

Newscaster

The Official Publication of the Winnipeg Amateur Radio Club
The Manitoba Repeater Society
The Winnipeg Seniors Club

mailing address

W.A.R.C.
Attn: Membership
598 St. Mary's Road
Winnipeg, MB
R2M 3L5

September 1993

Intro into Dx'ing by VE4GV & Recap summer events

Date: September 13, 1993

Time: 7:30 p.m.

Place: Sturgeon Creek Regional Secondary School

Other Important Dates:

WARC: Oct. 24 Flea Market
Oct .

WSC: Sept. 9 Annual Picnic
Sept. 21 executive Meeting

MRS: Oct. 29 Fall Semi-Annual Meeting (tentative)

Other: Every Sat. & Sun. VE4TTU station in operation

Warc: Executive for 1993/94

President: Dave Panting - VE4EF

Vice-Pres: Barret Filbert - VE4ABA

Secretary: Dick Maguire - VE4HK

Treasurer: Gary Smith - VE4YH

Past Pres: Judy Norton - VE4JBN

Membership/Newscaster: Kay Quinn - VE4YF

Program Chairman: Rob Kaufman - VE4GV

Flea Market: Pat Geisbrecht VE4PLG

Notes from your Editor: by Derek, VE4HAY

Welcome back to another fun-filled and exciting year, in one of the best hobbies ever to exist. Ok, so now we are in the right frame of mind. I hope everyone had an enjoyable summer. I know that everyone worked as many DX stations as possible, and you VHFers all worked that Meteor shower at the beginning of August. I know all this because what else was there to do in the rain. Sorry to here about those who lost there stations in the floods, I hope all the equipment can be salvaged, and you will be back operating once again. Special thanks go out to those who gave that extra effort this last summer , in regards to community service, such as with the floods in the northwest. I also want to thank all of you for taking the time to write those articles all summer long. I know everyone has something they would like to say, and I am looking forward to printing your thoughts. Articles can be sent to me either via packet (ve4hay@ve4kv.#wpg.mb.ca.noam, or via the MWCS BBS (derek hay ,in the HAM conference) or on the Internet (dwjhay@mona.mb.ca) or as a last resort mailed to 51 St. Hilaire Pl. R2J 4B5. So now you have no excuse.

Words from the President of WARC: by Dave, VE4EF

Welcome to the 1993/94 WARC Newscaster season. I am happy to be able to say that this "summer" is drawing to a close. The weather has been so bad that I was tempted to go put up a new antenna, however I put on so much insect repellent that the mosquitoes were surfing on it and I couldn't breathe. I gave it up as a bad job and decided to wait until January, which is the proper antenna building month anyway.

I would like to thank our outgoing executive members for their contributions to our club and to welcome our new executive members who will take their positions effective the October 18 meeting. Special thanks to Judy JBN, for being past-president for her second year. (As if we gave her a choice!)

Your executive members have recently stopped swatting mosquitoes long enough to plan some interesting and informative meetings for the upcoming year. At the September meeting we will be discussing some of the events that have occurred since the June meeting and will have a video presentation about HF DXing. I hope to see you there.

Winnipeg Senior Citizen's Radio Club. **by Bill, VE4WU President.**

On Friday July 23, 1993 the amateur radio fraternity was saddened with the loss of silent key VE4WF, Bill Forrester, past president of the Winnipeg Senior Citizens Radio Club. Bill was a very dedicated and respected member of our club who gave willingly his time and effort. He served many years with the club on the board of directors, vice-president, two years as president and was president Under his guidance the club has made marked advancement in many ways and we will miss him.

On behalf of the Winnipeg Senior Citizens Radio Club and all the members we extend our deepest Sympathy to his wife Lila and all the family.

Well summer has come and gone, what there was of it and I hope you were able to enjoy the little there was. On Monday July 5, 1993 section coordinator for A.R.E.S. ,Rod VE4TM requested assistance in providing communication to Lynn Lake and some Northern towns due to forest fires and telephone outage due to flash flooding. We were only too happy to be of service and had our station up and monitoring within 20 minutes. The operation was coordinated by Rod and extended over Monday and Tuesday, July 5 & 6th. with other Northern stations and terminating Wed. July 7th. am. Traffic from E.M.O. was light and the involvement was a good experience for our club. A great thanks t o all the club members who participated.

