



The Greensboro Amateur Radio Association

Feed Line

Providing Amateur Radio news for the Triad



Brian Wilson, KJ4LKY, Editor

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New GARA Officers for 2010

Following is the minutes for the last GARA meeting for 2009. At that meeting GARA elected new officers for 2010.

The Greensboro Amateur Radio Association held its last meeting for the year on Monday, November 23, 2009. The meeting was held at the Golden Corral restaurant near Sam's club at I-40 and Wendover Ave. The meeting was called to order at 7:15pm by Chris Thompson, K4HC, who asked everyone to identify him or herself.

Old Business:

D-STAR is working very well. The project has changed over time as the equipment has evolved and hardware changes. The cost at present is above what was originally approved for the purchase. We can offset some of the cost by selling one of our analog UHF Master II radios to Arch, KT4AT. Arch said that he is not ready to sell the controller yet as he is planning another upgrade for it. Chris

made a motion to purchase the D-Star equipment less the controller and sell the Master II to Arch. Will Ravenel, AI4VE, seconded the motion, and the motion was carried.

Bob Mays, KE4MOW, said the club membership needs to show support to the Greensboro Youth Soccer Association by helping out with communication for the annual soccer tournaments. GARA is reaping a benefit and should reciprocate with volunteers.

Allen Bradley, KD4IUN, thanked Chan White, KJ4ADX, for his help at the last tournament. Roy Smith, N4BYU, gave a history lesson about GARA's involvement with GYSA.

Roy said he had one more thought about D-STAR. He asked if we should set aside the money to purchase the D-STAR controller once it is ready for sale? Madeline Bradley, KE4SVJ, made a motion to set aside \$1,500 for the future purchase of the D-STAR

NEXT MEETING

Monday, January 25

The next meeting of the Greensboro Amateur Radio Association will be Monday, January 25th, at the Golden Corral Steak House, 4404 Landview Dr, Greensboro, NC 27407, off Wendover Ave. near Sam's Club.

controller, Al Allred, K4ZKQ, seconded, and the motion carried.

Election of Officers

The List of Nominees was presented by Roy Smith, N4BYU. After some discussion and changes, the following list was presented:

President

Will Ravenel, AI4VE

Vice President

Roy Smith, N4BYU

Operations

Bob Mays, KE4MOW

Engineering

Jesse Lindley, N4BFD

Secretary

Greg Spencer, KG4UQV

Treasurer

Ernie Wall, NC4EW

Financial

Al Allred, K4ZKQ

Member at Large

Rob Erikson, KG4OPX

Member at Large

Betty Williams, KC2BFA

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- **Impedance for the Ham Operator**



Al Allred, K4ZKQ, made a motion to accept the officers as presented; the motion was seconded and carried.

The meeting adjourned at 8pm.
Respectfully submitted by Greg Spencer,
KG4UQV, GARA Secretary.

GARA Meeting Minutes

Board of Directors Meeting Minutes, January, 2010

The Greensboro Amateur Radio Association board of directors held their first meeting of the New Year at the newly renovated Benjamin Branch Public Library.

The meeting started at 7:00pm with Will Ravenel, AI4VE, Roy Smith, N4BYU, Al Allred, K4ZKQ, Ernie Wall, NC4EW, Betty Williams, KC2BFN, Bob Mays, KE4MOW and Greg Spencer, KG4UQV, in attendance.

Old Business

Will, AI4VE, our new President, spoke about the at large members helping with program planning for our monthly meetings.

Al Allred, K4ZKQ, in regards to the finances said that

we are about \$7,000 better than forecasted and then listed the reasons for the difference. Al also gave a rundown of the revenue that we have received from dues over the last six years, which has resulted in a loss of around \$600.00.

G A R A Treasurer, Ernie Wall, NC4EW, updated us on the bank account, bills paid and bills coming due soon.

GARA Secretary, Greg Spencer, KG4UQV, will become the new contact person listed on the GARA incorporation documents with the state of North Carolina.

Will said that Arch, KT4AT, has sent us a bill for all of the D-STAR equipment except the controller, which is still under development and is not yet ready for sale. We discussed the status

of the D-STAR repeater and some changes to the controller use agreement between GARA and

Arch, KT4AT. Will said that Arch is working on a RF control link for the D-controller which will allow greater control flexibility.



New Business

Will said he has some ideas for improving the club such as: increasing membership, planning more activities, improving the radio station at the Natural Science Center, and possibly reinstating the Mt. Mitchell trips.

Roy made a motion to close the meeting, Al seconded the motion, and the meeting closed at 8:15pm.

Respectfully submitted by Greg Spencer, KG4UQV, GARA Secretary.

