



The Greensboro Amateur Radio Association

Feed Line

Providing Amateur Radio news for the Triad



Brian Wilson, NX4U, Editor

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GARA News and Monthly Meeting

By Tom Bertolino, KB1P

Our November Meeting will be held on Monday, November 25th at 7:00 pm at Captain Bills Seafood & Steakhouse located at 6108 West Market Street in Greensboro. Come early have dinner and catch up on the latest club info, gossip, and connect faces to call signs.

This month GARA holds elections for club officers. This is your chance to influence the way GARA is run for the next year. Come and vote for the candidate of your choice.

There will be no presentation this month; however, after the election there will be a showing of the video entitled "Guilford County Students contact with the International Space Station".

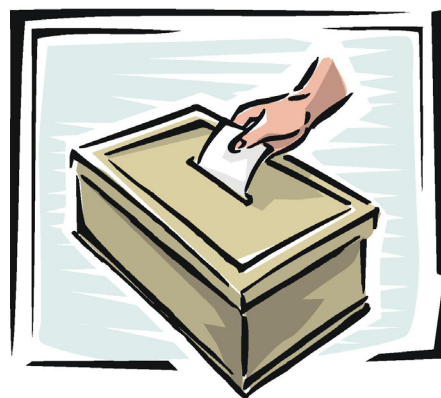
Some reminders:

- There will be no GARA meeting in December. If you plan to attend the annual "Ham Radio Christmas Social" on Tuesday Dec. 3rd at Bonnie Kay Seafood Restaurant, 22 Spur Rd, Greensboro, you need to reply to Jim Hightower by November 30th. His email address is w4jlh@bellsouth.net. There is no admission charged for this event. Jim asks that you bring some canned goods which will be donated to the Greensboro Urban Ministry. You will, of course, pay for your meal.

- Club membership runs from January to December. Club dues will be due soon. Don't wait until the last minute. Save a stamp pay your dues while you are at this meeting. Craig Bondy, N8STA, GARA's treasurer will have the both the Club and ARRL join/ renewal forms with him.

- If you are a D Star user, the board asks if you would make a \$25.00 donation to help cover the cost running the D Star repeater.

See you at the meeting



NEXT MEETING Monday, November 25

The next meeting of the Greensboro Amateur Radio Association will be Monday, November 25th, at Captain Bill's Seafood & Steakhouse, 6108 West Market Street, Greensboro, NC 27409, between Guilford College Road and Swing Road. This program for this month's meeting will be the annual elections and the showing of the video entitled "Guilford County Students contact with the International Space Station"..

GARA Meeting Minutes

Regular Meeting Minutes October 28, 2013

The Greensboro Amateur Radio Association held their monthly meeting on October 28, 2013, at Captain Bills Seafood Restaurant located at 6108 west Market Street in Greensboro.

Donna Ferguson KD4WIK called the meeting to order at 7:08 PM.

Donna read a letter from Guilford county schools thanking GARA for our help in making the ARISS contact a reality.

OFFICER REPORTS

Tom Bertolino, KB1P, said that it is time to start renewing our memberships, and he will start sending out reminder emails.

Greg Spencer, KG4UQV, said he was at Grandfather Mountain recently and was able to reach all repeaters in our area with 350 mw from the mile high swinging bridge.

Donna gave the treasury report for Craig Bondy, N8STA, who was unable to attend the meeting.

Roy Smith, N4BYU, said the D-Star group requests that D-Star users donate \$25 to help offset the internet cost associated with the D-Star repeater. Roy stated that dues alone do not cover the cost of running the club. Roy spoke about the Technical forum and other local repeaters.

David Macchiarolo, AJ4TF was not at the meeting and his report is in *The Feed Line*.

Chan White, KJ4ADX, had nothing to report.

Todd Smith, AK4TS, said he is thinking about a Morse code group. Todd

also spoke about a meeting that he attended recently hosted by the local Hacker space group: greensborohackerspace.com

Tom said that next month is elections and if anyone wants to volunteer or make a nomination please contact the nominating committee.

