April 2011

The HARC Spark

The Official Newsletter of the
Holmesburg Amateur Radio Club
WM3PEN 146.685 Mhz Repeater
K3RJC 444.9 Mhz Repeater
K3FI CLUB CALLS WM3PEN
Web Site http://www.harcnet.org

Pennsylvania FM Sprint Results
Repeater Update
Plans being made for 13 Colonies Special Event and Field Day

Repeater Update

There are several developments to report on the repeater. First Technical Chairman Ron, K3RJC, and Mike, N3LXN, visited the Northeast Philadelphia site to work on the backup repeater. The output power of the repeater was increased. Additional adjustments were made. Ron and Mike are planning additional visits to the site.

For the past several months we have had an access problem getting to the main site antenna to check on a cable between the antenna and the repeater duplexers. We've entered into discussion with another site north of the main site, but about 10 stories lower in building height (ground elevation is higher). The site offers several advantages over the current site, including emergency power. That site might not be available until July.

In the past couple of weeks K3RJC established contact with an official at the main site. Ron is working with members of the U of P Radio Club and site officials to obtain access to the roof. The site clearly offers an antenna height advantage, but doesn't have emergency power.

In either case nothing is moving quickly, but we're looking forward to a good result once things are in place.

PA FM Simplex Contest

The Sprint was held in February. Club members N3ZZK, AB3EO, NY3Z, and WA3PZO kept 2 meters active as Carl and Rich travelled between zip codes making contacts on 2 meters and 440 Mhz. Jon worked the contest from his home on 2 and 440, and Bob operated under the Club call WM3PEN on 6, 2, and 440.

Other stations were heard from Bucks County, southern NJ, and Lancaster County. Operations were limited in areas away from the City and made it difficult for hams to make a lot of contacts or even break into the pileups of the those operating in Philadelphia.

Carl, N3ZZK, won the rover category, and Jon, NY3Z, took top honors from the home station. Thanks to all who participated.

Upcoming Events

April 28th - HARC Meeting

May 1 - HARC table - Warminster Hamfest
May 26 - HARC Meeting

June 25-26 - Field Day

July 1-5 13 Colonies Special Event

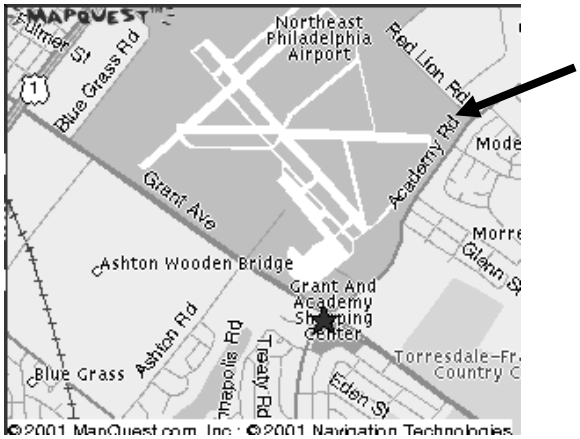
October 16 - NE Philly Youth Run

November 20 - Mayfair Holmesburg Thanksgiving Parade

HARC Board of Directors

President - Mike Wurgley, N3LXN
Treasurer - Bob Josuweit, WA3PZO
Membership - Charley Johnson, K3CJ
Technical - Ron Cardullo, K3RJC
Member-at-Large - Sol Volen, N3UBY
Webmaster - Rich Shivers, AB3EO
UPARC Rep -
Newsletter Editor - Bob Josuweit, WA3PZO
WM3PEN @ AOL.COM

H.A.R.C. Monthly Meetings - The Board of Directors meets on the 2nd Thursday @ 7:30 PM (Odd number months). General meetings are held the 4th. Thursday @8:00 PM. 8th District Police Station, Red Lion & Academy Rd. Phila PA. No meeting in August.



