

CVFMA

An ARRL

Affiliated Club



A quarterly publication of the Connecticut
Valley FM Association

September, 1992

OFFICERS AND APPOINTEES

- President..Ham, KA1PVS
 - Vice President...Rudy, W1GUA
 - Secretary...Polly, KA1III
 - Treasurer...Darrel, KL7DN
 - Director at Large...Marlon, KA1SMC
 - Editors...Reade, N1GEP & Darrel, KL7DN
 - Entertainment...Polly, KA1III
- ASM Education for NH...Butch, WB1GXM
 - EC for Sullivan County...Rudy, W1GUA
 - DEC for Windham & Windsor Counties...Bob, KA1CZO
 - Editorial Staff: NU1A, Frank and W1GUA, Rudy

RIVER VIEW

Those of you who have been to this QTH know that there is one, a view of the Connecticut River, that is. A lot of this view depends on how many leaves are on the trees and how efficient I am in keeping new growth cut down. At any rate, we have been accused of moving to Vermont so that we can look at New Hampshire. What it really boils down to is that I felt the need for some kind of catchy title, and then have to spend a paragraph explaining it.

My 1992 stint as Editor/Publisher of our journal is at an end. Those of you feeling the need to contribute to December's issue are advised to forward your information to our regular Editor, N1GEP, Reade Williams. He can be found via the pony express at POB 1099 in New London, NH 03257-1099. Those of you with access to a twisted pair can reach him at 603-536-6672. Deadline for the December issue is November 24, 1992. This is a week earlier

than usual, the reason being that we now have an augmented editorial staff consisting of the editor as well as two proof readers/advisors. The latter two gentlemen are NU1A, Frank Finger and W1GUA, Rudy Adler. The

extra week is to give Frank and Rudy the time to give each issue a thorough going over so that a flawless, or nearly so, newsletter will arrive at your doorstep.

Reiteration time. At last count 94 of our members also belong to the American Radio Relay League. Look at the banner above and you will find that we are an affiliated club. One thing this means is that every time one of our people renews we get to keep \$2. Big deal, you say. And it is. If all 94 League members renewed through us each year we would be richer by \$188. Every little bit helps towards paying the rent, giving scholarships, paying postage, etc., etc. Just send your renewal to the club at CVFMA, POB 1628, Clare-

mont, NH 03743. I'll mail in all but \$2 to the League and stick the rest in our treasury. Better yet, join the League and we get to keep \$5.

You'll see a more detailed report later on concerning this year's Field Day activities. It was our third year of

UPCOMING EVENTS

- Saturday September 12..CVFMA sponsored VE session at Sugar River Savings Bank in Newport, NH. (See details elsewhere)
- September 12-14..ARRL VHF QSO Party
- September 26-27..CQ WW RTTY DX Contest
- Oct. 3 and 4, 1992...ARRL New England Convention at Boxboro, MA.
- October 16-17..Deerfield Ham Fest
- October 17-18..ARES SET (Simulated Emergency Test)
- Oct. 25, 1992...CVFMA General Meeting. 12:30 PM potluck and election of officers. Sugar River Savings Bank in Newport, NH.
- Saturday December 5..CVFMA sponsored VE session at Sugar River Savings Bank in Newport, NH. (See details later)
- November 7-9..ARRL Sweepstakes CW Contest
- November 21-23..ARRL Sweepstakes SSB Contest

operation and the best yet. We not only made contacts, we also had some fun in the interim. Thanks to the hospitality of N1MSD, Chuck and Merry Robinson we had a super location in Proctorsville, Vt. So here's the pitch...If you're interested in joining in give me a shout. No details have been firmed up for '93, but I'll get you on the mailing list so you can keep posted. If you'd like to get involved in some of the UHF/VHF contests we'd likewise be interested in knowing your desires.

Does 3 X 9 equal 24? I guess not, but that answer sure goes a long way towards explaining the math grades I used to get in school. This is all merely a lead in to the fact that I now possess a 24 pin dot matrix. I couldn't come home from Dayton empty handed, could I? Anyway, I figure that the 24 pin output should be three times better than what the old 9 pin could do. Hope that the appearance is easier on the eyeballs.