The Greensboro Amateur Radio Association

President Will Ravenell, AI4VE
Vice-President Roy Smith, N4BYU
Treasurer Ernie Wall, NC4EW
Secretary Greg Spencer, KG4UQV
Financial Al Allred, K4ZKQ
Engineering Chairman Jesse Lindley, N4BFD
Operations Bob Mays, KE4MOW
Member at Large Rob Erikson, KG4OPX
Member at Large Betty Williams, KC2BFA
Appointed Positions:
Webmaster Tom Forrest, N4GVK
Newsletter Editor Brian Wilson, KJ4LKY

The Feed Line is ©2010 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.

Items For Sale

Hy-Gain DX-77 Advanced Vertical Windom. 7 bands, 10 thru 40 meters. New, \$450, Asking \$125. Please contact Claude Hutcheson, K5CH, chutcheson@bellsouth.net or (336) 545-0006.

Kenwood TS-570D 160-10 meters with built-in auto tuner, includes original box, microphone and power cord. \$550 Contact Brian Wilson, KJ4LKY, kj4lky@arrl.net or call (336) 971-5511

My QRP Deckspedition

by Will Ravenel, AI4VE

First let me apologize for the corny title - I couldn't resist. This article is about a contest I worked the Sunday before Christmas. The same weekend we had the snow the QRP Amateur Radio



Club International (ARCI) held their ARCI Holiday Spirits Homebrew Sprint on Sunday afternoon. This mini-contest ran from 2000Z to 2400Z or 3pm to 7pm Eastern Time. Although the rules didn't require using homebrew equipment for this CW only contest, the scoring system was designed to strongly encourage it. A homebrew transmitter was worth 2000 bonus points, a homebrew receiver was worth 3000 bonus points, and a homebrew transceiver was worth 5000 bonus points. These points were added for each band operated. In addition there were another 5000 bonus points added if you operated using battery power and a temporary antenna like you would use for field day. The bottom line is that you'd have to make an awful lot of contacts to catch up with contesters that started out with all those bonus points.

About 20 minutes before the contest started I decided to give it a try. I have a 20m end-fed half wave antenna that I used at Field Day this year so I dug it out and pulled it up into a tree in the back yard. The radio end of the wire plugs into a match box I built last spring (see the May 2009 *Feedline* article). I was

on the air with the K1 about 10 minutes into the contest. Nobody could be heard! After tuning around and calling "CQ Test" for about 15 minutes I realized the problem - I'd done the conversion from UTC wrong in my head and there were still thirty minutes remaining before the contest started. This was good since it gave me a chance to make a cup of hot tea and to read up a bit on the rules, learn the contest exchange (RST, State, and ARCI number - pretty straightforward), and most importantly, find that the recommended

20M frequency was 14.060 MHz.

Like magic, at 3:00 pm there were a half dozen folks calling CQ within 4 kHz of 14.060. I jumped in and worked a few before picking a quiet spot and calling CQ myself. At the end of the first hour I'd logged eight contacts and couldn't feel my toes. What had started out as a pretty comfortable day in the sun quickly turned amazingly cold when the sun dipped behind the trees. Pretty soon my toes felt frozen and my hands were getting numb. I started making mistakes just trying to get my call sign out so I went inside and fixed a cup of hot chocolate. Fifteen minutes later I was ready to try some more. Things had really slowed down by then (I wondered how

many were sitting outside somewhere REALLY cold). After a few more contacts the band began to die and I was ready to wrap it up. Packing up took all of 5 minutes before I was warming up back inside with ten stations and nine states logged, and a score of 15,630.

That probably doesn't sound like much for an hour and a half of operating, but keep in mind that these were QRP operators. Although there were some surprisingly strong signals most were close to or even below the noise floor so there were a lot of requests for repeats. One poor guy had to send his call six times before I got it. QRP operators send more slowly than most contesters in order to get through. A burst of static doesn't wipe out as much at 15 wpm CW as it does at 30wpm. I was running 5 watts and assume the others were running the same or less. Here's the breakdown from my log:

So what's my point? Well I guess I wanted to put in a plug for QRP operation - five watts doesn't do too bad even without stellar propagation; and another plug for CW - it opens a lot of doors, including good DX, and it's tough to work QRP without it; and a third plug for contests - all of them aren't 48 hour ultra-high speed marathons and they do get people on the air; and I guess I just wanted to show how much fun can be had operating in the field with minimal equipment - even if it's just the back deck.

