

The Hamilton Amateur

The Hamilton Amateur Radio Club Newsletter – 75 Years of Amateur Radio 1932-2007

The Hamilton Amateur Radio Club
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 Est. 1932 Inc. 1956
<http://www.hamiltonarc.ca/>

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Next Meeting

Meeting room opens at 7:00 p.m.
 Meetings begin at 7:30 p.m.

Wednesday November 21st
 Our guest speaker for the evening
 will be Bill Bouwhuis, VE3YR, with a
 presentation about the City of
 Hamilton's trunked radio system.

75th Anniversary Christmas Party

Coordination by Fred, VE3GCP

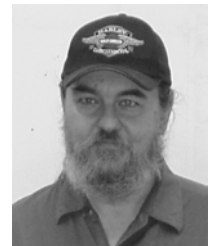
It has been traditional that the HARC December meeting takes the form of a Christmas Party. This year the party will be held on Wednesday December 12th, the second Wednesday of the month. Once again we are pleased to be gathering at the Royal Hamilton Yacht Club. The social hour will take place from 6 PM to 7 PM, followed by Christmas dinner, and dessert, with prizes and treats for guests. Attire will be "dressy casual". The cost has been kept the same as last year, \$30 per person and we are anticipating about fifty guests for an evening of fun and fellowship. To reserve a table contact Fred VE3GCP. Please join us and help make this The 75th Anniversary Christmas Party, a truly memorable celebration.

The Club Web Site

As part of our 75th Anniversary commemoration, the HARC has been moving to a new web page with the help of Anita Thomas, VA3ANI, club member, and professional web developer. Anita got us a new location on the domain ".ca" (same domain as rac.ca) and a new name which is easy to remember "hamiltonarc". So, you all are invited to log on and check out the features at our new spot on the world wide web at:
<http://hamiltonarc.ca>.

Ham Radio Comms On The International Space Station

by John Hudak
 VE3CXB



For quite a number of years now there has been a program run under the auspices of ARISS (Amateur Radio on the International Space Station) by which school groups can arrange to contact the crew on the International Space Station via amateur radio. For those not aware of this program, full info can be found on this web site: <http://www.rac.ca/ariss/oindex.htm> There is usually at least one licensed amateur radio operator aboard the space station at all times. Basically an interested school group applies (up to a year in advance) to set up a time to communicate with crew members on the ISS. On the appointed day a local ham radio club, or group of volunteer hams, sets up a 2m station with antenna tracking capabilities. When the ISS comes into range of the school's station a series of questions are asked by students which are then answered by one or more ISS crew members. At any given time, and at the best of times, the ISS is in range only for about 10 minutes, so the questions must be asked and answered with clocklike precision. There is very little time for chit chat. What usually happens is

Club meetings – 3rd Wednesday each month – 7:30 pm (except July and August)
 at Hamilton District Christian High School, 92 Glancaster Road
 corner of Rymal Road (Hwy. #53) and Glancaster Road.
 Parking on location. Complimentary refreshments.

that when the ISS comes into range, the school station will put out a call to the ISS. Then the space station (callsign NA1SS/RS0ISS) will reply, and the question/answer session starts. Just before the ISS goes out of range the ISS station will sign off. If everything goes according to plan all, or most, of the questions will have been asked and answered. So far there have been over 300 school contacts made since the beginning of this program.

I've seen demonstrations of this type of event on TV, and have read about it in the newspapers or ham radio magazines, but I've always wondered just how easy, or difficult, it would be to receive these comms directly from the space station. So I decided to investigate and give it a try. First and foremost is coordination. You have to know when the space station will be in range of your location, AND if there is a school contact scheduled at the same time that the station will be in range. There are a few conditions that will narrow down when and where these contacts will be made. First will be the availability of the ISS crew. Obviously if some major operation has been scheduled (such as construction, repairs, space shuttle docking etc.) the crew's time will be taken up with those duties. Also school contacts are scheduled during the day, for obvious reasons. The ISS may very well be passing over the school at 3 a.m. in the morning (for example) but this would not be a convenient time to gather up the kids for a contact! These school contacts typically occur at a rate of several a month, however there is no set rule so you must check the scheduled contacts ahead of time. It's also possible that a scheduled contact may have to be rescheduled or even cancelled. Further, you will not be able to hear all of the scheduled contacts. Obviously the ISS must be visible to both you and the school at the same time. In other words you're not going to hear a contact with a school in Germany. Generally speaking, for those of us in the Hamilton area, contacts with schools in the eastern half of North America will be the ones you're going to go after, with

