

The Radio Hill Gazette

Volume XXXIX Issue VI

June 2014

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From the Editor

Welcome to another edition of the Radio Hill Gazette.

We are fast approaching the middle of the year, and the time where we can do all those outside activities we love so much.

Fox hunting is becoming a very active activity as well. There are ideas, designs, and plenty of hands-on. Join us at Field Day and we can discuss the topic in greater detail. Bring your fox hunting gear, and maybe we can arrange a hunt or two – training is always good for a few bonus points.

This month I've included an article on the bands and propagation from noted CW QRP enthusiast John Shannon (K3WWP).

The ARRL Centennial Celebration is in full swing, with the W1AW portable operations already surpassing 35 active operations. Have any of you been keeping up with the portable operations? If so, I would like to hear any thoughts about your progress, any special instances you remember, and any plans for the remainder of the year. Also, too, the event is a good reason to just call CQ, as many operators are looking to increase their point totals, and all ARRL members have a point value. Who is the highest point value contact you have in your logs?

Anthony
Editor, RHG

From the desk of the President

We had 26 radio rangers sign in at the club meeting.

A new club member, Matt Walsh, AC9IG, came to his first meeting.

Next community service event will be the July 4 parade in Hoffman Estates, then followed by another community service event for the Village of Schaumburg, July 13.

Don't forget to sign up for Field day which will be the weekend of June 28 and 29.

Leo N9NBH

Vice President

Propagation 101

(reproduced with permission from the NAQCC Newsletter, May 2014)

John Shannon

K3WWP

When Paul asked me to write an article about propagation for the NAQCC Newsletter, my first thought was to look back through my past FISTS Keynote columns to see if I had covered that topic there in any of the previous 99 columns I've written about QRP/CW. I did find an article there from which I took a lot of the specific band info below. It was a two-part article in Keynote # 055 from October 2002 and Keynote # 057 from March 2003. All my older FISTS QRP/CW articles are available via http://home.windstream.net/johnshan/cw_ss_column.html. My second thought was that dealing with propagation is like dealing with antennas in a way. The subject matter can range from the sublime to the ridiculous as the old saying goes. You can study both propagation and antennas until you get a royal headache, and you still won't be any better off unless you are trying to absolutely max out your performance to the nth degree such as with a big contest station. For the rest of us a very minimum knowledge of both will do. Then I thought perhaps the best way to approach such an article would be to start off with a basic overview of some propagation info then talk about how it applies to each of the HF ham bands.

There are many many terms and intricacies dealing with propagation. However most everyone only really needs to know a couple of basic things while leaving others like coronal mass ejections, solar flares, auroral propagation, meteor scatter work, moonbounce and so forth to the ones who specialize in such matters. If you know about solar flux, A index, and K index, you're pretty well set to know what to expect on the HF ham bands when you turn on the rig. If you do want to know more, the Internet has a wealth of information available via a simple Bing search at <http://www.bing.com/search?q=radio+propagation&form=HPDTRDF&pc=HPDTRDF&src=IE-SearchBox>. This in turn leads to one especially good source on Wikipedia at http://en.wikipedia.org/wiki/Radio_propagation.

So rather than reinvent the wheel, I'll let those sources be the bulk of this propagation info. I'll just summarize briefly with my own observations of how Solar flux and the A/K indices seem to work in my case. As stated in the articles, Solar Flux is a measure of activity on the Sun that is pretty much directly related to the number of sunspots, hence it is low during sunspot minimums and high during maximums. The activity is measured at a 10.7 cm wavelength, and numbers range from the mid 60s or so up to over 400. Very generally the figures in the 60s come and persist during a sunspot minimum, while during a maximum the numbers may range from roughly 150 to 200 or so. As stated elsewhere in Wikipedia, "Sunspot activity has a major effect on long distance radio communications particularly on the shortwave bands although medium wave and low VHF frequencies are also affected. High levels of sunspot activity lead to improved signal propagation on higher frequency bands, although they also increase the levels of solar noise and ionospheric disturbances. These effects are caused by impact of the increased level of solar radiation on the ionosphere." Thus for example, 10 meters may be open for propagation at sunspot maximums and pretty much dead during sunspot minimums.

The A index and K index both measure the ionospheric disturbances mentioned in the Wikipedia quote. The K index is a short-term measure of ionospheric activity taken every 3 hours and ranges from 0 to 9. The A index is based on a formula using the K indices which is too complicated to discuss in this simple article. The daily A index can range from 0 when all K indices for a day are 0 up to 400 when all K indices for a day are 9.