Donna asked that we all identify ourselves. Donna also spoke about testing and upcoming events.

Roy Smith presented the program on message handling.

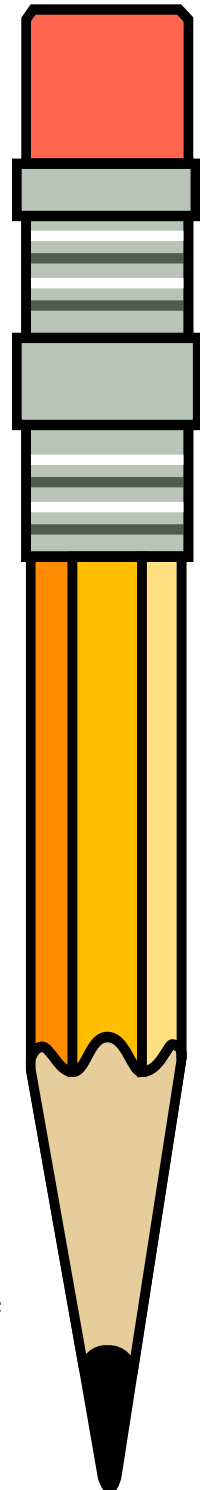
Roy made a motion to adjourn, Robert Ferguson, KD4TVE, seconded and the meeting ended at 8:15pm.

Respectfully submitted by Greg Spencer, KG4UQV, GARA Secretary.

The Greensboro Amateur Radio Association

President Donna Ferguson, KD4WIK
Vice-President Thomas Bertolino, KB1P
Treasurer Craig Bondy, N8STA
Secretary Greg Spencer, KG4UQV
Financial Todd Smith, AK4TS
Engineering Chair David Macchiarolo, AJ4TF
Operations Roy Smith, N4BYU
Member-at-Large Gaither Frye, W4GCF
Member-at-Large Chan White, KJ4ADX
Appointed Position:
Webmaster & Newsletter Editor
Brian Wilson, NX4U

The Feed Line is ©2012 by the Greensboro Amateur Radio Association and published monthly. Our address is P.O. Box 7054, Greensboro, NC 27417. The purpose of the newsletter is to provide the club and prospective members information about the club and amateur radio in general. Material and information should reach the editor by the first Friday of the month for the next edition of the newsletter. Opinions expressed in "The Feed Line" do not necessarily represent the views of the officers, directors, editor or members of the Greensboro Amateur Radio Association. Material may be reproduced, provided proper credit is given to GARA.



Board Meeting Minutes

The GARA board of directors held their monthly meeting on November 11, 2013, at Captain Bills. The members present were: Donna Ferguson, KD4WIK; Craig Bondy, N8STA; Chan White, KJ4ADX; Tom Bertolino, KB1P; Roy Smith, N4BYU; Todd Smith, AK4TS; and Greg Spencer, KG4UQV.

Donna opened the meeting at 7:05pm.

Donna said that she received an email from John Strandberg, W4DX, about the upcoming Ham Radio Expo coming up on November 23rd. The board discussed the expo topics and stations.

Donna said she also received an email from David Macchiarolo, AJ4TF, who could not be at the meeting, and he reported that he received word from the repeater site owner that there may still be some issues with the electrical system at the site and to let them know if anyone observed any thing unusual. David also reported that there are still some issues with the D-Star repeater.

Greg reported that at the last ARES meeting Seth Strayer, N8UOH, who is a captain with the Greensboro Fire Department asked if ARES would be interested in testing the generator at the repeater site periodically, since the site owner is not doing it often enough. It was discussed that some ARES members knowledgeable in generators and electric distribution services could go over and check out the generator and electrical service in the building and report back to the site owner.

Donna said that Chris Thompson, K4HC, gave her an HT that Bob Clark, NC4BC, wanted to donate to GARA. Bob has recently received a pacemaker and cannot use the radio any more. The board discussed using it in a raffle to raise money. Todd said he likes the idea of raffling off the HT.