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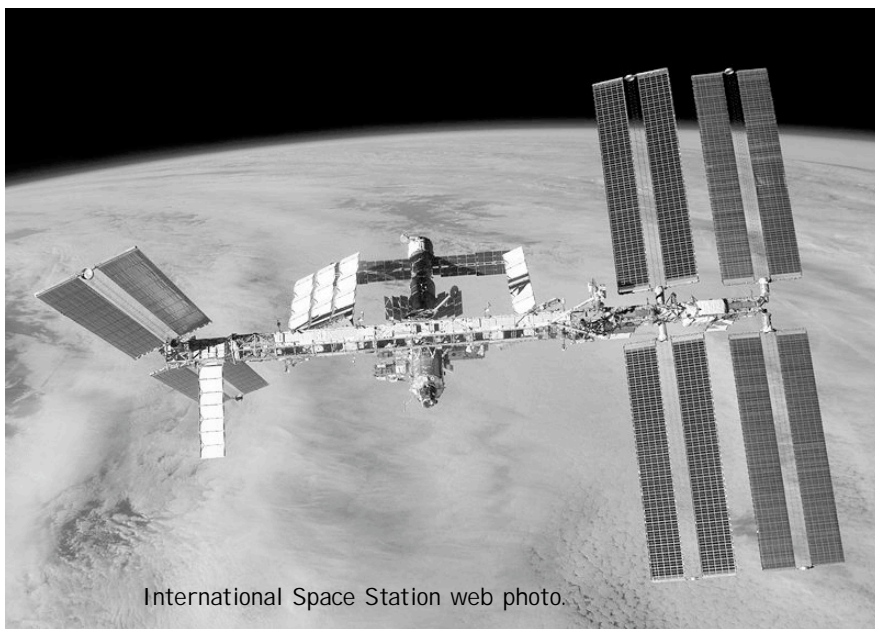
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the best ones being with schools in and around the Great Lakes region.

On the website I gave above you will find a list of scheduled school contacts that are upcoming. Next you have to find out if the ISS will be "in range" from your location at the same time. The best way to find this out is to download a satellite tracking program. There are a number of free programs available out there. The program that I am currently using is called "Orbitron" <<http://www.stoff.pl/>>. Please note that there are some websites (such as the popular "Heavens Above") which can tell you when the ISS will be "visible" to you. This means it will give you passes in which you can actually look

up in the sky and "see" the ISS passing over. These are not the passes that we are interested in, although I do encourage everyone to try and see the ISS visually at least once. It can be quite impressive. In order to avoid confusion I suggest that the best course of action is to download one of the tracking programs. Then you can just run off a list of upcoming "radio" passes. In fact the "Orbitron" program that I'm using will give both "radio" and "visual" passes. Of course life is never quite as simple as that. You must enter some important data into any tracking program. The first will be your location. Most programs will allow you to enter a city name, so if Hamilton is included in the program's list of cities then that will be close enough. If you know the map coordinates of your QTH then you can enter that. If you don't know your latitude and longitude then just use these coordinates for downtown Hamilton: 79.8684 deg. West, and 43.2563 deg. North. Close enough for most everybody living in the greater Hamilton area. Plug these numbers into any program and you should be OK.