Now having said that, you can simply look for high solar flux numbers along with low A and K indices for the best propagation. A more detailed look at my performance and observations for each band from 160 through 10 may explain the relationship more clearly. Right after each band number below are the number of states, countries, CQ zones, and continents that I have worked on that band with (of course) CW/QRP/simple wire antennas.

The first 3 bands are mainly nighttime bands except for local communication which is good during the daytime.

160M – 42, 3, 3, 1 – It has been my experience that this band is better at a sunspot minimum than a maximum. When the SF is down in the 60s and 70s, the ionosphere is not as active and signals in this range are not absorbed as much when passing through it on the way to their destination. Not strictly an effect of propagation, but this band suffers greatly from atmospheric static, and hence is better in the winter than in summer. As an example I find it easy to make 250 or so QSOs in 160M contests near a sunspot minimum, but struggle to make 100 near a sunspot maximum.

80M – 49, 57, 15, 5 – This band is similar to 160M, and is perhaps somewhat better at sunspot minimums, but not as noticeable as 160M. It is also somewhat poor in summer due to static, but is better in fall and spring than 160M. Propagation on 80M is better for DX than on 160, at least for the minimal QRP station. I have only 3 countries on 160, but 57 on 80 as you see. This is a very good rag-chewing band, especially in the late fall, winter, and early spring seasons when static levels are low. Signal levels are steady over long periods of time with little fading.

60M – 12, 3, 3, 2 – I haven't done a lot of operating on this band, but it seems to behave as expected from its position in the spectrum between 80 and 40. I think working DX would be a little easier than on 80 but not as easy as on 40. I've only worked one DX station from England so far. The channelized operation here makes it more difficult to find and work DX. It is much easier to work W/VE stations from here at my location.

The next 2 bands are good throughout the day and night for the most part, although working DX is best in the nighttime.

40M – 50, 124, 26, 5 – If you're a rag-chewer looking for a single band, this is probably the one for you. There is always someone around, day and night at any stage of a sunspot cycle, be there low, medium, or high SF. Minimal QRP works well here, even for DX. When conditions are right it is possible to easily work the world here. There have been times in DX contests when I could work EU and AF almost as well as on 20M. This band does not change all that much during a sunspot cycle. The only real problem I have here is working Asia, mainly because the best time for that seems to be very early in the morning, and I don't get on the bands much in that time frame.

30M – 50, 150, 26, 6 – This is a favorite band of mine. You can come here and work DX very easily, and then have a nice long rag chew with a domestic station. It is often open worldwide, especially in the evenings. I have had stations from Australia and Turkey answer my minimal QRP CQ's on this band. Like 40M, this band doesn't seem to change all that much from sunspot minimum to maximum and responds well with any range of SF numbers.

As we continue upward and reach 20 meters, now we are getting into the territory that is affected more and more by SF and A,K indices. Also these bands are mostly daylight bands except at times of very high solar activity when they may be open 24 hours.

20M – 50, 176, 34, 6 – This is probably the best overall band if you're interested in working DX with your QRP over the entire duration of a sunspot cycle. It does perform better at higher SF values, but not as much so as the following bands. You can work anywhere in the world if you are there at the right time. Sunrise and sunset are particularly good times for very long distance contacts because of gray line propagation which is a term that means signals travel especially well when their route lies along the sunrise/sunset demarcation line on the globe.

17M – 42, 137, 33, 6 – I like this little band quite a lot. It will not be open quite as often as 20M when the sunspots decline, but it is often open when 15M and the higher bands are not. This statement is true of all the bands from here on up – fewer openings than the next lower band, but more openings than the next higher band.

15M – 50, 167, 32, 6 – With the exception of the fact that it's not open for as much of the day nor as much of the sunspot cycle, the description for 20M applies to this band. However, when both 15 and 20 are open, 15 will be better for working QRP DX, as it will generally provide better propagation for the lower power stations although the specific openings to a certain area may not last as long. As we go higher in frequency, propagation changes more rapidly.

12M – 25, 109, 29, 6 – As the description for 15M matches 20M, so 12M matches 17M. It is open much less often than 17M, but the openings often provide stronger signals for the QRPer. For my situation with simple antennas, I notice this band only provides really good conditions for 3-4 years of the sunspot cycle, while the rest of the time it is only sporadically open, if at all. It seems much easier to work DX than W/VE stations. I think that is because other W/VE stations are only there for the most part to work DX. Hence my low total of states worked here vs my DX total.