Commencing Sept 2, 1993 thru Dec 9, 1993 the Winnipeg Senior Citizens Radio Club will be conducting basic amateur radio classes for senior citizens. Anyone who knows of any seniors that might be interested have them phone the club at 233-3122.

The club will be holding their annual picnic at St. Vital park on Sept 9 from 11:00 am to 15:00 pm. There will be bingo, portable VE4WSC, corn, hamburgers, hotdos etc...

The clubs quarterly general executive meeting will be held on Sept. 21 at 10:00am in the club rooms.

Support your local radio clubs ,good luck and 73.

Manitoba Repeater Society **by Derek, VE4HAY**

Summer has been busy for us at MRS. It is hoped that by the time you read this VE4MAN will be on the air. As of this writing the only work left on it is to purchase 4 BCN to rg213 connectors, Insulate the cabinet doors, and run the system thru a final test. The CBC has been contacted and are checking their schedule for when a crew will be out at the transmitter site. Once the new system is up and running a new set of codes will be distributed to all MRS members.

During the early part of the summer VE4MIL was installed and is working quite well. We however are not very pleased with the antenna location, and are currently looking at an alternative site also on the ridge, but with less trees, and greater height. We will keep everyone informed on this one. In the mean time if you are in the area of Milner Ridge please try this new repeater on 145.210 Mhz. + offset. The coverage is from Whitemouth North and around to Birds Hill Park.

VE4GIM has received a new antenna this past spring and summer, a 210-C4 was installed at the site, and repositioned to give better coverage to the Northwest. From all reports this has worked out very well. We also found that we had a broken antenna connector. In fact all that was connected was the center conductor. I want to thank VE4ABA, for fixing this for us and the other work he has done on this site. I also want to thank Richard at Tower Manitoba for the very kind pricing we received on the antenna and clamps.

Our other repeaters are still working as good as expected, with no real problems, with the exception VE4VJ which lost it's power supply right in the middle of the EMO and ARES use of the repeater re: the floods in the Northwest. I would like to thank VE4TEG, for his quick action on getting this repeater back in operation, so that traffic could be passed once again into the flooded area. We did get some very kind words on his fine effort from EMO thru ARES on that. Thanks Tim !!

The other piece of bad news we had was with VE4WPG which died just seconds before a scheduled Sunday net, We moved the net over to the VE4MAN temporary repeater for about a week and a half. This did a couple of things, one it put the new controller and radio thru a rigourous test. (which it needed) and proved it works as expected.. The second thing it did was show the users of the system just how effective repeaters and linked systems are. A lot of people just expect a repeater to be there, but when we lost VE4WPG, it sure left a big hole in Winnipeg. People suddenly realized that simplex on a handheld is not very effective.

Which brings me to my next thought. During the summer we decided to have a membership drive. We sent out notices to all members who did not renew their membership in the past year. These notices said that we missed you and want you back as a loyal member. It also asked that if the person did not renew for a particular reason, that we would like to hear about that, and maybe we could correct that problem. Well no one had any problems, and quite a few old members joined up again. Welcome back !!! We also had a membership drive for ham's who are not members of MRS as of yet. We got our hands on a database of VE4's and separated out the current members and sent notices to most hams in Winnipeg, and areas surrounding our repeaters. We introduced ourselves and what is it we do. We also included a membership form for those who would like to join. This response has also been good, not great, but good. So to that I want to say Welcome to all the new members of MRS. Your info packs with codes etc will be coming as soon as the linking system is completed. In the mean time you should each receive the code to the autopatch system (local to WPG area only).

As for the linking of the various hubs, this is happening, although very slow at the moment. This is partly due to the fact that the club is low on cash.. We just purchased the radio's we need to complete our system, (thanks to Jim VE4AJR for bringing them back from BC for us, saved us the transportation costs). We still need to purchase 6 UHF duplexers (as small as possible), so if you know of any for sale new or used please contact any executive member. We are also in need of heliax, (long runs), and a 30amp power supply. Your executive has loaned the society some cash to help us thru to membership time at year end, but we still don't have enough to finish the system, so some of it will have to wait till the new year. Sorry about that, but we have actually done quite a bit of work on the system as a whole, and when finished it will be top notch.