Likewise, our thanks to those of you who took the time and effort to fill out and mail in the questionnaire in the last newsletter. Your ideas are appreciated. Scan through the newsletter and you'll find a summary of the results. Incidentally, you don't have to wait for surveys to speak up. Your Board is always anxious to hear your ideas. That's why one of the Board members is designated as Director at Large. He happens to be Marlon Wood,

Lots of birthdays and anniversaries coming up these next three months. Here's wishing all of the following the very best on their special day.

OCTOBER BIRTHDAYS:

- 6th K2RGY, George Bond
- 9th N1JRC, Dr Brian Burke
- 10th N1BZT, "Tory" Duffy
- 12th W1SIO, Carl Anderson
- 21st N1GMC, Edmond Cooley
- 24th W1GGT, Manson Van B Jennings
- 28th W1RNZ, "Gordie" Stearns

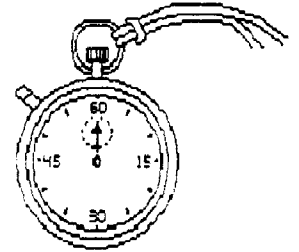
NOVEMBER BIRTHDAYS:

- 8TH N1BYG, Dr Heidelise Als
- 11th W1VFQ, Aime Beaudry
- 14th W1TIM, Ed Merrick
- 21st WA1ZPB, Ralph Drinkwater
- 22nd W1AXL, John Stoughton
- 25th NF1C, Gerry Preston
- 25th KA1ZDX, Richard Williams

- 25th N1CIR, Robert Boyd
- 25th N1FQS, Clarence Merritt
- 27th N1HAC, David McGaw
- 30th KA1BRG, Arthur Stewartson

DECEMBER BIRTHDAYS:

- 9th WA1DLA, John Evans
- 11th N1EME, Neal Cobb
- 13th K1VNE, Tom Abare
- 15th N1HRF, Fred Gibbs ✓
- 17th WA1ZMF, Donald Coburn
- 17th N4HTC, Franclyn Garvin
- 23rd W1HY, Howard Hollis
- 24th WB1EAE, Leigh Damren
- 25th KT1Q, Ed Bort



Even non Hams have birthdays. Our best wishes to the better halves.

OCTOBER BIRTHDAYS:

- 5th Judy Keech, K1FKX/Danny's XYL
- 10th Sara Kobylenski, WC1S/Ron's XYL
- 12th Eileen Katchen, WB2NWR/Jeff's XYL
- 20th Harriet Merrick, W1TIM/Ed's XYL
- 31st Eleanor Provost, KA1IIA/Robert's XYL

NOVEMBER BIRTHDAYS:

- 12th Aula Evans, WA1DLA/John's XYL
- 23rd Evelyn Wardwell, K4BSX/Arthur's XYL
- 27th Beth Bissonnette, W1USB/Laurier's XYL

DECEMBER BIRTHDAYS:

- 1st Virginia McKinnon, W1ORE/John's XYL
- 4th Bobbie Shulman, N2MKM/Larry's XYL
- 11th Mary Bort, KT1Q/Ed's XYL
- 14th Jeannine Abare, K1VNE/tom's XYL
- 16th Merry Robinson, N1MSD/Chuck's XYL
- 16th Sherry Ravlin, KA1WZB/Rob's XYL
- 22nd Sandra Rivette, W11V/Brian's XYL
- 23rd Carol Merritt, N1FQS/Clarence's XYL
- 25th Catherine Cobb, N1EME/Neal's XYL
- 28th Kathleen Pierce, N1JSG/Richard's XYL

Our best anniversary wishes go out to the following members and their XYL's or OM's, whatever the case may be.