H.A.R.C maintains the 146.685 repeater located @ Univ. of PA., Phila PA with inputs in Abington, N.E. Phila, and Cherry Hill, NJ; More Club Information & Member Applications can be had by contacting any of the Directors via E-mail. WM3PEN@arrl.org, the web page http://www.harcnet.org or writing to HARC 3341 Sheffield Ave, Philadelphia, PA 19136.

Warminster ARC Hamfest

Middletown Grange Fair Grounds
576 Penns Park Road
Wrightstown, Bucks Cty, PA
Sunday, May 1 7:00 AM - ?

HARC will have a table inside. Have some stuff to sell? Put it on the Club table. 10% of sale donation to Club suggested.

HARC Bulletin Schedule

Bulletin Station K3CJ

Wed 2000L Amateur Radio News Line
ARRL Audio News
The RAIN Report
Contests / Special Events / Hamfests
Sun 1000L This Week In Amateur Radio
Gate Way 160
Handy Hams
Contests / Special Events / Hamfests

PHILA ARES INFORMATION

All amateurs interested in participating should check into the Phila ARES Net, Sunday's at 9:00 PM, hosted on the Phil-Mont Repeater System; 147.030 MHz (+offset 91.5 PL) ;444.80 MHz (+offset 186.2 PL) When control operators are available, Echolink node 29742, WU3I-L, is on the repeater. Backup link is KB3IV-L.
All interested amateurs are welcomed and encouraged to check in for more information. There is always a different topic of interest to the amateur community discussed with an informal round table of comments and suggestions.

Look forward to having all check in on Sunday nights @ 9:00 pm. See web site for more information.
- Visit the Philadelphia ARES web site http://www.harcnet.org/aresindex.html

VE SESSIONS

PhilMont Mobile Radio Club has testing in Ambler, PA on the 4th Thursday of every month. Exams , 1414 E. Butler Pike in Ambler, PA. Registration begins at 7pm.
Warminster Amateur Radio Club has testing the last Wednesday evening of each month except August and December. The sessions are at the Warminster Recreational and Educational Center on Little Lane, and start promptly at 7:00 PM (registration 6:45 PM).
Bryn Mawr - quarterly on a Saturday. Contact Bob Lees, W3ZQN, rjlees@aol.com

Keep up on the latest HARC news by checking out the Club website www.HARCNET.org

Upcoming Events
April 28 meeting:

HARC to Participate in 2011 Original 13 Colonies Event

In July 2011 the Holmesburg ARC will be participating in the event. During recent conversations with Ken, KU2US, the event organizer, Bob, WA3PZO suggested that Philadelphia be on the air as the capital of the colonies.

HARC members will be on the air using WM3PEN. Bob said it would be a great tie in with the club call since the Liberty Bell was made to commemorate the 50-year anniversary of William Penn's 1701 Charter of Privileges.

Since the event will be celebrated on both HF and VHF, it gives club members an opportunity to work a band and mode that you are interested in.

A special QSL card will be developed along with operating guidelines. If you haven't had the opportunity to operate a special event station you will get a real thrill from it.

There is some planning for this event to make sure we are all using the same information. This will be similar to a Field Day operation. If you are interested in helping with the planning, contact WA3PZO.

Maybe you want to operate during the event but need another antenna up or some changes in the shack. This is your opportunity to get prepared.

This year get on the air and operate this year's special event so you have an idea what will be happening.

Celebrate the 4th! Be Radio Active!

Information on all Club activities can be found at the Club website: www.harcnet.org.

Info on the special events can also be found on the WM3PEN and K3FI pages on QRZ.Com.

PA "67" Challenge Award

The latest winner of the PA "67" Challenge is Clarence Annett, WA5SWN, from Shawnee Mission, Kansas.

Amateur Radio operators around the world have the opportunity to participate in the Pennsylvania "67" Challenge. The Challenge, sponsored by the Holmesburg Amateur Radio Club, is to make contact with all 67 Pennsylvania Counties.