10M – 48, 151, 32, 6 – Someone once told me that when this band was open, you could work the world with 1 watt and a coat hanger for an antenna. That was in the depths of a sunspot minimum and it was hard to believe, but as cycle 23 neared its maximum I came to believe. Although I didn't try it, I did find my simple minimal QRP setup provided me with easy QSO's with any part of the world. Yes, when it is open near a sunspot maximum, this is the band to have fun working DX with a simple station. It's a shame a lot of the little QRP rigs don't cover this band. It would surely introduce many hams to the thrill of DXing if they did.

The above are only general observations, and there are many exceptions since propagation is not yet (nor probably never will be) an exact science. You can find good openings on 10M at times in the middle of a sunspot minimum, for one example. One thing I'd like to mention is Sporadic E propagation. This occurs most often during June with a minor peak in December. I used to love using

this mode when I was into TV DXing when TV broadcasting was geared to on-air propagation, not cable or satellite as it is now. I could be watching channel 2 in nearby Pittsburgh, when pretty much suddenly another TV station on channel 2 would completely override the Pittsburgh station. It could be from as far away as Minnesota, North Dakota, or Colorado, for example. Propagation via Sporadic E is very good although only sporadic (hence the name) and unpredictable. It also provides solid skip signals on the higher HF bands and is a lot of fun when it happens during the doldrums of a sunspot minimum which it can do. As a general rule, the maximum distance for a Sporadic E hop is about 1400 miles, but under certain conditions, double hop can occur also. I've worked California on 10 meters that way. Well, a whole 'nother article could be written about Sporadic E. I got a bit carried away with it here because it is very exciting when you catch such an opening.

There is just so much more to propagation that could be said, but a lot of it is beyond the scope of this article. If it has whetted your appetite for more info, delve into the sources mentioned above, and you'll find out perhaps more than you thought possible to find out about how this radio stuff works for ham radio operators.

John
K3WWP

John operates primarily CW, and always QRP. He is the Vice-President (#0002) and co-founder of the North American QRP CW Club (NAQCC) that promotes the use of CW at QRP power on the ham bands. For more information on the NAQCC, visit the club website at <http://naqcc.info>.

Building a 2m Loop for Fox Hunting

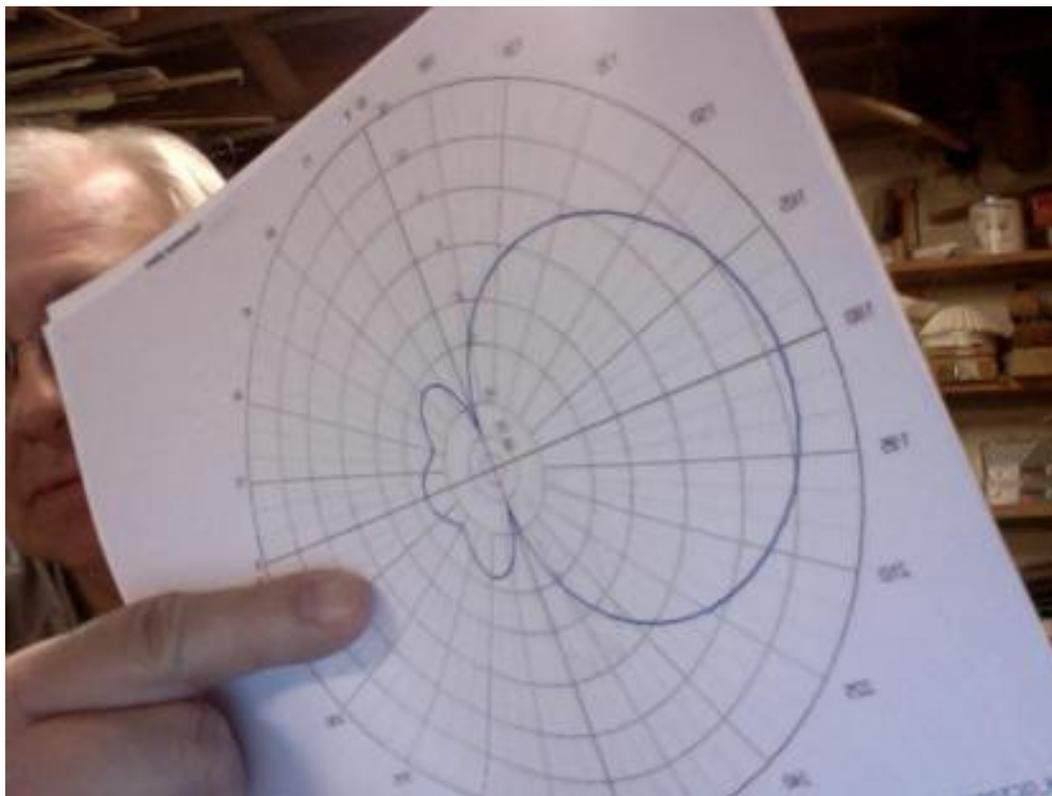
Jim Brink
W9JFB

Here is what you have been looking for! A project that lets you assemble PVC parts enough to remind you of your happy days assembling Tinker Toys and no worries about leaking when you are done.