The board discussed the cable internet alternative for the D-Star gateway.

Craig gave the treasury report.

The board discussed ways to increase membership.

Tom said that the board needs to look at program ideas for next year, which prompted a discussion on program ideas.

Tom also said the report from the nominating committee is expected soon.

Donna made a motion to adjourn, Chan seconded and the meeting ended at 8:06pm.

Respectfully submitted by Greg Spencer, KG4UQV, GARA Secretary.



From the President's Shack

From Donna Ferguson, KD4WIK

So Long, Farewell, Auf Wiedersehen, Goodbye

It is with a heavy heart that I tell you, I won't be staying on as club president for 2014. Robert and I have accepted a position with the district staff of our Goldwing group that will keep us very busy for the next 3 years. I am stepping down because with the new position on the district staff, I would not be able to give the club 100%.

The past 2 years have been wonderful. I have very much enjoyed serving the club and its members as President. Being the President of a voting club was a new experience for me but an enjoyable one. As President, I have gained a lot from the club and its members and I hope I was able to give something back. Several of you have given me compliments for a job well done and I have appreciated your support.

Even though I am stepping down, I am not going to disappear. You will still see me at meetings, club activities, and the yearly picnic. Who knows. You may even see me behind the grill again. I look forward to remaining an active member of the club. The last 2 years have been busy and exciting for the club. I can't wait to see what the future holds but I'm glad I will be a part of the adventure.

Thank you for a great 2 years. I hope to be able to serve the membership again in the future.

73s, Donna, KD4WIK



Info from ARRL

Former Ham-Astronaut Gets Back into Ham Radio

Former NASA Astronaut Susan J. Helms, ex-KC7NHZ, has renewed her interest in ham radio and now is KK6HNZ. Helms, a lieutenant-general in the US Air Force, now is the senior officer at Vandenberg Air Force Base in California. Due to pressing Air Force duties, she allowed her license to expire in 2005, but when the Satellite Amateur Radio Club (W6AB) hosted a 2013 Boy Scouts Jamboree on the Air (JOTA) activity for several local Scout troops, Helms's interest returned, and she took and passed the Technician examination during a test session at the event. Word is that she's applied to get her old call sign back.



In 2001 during her duty tour aboard the International Space Station, Helms thrilled ARRL Field Day participants by getting on the air from NA1SS in the first Field Day operation from space. She worked several dozen stations as the ISS passed over the US. — Thanks to Eric Lemmon, WB6FLY

Strange Doings on the Sun

By Robert Lee Hotz, Reprinted from the Wall Street Journal

The sun should be at the climax of its usual 11-year cycle of activity, but solar physicists are puzzled by its mellow solar maximum. WSJ's Robert Lee Hotz reports.

SUNSPOTS, WHICH CAN HARM ELECTRONICS ON EARTH, ARE HALF THE NUMBER EXPECTED SOMETHING IS UP WITH THE SUN.

Scientists say that solar activity is stranger than in a century or more, with the sun producing barely half the number of sunspots as expected and its magnetic poles oddly out of sync.

The sun generates immense magnetic fields as it spins. Sunspots—often broader in diameter than Earth—mark areas of intense magnetic force that brew disruptive solar storms. These storms may abruptly lash their charged particles across millions of miles of space toward Earth, where they can short-circuit satellites, smother cellular signals or damage electrical systems.

Based on historical records, astronomers say the sun this fall ought to be nearing the explosive climax of its approximate 11-year cycle of activity—the so-called solar maximum. But this peak is “a total punk,” said Jonathan Cirtain, who works at the National Aeronautics and Space Administration as project scientist for the Japanese satellite Hinode, which maps solar magnetic fields.