OCTOBER ANNIVERSARIES:

- 14th N1GEP, Reade and Virginia Williams
- 14th WA1PFK, Sydney and Laurel Letter
- 15th KA1IIA, Robert and Eleanor Provost
- 16th KA1WLR, Fern and Arthur Purdy
- 24th K2DGW, Betty and W1DGC, Gregg Stephenson

NOVEMBER ANNIVERSARIES:

- 10th WO1W, Eugene and Linda Chicoine
- 13TH KA1BJQ, Robert and Peg Young
- 23rd N1LCA, Chul Shin and Sol Shin Young
- 27th W1USB, Laurier and Beth Bissonnette
- 30th KA1YVM, Ernest and Donna Lee Gregoire

DECEMBER ANNIVERSARIES:

- 10th KA1TYP, Richard and KA1UNC, Yvonne Adams
- 14th WB1EAE, Leigh and KA1QCH, Eunice Damren
- 22nd N1CIR, Robert and N1DRE, Claire Boyd
- 24th N1MSD, Chuck and Merry Robinson
- 24th N1FVG, Roger and Elsie Campbell
- 25th N1EME, Neal and Catherine Cobb
- 27th KL7DN, Darrel and Marion Daley
- 29th WA1ZMF, Donald and KA1KYD, Jean Coburn
- 29th W1HY, Howard and KA1KPJ, Josephine Hollis

GRATEFUL YOUNGSTERS

The following two letters have been received from the two winners of this year's CVFMA's scholarships. We thought that it might be nice if those of you who contribute so generously to this cause each year could see that your donations do get out there and accomplish their intended purpose.

To reiterate, NO dues moneys are used for these scholarships. The club relies solely on voluntary donations. Two awards are made each year, one to a graduating senior from each side of the river. A generous membership allowed the Board to raise each scholarship by \$50 this year to a total of \$500.

New Hampshire's scholarship winner is Jeremy Blanchard from Kearsarge H. S.

His note of thanks follows:

Dear Mr. Webb,

Thank you very much for the scholarship that you awarded me. I truly appreciate your great kindness. It is good to know that people still care enough about education to make helping students pay for school a priority. Your generosity demonstrates an admirable concern for the youth and the future of this country. Thank you.

Sincerely,

Jeremy Blanchard

Vermont's winner is Mary E. Hagan from Bellows Falls H. S. The following is her note of thanks.

Dear Hamilton Webb,

Thank you so much for the contribution towards my education. Believe me it helps a lot.

I will think of you people when I graduate in 1996.

Love, Mary E. Hagan

FIELD DAY.. '92

As you read before (or are you a skimmer?) this year's event was a fine affair. Chuck, N1MSD, and Merry Robinson proved to be excellent hosts and you couldn't have



asked for a finer location. Well, you could have asked, but it would have been to no avail. Chuck even provides a first class motorized antenna support system.

Three transmitters were maybe not in around the clock usage, but we did keep those finals warm most of the time. One of these transmitters operated as our Novice/Tech station with Marlon's call. The other two rigs used Rudy's call.

This year's ops were: W1GUA/Rudy, KA1PVS/Ham, KL7DN/Darrel, KA1SMC/Marlon, W1RPK/Ken, N1MSD/Chuck and last, but not least, N1LBZ/David activated Marlon's portable packet station.

Guest ops, visitors and kibitzers were: KY1U/Sandy, KY1V/Bob, W1RNZ/Gordie, N1JRM/Vinnie, N1FQS/Clarence, N1JRA/Carl and his XYL, Barbara. The latter passed logging 1A with flying colors. Also of great assistance was N1PUP/Barney. Without his assistance I don't know how we would have made it.

Wanna join in on the fun? Get in touch and we'll get you on the mailing list for next year's activities. My PBBS is on 145.79 around the clock or give me a shout at the next club eyeball. In the meantime, keep an eye peeled for that outstanding score in the November issue of QST.

GEARS ANNIVERSARY

With the start of this school year the Goshen-Lempster Educational Amateur Radio society (GEARS) will celebrate the start of its' fourth year. Each year has seen new activities and students working and obtaining their first license in the annual Novice class. The upcoming year will see more of the same.

On behalf of GEARS, I'd again like to ask for some volunteer assistance during the school year with the GEARS group. If you can join in contact me at home (603-543-1389) or school (603-863-1080)

One of the little mentioned aspects of GEARS' activities is the enhancement of a student's skills, possible future opportunities, and interests in different technologies. To put it another way, Amateur Radio is well suited to today's schools and young people.

One such project is the GEARS satellite station. The antenna system is up, with coax, preamp and bias T modules installed and debugging is taking place. The use of the system will give GEARS access to other school groups similarly equipped. Tracking the different birds will be done via computer using AMSAT tracking software.

