive SSTV image from Space. So, don't wait until the last minute to get your home station SSTV ready.

KCARC 2006 Officers and Meeting Dates

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WebMaster:

Dean Maggard, K4NQV

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Website:

<http://www.angelfire.com/ky/kcarc/>

KCARC 2006 Meeting Dates (Third Friday)

Meeting at the Bowling Green Police
 Station Community Room at 7:00pm.

January	20
February	17
March	17
April	21
May	19
June	16 24-25 (Field Day)
July	21
August	18
September	15 (Picnic)
October	20 (Elections) 31 (Bridge Watch - Tuesday)
November	17 (Banquet)
December	16 (Sat Morning)

Notes:

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KCARC CLUB MEETS AT THE BOWLING GREEN POLICE STATION COMMUNITY MEETING ROOM. 911 KENTUCKY ST.

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THE FORTH DISTRICT ARES NET MEETS 7 NIGHTS A WEEK AT 9:00PM LOCAL TIME. REPEATER FREQUENCY 147.330 MHZ, KA4CFW. SECONDARY REPEATER 147.165 MHZ, W4WSM.

Local Repeaters

Two -Meters

147.060+	PL156.7	K4LOL (CLUB)
147.165+		W4WSM
147.330+		KA4CFW
146.655-		W4WSM
145.450-		KG4FEJ (Echo-link)

440MHz

444.100+		W4WSM
444.700+	PL136.5	WB4JM (IRLP 4678) (Use the # key before dialing any IRLP node number)

444.850+	PL103.5	N4GER (Horse Cave)
444.475+	PL103.5	N4GER (Mam Cave)
444.425+	PL103.5	N4GER (Morgantown)
444.900+	PL179.9	N4GER (Leitchfield)

ATV

439.25 AM IN - W4HTB
1280.00 FM Out - W4HTB
421.25 AM Out (CH-57) - W4HTB

THE HAMCALL

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