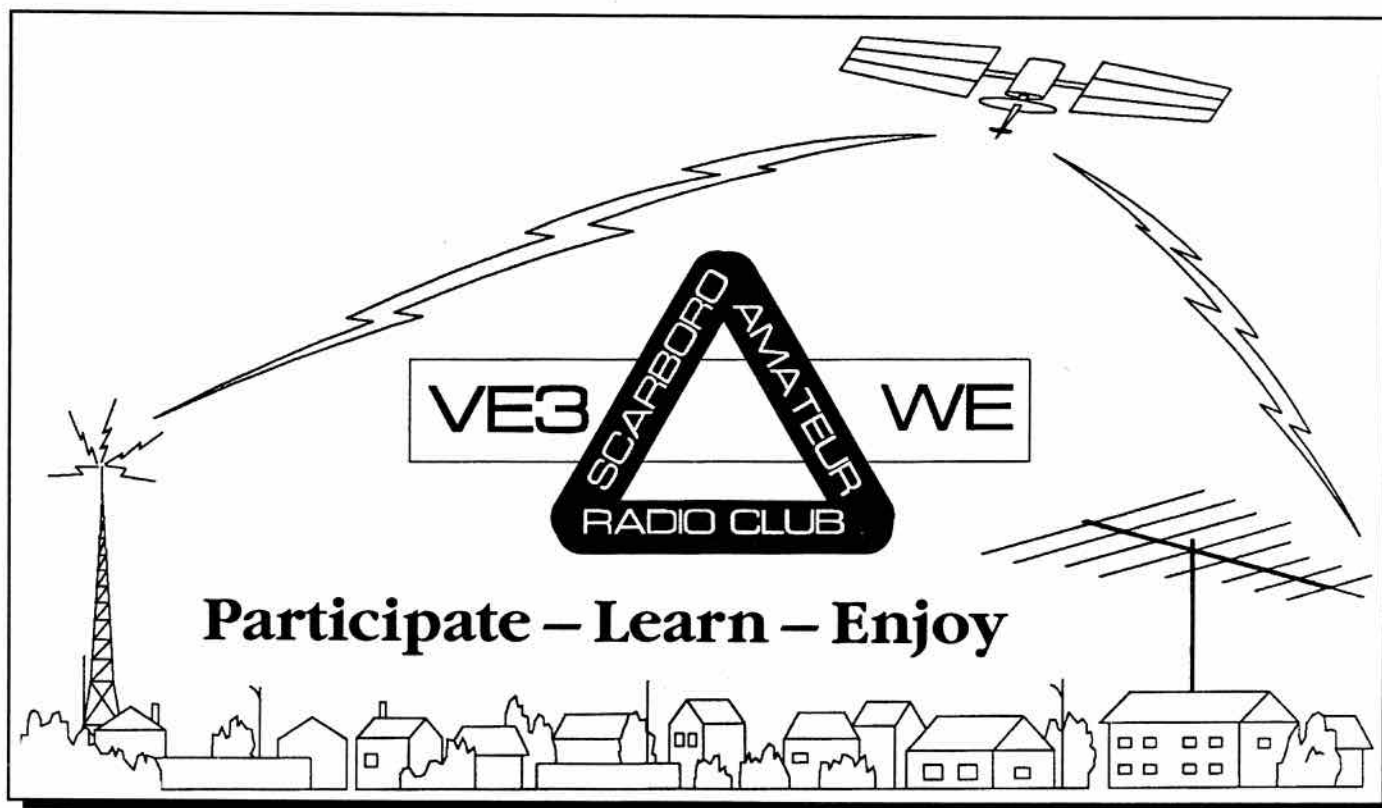


HP



c/o Parkway Mall
Box 62503
85 Ellesmere Road
SCARBOROUGH, Ont.
M1R 5G8

TO:

January 1997



OUR 51st YEAR

The Scarborough Amateur Radio Club Incorporated was founded in 1946 and Incorporated under Ontario Laws in 1977. We are a not-for-profit, private Corporation operating as a general interest amateur radio club.