As a member of AMSAT I receive the Amsat Journal. While it is mostly for those who operate via one of the many OSCAR satellites, it also contains ideas and operating tips for anyone wishing to try something new.

After reading the article from this journal found elsewhere in this publication you may discover that you, too, may have the necessary equipment and operating privileges to try out this different mode. Uplinks and downlinks can be found from 15 meters all the way up to 1.2 GHz. Antennas need not be elaborate. I have used an HF dipole and a simple VHF verticle to make contacts.

So, on this 500th anniversary of Columbus's achievement, why don't you, too, set out on your own Ham Radio voyage of discovery. Hope to see you on one of the birds.

73 de Conrad Ekstrom WB1GXM/ASM-NH

Faculty Advisor to GEARS



THE PRESIDENT'S CORNER

Not much from this corner this time around. We are fast approaching the end of summer...what summer?? I do recall a few warm, dry days. I guess you could count them on one hand. In spite of the weather, I hope that everyone was able to enjoy it to some degree.

With October just around the corner, I would like to remind everyone that our annual pot luck meeting is also coming right up. This is also the time we elect officers for the coming year. Notice of this meeting appears on the front page of this edition. Soooooo, mark this date on your calendar: October 25th at 12:30 PM. The place is Sugar River Savings Bank in Newport, NH.

Hope to see a lot of old faces along with some new ones.

73/88 de Ham



SALE SWAP TRADE

For Sale:

Cushcraft 4 element 2 meter beam, Model 124WB

Contact N1EHB, George at 603-543-1852

AEA software for Commodore 64..Doctor QSO morse code trainer

Contact K1IOJ, Lem at 603-352-7077

LA 1000 amplifier, 160 through 15 meters with matching tuner

The tuner covers 160 through 10 meters

Heath SB610 monitor scope

Contact KA1AH, Dave at 603-542-2555

Wanted:

Used general coverage HF receiver

Contact Bill at 603-543-3759

NEW KIDS ON THE BLOCK

29 new people joined the CVFMA this year. That may not be a record, but it is certainly pleasing news. Consider this their official public welcome. If you happen to hear any of these calls out there in radio land, give 'em a shout and greeting.

W1USB Laurier Bissonnette

N1KWD Robert McQuaide

N1KQB Rick Cook

KA1ZDX Richard Williams

WA1SDJ John Rooney

N1JPM Vincent Griggs

N1GPQ Thomas Fix

N1LCA Chul Shin Young

N1LBZ David Snyder

N4HTC Franclyn Garvin

KA1FGN Lynda Patenaude

KA1FGQ Oakley Patenaude

N2MKM Larry Shulman

KA1ZZZ Ralph Forsaith

??? Robert Clark

??? Charles Baraly

KA1IGV Kathleen Blish

??? Tim Donovan

N1MSH Thomas Hall (suits America best?)

N1MSD Chuck Robinson

N1MCE Les Smith

N1MSC William Smith

KA1ZVL Delo Nook

KA1VZS Richard Nook

N1MEU Gary Trachier

N1MEW Richard Haugen

N1HRF Fred Gibbs

KA1ORB Bruce Bedford

N1MPU Rex Carr

Again, welcome to our group. Hope to see some or most of you at one of our meetings or socials.



SOUTHLAND REPORT

Bob, KA1GZO, reports in from the Brattleboro area. A new Ham club, BRARC, is being formed down there. The new president is Joe Armstrong, KA1YLN and the Veep is Brian Dame, KA1JOZ. They meet the 2nd and 4th Tuesdays of each month at Brattleboro High School. Our best wishes go out to this new group and we hope that they can accomplish great things.

Bob also stays active with Ham radio doings across the river in Keene, NH, and has successfully handled some parade communications chores in Brattleboro. Good luck to Bob with all his efforts on behalf of Amateur Radio.

SCIENTIFIC OBSERVATIONS

Here are a few bits of wisdom garnered from my old high school physics text book which just might tickle your fancy.

Howe's Law: Every man has a scheme that will not work.

Barth's Distinction: There are two types of people; those who divide people into two types, and those who don't.

Segal's Law: A man with one watch knows what time it is. A man with two watches is never sure.