The Challenge is open to all amateur radio operators regardless of individual station capabilities. All contacts must be 2-way communications made in real time. These contacts may be on any Amateur Radio band/mode.

Contacts made using repeating devices such as FM repeaters, Amateur satellites, moon-bounce, and keyboard-to-keyboard contacts through digipeaters/nodes are valid, because these QSOs are made in real or near-real time. Contacts using IRLP, Echolink, or D-Star are valid as long as a radio is being used by both operators. All contacts must be made from the same county.

As an incentive Pennsylvania "67" Challenge certificates may be earned by working stations in 20, 40, 60, or all 67 Counties. Paper or electronic QSLs are acceptable. The contacts can be verified by a local club officer or mailed to the Holmesburg Amateur Radio Club.

HARC Award Manager Bob Josuweit, WA3PZO said there was a need to have a County Challenge in Pennsylvania that was within the reach of most hams in Pennsylvania. When other state awards lost their sponsorship it was an opportunity for the Holmesburg Amateur Radio Club to fill the void.

Complete rules will be posted on the HARC website. Questions on the Award can be directed to HARC at WM3PEN@ARRL.NET.

HAM TECH

Vol 1 No 3 By: JOHN - WY2J/SJRA
wy2j@arrl.net

Tropospheric Scattering Propagation Over the Horizon

This month we stretch VHF/UHF and Microwave radio signals around a curved earth to 200 to 400 miles, by means of Tropospheric Scattering. This method of propagation was first discovered in the late 1940's after high power television stations first lit up the airways in the US. The world quickly learned that signals above 50 MHz are not limited to line of sight distances. In the HAM radio world we often refer to this as weak signal work but that also includes other propagation like ducting and sporadic E which will not be discussed here.

This month I will focus on how tropospheric scattering works and overview the primary loss mechanisms of this type of propagation. Next month in the concluding article, equations useful in sizing a station will be introduced.

The troposphere is the region of the earth's atmosphere located up to about 16 km above the surface. The air is not ionized like in the ionosphere but does have a varying index of refraction which causes bending of radio waves. The mechanism is extremely complex depending on density and temperature profiles as well as water vapor content and to a great extent is statistical in nature. While a great deal of theoretical work was done in the 1950's and 60's to describe the loss mechanisms, much of it depends heavily on empirical methods and field measurements. There is nothing wrong with this method because the data is very repeatable and the communication links built exhibit very reliable communication. The wide use of communication satellites since the 1980's has made tropo links largely obsolete for commercial and military use.

We can define the total propagation loss between two isotropic antennas in a tropo link using three graphs and one equation. One graph is not needed if the antenna beam width exceeds 5 degrees, the usual case in HAM applications. Let's look at the two graphs that are most useful.

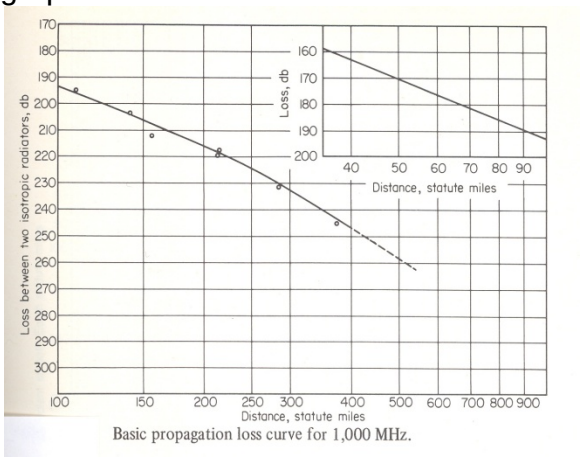


Fig.1: Tropospheric Propagation Loss between isotropic antennas at 1,000 MHz. (1)

This loss in Fig. 1 includes the line of sight loss plus excess scattering loss. It assumes operation at 1.0 GHz with the antenna beams on the horizon. Simple but it is a big loss and there is more to come. One more chart to compensate for elevated antenna beams.