Are you still with me? Seems a bit complicated doesn't it? However if you ever have any plans to operate any of the ham radio satellites currently in orbit all this info will come in handy for that too. One other thing a tracking program needs is information on where the ISS (or any satellite for that matter) is in space, or more specifically the orbital parameters. These are normally given as "TLE's", or "Two Line Elements". The ARRL provides these as do a number of other sources. Without these TLE's the tracking program won't be able to predict when and where the ISS will be visible to you. Whichever program you use there should be information on how to download these TLE's. One web site that supplies TLE's is <<http://www.celestrak.com/>>. Also note that the ISS (and other satellites) may be moved on occasion. The ISS was recently boosted to a higher orbit. When this happens you must reenter new TLE's into your program. This is because when the station moves it is



International Space Station web photo.

then in a different orbit with different orbital parameters, thus you need new TLE's to ensure your tracking program will come up with the correct predictions. The ISS is moved fairly frequently so I would advise downloading new TLE's every week, or at least before a pass you want to catch.

So, we now have our tracking program up and running, all the correct data loaded in, and we have a list of upcoming school contacts. Our tracking program will let us predict future passes so all we have to do is see if any of the school contacts coincide with the ISS passing over our QTH. If so then we're all set. What we now need to do is tune our 2m FM rig to the ISS downlink frequency, which for our part of the world happens to be 145.800 MHz. You won't be able to receive the uplink frequency, unless you happen to live quite close to the school that is making the contact. That is because the school station will be pointing their antenna up towards the sky and not in your direction. As such you won't be able to hear the questions being asked by the children. However on the ARISS web site they always publish ahead of time the questions that are going to be asked. What you will hear is the actual astronaut on the space station giving the answers to the questions on the downlink frequency. There

may also be some additional chit chat with the hams running the ground station. As a side note regarding these questions, I have to say I feel sorry for those poor astronauts. I wonder how many times they been asked the same questions over and over, like how do you eat in space, how do you go to the bathroom, is it fun to float around, etc.? I guess it's all part of the public relations job!

How easy is it to hear the space station? The first time I tried listening for the ISS I was very surprised. It was like the ISS was just down the street from me, that's how strong the signal was. My rig consisted of my Yaesu FT-897D with a three element handheld yagi. A handheld antenna is desirable as you need to be able to track the ISS as it passes over your location. Your tracking program will show where and at what time the ISS will appear over the horizon, and it's path over your QTH. You must then track it with your antenna. At first when the ISS is low over the horizon the signal is fairly weak but as the station gets higher above the horizon the signal strength will pick up. Of course it will fade as the ISS sets below your horizon. You should keep your squelch off. Yes, it's kind of annoying to listen to that hiss but you need to be able to find the ISS signal when it is still weak. After my first couple of successful attempts to hear the ISS I

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Repeater Chairman

John Vandenberg VE3DVV 905-692-3802
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Health & Welfare Chairperson

Mary Urbanski VE3OGQ 905-388-8383

Hospitality

Bernie Granby VA3XJ 905-527-7175
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Membership Chair/Web Page

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Swap Net Controller

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905-388-1365 <ve3ddq1947@cogeco.ca>

Communication

Michael Krebs VA3WXS 905-523-9005
<mkrebs@sympatico.ca>

Web Master

Anita Thomas VA3ANI,
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Important Points

Executive Meetings

HARC Executive committee meets each month, except July and August. Members are invited to attend and participate. The meetings are on the Wednesday following the club General Meeting each month. Ask an executive member for the location.

VE3NCF 146.760 - & 444.075 +

HARC operates VE3NCF repeater, located atop the Niagara Escarpment. It's open for use by all Amateurs. Special features are a privilege of membership.

Nets

HARC "check-in net" is held every Tuesday evening at 7:30 p.m. HARC "swap net" follows at 8 p.m. All contacts are welcome.

Examinations

Amateur radio license examinations are conducted the second Wednesday of each month, except July and August. Contact the voluntary examiners to make an appointment. There will be a fee for each examination.

Membership Information

Club membership, including all privileges, is \$25 per person, per year, Sept 1 to Aug 31. Additional membership, for immediate family living in the same home, is \$1 per person. One newsletter sent to each address.