In the mean time the Lake of the Woods Club is in the final stages of their portion of the link to connect to our system. And we are looking forward to getting that connection going. We have also found out that the SSS group (Selkirk, St. Andrews, and St. Clements) have received their Palamor controller and we are working on plans to link into their system as well.

The link to the west is progressing but we are still waiting for approval for our Portage intermediate site. As we understand it we have only a few departments to go through at Manitoba Hydro, before we are approved for access to their tower. But in the event we can not gain this approval, we are currently seeking an

alternative site in Portage. so that either way, we will have a site as soon as possible.

And the final note, is that we are planing our Fall General Meeting to be after the Flea market this year. There are a number of reasons for this, which we will explain in due time,. And as soon as the dates are confirmed we will notify the members. 73 and welcome back.

Ralph's Reg's by Ralph, VE4RY

Q. Suppose you are out mowing your lawn when you realize that net is on. You take your hand held off your belt and check in. What designation do you use ?

- a. ve4xyz,
- b. ve4xyz portable,
- c. ve4xyz mobile,
- d. ve4xyz temporary

Answers elsewhere in this newsletter

Ham's to the rescue by Bill, VE4JR

This is an account of an accident that Pat VE4NQ, and his XYL Emily, had with their camper truck, and trailer on their way back from the International Hamfest that was held at the Peace Gardens last month, July 9th, 10th, and 11th.

At about 3:30 PM, West of MacGregor, MB; they were overtaking a semi-trailer, and had pulled out to pass, when the semi started to go faster. Pats wife then slowed down, and pulled in behind the trailer into the right lane. In doing this, they lost control of the trailer,(possibly from flat tire), and as a consequence, both the camper truck and trailer went into the ditch.

The trailer hitch became disconnected, and the front fork of the trailer dug into the side of the ditch, and went end over end, which demolished the trailer and the camper truck rolled over on its side, (the driver's side). Both Pat and Emily were held captive with their seat belts.

Following behind in another vehicle, were Terry VE4TR, Rod VE4TM, Jim VD4CY, and Bill VE4UB. They helped pull Pat out first, and then Emily, and alerted the RCMP, who in turn requested help from the first response nurse at Macgregor.

Pat wishes to thank Terry, Jim, Rod, and Bill for helping them out, and he also wants to thank the first response nurse from Macgregor, who was most helpful at this time.

Summer happenings by VE4JR

Another report, this time from the Pinawa Amateur Radio Club, as reported by VE4AKM, Allan of Pinawa.

The Pinawa ARC have provided 2m communications for three local events held at Pinawa recently. The events were; a sailing regatta, a rowing race, and a triathlon. Allan wishes to thank the following amateurs for their help -VE4's -AKM -BV -CD -GMS -HTD -JAW -KA -MHZ -RNE -SAM -WTS. In the sailing event, a ham on the committee boat was sending times to the base station, where a computer was used to calculate handicaps, and rankings.

MINUTES FOR W.A.R.C.

MEETING HELD JUNE 14, 1993

The meeting was called to order at 7:35 pm by Dave VE4EF.

1. MINUTES - moved by Don VE4GD that the minutes be accepted as published in the NEWSCASTER. Seconded by Jim VE4AJR. Carried.

2. NEW BUSINESS FROM THE MINUTES - David VE4DBK noted that there had been no notice of motion publicised prior to the May 10, 1993 meeting for the motion by VE4RI.

3. CORRESPONDENCE - the club received information from the CNIB, a copy of the last issue of QST Canada and 2 newsletters from other clubs.

4. TREASURER REPORT - Bill VE4KX reported a balance of \$1327.48 with no cheques outstanding. A copy of the report was available for members to examine.

5. STANDING COMMITTEE REPORTS 5.1 VE4TTU - Pat VE4PLG asked for help manning the station during the summer months. She thanked Wes VE4RAM for donating his time almost every Saturday.

5.2 KELSEY MEMORIAL CANOE BRIGADE - Vern VE4VQ announced that the DX-pedition is still on. Contact him for further information.