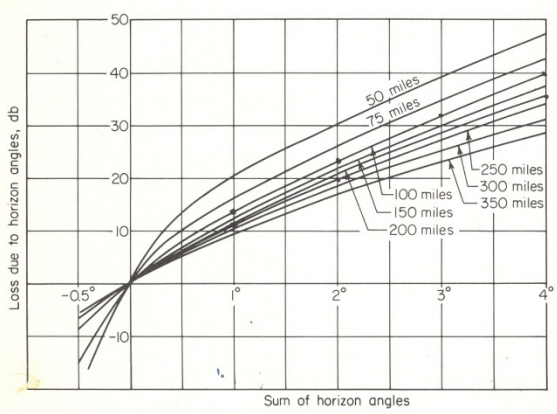


Fig. 2. Loss for elevated horizon angles. (1)

The loss in figure 1 must be corrected for use at other frequencies. The frequency correction allows its use in the range of 100 to 4000 MHz. The correction in dB which is added to the loss from the chart is equation #1.

$$Eq.\#1 \quad Lc = 30\,log\left({fMHz}/{1000}\right)\,dB$$

As an example the loss at 200 miles and 432 MHz is 216 dB + (-10.9) dB = 205.1 dB

This implies that operation at lower frequencies will yield lower loss and be easier to achieve. But remember this is loss for antenna beams on the horizon; not possible

to achieve. Let's use the 50 ft. towers from last month's LOS example, a practical value for modest stations. At 2 meters with horizontal polarization the elevation beam will be 2 degrees above the horizon. At 70 cm it will be at 0.67 degrees and 0.22 degrees at 23 cm. For two stations both with 50 ft. towers the horizon angle loss will be 36 dB, 15 dB and 4 dB respectively for these bands. The total propagation loss from all three components put together is as follows:

1. (2M) L_T = 216+(-25.2)+36 = 226.8 dB
2. (70 CM) L_t = 216+(-10.9)+15 = 220.1 dB
3. (23CM) L_t = 216+(+3.4)+4 = 223.4 dB

Our lowest loss is at 70 CM, due to the non linearity of the components with frequency. Next month we will configure a station at 432 MHz, calculate the S/N ratio for various ham modes and see if 200 mile coverage is possible, or something greater. Keep this issue of HAM TECH as you will need the charts and equation.
Reference (1): Communication System Design Chapter 13, Figures 13-19 & 13-21.
By: Philip F. Panter c. 1972.

Field Day 2011 Polo Shirt

ARRL Field Day is June 25-26, 2011. Show off your support with official shirts, participation pins and hats available for *order now!*

NEW Shirt Style! Ultra Blend polo shirts, preshrunk. Contoured welt collar and banded sleeves, with 3 wood-tone buttons. Color: Heather Gray (unisex sizes). Features the 2011 Field Day logo silk screened on front left chest. A great way to recognize your involvement in this popular, annual operating event!

Shirt sizes are: S,M, L, XL, 2X, 3X, 4X

Bulk order:

Shirts are $12.50 each + shipping. If we order
4 shirts - cost per shirt is $15.50
8 shirts - cost per shirt is $14.00
12 shirts - cost per shirt is $13.50
16 shirts - cost per shirt is $13.00

Orders will be taken at the April meeting. Bring cash or check payable to HARC.

HARC Field Day 2011

Field Day promises to be bigger and better than ever this year as HARC. HARC members and guests will be calling CQ Field Day de K3FI from Alverthorpe Park in Jenkintown.

ARRL Field Day is the single most popular on-the-air event held annually in the US and Canada. Each year over 35,000 amateurs gather with their clubs, friends or simply by themselves to operate. More details to come.