Membership is open to all and meetings are held on the second and fourth Monday's of each month from 7:30 to 10:00pm except during July and August and legal holidays at:

**The Library, Sir William Osler High School
1050 Huntingwood Drive,
(west of Midland Ave)
Agincourt, Ontario**

S.A.R.C Executive 1997

BOARD OF DIRECTORS

President	Mal Hamon	VE3KXH	905 623-0472
Vice-President	Bob Chrysler	VE3IEL	416 291-5285
Secretary	OPEN		
Treasurer	Jim Mulgrew	VE3JPM	416 466-9919
Past President	John Chapman	VE3LM	905 294-3106

EXECUTIVE PANEL

Education	Weldon Cromwell	VE3ILN	416 439-0070
Field Day	Tony Feagan & The Satellites	VE3QF	416 267-6802
Communications	Earl Cardozo	VE3KCO	416 284-7932
Editor-Publisher	Allyn Pollock	VE3PRG	416 491-5814
	Dave Blizzard	VE3SVL	416 691-9674
Social Convenor	Dennis Eason & The Senators	VE3BRO	416 755-1400
Membership	Fred Fox	VE3XOF	416 438-1366
Assistant Treasurer	Marg Chapman		905 294-3106
Assistant Secretary	Corrine Fonseca	VE3VIU	416 698-5442

VOLUNTEERS APPOINTED TO SPECIAL DUTIES

Visitor Reception	Earnie Eason	VE3EJE	416 449-6681
Awards	John McCorriston	VE3DAY	416 759-2520
Auditor	Open		
Education, C & T	Weldon Cromwell	VE3ILN	416 439-0070
Archives	Audrey Little & Gord Hogarth	VA3YD VE3CNA	416 264-5662 416 266-6734

Scarborough Amateur Radio Club Nets

Sunday, 9:30am Local Time	10m CW NET	28.730 Mhz
Sunday, 10am Local Time	10m Phone NET	28.730 Mhz
VHF Simplex Talk-in Frequency for meetings		146.55 Mhz
Tuesday, 7pm Local Time	2m Senators NET	146.940Mhz
	on VE3TOR repeator	

President's Message

HAPPY NEW YEAR TO EVERYONE. I trust you had an enjoyable Festive Season and that Santa responded to your wish list favourably. 1996 was surely a memorable year as we celebrated our 50th Anniversary of the founding of our Club. John Chapman and the rest of his Executive Committee are to be congratulated on a job well done!

A Special word of thanks also to the 50th Anniversary Committee chaired by Audrey Little and ably assisted by Gord Hogarth over the past 4 years.

On your Executive for 1997 I am pleased to welcome a Board which comprises some new members, old members returning to existing positions and former members assuming new positions. With the Field Day and Social Coordinators responsibilities being assumed by the Senators and the Satellites respectively this should help to resolve the problems we have had in the past filling these two positions. Many thanks guys.

As I live in "Gods" country naturally all telephone calls are long distance. To help make it more convenient to contact me please leave a message on my daughter's answering machine at 416-465-9383 and I will get back to you. If you are on the Internet I can be contacted at
102533.2761@compuserve.com

Best of 73's

Malcolm C. Hamon, VE3KXH

OPERATING ON THE HIGHER BANDS

By Bob Chrysler VE3IEL

After some experience working two metres, with public service events such as Robbie, and some other events as well, I believe that I am somewhat qualified to address the club about some tips regarding this kind of operation.

Today a lot of new hams have their first experience with amateur radio via the higher bands particularly the two metre band. With the high cost of new equipment, the new ham first buys this kind of equipment as it lets him, or her get on the air right away, easily. The first place to look might be the club repeater frequency.

The Scarborough Amateur Radio Club, however, does not as yet have a club repeater. I am still working on a means for this situation to change. We are lucky here in the Toronto that we have several two metre and 440 repeaters. One of the oldest systems in Ontario is sponsored by the Toronto FM Society, that is repeater VE3RPT. This system has pioneered a lot of what we expect in repeater facilities. For a long time it has had autopatch facilities, as well as a means of linking

other repeater sites. Now this system even has a link to the ANIK commercial satellite, for country wide FM contacts. This is the much talked about IPARN communications system. So far I have just been talking about voice communication. The higher bands are also the choice of amateurs for packet radio, a digital form of communications. If you have a computer, it is an easy next step to enter the packet radio group. A TNC between your computer, and a two metre handi-talkie is all that is required. Some TNC's even can be attached to your computer, using the memory of your computer in order to work.