5.3 WARP - Carl VE4KHS said that WARP will continue holding informal nets after the MRS nets on 2m. He has copies of the WARP packet radio manuals for sale at \$25 a copy.

5.4 MARATHON - Dave VE4EF asked all volunteers to try to attend the meeting being held next Tuesday.

5.5 NOMINATING COMMITTEE - Judy VE4JBN listed the following people as candidates for next year's executive: a. running for a second term - Dave VE4EF, Jim VE4AJR, Kay VE4YF, Pat VE4PLG, and Scott VE4WSM. b. new nominations - Barrett VE4ABA, Rob VE4GV, Ted VE4VID, Dick VE4HK and Gary VE4YH. All nominees were declared by acclamation with no objections.

5.6 OSCAR AWARD - Judy VE4JBN kept us all entertained and in suspense as she highlighted some of the accomplishments of this year's recipient. This year's OSCAR was presented to Witold VE4WK. Congratulations Witt. 6. NEW BUSINESS 6.1 MOTION - preamble - Ed VE4YU explained that under the present set-up VE4TTU cannot operate 2m and packet simultaneously. This problem could be solved if WARC were to purchase 300 feet of coax. We would also be able to install rotor cable for a beam for HF at the same time. MOTION by Ed

VE4YU that the club purchase this coax to a maximum amount of \$125.00. Seconded by Bill VE4KX. A short discussion followed. The motion was carried.

6.2 "SHOW AND TELL" - Wayne VE4WR brought several good buys to our attention: a. a 12.5 volt, 6.5 amp hr rechargeable battery including AC wall charger available at Canadian Tire for \$60. b. at Radio Shack a 4 digit LCD multimeter that reads current up to 10 amps - cost in the old flier \$70. c. a Standard C528A multi band radio, good for emergency work, on sale at Burghardt's for \$379 U.S.. Also Hot Rod antennae by AEA for \$21 U.S. .

6.3 FIELD DAY - Dave VE4EF had no volunteers to organize field day this year, so he arranged with the Winnipeg DX group to allow us to visit their field day operation from 12 - 6 pm Saturday June 26 at the CBC Transmitter site south of St. Norbert. All WARC members are invited. Ed VE4YU and Yori VE4ACX will have a small station set up at Assiniboine Park on Saturday from 8 am til dusk - everyone is welcome to come by.

7. NOTICES FOR THE GOOD AND WELFARE OF THE CLUB 7.1 EDUCATION - Wayne VE4WR, on behalf of Rick VE4OV said that there are 8 new amateurs licenced with a total of 26 possible this month.

7.2 YEAR END - Dave VE4EF says that discussion on the band uses has occurred. It will be pursued and he will report on developments in the fall. Note that this year's CANADA DAY CONTEST" is the first one being run under RAC.

7.3 NOTE OF THANKS - Ralph VE4RY commended Dave VE4EF on the excellent way that he handled the controversial issues in the last meetings.

7.4 FOX HUNT - Witt VE4WK has developed a remote control for the fox - he can't move it YET but can change voice transmission lengths.

The next W.A.R.C. meeting will be held on September 13, 1993 at 7:30 pm, Sturgeon Creek High School.

At 8:20 pm Jim VE4AJR moved that the meeting be adjourned.

Flea Market By Pat, VE4PLG

The fall flea WARC flea market will be held on October 24, 1993 9:00 - Noon at the Waverly heights Community Centre on Chancellor Drive. The cost for a table is \$5.00 and \$2.50 for a half table. Entrance to the flea market will be \$1.00 for everyone. For more info please call Pat, VE4PLG.

Ralph's Answer

A. You would choose answer a. The reason is that you are actually at your station, as defined by your licence. You may be operating a portable rig, but the fact is you are at the station location.

Ralph will be back each month with more on Ralph's regs. (as soon as he gets a current RIC 24 & 25)

Hams in action this summer by Dick, VE4HK

KIWANIS WALKATHON MAY 2, 1993

Seven members of the Winnipeg Amateur Radio Club provided radio communications for the Kiwanis Walkathon Sunday May 2, 1993.