Special Prefixes for Royal Wedding

If you are a prefix hunter -- or you just get caught up in the pageantry that a Royal Wedding can bring -- then take note: Ofcom, at the request of the Radio Society of Great Britain, will issue special temporary call signs that British amateurs may use from April 29 through May 9, 2011, commemorating the marriage of HRH Prince William of Wales and Miss Catherine Middleton. Amateurs in the United Kingdom who choose to apply for these special call signs will be using GR, MR and 2R prefixes during this time to commemorate the wedding.

EI0MAR on-the-air for International Marconi Day

International Marconi Day takes place this year on Saturday 30th April. The **Howth Martello Radio Group** will be participating once again as an award station using the call-sign **EI0MAR**.

This is not a contest but there are several nice awards
available for working the officially listed stations, each of which has an historic connection with Marconi.
The event is organised by the Cornish Amateur Radio Club. For more information please visit the club's website
http://crac.g4usb.net/cracblog/

EI0MAR operates from the Martello Tower overlooking the
East Pier in Howth. The tower now houses a vintage radio museum. In 1905 the British Post Office carried out wireless telegraphy experiments at the tower in Howth using Marconi equipment.

International Marconi Day (IMD) is a 24-hour amateur radio event held annually to celebrate the birth of Guglielmo Marconi on the 25th April 1874. The IMD event is not a contest: it is an opportunity for amateurs around the world to make point-to-point contact with historic Marconi sites using HF communications techniques similar to those used by Marconi, and to gain an attractive Award for achieving the requisite number of Marconi stations worked (see IMD Award).

IMD is usually held on the Saturday closest to Marconi's birthday, when amateur radio stations are established and operated from original historic sites, or nearby. These stations are known as the 'Award Stations' and are listed on this Web Site. The list is regularly updated as the various stations confirm their availability to operate.

> Communications techniques have changed significantly since the days of Marconi's first experiments, and today, the Internet has become the most widely used of all communications media. However, the spirit of IMD remains basically that of making point-to-point contact between two stations using only the HF bands.

Word from the Chairman of IARU Region 3
Michael Owen VK3KI (via IARU R3 News)

Tragic Times

2.46 pm local time on Friday 11 March 2011 is a time and a date that I will not forget. I was in the Kamogawa Inn, Sugamo Toshima, Tokyo about to leave for the railway station with IARU Region 3 Director Shizuo Endo when the massive strength 9 earthquake, centered off Sendai, struck.

I will not forget the force of the moving earth or the noise of the buildings shaking. It was a disaster for Japan, creating a tsunami that did untold damage to communities, people and structures including the Fukushima nuclear power plant.

A tragedy in our Region;

Not that much earlier, 12.50 local time, on 22 February 2011, another tragedy struck, another earthquake, in Christchurch, New Zealand where we held our last Conference. Before that, floods and a cyclone with tragic consequences had affected Australia.

Radio amateurs, through their radio, know people in other countries. In a way, this often

means that a natural disaster is not a remote event for many of us, as so often we know someone from the area where it happened. The outpouring of concern around the world for all affected by these disasters should give us all hope for mankind. The work of radio amateurs to assist where needed in these disasters should give us all some pride in our colleagues.

And, for all of us I express our real concern for all the people who have suffered as a result of these disasters, and hope that with time the tragedy of today may be overcome. Our thoughts are with you.

Radio Amateurs in Japan Provide Communications Support

Amateur Radio operators became involved in the rescue effort soon after the March 11, 8.9 earthquake and devastating tsunami that hit northern Japan, and that effort continues nearly two weeks later.

In the early stage following the earthquake and tsunami, several radio amateurs were able to activate their stations with car batteries or small engine generators, despite the electric power outages,? IARU Region 3 Secretary Ken Yamamoto, JA1CJP, told the ARRL.

They transmitted rescue requests and information on the disaster situation -- including refugee centers and their needs -- and the availability of basic infrastructures, such as electricity, water and gas supplies. After the earthquake and tsunami, there was no electricity, water or gas service in many of the affected areas.