In our Tuesday tech net we have been reviewing 4NEC2 and last week ~~Andrew~~ Anthony, AB9YC, introduced a loop antenna for evaluation that could be suitable for Fox Hunting. The loop had some very sharp nulls at 90 and 270 degrees and it looked like it had some real potential. I wondered if a reflector would make the antenna directional and a potential winner in our hard fought fox hunts., so I added a reflector to the 4NEC2 model and the horizontal pattern looked good to me (see photo). The next question is, are we simply modelers who are happy to look at patterns that look like martians with bow ties or are we builders of things that make our wives frown and shake their heads? I can hear the roar among you now, ya lets build it! Let's hunt the white whale!

4NEC2 Horizontal pattern for 2m loop with reflector



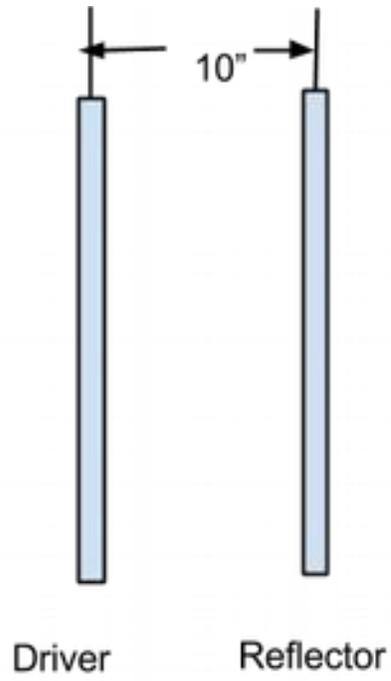
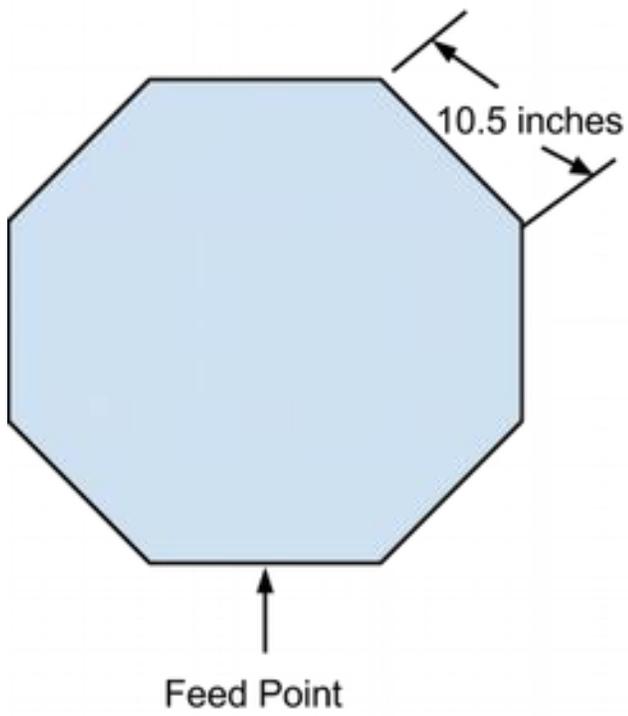
The design is simple, the antenna is two octagons made of $\frac{1}{2}$ " PVC pipe. The 10.5" sides are connected with 45 degree fittings and the driver and reflector are connected with tee's and spaced at 10". The actual antenna is #12 wire inside of the pipe.

Dry fit the pieces and thread the #12 wire inside the loops before completing the loops. I ran a piece of coax to the feed point of the driver and soldered the center lead to one end of the loop and the shield to the other end of the loop. After the antenna is assembled and you are happy with the alignment a little super glue at each joint will cement it together.

In testing this antenna does drop at 120 and 240 degrees to a nice null as the 4NEC2 pattern indicates, the down side is the antenna may be a little bulky for field use. Time to take this big dog out to hunt.