Seven members of the Winnipeg Amateur Radio Club Inc. provided radio communications for the Walkathon. Each was in position by 7:45am. Lorne VE4LA was located at aid station number 1, on Mager Dr., just off St. Marys Rd. Kay VE4YF was located at aid station number two, on the corner of Casey and Arnold. Pat VE4PLG was on the corner of Stradbrook and Osborne, aid station three. Lorne VE4RLK was the troubleshooter, travelling with extra supplies, to where he was needed. Bob VE4TX handled the base station. Micheal VE4MJM assisted in a few locations, and I travelled over the course three times, on my bicycle.

Our responsibilities were to advise of any situation at the aid stations, or along the course, requiring attention. This year, we were very busy directing mis-directed walkers. For some reason, there was little signage to point the runners in the proper direction. Michael VE4MJM and Lorne VE4RLK did a fine job of acting as directional arrows at some problem corners.

Thank you to the following VE4s, HK, TX, RLK, LA, YF, PLG, MJM for a job well done.

CFCA FUND RUN MAY 30, 1993

The purpose of the race was to acquire funds to support Citizens for Crime Awareness, a sort of Neighbourhood Watch in the St. Vital area of Winnipeg.

Our responsibilities were to assist with ensuring a safe race for the runners. We were to advise of any problems on the course requiring attention, such as water main breaks, injured runners, missing signage, motorists harassing runners etc. From a communications point of view, there were no problems. We used 146.52 simplex. There were a few "dead spots" which could be cured by moving a few feet in one direction or another.

Another very important responsibility was to work closely with the course marshalls at the entrance to St. Vital Park and the corner of St. Michaels Road and River Road. One lane on River Road was coned off for the runners. Vehicular traffic had to share the other lane.

Seven hams provided the radio communications for the race. Pat VE4PLG, Judy VE4JBN, Ron VE4II, Dean VE4EY, Mike VE4MJM, Dan VE4SYG, and Dick VE4HK. Judy VE4JBN did her usual outstanding job at the start/finish area. Her newly licenced OM, Ron VE4II was stationed on the hot seat, at the corner of St. Michaels Road and River Road. Dean VE4EY was at the exit to St. Vital Park, then moved to the entrance. Pat VE4PLG and

Dan VE4SYG "manned" the half way water station. Michael VE4MJM rode on the equipment truck to drop off marshalls then drove it to pick up all the signs and other equipment after the race.

BIRDS HILL 20 K ROADRACE AUGUST 29

Five intrepid members of the Winnipeg Amateur Radio Club participated in the annual Birds Hill 20K race, Sunday August 29, No, we were not running. We operated a 2 meter network, covering the start line, the finish line, and each of the 3 water stations. I acted as a rover, following between the end and the middle of the pack of runners, watching for any problems.

Our duties were to broadcast the start of the race. We then transmitted the numbers of the leading males and females as they passed the three water stations. We were also responsible for calling Pat VE4PLG, at the finish line, with details of any injured runners. We also were to go through Pat with any problems encountered on the course, such as motorists bothering the runners etc. Nothing of any consequence occurred during the event.

Thank you to the following hams: Dan VE4SYG start line, Derrick VE4VV 5km and 15km water stations, Judy VE4JBN 10 km water station, Pat VE4PLG finish line, and Dick VE4HK roving bicyclist.

160 METER SEASON IS UPON US! By RON, WE7H *UBET ARC*

With fall here, 160 meters (1.8-2.0 Mhz) has become quiet and usable again. 160 Meters (also known as the "top band" and sorry YLand XYL, "the gentlemen's band"), offers exciting, unpredictable and frustrating operation characteristics. Sounds a bit like 20meters doesn't it! One can radiate a weak signal by feeding an 80meter dipole with a tuner, but considering the high ground losses, one is fortunate to achieve reliable 400-600 mile communications. For illustration, considering wavelength, an 160 meter antenna 35feet high is equivalent to mounting your 10 meter beam at two feet! For more reliable, distant communication, here are three simple antennas successfully used on this low frequency band: an inverted "L", "T", or helically wound shortened vertical. Achieving a lower angle of radiation without such extreme ground losses, these antennas should offer far better, consistent signals. If one has room, an inverted vee, which has a vertical radiation component, will also offer good results. An inverted "L" is a wire antenna shaped like an upside-down L. The total length of the antenna is approximately 125 feet and one should run the vertical portion as high as possible. The remaining horizontal portion has little radiating effect but acts much like a capacity hat. The "L" should be fed with a series L/C circuit at the base, and should be