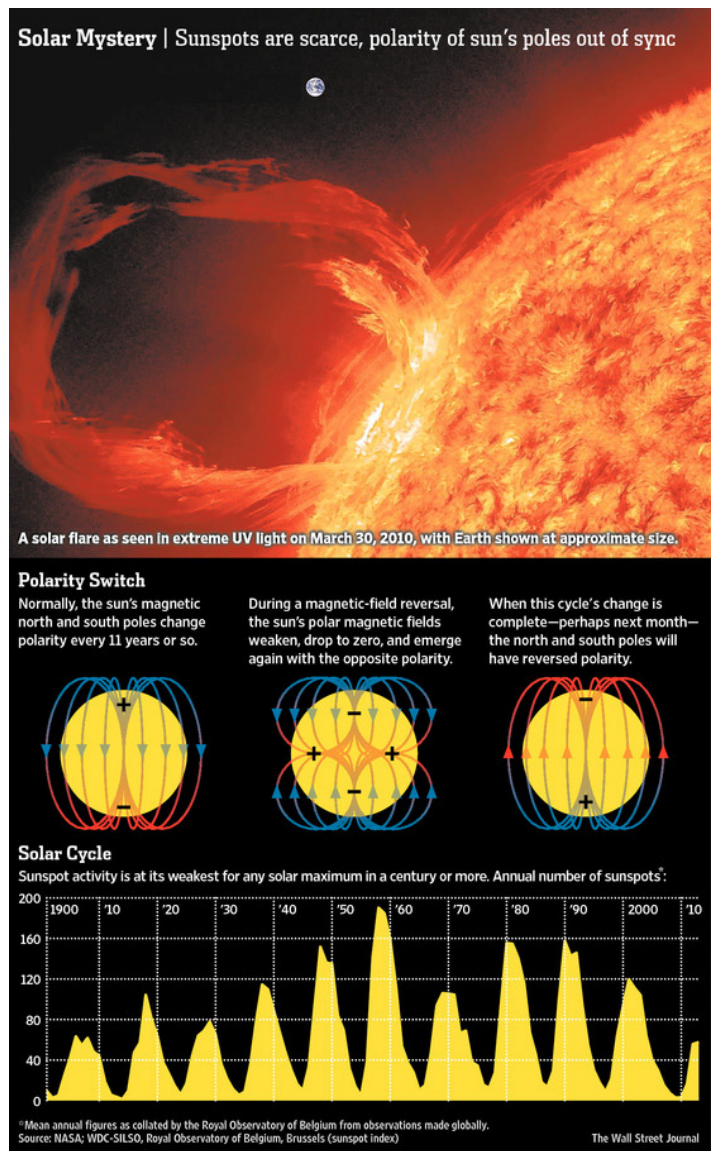
“I would say it is the weakest in 200 years,” said David Hathaway, head of the solar physics group at NASA’s Marshall Space Flight Center in Huntsville, Ala.

Researchers are puzzled. They can’t tell if the lull is temporary or the onset of a decades-long decline, which might ease global warming a bit by altering the sun’s brightness or the wavelengths of its light.

“There is no scientist alive who has seen a solar cycle as weak as this one,” said Andrés Muñoz-Jaramillo, who studies the solar-magnetic cycle at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass.

To complicate the riddle, the sun also is undergoing one of its oddest magnetic reversals on record.

Normally, the sun’s magnetic north and south poles change polarity every 11 years or so. During a magnetic-field reversal, the sun’s polar



see Solar Report, page 6

Solar Report (continued from page 5)

magnetic fields weaken, drop to zero, and then emerge again with the opposite polarity. As far as scientists know, the magnetic shift is notable only because it signals the peak of the solar maximum, said Douglas Biesecker at NASA's Space Environment Center.

But in this cycle, the sun's magnetic poles are out of sync, solar scientists said. The sun's north magnetic pole reversed polarity more than a year ago, so it has the same polarity as the south pole.

