The LOCAL OSCILLATOR

March 1995

The Publication of the Panhandle Amateur Radio Club

Matt Carpenter-KC5CGT

Guy Pigg-WZ5C

SIX METERS IS ALIVE AND WELL IN AMARILLO!

Bret Sims, N5SQK, will be giving us a demonstration on six meter operation at the next meeting. This month, the meeting will be at the S.W. Branch library. So please plan on attending and hope to see you all there!

Here is a list of frequencies and time for local nets:

P.A.I.N. Net-146.66 Mhz-8:00 pm, Sundays.
Cloud Chases Net (RACES)-146.92 Mhz- 8:00 pm, Mondays.
ARES Net-444.2 Mhz-7:30 pm, Thurdays.
Panhandle Traffic and Emergency Net-3.933 MHz - 00:00 UTC, Daily.
MidWest Section, AMSAT Net-3.94 0MHz -9:00 pm, Tuesdays.

Here are dates and times for activities and meetings in March.

Tuesday, March 7-Regular Meeting, 7:30 S.W. Branch Library
(VE TESTING @ 6:00 PM)
Sunday, March 12th - Wide Area Fox Hunt, 2 PM at lot N.of Civic Center
Sunday, March 26th - Local Area Fox Hunt, 2 PM at Southwest Park
Tuesday, March 28th - RACES meeting, 7:30 at Old Police Acadamy..

Events at Club Station for February.

Club station open to all Sundays from aprox 12 noon until ? Call on 146.66 Mhz rptr.

President's Letter

Well, it's that time again. Spring is in the process of springing, and Ham Radio thoughts turn to outdoor activity. Antenna projects that have sat around all winter begin to take shape and thoughts turn from late night low band DXing to Hamfests and grid hopping. Speaking of Hamfests the P.A.R.C. hamfest Ronnie, N5ZLU, Guy, WZ5C, and the other hamfest committee members are looking for help from you. I have to be honest, the hamfest is in jeopardy. The current committee is working very hard, but without additional support and participation this could be our last hamfest. So, make yourself useful and help them out. Also, let's get the word out that this hamfest is going to be a big deal. If you talk on a regular basis with hams in the area say on 80 meters let's start encouraging them now to plan on attending.

What's after the hamfest? Field Day! Dick, N5AE has graciously volunteered to head up the effort for this year's Field Day. He is looking for your help to make this Field Day a success. Let him know what you can do to help. If you hurry I think you can still get your vote in for the location you like. There is also a rumor floating around that a full fledged OSCAR station will be on at the Field Day sight.

The members of the P.A.R.C. are getting things done, and having fun doing them! Come join the fun! I'll see you at the next meeting.

73, Joe

Panhandle Amateur Radio Club Minutes for February 7,1995
Club Station Site, TSTC

Daniel Hudson, from Amarillo Regional Net, gave an interesting program on the Internet. Coleman, WA4NXI, talked to Daniel about a packet gateway into Internet. Leland, N5VRN, gave the hamfest report. Hamfest will be National Guard Armory and will be held on May 13, the second full weekend in May. Pre-registration prizes will be a dual band mobile, 2 meter hand held. The door prizes will be a Gap Antenna, and a TNC. Minutes were read and accepted by Joe, KA0YOS. Financial report was read and accepted by Aaron, KJ5ER. Meeting adjourned.

P.A.R.C. MEMBERSHIP RATES

Full and Family	**$25.00 per year**
Associate (Non-Voting /Newsletter only)	**$8.00 per year**

NEWSLETTER SUBMISSIONS

All articles are due by the 20th of the month.You may send them via the following:

Internet: guy.pigg@radio-online.com

BBS: The Lumber Yard (806) 381-8247 (Must be registered user)

By phone: (806) 372-8462 (An answering machine)

WAVELENGTH VS. FREQUENCY

	Wavelength	Frequency
LF	10 - 1 km	30 - 300 kHz
MF	1000 - 100 m	.3 - 3 MHz
HF	100 - 10 m	3 - 30 MHz
VHF	10 - 1 m	30 - 300 MHz
UHF	1 - .1 m	300 - 3000 MHz

From the PARC Swap Shop

WANTED!!! 3' to 5' parabolic dish must be VERY CHEAP!! Also wanted, a manual for the IC-22S two meter mobile rig. (I'll pay reasonable copying and postage costs). Contact Joe Mayfield, KA0YOS.