Gourd's Axiom: A meeting is an event at which the minutes are kept and the hours are lost.

First Rule of Intelligent Tinkering: Save all the parts.

Parkinson's Law: The stomach expands to accomodate the amount of junk food available.

Evan's and Bjorn's Law: No matter what goes wrong, there is always someone who knew that it would.

TOP HONORS

Our hats go off to Rudy Adler, W1GUA, for his appointment as Deputy ARRL Coordinator for Army MARS. In this national level position Rudy will serve as an interface between Army MARS and the American Radio Relay League. Congratulations and Good Luck!

NOTICE

The New Hampshire ARES simplex frequency is 147.570 MHz. (For a price I can squeeze anything in anywhere)

SURVEY SYNOPSIS

Some of you may remember seeing a survey in the last (June) issue of this newsletter, along with a request to mail same in. The Board wishes to thank the 15 folks who filled out and mailed their copy in. This works out to roughly a 10% return. Someone involved with this kind of thing said that this was a good return ratio. Below you will find a review of those results.

Of the 15 responders seven never use our Moose Mountain machine, three use it once a month, one uses it once a week and another one uses it once a day. Three use it very occasionally. With regard to Mount Ascutney eight use it on a daily basis, three once a week, one once a month, three only occasionally and no one said that they never use it.

As to Otto's features nine never use them and six only do so rarely. One person would like to see the club put up and maintain a 220 repeater, four a 440 machine, two voted for a 10 meter rig and four would like to see a link on Otto. Two voted against any expansion in this area.

Fourteen disliked the idea of having a club station and one liked the idea.

Socials take top honors for what was liked the most about the club with the newsletter coming in second (Ed. Thanks). Next in favor are the WX nets followed by the emergency net and field day.

As to what those 15 responders liked least, two don't care for socials, one doesn't like our WX nets, one didn't care for field day and one doesn't like the structure of the emergency net. The others surveyed couldn't find anything to dislike.

Seven out of the fifteen would not attend monthly or bimonthly socials, desert potlucks featuring a speaker or program of some sort. Likewise, only two of the fifteen would attend our general meetings if they were held on a Saturday. Seven would attend whether they were held on Saturday or Sunday and two would not attend if they were held on Saturdays.

PUZZLE TIME

Contributed by Frank Finger, NU1A

(Can't get all of 'em? Answers in the December issue)

A QUIZ



Spotlight On: RS10/RS11 and RS12/RS13

[This article is part of a series of reports on currently active Amateur Radio satellites. In this issue of *The AMSAT Journal*, KD2BD shines the spotlight on RS Satellites.]

By John A. Magliacane, KD2BD
1320 Willow Drive
Sea Girt, NJ 08750

UUCP : ...ocpt.ccur.com!ka2qhd!kd2bd
Packet : KD2BD @ NN2Z.NJ.USA.NA
Internet: kd2bd@ka2qhd.de.com
kd2bd%ka2qhd@ocpt.ccur.com

Radio Sputnik (RS) satellites are favorite starting points on the road to Amateur satellite communications. These satellites provide consistent service, strong downlink signals, and have very sensitive transponders, making them easily accessible to even the most modest Amateur satellite ground stations.

Spacecraft History

The first group of RS satellites were launched back on October 26, 1978. RS-1 and RS-2 both contained "Mode A" linear transponders that were 40 kHz wide. The term "Mode A" refers to the fact that these transponders had uplink passbands in the 2-Meter Amateur band, and downlinks in the 10-Meter Amateur band. Since the Russians were limited to only a few watts of transmitter power on the 2-Meter band, the Mode A transponders carried on their RS satellites had to have very sensitive uplink receivers. Experience with RS operation proved the reliability of Mode A operation, especially during periods of low solar activity. Prior to the launch of RS-1 and RS-2, AMSAT-OSCAR-6, AMSAT-OSCAR-7, and AMSAT-OSCAR-8 all had been available for general use, and all supported Mode A linear transponder operations.

On December 17, 1981, six new RS satellites were launched together on a common launch vehicle. RS-3 and RS-4 were experimental satellites and did not contain transponders for general use. The remaining satellites contained 40 kHz wide Mode A linear transponders. In addition, RS-5 and RS-7 both contained "autotransponders" called ROBOTS. Autotransponders made it possible to carry on a CW telegraphy contact with the ROBOT computer carried on the satellite. Upon calling the satellite on a ROBOT uplink frequency, the spacecraft would respond with a short message and issue a QSO number.