The Hamilton Amateur

The Hamilton Amateur is published ten times each year (not in July or August). Deadline for article submission is the last Saturday of the month for the next month's issue. Preferred format is .txt file. Articles will be checked for spelling and grammar, but the author is responsible for factual content. E-mail submissions to Editor, John Hudak VE3CXB, <hudakjm@mcmaster.ca>

decided to see if I could hear their signal with my HT. Sure enough, using only the 17 inch whip antenna on the HT I was able to hear the station. You will have to tilt and twist your HT to get the antenna into the best orientation to get the maximum signal. The point is that if it's a good pass (where the ISS is more than 45 deg. above the horizon) you should be able to hear the astronauts with your HT. I should also point out that even though it's probably better to use some sort of gain type antenna like a yagi, with a good pass you should be able to do well with some sort of omnidirectional type antenna. One type that is popular with the satellite folks is the so-called "eggbeater" type antenna.

One other factor that is mentioned is Doppler shifting of the frequency. This occurs because the station is moving (the ISS orbital speed is about 17,000 m.p.h.) with respect to your fixed location. Theoretically as the station is coming towards you the signal you hear on the downlink will be higher in frequency, and when the ISS is moving away from you the frequency should be lower. In other words as the space station is coming towards you, you should have your rig tuned to maybe 145.805 MHz. As the station passes overhead you tune your rig to the nominal 145.800 MHz. downlink frequency, then as the station moves away you tune down in frequency to let's say 145.795. At least that's what the theory says. So far I've not found a real need to retune my rig. You'll find out if you need to retune or not when you try it. Note that this is FM mode, not SSB, so there is no change in pitch due to Doppler shifting. Only signal strength will change as the frequency moves in and out of your receiver's passband. The Orbitron program has a running display that shows what frequency you should use to compensate for Doppler shifting.

Of course this begs the question, can I talk to the ISS instead of just listening in? Well, yes you can, but don't count on it. The uplink frequency is 144.490 MHz. If the ISS is passing over your QTH and there is no scheduled school contact

chances are the astronauts won't be playing ham radio at that point in time. They do tend to be busy with chores up there. However they do on occasion indulge in ham radio in their off hours. It's difficult to gauge how much activity you will hear. Some crew members are quite active while others may not be so. What is more likely to happen is that you'll hear packet traffic and other data being passed to and from the ISS. Having said that I have heard some earthbound hams contacting the ISS. What they do is wait until the school contact is finished and the ISS signs off. If the ISS is still above the horizon and in range then you may hear another ham call them. I've heard a couple of QSO's before the space station went out of my range. Of course it should not need to be pointed out that you should NEVER call the space station during a school contact. That would put you in everyone's bad books! However not to discourage you, if you do happen to have a good ISS pass and hear them then by all means give them a shout (not during a school contact!). Do not use high power. You do not need a kilowatt. Probably ten watts or less will do the trick, depending on what type of antenna you're using. If you have a gain antenna use less power. And, if you are lucky enough to QSO the ISS they do indeed have a QSL card. That's one card I would really like to have in my collection.

There are a number of other frequencies in use on the station which can be found here: <<http://www.issfanclub.com/frequencies>> Most are for data, telemetry or beacon usage. At the present time there is no HF capability on the ISS. However I understand there are plans to put an HF rig up there, or at least they're talking about it.

So there you have it. I never really planned on getting into space comms in a serious way, but one day I decided to try it just for fun, and it turned out quite well. If you set up a tracking program on your computer this will open up the possibility of using some of the Ham Radio satellites currently in orbit for some real spacebound two way QSO's.