FOR SALE: Two computers for sale. IBM PC/AT , 2meg memory, 70 meg hard drive, EGA color monitor for $175.00. IBM PC convertable lap top for $60.00. Contact Bret Sims, N5SQK.

Will Sell or Give Away: 60 foot home-made tower in two sections, 40 and 20 feet. Will give to group or sell to individual. You pick-up. Contact Jim, K5GFD at 665-8644 in Pampa.

FROM N5MGU, WHITE DEER, TX

Note: Mr. Vernon Alexander's Amateur Radio Call is N5LRH. Sorry Vernon. I have it correct now.

OK, for the hams that wanted to make the Midland Hamfest and not miss the A.R.E.S. Skywarn class, well let's make the plans to go, because we planned a Skywarn class for April 1st. Time will be 1pm to 5pm at the Main Library across from the Civic Center. We will have a special guest, see you at Midland.

For all A.R.E.S. in Randall County, Mr. Vernon Alexander (N5LRH) will have his Skywarn class March 7th from 9am to 12 noon at the Canyon Fire Dept. Everyone is invited.

A.R.E.S. has two new surprises that will be in place before March 19th, so stay tuned to your Local Oscillator for details.

73 from N5MGU, White Deer, Tx.

Young Ham Nominations

Nominations for Amateur Radio Newsline's "Young Ham of the Year" award are being accepted through April 30. The award will be made to a licensed amateur 18 years old or younger who has provided outstanding service to the nation or community, or for the betterment of the state of the Amateur Radio art. This award program, founded in 1985, was formerly known as the "Westlink Report Young Ham of the Year," and has been assumed by Newsline following Westlink Report's ceasing publication in early January. Corporate underwriting of the award has traditionally been supplied by Yaesu USA Corporation. Last year's recipient of the award was Allison Zettwock, KD4CKP, of Louisville. Send an SASE for an official nominating application to Newsline, 28197 Robin Avenue, Saugus, California 91350, or get it electronically from Newsline's Bill Pasternak, WA6ITF, on America Online, BILLWA6ITF; or on GEnie, B.PASTERNAK.
(From Relay Internet Message Exchange, via Radio Online BBS)

Help the Special Olympics

Amateur Radio will play an important role in the 1995 Special Olympics World Games this summer and amateurs around the world are asked to help. The World Games, to be held June 28 to July 9 in New Haven, Connecticut, are expected to draw more than 10,000 athletes and their delegations from 140 countries, in addition to 45,000 volunteers, and perhaps hundreds of thousands of spectators and any celebrities. Brian Battles, WS1O, Amateur Radio Liaison for the event, said "This is likely to be one of the largest public service communication support opportunities most US amateurs will ever see." Battles said amateurs will help by operating a special-event station, W1SO (for Special Olympics), originating free radiogram greeting traffic on behalf of Special Athletes and spectators, and in other areas as needed. All amateurs in Connecticut and nearby are invited to assist, and hams outside Connecticut are asked to be prepared to relay and deliver National Traffic System radiograms, and to make contacts with W1SO. For more information, send mail to Brian Battles, in care of ARRL HQ, via packet to WS1OW1EDH.CT.USA.NOAM, or via e-mail to bbattlesarrl.org.
(From Relay Internet Message Exchange, via Radio Online BBS)

What is Packet?

North East Digital Association-1994 Annual
NEDA -POB 563 Manchester, NH 03105

Packet is a method of communicating digitally. The word packet describes the maner that blocks of information are transmitted and received. Text information, either hand typed or computer generated, is transmitted from station to station in blocks of between 1 and 256 bytes. Each block is acknowledged by the destination station. Lost blocks are re-sent. This means that every block that a user would see on the receive end is guaranteed to be error free. This does not guarantee that all blocks will make it. It is up to the sending station to resend lost blocks. How and when the sending station transmits we'll get into later.

Why do we packet?

Of all of the modes of communications used in ham radio, packet is the only mode which inherently allows several conversations to occur in the same piece of spectrum over the same path. This means that on one frequency in the 2m band several pairs of stations can carry on conversations at the same time. A packeteer can start a conversation on a frequency that may already be in use, without fear of hindering the other conversation or conversations. We can take advantage of a linked network of packet stations without worrying about keeping other stations from doing the same. We can connect our station or computer to other stations to run operations that might last for hours or even years!