In his report to the ARRL, Yamamoto said that the Japan Amateur Radio League (JARL) quickly activated JA1RL, its headquarters station in Tokyo, to assist in the rescue effort.

With the help of many other amateurs, it also activated its regional headquarters station JA3RL in Osaka to communicate with amateurs in the areas devastated by the tsunami, including its Tohoku headquarters station JA7RL in Sendai.

The communications were mostly on the 7 MHz band in daytime and the 3.5 MHz band at night, Yamamoto explained. Short range communications were also made on the 144 and 430 MHz bands.

The information gathered through Amateur Radio communications was reported to the rescue and disaster relief organizations for their appropriate deployment. Some other amateurs accepted health-and-welfare inquiries from the [impacted] areas and then posted the information on the Internet.

Japan's Ministry of Internal Affairs and Communications -- that country's equivalent of the FCC -- approved the use of an additional 300 UHF/VHF transceivers in the affected areas. With gasoline and natural gas in short supply, Yamamoto said that the fuel shortage was a very serious problem in the cold climate. Calls for fuel were received over radio from many disaster areas, but delivery remained very difficult at least for the first week as the access roads were backed up everywhere.

Several days later, some Amateur Radio clubs reached the affected areas with their radio equipment and established communications for supporting disaster relief. Yamamoto told the ARRL that several radio equipment manufacturers offered hundreds of VHF/UHF transceivers to JARL for their use at refugee centers and local disaster relief centers.

These transceivers helped to establish mutual communications between refugee and disaster relief centers, and to facilitate smooth and appropriate delivery of disaster relief goods.

Many people were killed and untold numbers missing.

HARC Dues are Due

2011 membership dues are now due. Simply fill out the form on the last page of the newsletter and send your check in. Dues help support the Club and the many activities we do throughout the year.

HARC EMAIL LIST AVAILABLE

HARC now has an e-mail list group available for club membership use. The list hosted on QTH.Net. The list is open to club members. Information that is ham radio related may be posted. Contests, DX news, Emcom, club events are just some of the info that can be posted. Maybe you need some help on a project. Here's a great way to reach out to other club members.

General information about the mailing list is at:

http://mailman.qth.net/mailman/listinfo/harc

You can subscribe to the list and indicate whether or not you want to receive each email as they are sent or in a digest form.

HARC Joins Facebook

If you spend some of your time on Facebook, you can now join up with other HARC members. Simply do a search for HARC and sign up. For more info contact Mike, N3LXN.

Feel free to check it out along with HARC's Facebook site. For further info on the email list contact Bob, WA3PZO. For Facebook info contact Mike, N3LXN.

On the Bands

by Bob, WA3PZO

To say the least the Bands having been alive with the sound of DX. Topping the list in the past month was working the six continental areas of the world as defined by the IARU. They include North and South America, Europe, Asia, Oceania, Africa. The 2 big ones for me were working a DXpedition to Sierra Leone (9L5MS) and having a QSO with 9K2YM in Kuwait. As soon as the QSL cards come in we'll be applying for the Worked All Continents Award.

Still we had the opportunity to celebrate man space flight by contacting several special event stations in Russia, including RG50K at the Mission Control Center in Korolev. We met up with other hams who were operating from lighthouses, race tracks, and islands. We met up with Craig, VK4LDX, who was operating from Magnetic Island, Australia.

For those interested in VHF contesting, the June VHF Contest is coming up the second weekend in June. Here's an opportunity to work as many grid squares as possible on bands above 6 Meters.

This is an exciting time in ham radio. Get on the air and be radio active.

ARRL Scores Partial Victory in ReconRobotics Proceeding

(ARRL Letter - ARRL)

The FCC has given radio amateurs a partial victory in response to the ARRL's challenge, in a ***Petition for Reconsideration***, of a rules waiver that permits the certification and licensing of the **Recon Scout** -- a remote-controlled, maneuverable surveillance robot operating in the 430-448 MHz band. The device is marketed to public safety agencies and certain security personnel by ReconRobotics Inc.