worked against a ground/radial system. Simple ground rods will not achieve the results you are seeking. Run as many radials as possible and connect them to your sprinkler system, metal fences, water pipes, and also run them along your foundation or lay them on the ground because they will be covered by snow anyway! (Just roll them up in the spring). The "T" antenna is by far the simplest antenna to utilize if you have an existing 75 meter dipole or inverted vee. (continued next page) (160 Meter continued) This antenna must be matched with a tuner, and the coax braid and center conductor must be shorted at your tuner. The resultant antenna is a vertical with a horizontal top hat consisting of your normal dipole section. Don't forget the ground radial system! The helically wound shortened vertical is constructed by winding a half-wave length (260 feet) of 14 ga. insulated wire, evenly spaced on a 15-30 foot long insulator such as pvc pipe, wooden hand railing or whatever one can imagine. The top of the antenna must have a pie tin or pizza pan attached for added capacitance because of the extremely high voltages present. (Unless you want to simulate a tesla coil and impress your neighbours with a torch on your roof top!) Once again, don't forget a counterpoise system if roof mounted, or ground radial system if ground mounted. With any luck, these antennas should turn-out to be resonant antennas, however, the antenna impedance must be matched to the transmitter and coaxial feedline. Refer to the "ARRL Handbook" or the "ARRL Antenna Manual" for simple matching networks for all of these antennas. I was able to achieve 160 meter WA S (worked all States) in two seasons using 100 watts output with an inverted "L" supported by my walnut tree. So why not try one of these antennas and experience the fun of a new band with propagation conditions completely different than any hf band you have ever operated. Remember these few simple facts: Best results will be achieved with a vertical radiating component. Keep your antenna as far away from televisions as possible. Turn off fluorescent lights. (It took me a whole season to discover that my S7 noise level was caused by my overhead fluorescent light!) Get on the air, talk to others and discover what equipment and antennas the "big guns" are using. You will find courteous hams willing to talk, advise, discuss, chat and give more than a "59Albania" report. I think you will be surprised to find out that the big signals are a result of the antennas and the radial systems used; not the type of transmitter being used or the power output. Could anything be more fun? See you on 1843 khz. 73, Ron Johnson, WE7H. P.S. The 160 meter contest season begins in December and this offers considerable activity on both cw and ssb.

Packet Radio - Part 1

by Alan, VE4YZ

Edited (pruned) for W.A.R.C by VE4YZ in hopes that non-packeteers might have their interest tweaked to join the ranks of packet users.

1.1 What is packet radio?

Packet radio is digital communications via amateur radio. Packet radio takes any digital data stream and sends that via radio to another amateur radio station. Packet radio is so named because it sends the data in small bursts, or packets.

1.2 What is amateur radio?

[ed. just in case you forgot, but, moreover, for non-Hams who may be reading the WARC newsletter. In Canada the licensing and regulatory authority is The Department Of Communication (DOC).]

Amateur Radio (sometimes called Ham Radio) is individuals using specified radio frequencies for personal enjoyment, experimentation, and the continuation of the radio art. Amateur radio operators must be licensed by their government. In the United States, the Federal Communications Commission issues amateur radio licenses. Normally, a test on operating practices, radio theory, and in some cases morse code proficiency test is administered. Amateur radio is not to be used for commercial purposes. Also, amateur radio operators are restricted from using profanity and using amateur radio for illegal purposes.

1.3 What can I do on packet radio?

Keyboard-to-Keyboard contacts:

Like other digital communications modes, packet radio can be used to talk to other amateurs. For those who cannot use HF frequencies, two amateurs can talk to each other from long distances using the packet radio network.

Packet BBS operations:

Many cities have one or more packet Bulletin Board System (BBS) available on the local packet network. Amateurs can check into the BBSes and read messages from other packet users on almost any topic. BBSes are networked together over the packet network to allow messages to reach a broader audience than just your local BBS users. Private messages may also be sent to other packet operators, either locally or who use other BBSes. BBSes have the latest ARRL, AMSAT, and propagation bulletins. Many BBSes have a file section containing various text files full of information on amateur radio in general.