Minutes of the General Meeting October 17, 2007

by secretary Roger Pimm VE3UFZ



Program
Our speakers this month, Al McPherson VA3AM and Jerry Osborn VE3JSO were introduced by Lorraine, VA3NZ. Al and Jerry are no strangers to club emergency activities and were prepared to make presentations on both CANWARN and ARES. The city of Hamilton has not had a CANWARN program for several years, since the weather station at Mount Hope was closed. The task of promoting the ability of HAM operators in Hamilton to participate in a renewed federal CANWARN project was taken on by Al and Lorraine McPherson resulting in an excellent introduction of CANWARN in Hamilton in 2005. Those of you that attended the introduction of CANWARN in 2005 know how important this public service is given the number of severe



Al Macpherson, VA3AM, explaining how Canwarn operates in our local area.

weather anomalies we are experiencing.

HAMs do not have to be CANWARN trained to participate in radio nets. All that is necessary is to check in to the net when it is activated and then to report any sightings of "unusual" weather phenomenon such as:

- Wind in excess of 90 Km/hr
- Hail in excess of 2 cm in diameter
- Rain in excess of 15 mm/hr
- Tornado sightings.

When the CANWARN net is activated there are three possible alert states:

- Condition GREEN – we can check in, but no reporting is required.
- Condition YELLOW – the situation is getting serious and conditions as outlined above are expected.
- Condition RED – Tornado's exist in the reporting area

The net operates on repeater VE3RFI at 146.805 MHz (tone 151.4 KHz) and repeater VE3TVI at 443.250 MHz (tone 151.4 KHz).

Net controllers have direct contact with the severe weather bureau at the Environment Canada headquarters in Toronto. It should be emphasized that individual operators shouldn't call Environment Canada directly because all communications are channeled through the CANWARN net controller. If you wish to learn more about reporting and the services provided by Environment Canada, check their web site at www.weatheroffice.gc.ca. On this web site there is a learning module which teaches viewers about cloud patterns with expected outcomes.

Jerry Osborn VE3JSO is the ARES Emergency Coordinator for

Jerry Osborn, VE3JSO, telling how the local ARES (amateur radio emergency service), works in Hamilton-Wentworth.



Hamilton. Jerry reported that we had two callouts in 2007. The callout volunteers were able to get approximately 100 HAM's to participate. Stan VE3GFE and Mike VA3WXS do the callout to inform us that there is either an exercise or real emergency event. Lorraine VA3NZ represents the HAM radio service at city hall in the event of an emergency. The ARES net operates on Thursday nights at 8:00 p.m. using VE3ZOE at 443.075 MHz.

Business Meeting

The minutes of the September General Meeting were published in the October newsletter. Moved by Roger VE3UFZ and seconded by Mike VA3WXS that the minutes be adopted as published. Carried.

Treasurer's Report

There were close to 70 vendors vendors and nearly 400 admissions at our Flea Market resulting in another successful event. A substantial number of members did yeoman duty in setting up and tearing down of the tables and paraphernalia. The Christmas Party will be held on December 12, 2007 with a cost of \$30 per plate. Please let Fred VE3GCP know if you plan to attend. Moved by Mike VA3WXS and seconded by Ron VA3OUW that the report be adopted. Carried.

Membership Report

We currently have 63 paid members and renewals are still coming in.

Education Report

Mardy reported that he currently is facilitating a basic class of 3.

Fleamarket Chairman's Thank You.

Mardy thanked the 19 plus members that not only paid their own Hamfest admission at 6:00 a.m. on the day of the fleamarket, but also staffed the many jobs setting up, cleaning up, admissions, accounting, security, announcing, parking, and while doing this, generally representing our club to the many vendors and patrons who, by attending, support our club financially. A big thank you to the volunteers who made the Hamfest a success. Above and beyond the list of official volunteers, a host of members



attended the flea market and assisted unofficially as the event was taking place. Thank you to those members as well. Your support and help is appreciated.

Repeater Chairman's Report

John VE3DVV is in the process of sourcing a replacement for our 440 MHz repeater.

Health and Welfare Report

Mary VE3OGQ reported that a condolence card was sent to Anita VA3ANI on the death of her mother. A condolence card was sent to John VE3DVV on the death of his brother in Australia. A get well card was sent to Frank Love's wife.