One practical application of long duration packet operation is Dx spotting. All over the US and Canada DxCluster servers are connected together to share Dx spotting information. The way you use this is to packet with a local contact point (there are many) all the time while you are operating your HF station. Whenever you work a rare one on HF you can type a note to all of the other hams who are currently *on the net.* This can include 200 or more stations at once. Each message you type can be routed to all of the other packet stations (that are checked in) at once or you Call select to type to an individual station. You in turn will see all of the Dx spotting reports typed by the other hams that are tied in.

Packet is a computer based communications method . Thi s means that your communications can take some advantage of the *power of the computer.* For instance your packet station could be used as an excellent selective call device. You can leave your station on all of the time and when another ham calls you your station can inform you. Thus you take notice of only that activity which is directed at you. (You can also set it up to monitor other local activity.) Using the latest TNCs that have built in message storage called Personal Message Systems you can have your friends leave messages for you when you are not in. Your TNC will tell you that there is mail waiting with a signal lamp.

What do we need to packet?

There are 3 basic parts to a packet radio station: A radio system, a display/entry device, and a packet radio TNC. Lets cover each in turn.

Radio

The radio system looks a lot like a base station 2 meter FM setup. The only real difference is that you don't need the microphone to do packet. Note that VHF packet can be done on 220 or 440 in some areas as well and we'll mention HF packet in an other article. Like any other aspect of ham radio QRP is not as easy to use for a beginner. The ideal station would be a low power 2 meter sta tion (1 watt) with a small beam but until you get used to packet and what is out there I recommend that if you can arrange it that you start out with a 25 watt station and a good base station antenna. In some areas, a handie talkie will perform perfectly.

Computer or dumb terminal

The display/entry device can be anything from a simple computer system like the Commodore 64 to a "dumb" CRT terminal to a more elaborate computer system lilke a PC clone or Macintosh. The computer must have a TTL serial or RS-232 interface and you must have a communications program to run on it. A computer with a disk drive will allow you to store your conversations or received text and may also let you use some of the more powerful or sophisticated packet modes. A"dumb" terminal may be found in the surplus market for $30 or so (for instance flea market specials).

TNC

The packet radio TNC is the real key to the operation. This "TNC", which means Terminal Node Controller, is a computer device itself that takes care of all of the dirty work involved with packet communications. The TNCs range in price from about $115 to about $400. The cheaper TNCs are just as good for VHF packet radio as the more expensive ones. The more expensive TNCs offer other digital modes such as computer operated Morse Code AMTOR, digital reception of rebroadcasted satellite pictures, RTTY (radio Teletype), Facsimile, and even slow scan television. Consult the packeteer of your choice or ham magazine for advice on which of the models is the better choice! If you will settle for VHF packet operation only you

should not spend more than $130 for your TNC.

How does it work?

Packet radio allows the digital transmission and reception of messages in small chunks called packets. At a very basic level it takes the characters in each message and translates each character as a sequence of high tones and low tones. Each letter consists of 8 bits, each bit can be a high tone or a low tone. The letter is preceded by a high tone and followed by a high tone (Start bit and Stop bit). A letter "C" sounds like: high lo high lo lo lo lo high high high.

The tones all run together with no silence in between and on amateur packet radio the total length of a single character is about 10/1200ths of a second. That's ten bits at 1200 bits per second. This means that a message with one hundred and twenty characters could be sent in one second.

Addresses

Now comes the nifty part. Each packet includes, at the start of the packet *burst*, the callsign of your station and the callsign of the destination station! That means that if you chose, your station can reject any packets that are not to you. Secondly each packet station only transmits for long enough to get across its short message. Thus several hams can use a single frequency for conversations without having to *listen* to each of the other conversations.

In normal packet operation you would type a carriage return after each line of text that you are sending to another station. After you type the carrage return your packet station will wait for a quiet moment on the frequency and then send its message. If you have specified an intermediate station in the *path* to your friend then the intermediate station will hear its call in your message and will retransmit your message, only if the message is received perfectly and after the intermediate station sees the frequency quiet. Then your friend's station w:ill hear the message and send back an *acknowledgment* which is picked up and echoed by the intermediate station. When your station gets the acknowledgment it will go on and send your next line of text when you hit the next carriage return. If you have already hit the next return then your station will immediately start looking for the frequency to get quiet and will then transmit the next line. If your station waits for a preset amount of time and doesn't get an acknowledgment for its packet it will send another one. This will repeat until the message gets through or your station sends RETRY amount of times, (usually 10). The form of communications where your station waits for a quiet moment and then transmits its message is called "Carrier Sense - Multiple Access" or CSMA.