DX Packet Cluster:

A recent development is use of packet radio for DX spotting. HF operators connect to the local DX Packet Cluster for the latest reports on DX. Often a user will 'spot' some hot DX and distribute the DX report real time.

File Transfer:

With special software, amateurs can pass any binary files to other amateurs. Currently, this is done with TCP/IP communications, YAPP, and other specialized protocols.

Satellite Communications:

Many of the amateur radio satellites contain microcomputer systems that can provide special information to amateurs. Some satellites contain CCD cameras on board and you can download images of the earth and the stars. Others provide store and forward packet mailboxes to allow rapid message transfers over long distances. Some satellites use AX.25, some use special packet protocols developed for satellite communications. A few transmit AX.25 packets over FM transmitters, but most use SSB transmissions.

1.4 Why packet over other digital modes?

Packet has three great advantages over other digital modes: transparency, error correction, and automatic control.

The operation of a packet station is transparent to the end user; connect to the other station, type in your message, and it is sent automatically. The Terminal Node Controller (TNC) automatically divides the message into packets, keys the transmitter and sends the packets. While receiving packets, the TNC automatically decodes, checks for errors, and displays the received messages. In addition, any packet TNC can be used as a packet relay station, sometimes called a digipeater. This allows for greater range by stringing several packet stations together.

Packet radio provides error free communications because of built in error detection schemes. If a packet is received, it is checked for errors and will be displayed only if it is correct.

With VHF/UHF packet, many countries allow packet operators to operate in automatic control mode. This means that you can leave your packet station on constantly. Other users can connect to you at any time they wish to see if you are home. Some TNC's even have Personal BBSes (sometimes called mailboxes) so other amateurs can leave you messages if you are not at home.

Another advantage of packet over other modes is the ability for many users to be able to use the same frequency channel simultaneously.

1.5 What elements make up a packet station?

TNC (Terminal Node Controller): A TNC contains a modem, a CPU, and the associated circuitry required to convert between RS-232 and the packet radio protocol in use. It assembles a packet from some of the data on the serial line, computing an error check (CRC) for the packet, modulates it into audio frequencies, and puts out appropriate signals to transmit that packet over the connected radio. It also reverses the process, translating the audio that the connected radio receives into a byte stream on the RS-232 port.

Most TNC's currently use 1200 BPS (bits per second) for local VHF and UHF packet, and 300 BPS for longer distance, lower bandwidth HF communication. Higher speeds are available for use in the VHF, UHF, and especially microwave region, but they often require unusual hardware and drivers.

Computer or Terminal:

This is the user interface. A computer running a terminal emulator program, a packet-specific program, or just a dumb terminal can be used. For computers, almost any phone modem communications program can be adapted for packet use, but there are also customized packet radio programs available.

A radio:

For 1200 BPS UHF/VHF packet, commonly available narrow band FM voice radios are used. For HF packet, 300 BPS data is used over single side band modulation. For high speed packet (anything greater than 1200 BPS), special radios or modified FM radios must be used.

1.6 What do you mean we can all use the same channel?

Packet radio uses a protocol called AX.25. AX.25 specifies channel access (ability to transmit on the channel) to be handled by CSMA (Carrier Sense Multiple Access). If you need to transmit, your TNC monitors the channel to see if someone else is transmitting. If no one else is transmitting, then the TNC keys up the radio, and sends its packet. All the other stations hear the packet and do not transmit until you are done. Unfortunately, 2 stations could accidentally transmit at the same time. This is called a collision. If a collision occurs, neither TNC will receive a reply back from the last packet it sent. Each TNC will wait a random amount of time and then retransmit the packet.

In actuality, a more complex scheme is used to determine when the TNC transmits. See the "AX.25 Protocol Specification" for more information.