If you have one of the many small handi-talkies that are available now, you may wonder, what do I do now. well for example you might do what I sometimes do, and that is to listen on a particular frequency. One of my favourites is the frequency for VE3TOR, 146.940. The VE3TOR transmitter is placed always, on this frequency. The repeater located in the Thorncliff area, transmits on two meter, frequency 146.940. Other amateur stations are allowed to transmit on this frequency, but do not do so in the Toronto area, because The Repeater Council representing this area has by gentleman's agreement allotted this frequency for use by the repeater VE3TOR. Almost every large city has a repeater that transmits on 146.940. As we do so often in amateur radio, we come across what is termed, gentleman's agreement. That is amateurs have decided that for the good of the many, certain parameters will be adhered to by each and every one of us. For a long time the American Amateur Radio Relay League has played a large part in the formation of gentleman's agreements as to operation on amateur radio.

Sometimes though, certain parameters were dictated by govern-

ment laws, such as keeping a log of contacts made; and, demonstrating to an inspector the ability to operate safely and skillfully, the equipment that was allowed for amateur use. Included in such laws were such things as the proven ability to send and receive International Morse Code. Yet, gentleman's agreements are just that, gentlemen agree to cooperate in certain ways so that our hobby does not become a jungle of interrupting signals.

Ouch!, It is on the VHF band, particularly two metres, where this rule breaks down most often. Sometimes this happens through carelessness; and, sometimes it is intentional. Of those who wish to create havoc intentionally, the microphone may not be such a good thing to hide behind. It only might take the sound of a particular uncontrollable noise to give you away to the experienced amateur. T-whine produced by a certain car ignition on your transmitted signal might do it. A cookoo clock striking at just the wrong time might do it. A peculiar timber of voice could do it. A time of day habit perhaps; or best yet, someone who has

always found you funny suddenly turns his back on you and squeals on your operation. Today, I'm afraid, it is getting more and more likely that such an intentional interference would likely bring a major embarrassment to certain public service operations. This, as yet has not affected emergency traffic; but, more and more amateurs carry cellular phones for this kind of use, and would not trust the two metre amateur radio network for it. For example, last July, more Robbie traffic was handled by cellular operation, than by amateur radio. As for public service, the cellular company even provided free air time for Robbie use. Try as we might to police our own bands, we really don't have the

authority to do so. As soon as our rules of gentlemanly conduct break down, we all suffer.

Now the next blow. We have all made mistakes; but, we should learn from them. At some public service events, I truly wonder if we do. A radio off frequency can be a real annoyance. Some of our newer smaller handhelds can slip off frequency by an errant "menu" entry, and the operator work a whole exercise, 5 kc off frequency. At other times operators forget the + & - rules of repeater operation and actually work a whole exercise on what is really a simplex mode, all the time thinking that they are going through the repeater because most of the time they are heard on the repeater transmit frequency. If you don't hear the tail drop, or the repeater switchover beep, chances are you are not going through the repeater. Again, many of our radios do not have the lock feature. The first thing you should check if you are not being clearly heard, is your own radio, not blame the base station operator for not paying attention to you. Every operator if they can should try to make at least one visit to the base station location. That way the operator can visualize what is really going on

The Scarborough
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and make a better more intelligent assessment of any problems. If a base station is off the air more than 5 minutes to everyone else, obviously the operator there is in trouble. It does no good to call and discuss what might be wrong, somebody has to go there and help fix the problem. I really think that some hams, particularly on two metres, as soon as they turn their radios on, shut their brains off.