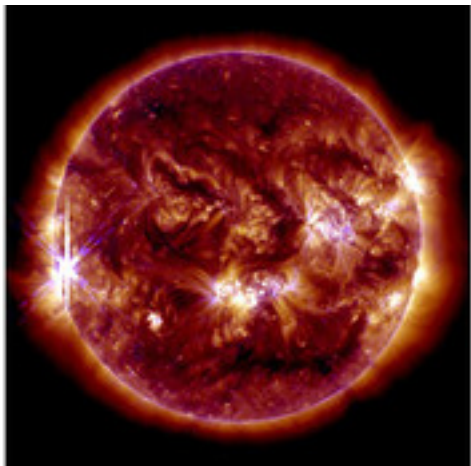
"The delay between the two reversals is unusually long," said solar physicist Karel Schrijver at the Lockheed Martin Advanced Technology Center in Palo Alto, Calif.

Scientists said they are puzzled, but not concerned, by the unusual delay. They expect the sun's south pole to change polarity next month, based on current satellite measurements of its shifting magnetic fields.

At the same time, scientists can't explain the scarcity of sunspots. While still turbulent, the sun seems feeble compared with its peak power in previous decades. "It is not just that there are fewer sunspots, but they are less active sunspots," Dr. Schrijver said.

However, the sun isn't idle: After months of quiescence, it unleashed vast streams of charged particles into space five times in as many days last month, and flared again last week. Even so, these outbursts exhibited a fraction of the force of previous solar maximums.

THE SUN ERUPTS WITH MAJOR FLARES



A solar flare appeared as the bright flash on the left part of the sun on Oct. 25. NASA/Solar Dynamics Observatory/

By comparison, a Halloween solar storm in 2003, near the peak of the last solar maximum, was the largest of the Space Age. Even though it mostly bypassed Earth, the storm disabled a Japanese satellite, sent astronauts aboard the International Space Station scrambling for radiation shelter, disrupted drilling for oil and gas in Alaska, scrambled GPS navigation and forced the U.S. Defense Department to cancel military maneuvers.

As the solar cycle winds down in the years ahead as part of its normal cycle, blasts of charged particles should become even less frequent. Among other things, Earth's outer atmosphere will cool and contract, which can extend the life of satellites by lessening the drag on them.

"That makes the commercial satellite operators all happy," said Todd Hoeksema at Stanford University's Wilcox Solar Observatory. "And the astronauts are happy when there is no radiation."

Several solar scientists speculated that the sun may be returning to a more relaxed state after an era of unusually high activity that started in the 1940s.

"More than half of solar physicists would say we are returning to a norm," said physicist Mark Miesch at the High Altitude Observatory in Boulder, Colo., who studies the internal dynamics of stars. "We might be in for a longer state of suppressed activity."

If so, the decline in magnetic activity could ease global warming, the scientists said. But such a subtle change in the sun—lowering its luminosity by about 0.1%—wouldn't be enough to outweigh the build-up of greenhouse gases and soot that most researchers consider the main cause of rising world temperatures over the past century or so.

"It may give us a brief respite from global warming," said Dr. Hathaway. "But it is not going to stop it."

Write to Robert Lee Hotz at sciencejournal@wsj.com

Congratulations! You Passed!

Every month on the second Saturday, except in March when it is the third Saturday, W4VEC holds a testing session for those who live in the area. This provides an opportunity for individuals to be able to test for their amateur radio license or upgrade. Thanks to Roy Smith, N4BYU, and a group of volunteers, each month there are new or upgraded hams in our area.

In November, there were three (3) who passed their test(s) and earned either their Technician, General or Extra class license.

Next month's testing session will be on December 14th at Hinshaw United Methodist Church, 4501 High Point Road, Greensboro, 27407, at 9am. While walk-ins are welcome contacting the lead VE is preferred. Please contact Roy Smith at (336) 312-0647 or by email at n4byu@arrl.net

If you cannot make it to this test session, W4VEC holds a second test every month in this area. Test sessions are held at 10am on the last Saturday of each month at the Red Cross High Point Chapter, 815 Phillips Ave., High Point, NC 277262. Walk-ins are welcome. Contact information is Bob Williams, KB4TWG, email robwilliams@northstate.net, phone (cell), 336-812-5500.