Contest Chairman's Report

Rick VE3BK brought us up to speed on the upcoming CQDXX contest which will start on October 27 and run till October 28. Also, the RAC Winter Contest will be held on December 29. The new club "T" Shirt and the new Contest Group "T" Shirt can be obtained from Rick.

Road to Hope Marathon

Adam VE3BAU reported that he needs volunteers for this event. The event will be on November 4 from 7:00am till 12:30pm. The Road to Hope Marathon is held to raise funds for city kids in Hamilton.

President's Report

Lorraine has organized a trip to the Industry Canada Spectrum Monitoring Station at Acton on November 14, 2007. The tour of the facility will start at 7:00 p.m. and end at approximately 9:00 p.m. If you want to attend this facility, there are several cars with seats available for a ride. Please contact Lorraine and let her know if you want a ride, or plan to travel in your own vehicle.

Adjournment

Moved by Alan VE3VAU, seconded by Mary VE3OGQ that the meeting be adjourned at 9:20 p.m.

Contest News

by Rick VE3BK

Logs are in for the CQ WW DX contest. This was a fun contest for us once again, working all that DX world-wide.



One of the highlights was the run I had on 80m, typing as fast as I could with DX calling me as well as the hams south of the border. Another real highlight was when Cassandra was on the mike on 160m and was told that she belonged on the radio. Even with her lack of experience she was able to work 89 contacts in just over an hour. She was a natural, using the phonetics like an seasoned ham would. Thanks to all who helped out.

Membership

A reminder that membership renewals for 2007-2008 are due.

I have been asked by the executive to put notice in the newsletter that this November issue of The Hamilton Amateur will be the last issue mailed if you have not renewed for the current year.

To renew at a club meeting just bring in \$25.00 cheque or cash and give it to the membership chairman or to any member of the executive. They

Pictures from the CQ WW DX sideband contest.

The young guy in the top picture is Jessie, youngest son of Jim VE3EEZ. He is 13 yrs old, and is learning CW at the moment, Jessie really enjoyed being with us at the contest site. We are probably looking at a new ham. Others in the top picture are Dan, Jim, and Mark



Pictured center is Rick working hard to keep up the pace.



The blond girl in the last picture is of course Sherry VE3ZQV.

Some operators are not in the pictorial however, The following members helped us out:

- Dan VA3DJ,
- Ian VA3SOF,
- Adam VE3BAU,
- Rick VE3BK,
- Jim VE3EEZ
- Joe VE3OCD,
- Mark VE3RYI,
- Sherry VE3ZQV
- and Cassandra



have all been trained to not refuse cash or a cheque

below the crest on page one of the newsletter.

To renew by mail send a cheque to the Hamilton Amateur Radio Club at the club's mailing address shown

Prospective members can download a membership application from the new web site at <hamiltonarc.ca>.

Gift to the Warplane Heritage Museum

Photos and report by Mardy, VE3QEE

On Wednesday October 31st 2007 several members of the Hamilton Amateur Radio Club were on hand at the radio room to present a cheque for \$1000 to the Warplane Heritage Museum in recognition of the museum's service to the community.

Hamilton Amateur Radio Club President, Lorraine MacPherson, VA3NZ, accompanied by members, Doug Last, VE3NBL, and Frank Love VA3FWL, made the presentation. The cheque was received by Museum Controller Mr. Rick Guidolin.

The radio room at the Museum features a display of vintage equipment as well as VA3CWM, a modern amateur radio installation. By special invitation, members of the Hamilton Amateur Radio Club operate the station on a regular basis and host visitors who come to see the Museum's collection, including the collection of radios in the radio room.

The radio room is located on the mezzanine level above the restaurant near the hangar's main door and overlooks the war plane display area below. In the radio room, amateur station equipment is connected to antennas on the roof which are capable of transmitting on most bands. Among the antennas there is a beam, a multi band vertical, and an end-fed 80 meter dipole.

The Hamilton Amateur Radio Club will be recognized among the donors to the Museum with a commemorative plaque on the hangar door. Look for it next time you are there.