OK, enough of that already. It is hard enough now to get volunteers for a public service operation without laying the lash on those who at least try to help out. What about the rest. What about those who are too important to be bothered with a public service "exercise"? Do they think that they are so sharp and their operating procedure so faultless that an exercise is not needed? What about those who think their time is too valuable to be volunteered on an operation which they do not control? Where are the big guns that have antennae that almost shadow their block. Do they not realize that a good public service profile can only help them?

I am very proud of what the Scarborough Amateur Radio Club has done in response to public service. It should be remembered that it is offered by individual members; and, it is these same members who keep our club in operation.

CLUBS MAIL BULLETINS TO SARC

SARC mails about 20 newsletters to clubs throughout Ontario and we receive newsletters from about 20 different clubs.

If you are interested in obtaining these club bulletins, for reading see Weldon (VE3ILN) or Allyn (VE3PRG).

ONTARS Celebrates 25th Birthday

ONTARS celebrated its 25th Anniversary on the air January 8, 1997.

Congratulations go to the men and women who participated and kept the net going.

Special acknowledgement go to **Doreen (VE3CGO)** who started the mobile net in 1992, **Bruce (VE3BC)** who was the net's first manager and **Ralph (VE3RJD)** who is the present net manager. About 1060 hams checked in to receive a commemorative QSL card.

A Note of Thanks

Peter VE3FJI would like to express his appreciation for the untiring help of Len VE3LBX in setting up Peter's packet radio station. Len worked day and night with Peter over the first weekend in January and finally got it going.

The editor of the SARC bulletin would also like to thank Peter for providing transportation for the partial production of the bulletin.

Some Club Member E-Mail Addresses

Tony Fegan	VE3QF/G3TTF	tfegan@toronto.ark.com
Malcolm Hamon	VE3KXH	102533.2761@compuserve.com
Michael Doulton		ba291@torfree.net
Len Blizzard	VE3LXB	lblizzard@gbrownc.on.ca
Mike Krumov	VA3MVK	br709@torfree.net
Bob Chrysler	VE3IEL	bob_chrysler@tvo.org
Charlie Urban	VE3JBP	curban@pathcom.com
Al Haines	VE3ALH	hainesal@followme.com
Rob Murray	VE3VGE	rmurray@csi.ca
Allyn Pollock	VE3PRG	allyn_pollock@tvo.org

Bill Roorck, (VE3MBF)

(1917-1996)

by Murney Swanson (VE3URX)

Bill Roorke was known by all of SARC. He was always at the door to greet new members and introduce them around. He was always a patient instructor, always there for his students; always encouraged his students, yes, he was always encouraging. When you came over to his house he would make you feel like home. He was an exceptional letter writer and he made use of it with the connections he had with the DOC. He was code and theory educational co-ordinator for 11 years and got a lot of people involved. He was even there to co-ordinate volunteer efforts and field day. Bill will be well missed.

by Harv Porter (VE3LLO)

Bill joined SARC in 1980 and became very involved...

He was one of 3 founding members of the Senator's group in 1981. He was chairman of the committee connected with CARF called the TRC-24 committee. In this capacity he gave the CARF input into what the attitude of hams was in regard to setting up a Canadian Radio Relay League. (This was an ad-hoc technical committee).

Bill was also involved with demonstrations that the club put on like the Senior's Showcase at Scarborough Town Center where he drummed up business to get future new hams interested in ham radio. He was the editor and publisher of the SARC newsletter where other members would do the collating of the newsletter.

He organized and administered the club technical library. At his home, people would go over and pick up books as needed.

He was a liaison person of CARF and CRRL when preparing questions for the question bank, when it went into a new format.

He produced and published his own reference manual on Amateur Radio.

He acted as liaison with the DOC in respect to their exam subjects. He knew more than anyone else in the club about the answers and would question the DOC regarding exam topics. Bill was also liaison between the federal government departments and the amateur community concerned with the radio spectrum.

He would pass along suggestions to various government departments besides the DOC to make it easier to become a ham. For example he would use a recipe card and take a paragraph from the handbook and put it on the card. He had thousands of them.

He was really tenacious; if he didn't get the response he wanted he would try to get it. Sometimes he won, sometimes he lost.

He used the motto "Why should anyone have to be an engineer in order to get his licence."