All Photos Courtesy of Roy Smith, N4BYU



Norman Brewster, KK4VCH
Passed Technician



David Bond, KK4VCG
Passed Technician



James Gwaltney, KK4VCF
Passed General

Engineering Update for November, 2013

From David Macchiarolo, AJ4TF

Although we tested the backup generator at the W4GSO repeater site on Saturday, Sept. 14 (see last month's column) we have received word from the site owner that there may still be some concerns with the electrical system, and they are asking us to report any issues that we observe.

Last month, I told you about listening for interference on the 145.15 repeater input, and that we had heard some evidence of interference on the repeater input frequency (144.55). We are still awaiting any information from the owners of the possible source of the interference.

On November 3rd, I investigated a report that the D-Star repeater was not working properly. The symptoms were:

- 1) Repeater was running locally
- 2) Linking would not work over the air.
- 3) Link query command returned the voice warning "FTP connection not found"
- 4) Remote desktop connection to the repeater controller was not working
- 5) ssh into the gateway WAS working, however
- 6) Gateway was running normally, putting up dashboard status pages and reporting to the US trust server.

These symptoms led to a diagnosis of a network problem somewhere in the 10.x.x.x local LAN. The local 10.x.x.x LAN is used to allow the repeater controller and the gateway to access the Internet through the router. There is another 'inner' local network, the 172.16.x.x net that connects the controller and the gateway directly. Since the gateway connections to the internet were working, I made the assumption that the router was working. Since the external internet connections were not working, I had no way to access the controller remotely, so a trip to the site was required.

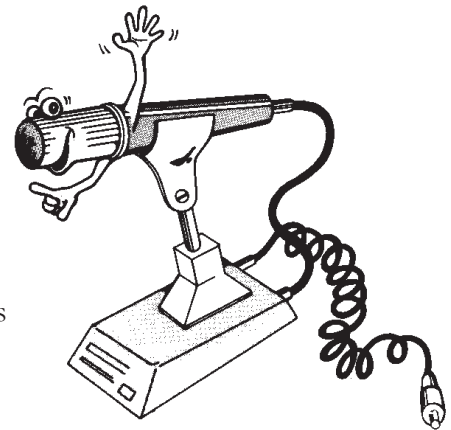
Once I got there, and looked at the computers, the ethernet card in the controller that ties to the local LAN (10.x.x.x) showed its lights were out, indicating it was either not powered or not connected.

Looking at the Windows device manager (the controller runs Windows XP) showed ONLY the on-board LAN adapter on the computer motherboard, not the PCI adapter that makes up the local LAN connection. I shut down the computer, removed the cover, and inspected the LAN board. This board is connected to the motherboard with a right-angle PCI socket adapter that allows the board to lay flat under the cover of the computer. However, we have had some issues with the right angle adapter in the past. I removed the LAN adapter, and re-seated it, and re-powered the computer several times. Finally, Windows then found the board, and established a LAN connection. The controller software at this point began to work normally.

After replacing the computer cover, I verified that over the air linking, unlinking and status reporting was working and the remote connection was working.

Since we have had some problems in the past with the right angle PCI adapter, if the problem recurs, we will consider switching the local LAN to a USB to Ethernet interface.

As always, if you have any questions or concerns about your club repeaters, either VHF or D-Star, or any other technical topic, please contact me at aj4tf@arrl.net



The ARRL Centennial QSO Party Starts January 1, 2014!

In conjunction with the 100th anniversary of the ARRL, the ARRL Centennial QSO Party is set to kick off January 1 for a year-long operating event in which participants can accumulate points and win awards, as well as working new stations and making new friends. During 2014, W1AW will be on the air from every state (at least twice) and most US territories, and it will be easy to work all states solely by contacting W1AW portable operations. This marks the first ARRL-sponsored operating event where every member is worth at least one point. The event is open to all, although only ARRL members and appointees, elected officials, HQ staff and W1AW are worth points. Working ARRL's president, for example, earns 300 points!