In an ***Order on Reconsideration*** released on April 15, the FCC granted the ARRL's request for changes in the labeling and instruction manual requirements to ensure that users of the device are aware of its limitations, with regard to interference. Noting that no applications for individual licenses to operate the Recon Scout had been granted, the FCC's Wireless Telecommunications Bureau, the Public Safety and Homeland Security Bureau, and the Office of Engineering and Technology deferred to the Commission's Enforcement Bureau with regard to complaints that ReconRobotics has been marketing uncertified devices and that the devices have been operating without authorization.

The FCC Order also acknowledged that the ARRL was correct in arguing that the waiver was insufficient in that it did not waive applicable provisions of **Section 2.106** of the Commission's Rules, which contains the Table of Allocations of frequency bands to the various radio services. The Commission's solution was to "...retroactively waive the Table of Allocations to the extent necessary to permit use of the Recon Scout."

ReconRobotics did not object to the changes in labeling and instruction manual language sought by the ARRL. Recon Scout transmitters delivered after April 15, 2011 must carry the following label: "This device may not interfere with Federal or non-federal stations operating in the 420-450 MHz band and must accept any interference received." The instruction manual must also include the following: "Although this transmitter has been approved by the Federal Communications Commission, it must accept any interference received from Federal or non-federal stations, including interference that may cause undesired operation." The 430-448 MHz band is allocated to the amateur service on a secondary basis and to Federal users in the radiolocation service on a primary basis; non-federal radiolocation stations are secondary to both federal radiolocation stations and amateur stations.

In other respects the ARRL ***Petition for Reconsideration*** was denied, as were petitions filed by individuals. While the FCC agreed that "there were possible inconsistencies between particular readings in the test data" submitted by ReconRobotics, the Commission found that the data "nonetheless demonstrated the particular suitability of the 420-450 MHz band" relative to higher-frequency bands. With regard to concerns that the devices will incur interference from amateur operations, the Commission continues to adhere to the view that "the possibility of the device incurring interference in some instances did not present a compelling reason to prohibit its use in all instances.... ReconRobotics has accepted that it may receive interference from amateur operations, and the Order specifies that the Recon Scout must accept interference from licensed users."

GB0CMS to take part in International Marconi Day

Norfolk Amateur Radio Club will be participating once again in International Marconi Day (IMD) on Saturday 30th April 2011 with **GB0CMS**, an award station at Caister Lifeboat Visitor Centre.
GB0CMS commemorates the village's original Marconi Station, which was established at Caister in 1900.
The station's original purpose was to communicate with ships in the North Sea and the Cross Sands lightship.
NARC aims to run two stations at the Centre – one using speech (telephony) and the other Morse code (telegraphy).
There are several awards available for working the officially-listed stations operating during the event, which celebrates Guglielmo Marconi's birthday.

For more details see
http://www.qsl.net/gb0cms/

HOLMESBURG AMATEUR RADIO CLUB
3341 Sheffield Ave., Philadelphia, PA 19136
"Serving the Community Through Ham Radio"

NEXT MEETING April 28, 2011

HOLMESBURG AMATEUR RADIO CLUB MEMBERSHIP FORM

HARC, 3341 Sheffield Ave, PHILADELPHIA, PA 19136
http://www.harcnet.org
WM3PEN/K3FI

SPECIAL SERVICE CLUB

All members in good standing are eligible to vote and hold a board office. Dues are $20.00/year.
Make checks payable to H.A.R.C. and mail to 3341 Sheffield Ave, Philadelphia, PA 19136.

NAME _____ CALL_____

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City, State, Zip _____

Telephone # _____ Would you be willing to receive the newsletter via email? ___
E-mail _____

Are you an ARRL member? YES NO Membership Expires (mm/yy) _____