Bill got into ham radio in the first place in order to communicate with his son in the United States. His son Don got his licence but unfortunately didn't use it.

Bill died August 14, 1996. He will be missed by all. He was 79 years old.

A Canadian-American radio pioneer

Reginald A. Fessenden
b. Oct. 6, 1866, East Bolton, Quebec
d. July 22, 1932, Hamilton, Bermuda

Fessenden was a Canadian-American radio pioneer who broadcast the first program of music and voice ever transmitted over long distances.

After study at Trinity College School, in Port Hope, Ont., and Bishop's College in Lennoxville, Que., Fessenden went to Bermuda as principal of the Whitney Institute, where he developed an interest in science that led him to resign and go to New York. Working as a tester at the Thomas Edison Machine Works, he met Thomas Edison and in 1887 became chief chemist of the Edison Laboratory at Orange, N.J. In 1890 he became chief electrician at the Westinghouse works at Pittsfield, Mass., and in 1892 turned to an academic career, as professor of electrical engineering first at Purdue University, West Lafayette, Ind., then at the Western University of Pennsylvania (now the University of Pittsburgh), where he worked on the problem of wireless communication.

In 1900 Fessenden left the university to conduct experiments in wireless telegraphy for the U.S. Weather Bureau, which wanted to adapt radiotelegraphy to weather forecasting. He then became interested in voice transmission and developed the idea of superimposing electric waves, vibrating at the frequencies of sound waves, upon a constant radio frequency, so as to modulate the amplitude of the radio wave into the shape of the sound wave. (This is the principle of amplitude modulation, or AM.) Fessenden also invented an electrolytic radio detector sensitive enough for use in radiotelephony.

In 1902 Fessenden joined two financiers in organizing the National Electric Signalling Company to manufacture his inventions. He directed Ernst Alexanderson of the General Electric Company in building a 50,000-hertz alternator that made possible the realization of radiotelephony, and Fessenden at once built a transmitting station at Brant Rock, Mass. On Dec. 24, 1906, wireless operators as far away as Norfolk, Va., were startled to hear speech and music from Brant Rock through their own receivers.

Ships off the Atlantic coast with Fessenden-designed equipment also received the first radio broadcast. Two musical selections, the reading of a poem, and a short talk apparently constituted the program. That same year, Fessenden established two-

way transatlantic wireless telegraphic communication between Brant Rock and Scotland.

Fessenden further contributed in 1902 to the development of radio by demonstrating the heterodyne principle of converting high-frequency wireless signals to a lower frequency that is more easily controlled and amplified. This was the forerunner of the superheterodyne principle, which made easy tuning of radio signals possible and was a critical factor for the growth of commercial broadcasting.

He won Scientific American's Gold Medal in 1929 for the fathometer, which could determine the depth of water under a ship's keel.

Fessenden eventually held 500 patents.

Next Executive Meeting

Monday, January 20, 1997
8:00 P.M.

Next Club Meeting Scarborough Amateur Radio Club

Monday, January 27, 1997
7:30 P.M.

**The Library, Sir William Osler High School
1050 Huntingwood Drive,
(west of Midland Ave)
Agincourt, Ontario**

AUTOMATIC PACKET/POSITION REPORTING SYSTEM

An Introduction

APRS turns packet radio into a real-time tactical communications and display system. In the past, packet radio has only shown usefulness in passing bulk message traffic from point to point. It has been difficult to apply packet to real time events where information has a very short life time.

APRS, however, provides universal connectivity to all stations but avoids the complexity and limitations of a connected network. It permits any number of stations to exchange data just like voice users would on a voice net. Any station that has information to contribute simply sends it, and all stations receive it and log it. Secondly, APRS recognizes that one of the greatest real-time needs at any special event or emergency is the tracking of key assets. Where is the Event Leader? Where are the emergency vehicles? What's the Weather at various points in the County? Where are the power lines down? Where is the head of the parade? Where are the VIP's? Where is the mobile ATV camera? Where is the hurricane? WHERE IS THE DX??? To answer these questions, APRS is a full featured automatic vehicle location and status reporting system too. It can be used over any 2-way radio system.