Remember "If you build it, you will find us."

73 – Jim W9JFB



Final product



Bits and Pieces, 05-03-2014

After the club breakfast of 5-3 Steve AC9EM arranged for a Fox Hunt Equipment tryout. About 10 participated and all learned a little something. Arney K9AJK discovered that he can program a step reduction of receiver gain on his H.T. which proved useful for close in operation.

THANKS for the outing Steve.



Illustration 1: A well designed beacon by Jim, W9JFB.

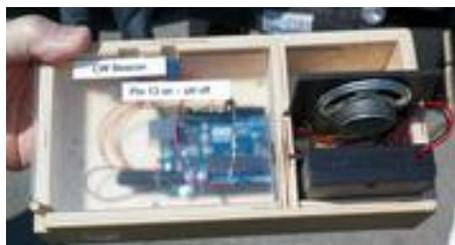


Illustration 2: Another view of Jim's beacon.



Illustration 3: "Fraternity" paddle design by Anthony, AB9YC.



Illustration 4: Arrow antenna and attenuator, Steve, AC9EM.



Illustration 5: Tape measure antenna, Arnie, K9AJK.

Meet N4OJE Mark Jessing

Mark joined us for the breakfast meeting and Fox Hunt equipment trials of 5/3/14. He currently lives in Atlanta but is up here on a contract job and provided the following information to share.



Mark spent six years in the Tennessee National Guard followed by 20 years as an electrical engineering contractor. He has worked in 14 states and is currently working for “GOGO” that provides equipment to the aircraft industry for onboard internet access. To peruse the projects he has worked on go to www.markjessing.com. Mark got his license in 1986, has been married for 23 years and has 2 children.

Welcome Mark and hope to see you at other SARC radio activities.

Field Day 2014

QST

CQ FIELD DAY CQ FIELD DAY NOVEMBER NINE ROMEO JULIET VICTOR CQ FIELD DAY

It's that time of year again. Field Day is right around the corner. The big event takes place this year on Saturday June 28th and Sunday June 29th 2014. Preliminary antenna setup will occur after 1:00 PM on Friday, June 27th.

More details will follow in the June 2014 issue of the RHG and via emails to SARC-ALL. Also, check the club web site for updated field day links. Once the links are updated, they will take you to 2 signup forms. The first link is to sign up for the various operating stations (we refer to them as tents) and the second link takes you to the operations form. The operations form covers all of the activities and supplies that are needed for the event.

Now, if you are new to this concept of Field Day or just really curious, check out all of the Field Day information on the ARRL website, <http://www.arrl.org/field-day>. So mark your calendars and start thinking about how you want to participate in the 2014 Field Day event.

73,

Dennis White – KC9NZP
Field Day Coordinator

Calendar and things to do

May

ARRL Centennial QSO Party	1/1 – 365 days, all 50 states, all bands, many modes
Red Badges on the Air	1
Breakfast at Maxfields	7
Board of directors meeting	4
SARC in the Park	14
EmComm Roundtable	21
Club meeting	19
All Asia DX, CW	21-22
Field Day	28-29

There are plenty of contests this month operating in many modes on various bands, so find one and listen in. Check out <http://www.hornucopia.com/contestcal/weeklycont.php> to see what's coming up.

VE Testing Results



Results for May 5, 2014
 Next Test June 7, 2014
 Park District CRC; Sr. Center;
 Sunshine Room.

CLASS	NUMBER TESTED	NEW LICENSE or UPGRADE
Technician	4	4
General	1	1
Extra	3	3
Total	8	8

New Licenses:

****Technician****

Donald Shuler KM4BDQ
 Michael Pollard KD9BFX
 Nicholas Neri KD9BFY
 Richard Golodner KD9BFZ

****General****

Derrick Masingh KD9AHO

****Amateur Extra****

Matthew Walsh AC9IG
 John Sandow KD9APP
 David Kalinowski AC9IH

Upgrades:

None

The SARC-sponsored VE exam sessions are held at 9:00 a.m. on the first Saturday of each month (unless it is a holiday or advised to the contrary by Schaumburg Park District) at

Schaumburg Community Rec Center (CRC)
505 N. Springinsguth Road
Schaumburg, IL 60168-0251

The CRC is located at the S.E. corner of Springsinsguth and Bode Road, park in the North lot and enter through the North doors. Testing will be in the Sr. Sunshine Room. Signs will be posted to guide the way to the room.

The fee for taking a VE exam is \$14.00.