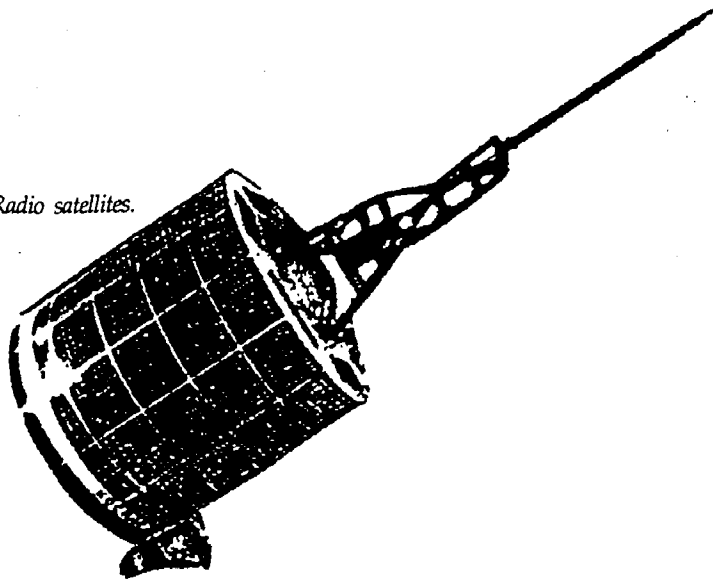
The autotransponders made it possible to carry out a CW contact on the satellite even if there were no ground stations available on the transponder at the time.

One Common Malady

Unfortunately, all these early Radio Sputnik satellites suffered with one common malady. Their 1700 km altitude circular orbit subjected the satellites to a great deal of radiation by flying through the lower levels of the Van Allen belts. The Van Allen belts surround the Earth at an altitude of between 1600 km and 8000 km and are comprised of high-energy sub-atomic particles that can damage sensitive electronic devices carried on satellites at this orbital altitude. Because of the radiation exposure, some RS satellites experienced unexpected transponder switching and hardware damage which made the satellites less than reliable.

After RS-5 and RS-7 had ceased operating, RS-10 and RS-11 were launched into a safer 1000 km altitude circular low-Earth orbit. Both RS-10 and RS-11 share a common power bus and space platform with COSMOS 1861, a Russian navigation satellite. Like their predecessors, RS-10 and RS-11 both contain 40 kHz wide Mode A linear communication transponders and ROBOTS, but they also contain new "Mode K" and "Mode T" transponders which have uplink passbands in the 15-Meter Amateur band. No other Amateur communications satellite had used 15-Meters for an uplink before.

On February 5, 1991 the latest group of RS satellites, RS-12 and RS-13, were launched along with COSMOS 2123, another Russian navigation satellite. These RS satellites are virtually identical in capability to RS-10 and RS-11. All four Radio Sputniks are alive and well and in operation at the present time.



Satellite Operation Made Easy

RS satellite operation is simple. For Mode A operations, just a few watts of transmitter power and a small 2-Meter antenna are all that are required for the uplink. A dipole antenna and a receiver capable of tuning the 10-Meter Amateur band are all that are needed for the downlink. Most operators use their existing HF station equipment for copying Mode A downlink signals. Converted CB rigs and portable 10-Meter transceivers lend themselves very nicely to portable Mode A operation. Uplink signals should be CW or USB voice. With a transponder bandwidth of only 40 kHz, there's not much room for FM signals on the satellite, so those operations are very much discouraged. Many 2-Meter FM rigs can be keyed for CW operation if appropriate connections are made within the transceiver. In fact, a large number of CW contacts have been made by keying the push-to-talk button on a 2-Meter handheld transceiver, although keyed FM transceivers tend to produce "chirpy" CW notes.

For Modes K and T, usually less than 100-watts of transmitter power and a dipole antenna are needed for the uplink. Regardless of the transponder mode, most of the emphasis should be placed on the sensitivity of the downlink receiver, because "if you can't hear 'em, you can't work 'em"!