Digipeaters

By the way, you can specify up to 8 stations as intermediates and your message will be echoed by each in turn all the way to the destination station. Each intermediate station is called a "digipeater". Any station, including yours, may be used as a digipeater by another station, merely by specifying your station's call as an intermediate. Except for emergencies or when no other resource is available you should not use digipeating.

How do we use it?

Your packet TNC operates in 2 modes: Command mode and Converse mode. In Command mode you can instruct your TNC about its operation, its callsign, RETRY value or whether it MONITORs the channel or listens only to messages with its callsign. Additionally you can command your TNC to *connect* to another station. It is in the connect command that you specify the destination callsign and the callsigns of any intermediate stations.

In Converse mode anything you type will be sent over the air when you type a carriage return. If you are connected to another station the TNC will send the message and wait for an acknowledgment or retry as described above. If you are *not* connected to another station your TNC will send the message as soon as the frequency clears and will not wait for an acknowledgment. This is called *unproto* or *non-connected* mode and is useful if there are other stations MONITORing the frequency. This is how you may call for any contacts (for instance calling CQ). From command mode you can tell your TNC to use a digipeater during unproto transmissions using the UNPROTO command. More detail on this process is covered in *Operating a Packet Station.*

Anything Else?

Glad you asked. There are many ways to play with packet. Some hams set up automated stations (called servers) which allow connection by other hams. You may then connect to an automated station and command it to perform many fun and useful functions. Among the most common sort of automated station is the packet bulletin board or PBBS, also known as a "mail box". These stations allow a packeteer to connect up and send and read messages. Each message is usually up to about 2000 characters long but sometimes 10,000 or more. The mail box lets you look at any messages that are listed as bulletins. You can send messages to other stations and you can read messages that are to you. You can also send bulletins.

-KA2DEW

Next month-**Operating a Packet Station.**

(Thanks to Ronnie, N5ZLU, for making this series available. For more information on North East Digital Association, write to the address at the beginning of this article.-Guy, WZ5C)

W5WX STATION NOTES
by Guy Pigg, WZ5C

Ok, lets talk (or read) for a moment. Just you and I. If you are getting this newsletter, with a few exceptions, you are a club member. You paid your money for dues regardless what classification. Only thing is, if you're not a full member, you cann't raise your hand to vote at the meetings. Now if you cann't vote, you still have some say here. So all you associate members, please don't feel left out. OK... That's over with and we now are on the right track as to who you are within the club.

As the station manager, it's kinda up to me to assist in the upkeep of all club radio systems. As we approach some fair weather days, we should all think about how our repeaters and the HF station should be configured. The need is to develope a plan and schedule of events to take place to upgrade and\or maintain our equipment. Notice I underlined "OUR"? This equipment is not mine, it's not Joe's (KA0YOS), not Bret or Arron's (N5SQK, KJ5ER), not even Matt's (KC5CGT). It is "OURS"!

For the number of years that I've been a member, or at least active in some manner of the club, there has been only a shoulder shrug or two on some things. Other times, a madd house. I even participated in the war that broke out when we replaced the 146.94 system in use now, minus the transmitter/receiver that originally came with the unit. Seems also that one took upon one's self to just get whatever is needed and plug it in.
What is the point here? I've got to know what the club attitude is about our repeaters and HF station. What do you want to do with our stuff? If you're a reapeater user, what can I do to make things better? Should we continue with an operator site at our present club meeting location at TSTC? Think about this for a moment as I offer some facts about what I see is needed.

The W5WX Repeater System.