According to the FCC, the test fee allows an examinee one attempt to pass or fail each of the three examination elements. In addition, the order in which the examination elements are taken is not restricted; they may be taken out of sequence.

As in the past, an identical fee will be assessed to any applicant who fails an exam and wants to retest at the same session. The only condition is that the same exam (identical set of questions) cannot be given to the

Applicant, since all our exams are unique, this is not a problem at our sessions.

Tom Doyle K9MF
 W5YI-VEC CVE & Test Session Manager
 847-895-0174
 Email: K9MF@ARRL.NET

SARC Email Reflector

Want to know what's happening in the club? Join the club's email reflector on Google groups.

Point your web browser to:

<http://groups.google.com/group/sarc-all>

Click on the Join this group link. You can use your current email account to sign up or create a free Gmail account.

You can elect to receive individual messages, a daily digest, or just read the messages on the Google Groups webpage.

Club Nets

Technical information net - Every Tuesday night at 7:30 pm. on the SARC Repeater 145.23 MHz.-600 kHz WITH 107.2 Hz PL. Bring your Q&A's

Thursday nights are the 2 meter general information net on the SARC Repeater 145.23 MHz.-600 kHz with 107.2 Hz PL. at 8:00 PM (except meeting nights.)

Club Meetings

Club meetings are held at the Schaumburg Recreation Center (CRC) on the southeast corner of Springinsguth and Bode roads. Our nets are held every Thursday (except Meeting nights) at 8pm on the K9IHK repeater; 145.23 MHz -600 kHz with 107.2 Hz PL.

Club Officers - 2014

President:	Rob Glowacki	N9MVO	
	n9mvo <at> sbcglobal.net		847-981-1481
Vice Pres.	Leo Ribordy	N9NBH	
	leoribordy <at> sbcglobal.net		847-697-7616
Secretary:	Ray Parsons	W9RAP	
Treasurer:	Albert Valdes	K6K0K	
Director:	Steve Karson	AC9EM	(2016)
Director:	Anthony Willard	AB9YC	(2016)
Director:	Cliff Sowka	K9QD	(2014)
Director:	Ray Parsons	W9RAP	(2014)
Director:	Gary Bernstein	N9VU	(2015)

Club Committees

Programs	Open
Social Activities	Roger Ryan, W9RDR

Membership	Leo Ribordy, N9NBH
Education	Open
Public Service	Rob Glowacki, N9MVO
Emergency Communications	Bob Langsfeld, WB9TZC
Special Events / Field Day	Dennis White, KC9NZP
RHG	Anthony Willard, AB9YC
Publicity	Open
Net	Jim Brink, W9JFB
Technical Assistance	Ted Lester AB9SZ
Fund Raising	- Open -
Fox Hunt Coordinator	Steve Karson, AC9EM
Repeater	Rob Glowacki, N9MVO



Schaumburg Amateur Radio Club

Thursday Night 8:00 Net

S.A.R.C. Repeater

145.230 MHz- 600 kHz PL=107.2

442.275 MHz +5 MHz PL=114.8

Hz

Don't forget to check into the net! It will only take a minute and will let other club members know how you sound on the club repeater. The net features current club news, weekly NEWSLINE, news from other clubs and (of course) the swap-and-shop. Encourage your friends who are not yet members to check in with as well. Keep in mind that this is an open net and we encourage everyone to check in. See you Thursday at 8p.m.

The Schaumburg Amateur Radio Club, Inc. is organized as a general not-for-profit corporation in the State of Illinois to render public service whenever

applicable to the needs of the community and further various pursuits of amateur radio as a hobby. Meetings are generally held on the third Thursday of each month. Visitors are always welcome.

Please send all submissions for the Radio Hill Gazette to the following address:

Schaumburg Amateur Radio Club,
Inc.

790 Washington Blvd.

Hoffman Estates, IL 60169-3077

Or you can send by mail to
rhg@n9rjv.org.

We solicit letters, articles, news items, quizzes, advertisements, suggestions, and criticism -- plus anything else you can think of, including ideas to improve the RHG!

The editor reserves the right to edit submissions due to size or formatting limitations. S.A.R.C. shares newsletters with a number of other clubs. We scrutinize their publications very closely to make

sure that we do not infringe on any copyrights. As a matter of form, we try to acknowledge all prior sources.

Unless otherwise clearly identified as copyright protected, all material in the RHG may be used when due credit is given to the author and to SARC.

SARC is a recognized ARRL Special Services Organization.

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Visit the SARC Home Page at
<http://n9rjv.org>