Proper operating practice dictates that the transmitter or receiver operating on the highest frequency band be tuned in-compensation for Doppler shift during a QSO. This means on Mode A, the transmitter VFO should be adjusted while the downlink receiver remains fixed. On Modes K and T, the transmitter VFO should remain fixed while the downlink receiver is adjusted for proper performance.

This practice not only applies to RS

satellites, but remains valid for ALL Amateur transponder operations, and helps to avoid collisions between ground stations at geographically diverse locations as they experience varying magnitudes of Doppler shift.

Almost everyone who gives RS satellite operation a try is hooked after their first contact. After the pass is complete and the log book has been updated, you'll find them plotting out their strategy for the next pass. Since the RS series of satellites are in a circular orbit, orbital predictions are easy using OSCARLOCATORS or simple orbital prediction software.

RS Transponder Summary

Now let's look at the currently active group of RS satellites in detail. Figures 1, 2, 3, and 4.

The beacons transmit CW telegraphy and provide spacecraft telemetry, ROBOT downlinks, and "Codestore" messages carrying news bulletins from the spacecraft command station RS3A.

At the present time, RS-10 is active on Mode A, while RS-12 is operating on Mode K. During periods of high solar flux, many satellite enthusiasts worked other stations a half a world away through RS-12 Mode K while the spacecraft was well below the horizon of each station. These sub-horizon contacts were made possible through F-layer propagation.

ROBOT Operation

When active, an autotransponder calls CQ and provides the uplink frequency being monitored. For example, RS-10 might be heard transmitting:

"CQ CQ DE RS10 QSU 145820 KHZ AR"

after which the ROBOT will listen for calls on 145.820 MHz. Calling the ROBOT is easy. Simply call the satellite, give your callsign, and end with AR. For example:

"RS10 DE KD2BD AR"

The ROBOT uplink passband is several kilohertz wide, so extreme uplink frequency accuracy is unnecessary. Even chirpy CW signals have been found to work well. If the ROBOT does not copy your callsign correctly, it may ask for a repeat and respond with "QRM", "QRZ", or "RPT". Successful contacts are rewarded with a ROBOT response complete with a QSO number, such as:

"KD2BD DE RS10 QSO NR 386 OP ROBOT TU USW QSO NR 386 73 SK"

High-speed CW works best for calling the ROBOT. The ROBOT will respond at the speed it is called.

Fig. 1 - Satellite: RS-10 NASA Catalog Number: 18129

Analog Transponders:

Uplink	Downlink
Mode K : 21.160 - 21.200 MHz	29.360 MHz - 29.400 MHz
Mode T : 21.160 - 21.200 MHz	145.860 MHz - 145.900 MHz
Mode A : 145.860 - 145.900 MHz	29.360 MHz - 29.400 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.357 MHz, 29.403 MHz, 145.857 MHz, 145.903 MHz	
Robot Uplinks: 21.120 MHz, 145.820 MHz	

Fig. 2 - Satellite: RS-11 NASA Catalog Number: 18129

Analog Transponders:

Uplink	Downlink
Mode K : 21.210 - 21.250 MHz	29.410 MHz - 29.450 MHz
Mode T : 21.210 - 21.250 MHz	145.910 MHz - 145.950 MHz
Mode A : 145.910 - 145.950 MHz	29.410 MHz - 29.450 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.407 MHz, 29.453 MHz, 145.907 MHz, 145.830 MHz	
Robot Uplinks: 21.130 MHz, 145.830 MHz	

Fig. 3 - Satellite: RS-12 NASA Catalog Number: 21089

Analog Transponders:

Uplink	Downlink
Mode K : 21.210 - 21.250 MHz	29.410 MHz - 29.450 MHz
Mode T : 21.210 - 21.250 MHz	145.910 MHz - 145.950 MHz
Mode A : 145.910 - 145.950 MHz	29.410 MHz - 29.450 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.408 MHz, 29.454 MHz, 145.912 MHz, 145.958 MHz	
Robot Uplinks: 21.130 MHz, 145.830 MHz	

Fig. 4 - Satellite: RS-13 NASA Catalog Number: 21089

Analog Transponders:

Uplink	Downlink
Mode K : 21.260 - 21.300 MHz	29.460 MHz - 29.500 MHz
Mode T : 21.260 - 21.300 MHz	145.960 MHz - 146.000 MHz
Mode A : 145.960 - 146.000 MHz	29.460 MHz - 29.500 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.458 MHz, 29.504 MHz, 145.862 MHz, 145.908 MHz	
Robot Uplinks: 21.138 MHz, 145.843 MHz	

MARS
THE OTHER AMATEUR RADIO SERVICE
By: Rudy Adler/AAR1EQ
Depty. ARRL Coordinator

The Military Affiliate Radio system (MARS) is an organization of Federal Communications Commission (FCC) licensed amateur radio operators (affiliates) who are interested in military communications and electronics. MARS stations are licensed and are issued military callsigns by the Army, Air Force or Navy-Marine Corps.

THE MISSION OF MARS IS TO:

- Provide auxiliary or emergency communications on a local, national and international basis as an adjunct to normal military communications.
- Provide auxiliary communications for military, civil and/or disaster officials during periods of emergency.
- Assist in effecting normal communications under emergency conditions.
- Handle moral and quasi-official record and voice communications traffic for Armed Forces and authorized U.S. government civilian personnel stationed throughout the world.

MARS HISTORY:

In November 1925, the Army Amateur Radio System (AARS) was formed. After operations were suspended at the start of WWII the AARS was reactivated from 1946 to 1948 at which time the Army and Air Force established the Military Amateur Radio System, later renamed the Military Affiliate Radio System. In 1962, the Navy-Marine Corps MARS program was launched making MARS the joint service program it is today.

ELIGIBILITY TO JOIN MARS:

The applicant must -

- Be 14 years of age or older.
- Be a United States citizen or resident alien.
- Possess a valid amateur radio license issued by the FCC.
- Possess a station capable of operating on MARS frequencies.

More next time about benefits and responsibilities. For more information until then, contact me at (603) 863-4356, on "76", or leave a packet note on BBSYTW or on my mailbox W1GUA off SWNH.

Board of Directors...Pres: KA1PVS/Ham, Vice Pres: W1GUA, Rudy, Secretary: KA1III, Polly, Treasurer: KL7DN/Darrel, Director at Large: KA1SMC/Marlon, Editors: N1GEP/Reade and KL7DN/Darrel, Entertainment: KA1III/Polly

The Connecticut Valley FM Association is a group of over 160 mostly like minded Hams. The organization was formed in 1970. We maintain two mountain top repeaters, 146.76/16 on Mount Ascutney in Windsor, VT and 174.24/84 on Moose Mountain in Hanover, NH.

We also offer two yearly scholarships of \$250 each to a graduating high school senior from Vermont and New Hampshire. These two scholarships are "kept alive" **ONLY** by member contributions beyond the regular dues structure.

Two general meetings are held during the year, in April and October. The business of the group is handled by a Board of Directors which meets every other month. **ALL** members are invited and encouraged to attend and contribute to these meetings.

There are numerous social gatherings throughout the year, some scheduled and others of an impromptu nature. Many of us gather on the last Saturday morning of each month at the Future Restaurant in Claremont, NH at 10 AM for a scheduled meeting of SAMRATS (Saturday AM Radio Amateur Technical Society). Every January the membership meets at the Homestead Inn in Walpole, NH for a dine out and eyeball.

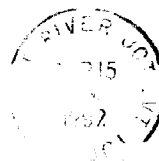
The club sponsors Field Day activities every year in either Vermont or New Hampshire. There are also three daily weather nets on the Mount Ascutney repeater at 6:30 AM, 5:30 PM and 10:00 PM. A weekly emergency preparedness net is held each Tuesday at 7:30 PM. A newsletter is sent out quarterly.

All of these numerous activities require many man, woman, person, whatever hours of time and effort. Won't you give serious consideration to volunteering to serve Amateur Radio through the CVFMA in some capacity to help spread the work load and help further the cause of Amateur Radio in our small part of the world.

CONNECTICUT VALLEY FM ASSOCIATION

POB 1628

Claremont, NH 03743-1628



CARL E SNYDER N1JRA 92

DAVID SNYDER N1LBZ 92

RFD #1/BX 57

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