To qualify for points all contacts must be two-way (no cross-band or cross-mode contacts), using CW, phone (FM, SSB, AM, digital voice), digital (any digital mode, such as PSK31, RTTY) on 160, 80, 40, 30, 17, 15, 12, 10, 6, 2 and 1.25 meters, plus 70 centimeters and satellite.

Stations exchange signal report and ARRL abbreviation. Contacts do not have to be contest-style and it isn't necessary to give the ARRL organizational information. A centennial database will assign point values to all logs submitted electronically. Those not submitting electronically, however, will need to obtain the QSO information during the contact. This event is not a contest, so participants may make contacts in any fashion they prefer.

The Centennial QSO Party is scored by totaling the values of all eligible contacts. There are no multipliers or bonus points. Logs submitted via Logbook of the World will be scored automatically.

Awards

Work W1AW operating portable from all 50 states. Working W1AW in Connecticut does not count for Connecticut, however. Participants can earn W1AW Connecticut credit only for working W1AW/1 in Connecticut. A W1AW WAS certificate and plaque will be available (pricing not yet announced). For an extra challenge, work all 100 W1AW portable operations -- essentially a double WAS with W1AW!

Endorse the W1AW WAS Certificate with the Territorial Stickers for working W1AW/KH2, W1AW/KP4, W1AW/KP2, and any others that may be active, and also endorse with W1AW/3 from the District of Columbia (stickers are \$1 each).

Centennial Points Challenge

To compete in the Centennial Points Challenge, submit logs via Logbook of the World. The system will automatically look for points-qualifying contacts from submitted logs and apply them to each participant's Centennial QSO Points table. QSOs do not have to be matched in LoTW for points to be achieved -- this is an honor-based event. No paper forms or information will be accepted for the Centennial Points Challenge, however. Some points worth noting:

- Club call signs do not count for points.
- Repeater contacts are not valid for credit.
- Mobile and portable operations are okay but do not count for points in addition to home operation -- i.e., a contact with KØGW counts for KØGW, whether it is made with KØGW/4, KØGW/m, or PJ4/KØGW.
- Stations outside of the US may also count for points. More than 10,000 ARRL members live outside the US, and some of these are also volunteer examiners or DXCC card checkers.
- ARRL appointees, staffers, and officers should choose for their contact exchange the appointment or office held that offers the highest point value (this is how the database will work also). For example, KI9XX is an ARRL Life Member (a LM is worth 2 points), a Volunteer Examiner (VE is worth 5 points) and a State Government Liaison (SGL is worth 30 points), so KI9XX should use "SGL," since that offers the highest point value. In any event, the database will give credit for the proper point value.
- The top-scoring operator from each ARRL Section, Canadian Province and DXCC entity will receive a First Place certificate.
- The Top Five overall point scorers will receive awards. There is a charge for award certificates.

For complete information, visit the ARRL Centennial QSO Party web page: www.arrl.org/centennial-qso-party

This article is reprinted with permission from The SPARC: the newsletter of the Boston Amateur Radio Club



Calendar of Events

- Nov 25 GARA General Meeting (Captain Bill's Seafood, Greensboro) Club Elections
- Dec 3 Christmas Party (Bonnie Kay Seafood Restaurant on Spur Road)
- Dec 9 GARA Board Meeting
- Dec 14 VE Session (Hinshaw United Methodist Church, Greensboro)
- Dec 28 VE Session (Red Cross Building, High Point)
- Jan 11 Winston-Salem Winter First-Fest <http://www.w4nc.com/events.htm>
- Jan 11 VE Session (Hinshaw United Methodist Church, Greensboro)
- Jan 13 GARA Board Meeting
- Jan 25 VE Session (Red Cross Building, High Point)
- Jan 27 GARA General Meeting (Captain Bill's Seafood & Steakhouse, Greensboro)
- Feb 8 VE Session (Hinshaw United Methodist Church, Greensboro)
- Feb 10 GARA Board Meeting
- Feb 22 VE Session (Red Cross Building, High Point)
- Feb 24 GARA General Meeting (Captain Bill's Seafood & Steakhouse, Greensboro)
- Mar 7-8 North Carolina Section Convention (2014 Charlotte Hamfest) www.charlottehamfest.org
- Mar 10 GARA Board Meeting
- Mar 15 VE Session (Hinshaw United Methodist Church, Greensboro)
- Mar 14-16 N4G Special Event (Guilford Courthouse National Military Park)
- Mar 24 GARA General Meeting (Captain Bill's Seafood & Steakhouse, Greensboro)
- Mar 22 VE Session (Red Cross Building, High Point)
- Apr 12 VE Session (Hinshaw United Methodist Church, Greensboro)
- Apr 19 Roanoke Division Convention (Raleigh Hamfest) <http://www.rars.org/hamfest>
- Apr 26 VE Session (Red Cross Building, High Point)
- Apr 28 GARA General Meeting (Captain Bill's Seafood & Steakhouse, Greensboro)