1.7 What is AX.25?

AX.25 (Amateur X.25) is the communications protocol used for packet radio. A protocol is a standard for how two computer systems are to communicate with each other, somewhat analogous to using business format when writing a business letter. AX.25 was developed in the 1970's and based of the wired network protocol X.25. Because of the difference in the transport medium (radios vs wires) and because of different addressing schemes, X.25 was modified to suit amateur radio's needs. AX.25 includes a digipeater field to allow other stations to automatically repeat packets to extend the range of transmitters. One advantage of AX.25 is that every packet sent contains the sender's and recipient's amateur radio callsign, thus providing station identification with every transmission.

1.9 Do's and Don'ts : Rules and Regulations

NOTE: These regulations apply only to amateurs regulated by the FCC (United States), but often are similar to regulations in other countries.

[Since I have no experience with amateur radio in other countries, I cannot make any comments. Please bring any notable exceptions to my attention. -ed]

Although there are no specific rules that apply to amateur packet radio, the general amateur radio rules force some restrictions on packet usage.

Can I set up a TNC at home and one at work so I can check my Electronic mail via packet?

This cannot be done without special restrictions. Amateur radio rules prohibit any business. Since you could have mail from your boss (or maybe even someone selling you something over Internet), that would constitute business activity and is specifically prohibited.

Profanity can also be a complication. Since you have no control over the language used in E-mail, proper filtering is required. Since no filter scheme can catch every offense, it is best to say every message must be hand filtered.

I would like to set up a packet radio gateway between a land line computer network and the packet network. Is this possible?

Yes, and there are several such gateways in use, but they must be managed with caution. Electronic mail may be passed FROM the packet network INTO the land line network without intervention. However, mail passed TO packet radio is considered third party traffic (the sender is not an amateur) and these messages must be hand filtered to ensure that rules of message content are followed.

It's my license if I use packet radio illegally anyway, so what does anyone else care!?

Packet radio is one of the few NETWORKED systems in amateur radio. Many people have helped develop the network and there are many amateurs who own parts of the packet radio network. Sending packet BBS mail, digipeating, and sharing the channel involves the licenses of MANY people. Because of FCC rules stating that anything to come out of a transmitter (either in automatic mode or via your direct control) is the licensee's responsibility, one illegal message sent over the packet radio network could literally jeopardize the licenses of thousands of other amateurs. When in doubt, it is best to check with other amateurs about sending the message before it is sent.

I have some ideas on how to use packet radio in a new way, but I don't know if it is legal. Who could tell me if I can do it legally?

The worst thing you can do is talk to the FCC about such an issue. The FCC rules are written to be general enough to encompass but not restrict new radio activities. In the past, any non-thought-out requests

sent to the FCC have meant a reduction of privilege for all amateur radio operators.

The best source for legal assistance is your national amateur radio association. In the United States, that is the American Radio Relay League (ARRL). Another good place for such conversations is over Usenet/packet mailing lists, or the amateur radio BBS network.

[ed. In Canada it is RAC - Radio Amateurs of Canada]

Education By Rick, VE4OV

Yes, You can be a Ham Radio Operator!

Changes to the rules in October 1990. made getting your Ham (amateur) Radio License easy "for the rest of us". now ...NO morse code for your first (basic qualification) license, which allows you special privileges to communicate with other Hams from your home, car, boat or cottage. All kinds of folks from teens to seniors are getting in on all the ham radio fun and public service. You can too! This course fully prepares you to write the Dept. Of Communications multiple-choice exam. Your instructor is your examiner and is delegated by the D.O.C. to administer your exam. There is no age or nationality restriction. Classes are for everyone. No special prior knowledge is required. The course is sponsored and approved by the Winnipeg Amateur Radio club and is designed for you... not just for electronic buffs.

10 Thursdays, Beginning Sept 20, 1993 to Dec 9

7:00 pm - 10:00pm

Sturgeon Creek Collegiate

\$126.00 +gst (material fee \$40.00)

Instructor: Rick Lord, P.Eng., VE4OV

to register phone 832-9637 (mon-fri 9:00-4:00) or mail to St. James - Assiniboia Continuing Education, Sturgeon Creek Collegiate, @665 Ness Ave, Winnipeg, Mb., R3J 1A5. Payment can be by cheque Visa, or Mastercard.

This Space for rent

Contact the editor
for advertising
costs & availability

Editor's note:

The VE4MAN repeater will be installed the week of Sept 13th. providing the weather is good.