Let's look at the repeater sites for a moment. First is the now present 146.66 machine. Originally, this was the 146.94 site when the location atop the Amarillo National Bank building was lost. The present .94 repeater was a combined rf/ controller at this site. Brand new (at the time) hard-line was placed on the tower with a sutable antenna. The site is located on the Omega Electronics tower just west of Soncy by Westgate mall. The site can generally cover most of the city of Amarillo and to the west. The 146.94 machine was originally the 146.67 machine. Not a missprint, this was the original frequency before a different band plan came into effict. There is a combined coax/hard-line running to the antenna aproximatly 300 feet above ground level. This site is located about 15 miles north on the KVII-TV transmitter tower. Make note of this distance....

The club is limited on how much money we can spend at one time. Hamfest commitments, regular bills and such do take a large bite of money. Part of these expences involve repeater operation with only an occational amount for our operator position. With this in mine, it seems that we need to think about what service our repeaters need to provide. The 146.66 machine does a fair amount of sevice covering our city. Most of the area can be accessed with a hand-held. The delima involves the 146.94 machine and the primary focus of this article, at least for now.

The time I obtained my Technician until the present, the what I wish to call the North Site for the 146.94 machine, has had difficulties for hand-helds getting into the machine from the south usually bound from I40. Do you still remember the distance from town? Sure some of us if not all, want both repeaters to cover the city. If we get things done and done correct, we probably can do so with the North Site. Some hand-helds may not even have problems at all with the North Site. Right now, the current plan is to get an antenna working, obtain a controller to do away with the present one, and put in a commercial grade RF system. This is going to take time, personel, and "MONEY". My feeling on the site is to designate it as a wide area repeater to cover distances to the north as well as the city. At one time, I could actually hit the site from Lake Merideth with a hand-held.

This is not all that needs to be done, but all I can say for the moment with the space I have here. Think about this! This is your money as well. We can get the North Site going and going great. This will take time, and we need to start now. The only other alternative, shut the site down and save our money.

73, Guy-WZ5C, Club Station Manager..sk

(At the time this newsletter went to print, antennas were changed, the .94 machine was then useable.)

Digital meet scheduled

The 14th annual ARRL Digital Communications Conference will be held September 8 to 10 at the LaQuinta Conference Center in Arlington, Texas, near Dallas. Co-hosts for the conference are Tucson Amateur Packet Radio Inc. (TAPR) and the Texas Packet Radio Society.

The ARRL Digital Communications Conference is an international forum for radio amateurs and experts in digital communication, networking, and related technologies, at which they can meet, publish their work, and present new ideas and techniques for discussion.

Presenters and attendees can exchange ideas and learn about recent hardware and software advances, theories, experimental results, and practical applications.

Anyone interested in digital communication is invited to submit a paper for publication in the Conference Proceedings. Attendance at the conference is not required for publication. Papers are due by July 21, 1995, and should be submitted to Maty Weinberg, at ARRL Headquarters.

For more information on the conference, registration, and hotel reservations, contact TAPR at 8987-309 E. Tanque Verde Rd, No. 337, Tucson, AZ 85749-9399 USA. Phone 817-383-0000; Fax 817-566-2544; Internet: tapr@tapr.org.

(Relay Internet Message Exchange, via Radio Online BBS)

Help with history

The Antique Wireless Association is building a replica of the famous 1BCG transmitter used in the 1921 ARRL Transatlantic Tests—the first to send a complete message across the Atlantic.

The AWA hopes to have the transmitter operating sometime this fall and to be able to work amateurs who participated in the 1921 Tests.

The AWA knows of only one licensed amateur (other than 1BCG) still active who was heard by Paul Godley, in England—Jim Russell, now W8BU, then 8BU. Another participant, Bob Morris, W2LV, also is still active. The AWA would like to hear from other amateurs who might have heard 1BCG during the Tests, including amateurs in the US. 1BCG was operated from East Greenwich, Connecticut, by members of the pioneering Radio Club of America.

1BCG was on 230 meters in 1921—the AWA, using the call sign W2AN, will put the replica station on 160 meters. The transmitter will be identical in all respects except that a 204 vacuum tube, vintage 1923 or 1924, will be used.

Details of the ARRL Transatlantic Tests appeared in February 1922 QST and have been reprinted in several ARRL publications.

If you can help, contact AWA Curator Bruce Kelley, W2ICE, 59 Main Street, Bloomfield, NY 14469.

(Relay Internet Message Exchange, via Radio Online BBS)

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AMATEUR RADIO....IT'S NOT A HOBBY, IT'S WIRE THINGS IN YOUR YARDS THAT BIRDS LAND ON!!!!