This purpose of this calendar to provide information on events in and around our area that might be of interest to our readers. As you might expect, there are many more events (public service, hamfests, flea markets, etc.) taking place in North Carolina and around the Greater Greensboro Area. If you know of an event that would be of interest to our readers, please contact Tom, KB1P at kb1p@arrrl.net.

Area Happenings

FOURTH MONDAY – at 6:30pm, the Greensboro Amateur Radio Association have their regular monthly meeting at Captain Bill's Seafood & Steakhouse, 6108 West Market St., Greensboro, NC 27409. Please plan to gather at 6:30pm for dinner. The meeting is scheduled to start at 7:15pm

CLUB NETS:

SUNDAYS – at 7:30pm, the **Technical Forum** on the 145.150;

- at 9pm, the **GARA News and Information Net**. This net features *NewsLine* and is on the 145.150, W4GSO repeater. Roy Smith, N4BYU is always looking for net controls. Contact him if you would like to help.

TUESDAYS – at 8:30pm **The Triad SkyWarn Net** meets on the 147.225, K4ITL repeater, no tone required.

TUESDAYS – at 9pm, the **D-STAR Net** meets on 442.8625 (W4GSO B and Reflector 54C)

WEDNESDAYS – at 8:30pm, **The Guilford Amateur Society Rag Chew Net** holds their weekly net on the 145.250, W4GG repeater with an 88.5 Hz. tone. Jim Hightower, W4JLH is the net control.

THURSDAYS – at 9pm, **The Guilford County ARES Net** meets on the 145.150 repeater (100 Hz. tone).

OTHER ACTIVITIES :

FIRST MONDAY – **The Guilford County A.R.E.S.** monthly meeting is held at 1002 Meadowood St. off W. Wendover Ave, in the EMS building, beginning at 7pm.

THIRD MONDAY – at 6:15pm **The Guilford Amateur Society** holds their monthly meeting at Tex & Shirley's Restaurant in Friendly Shopping Center. Eat at 6:15pm and the business meeting begins at 7pm.

THURSDAY – at 11:15am, Greensboro Hams get together for lunch. Thursday lunch group is meeting at the K&W Cafeteria, 300 Forum VI Mall at Friendly Shopping Center. Talk-in is on the 145.150, W4GSO repeater with a 100 Hz. tone.

EVERY FRIDAY – at 8pm (approximately) Greensboro Hams get together for coffee at Starbucks at Edney Ridge Rd.

The W4VEC Testing Schedule Dec. 2013 to May 2014

December 14, 2013

January 11, 2014

February 8, 2014

March 15, 2014

April 12, 2014

May 10, 2014

Location: Hinshaw United Methodist Church, 4501 High Point Road, Greensboro, NC 27407,

Time: 9:00am

Contact: Roy Smith

Phone: (336) 312-0647

E-mail: n4byu@arrl.net

GARA REPEATERS

145.150 MHz - offset, 100 Hz. tone

442.8625 MHz. + offset, Digital D-Star



Greensboro Amateur Radio Association

P.O. Box 7054

Greensboro, NC 27417

www.w4gso.org

FIRST CLASS MAIL

The Official Publication of GARA