APRS uses UI frames to broadcast a stations position on map display. There are three major display subsystems and number of other minor displays as follows:

LATEST BEACONS - This display maintains a list of the latest UI frame received from each station. In effect, this is a multi-station one-line broadcast message system. In DX cluster mode, it accumulates a list of all users and what was their latest command to the cluster.

POSITIONS - This display maintains a separate list of the positions of each station often including a brief comment. They can also contain DF and or WX info. In DX mode, this list contains the posits of all DX spots and user-locations heard.

MAPS - Maps from .5 miles up to 2000 miles can be displayed. All other APRS stations will be plotted. Stations reporting a course and speed are dead-reckoned to their present position. A database of most National Weather Service stations is built in. You can zoom in to any point on the globe!

MESSAGES - In addition to the BEACON text one-line broadcasts, there is an operator-to-operator message capability. Any station can send one line messages to any other station. On receipt, the messages are acked and displayed on the bottom of the receiving stations screen until the operator hits the K key to kill them.

BULLETINS - This screen maintains a list of active all-net BULLETINS. BULLETINS allow one station to send multiple lines to the BULLETIN page at ALL stations.

TRAFFIC - This screen shows the last 23 lines of messages exchanged by any stations on the net. Is useful for "READING THE MAIL". DX mode TALK traffic also shows up here.

ALL PACKET LOG - This display is a time sequenced log of every new beacon or one line message sent. This is in contrast to the LATEST display which shows the most recent time of receipt of a beacon text. In DX mode, this screen shows a chronological list of all DX/WX/WWV and ANNOUNCEMENTS heard.

HEARD LOG - This display maintains a count of the total number of transmissions from each station per hour. These statistics are ideal for displaying the connectivity of the network over varying paths, such as HF, or to see when stations enter and leave the net.

DIGIPEATER LIST - This display displays the raw packet header so that APRS users can see what digipeater paths are being used by other stations. The proper use of digipeaters is important in an APRS network. An asterix in the first column means that you hear the other station direct without a digipeater! Change your UNPROTO path to NONE to chat with those stations. In DX mode, this list accumulates a list of all DX cluster messages monitored.

STATION TRACKING. Although APRS automatically tracks mobile GPS/LORAN equipped stations, it also tracks perfectly well with manual reports or GridSquares. APRS will use a GridSquare in brackets at the beginning of a BText. Additionally, any station can place an object on his map including himself and within seconds that object appears on all other station displays. In the example of a parade, as each checkpoint with packet comes on line, its position is instantly displayed to all in the net. Whenever a station moves, he just updates his position on his map and that movement is transmitted to all other stations. To track other event assets, only one packet operator needs to monitor voice traffic to hear where things are. As he maintains the positions and movements of all assets on his screen, all other displays running APRS software display the same displays. There is also a Tracking command on the P display that will cause APRS to keep the map display always centered on a selected object.

GRID SQUARES: Because of the ambiguity of a grid-square position report, APRS will not display a four 4 or 6 digit grid-square report on map ranges less than 128 and 8 miles respectively. Stations reported in the same grid square are randomly

offset to avoid cluttering of callsigns on top of each other. The P-list is annotated to indicate that the position is approximate. It is also very brief; six characters vice seventeen. In GRID-SQUARE mode, APRS will send your posit via GRID SQUARE format vice LAT/LONG. Shortening the packet is an advantage when reporting via MIR, SAREX, or HF.

USING APRS ON ALL DIGITAL CHANNELS: If all packet stations on all frequencies would include LAT/LONG or Grid Square in their BTexts, APRS can be used as a general purpose network topology display on ANY packet frequency.

SPACE APPLICATIONS: APRS is an excellent application for using orbiting packet digipeaters such as on the Shuttle, AO-16, WO-18, LU-19, MIR, and AO-27. APRS only requires one successful packet for everyone to see each successful station. The typical *CONNECTED* ROBOT mode of SAREX requires, a total of 5 successful packets. Not only does APRS reduce channel loading, but it also capitalizes on the most fascinating aspect of the amateur radio hobby, and that is the display on a map of the location of those stations. If everyone simply inserted their LAT/LONG or Grid Square as the first characters of their beacon text, everyone within the satellite footprint would see the location of every successful uplink. See SPACE.txt.

FOX HUNTING OR DIRECTION FINDING: APRS is an excellent tool for plotting the location of a hidden transmitter, balloon, or interfering signal. APRS has several powerful DF tools:

- 1) Plots the positions and Bearing lines of all participating stations whether mobile or fixed
- 2) Plots the overlapping signal strength contours for OMNI-DF reports.

This technique even plots big BLACK circles for NULL reports so that you see all the areas where the FOX is NOT! This OMNI technique is very powerful and locate a jammer to a neighborhood with NO beams or special equipment.

- 3) Fade-Circle Search and Rescue technique for single station

signal strength location using only a OMNI antenna

- 4) Optional automatic DF interface to Doppler DF units for automatic plotting of DF bearings.

WEATHER STATION REPORTING: APRS position reports can also include the wind speed and direction, as well as other important weather conditions. APRS supports a serial interface option to the ULTIMETER and DAVIS home weather stations to do this automatically. All weather stations show up as a blue circle, with a line indicating wind speed and direction. The APRS NEXT command will successively highlight each WX station in turn, for WX at a glance. APRS also has a database of the locations of most NWS sites and can crunch a file of NWS hourly WX conditions for display. Finally, APRS users can set WX alarms and be alerted when WX conditions exceed those values.

DX CLUSTERS: APRS an ideal tool for the DX cluster user. Not only does he get to see all DX spots on the map, but by operating in the monitor only mode, he has reduced the overall packet load on the DX cluster. This is a benefit to everyone on the channel. Also the APRS monitoring station will see the SPOT as soon as the first station gets it, rather than later on down the list.

PROTOCOL - Although APRS redundantly transmits data, a fundamental precept is that old data is less important than new data. All APRS packets are repeated at an ever increasing beacon period. Each new packet is transmitted immediately, then 20 seconds later. After every transmission, the period is doubled. After fifteen minutes only six packets have been transmitted. From then on the rate remains at 15 minutes. All transmissions can be toggled off using the CONTROLS-XMT command. But a transmission can be forced at any time by hitting the X key.

The above text is a edited version of the first readme file of the APRS program, APRS.TXT by Bob Bruninga WB4ARP.

Editing by Dennis A Eason VE3BRO.

SARC APRS ACTIVITY

APRS IS ALIVE AND WELL AT THE SCARBOROUGH AMATEUR RADIO CLUB!

DENNIS VE3BRO HAS BEEN OPERATING APRS FROM VE3OSC (ONTARIO SCIENCE CENTRE). LEN VE3LXB OBSERVED MIKE VA3MVK TESTING OUT THE LATEST VERSION OF WINAPRS WITH FRED VE3XOF AT THE OTHER END.

FRED ONE DAY WAS GIVING EARLE VE3KCO AN APRS DEMO ON VHF AND HF. EARLE SAW DAVE VE3UCN HIT THE SCREEN ON HF, A MESSAGE CONTAINING ONLY FIRST NAMES AND A GREETING WAS SENT TO DAVE. DAVE WAS SO STARTLED AT GETTING A MESSAGE UPON FIRING UP

THAT HE COULD NOT REMEMBER WHO THE SENDERS WERE. ON A RECENT SUNDAY AFTER THE 10M SSB NET I HAD THE PLEASURE OF TRADING A FEW ONE LINERS WITH BERT VE3FSQ. CHARLES VA3CIJ IS GETTING READY FOR APRS, AND ALTHOUGH I HAVEN'T SEEN TONY VE3QF, I'M SURE THAT HE IS OUT THERE.

APRS7.7 WORKS WELL ON BOTH SLOW AND FAST COMPUTERS WHEREAS WINAPRS A MINIMUM OF A 486-66 IS RECOMMENDED. ANYONE INTERESTED IN TRYING APRS IS ENCOURAGED TO CONTACT ANY OF THE ABOVE.
73 DE FRED VE3XOF