Time On	Mode	Power	Call Sign	Band RX	RST S	RST R	City	State
2009-12-20 21:26:00	CW	5	KF7MD	20M	579	579	Conifer	CO
2009-12-20 21:04:00	CW	5	WA8ZBT	20M	599	599	SACHSE	TX
2009-12-20 20:44:00	CW	5	W0MRZ	20M	599	599	CEDAR RAPIDS	IA
2009-12-20 20:39:00	CW	5	WC7S	20M	599	599	CHEYENNE	WY
2009-12-20 20:32:00	CW	5	K8ZYK	20M	599	599	TROY	MI
2009-12-20 20:28:00	CW	5	N4BP	20M	599	599	PLANTATION	FL
2009-12-20 20:20:00	CW	5	N6DIT	20M	599	599	MOUNTAIN RANCH	CA
2009-12-20 20:15:00	CW	5	N7CQR	20M	599	559	Portland	OR
2009-12-20 20:11:00	CW	5	K5SDX	20M	599	579	PASADENA	TX
2009-12-20 20:07:00	CW	5	K0PC	20M	599	599	CHANHASSEN	MN

From the President's Shack

by Will Ravenel, AI4VE
GARA President

Happy New Year, GARA! This month has shown the strongest signs yet that Cycle 24 is finally underway. We had an average Solar Flux of 93 on Tuesday this week and the Sunspot Count reached 43 on 19 December. These are the highest values so far in Cycle 24. It's time to get those upper band antennas built or repaired and get ready for the fun to come. I can't wait.

I'd like to take a moment to thank our out-going president, Chris, K4HC, for the great job he did over the past two years to ensure that GARA is an attractive club for new and existing hams. With Rick, WB3EXR, Chris held Technician and General class exams bringing new hams into the hobby and encouraging others to upgrade. He and Rick initiated the popular Technical Forum on Sunday

nights as an outgrowth of these classes so that local hams had a place to get answers to questions and to discuss ham radio in general. Chris also initiated the club's collaboration with Arch, KT4AT, which resulted in the W4GSO D-STAR repeater and gateway using Arch's D-Controller. I'm sure that I speak for everyone when I say, "Thanks, Chris!"

The activities listed above and others, like the successful Open House exhibits conceived and organized by John, AJ4BT, the Fox Hunts organized by Roy, N4BYU, the News and Information Net currently hosted by Jim, N4JLW, and the club support for the GSA soccer tournaments under the leadership of Alan, KD4UIN, and Madeline, KE4SVJ, and with the support of volunteers like Bob, K4MOI, Chan, KJ4ADX, and many others are

all examples of what makes GARA the vital club it is today.

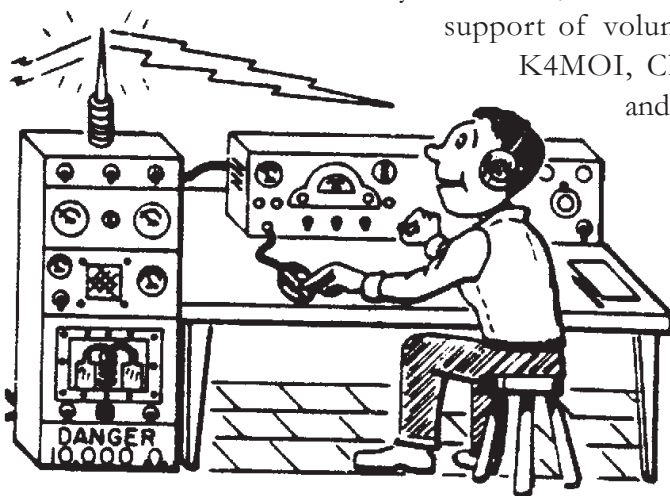
In case you missed it in the

previous paragraphs the secret to a successful Amateur Radio Club like GARA is the interest, energy, and participation of its members.

Thanks, Chris!

Activities are what attract new members and retain existing members. My goal for the club in 2010 is to increase membership

through a focus on activity. To achieve this I'll need your help with ideas and participation, including possibly taking the lead in an activity. At the board meeting this week we talked about some ideas like renewing the traditional trip to Mt. Mitchell for a little mountain top VHF/UHF activity, starting a code class and on-air practice sessions, and getting more involved in the Natural Science Center station support (more on that to come). I'm sure there are a lot more great ideas out there. If there's something you'd like to see the club do, if you have an idea for a meeting program or a way to recruit younger members, contact me or one of the board members and let's see if together we can make it happen. If you know a member who has not been to a meeting in a while, encourage them to come. Above all, let's have some fun.



News Briefs That Effect the Ham Community

Haiti Earthquake: "It's Chaos, I'm Telling You - It's Real Chaos"

From ARRL

On Tuesday, January 12 at 4:53 PM Haiti time (2153 UTC), a magnitude 7.0 earthquake hit 10 miles (15 kilometers) west of Port-au-Prince, the island nation's capital. Communications in and out of Haiti have been disrupted. The ARRL encourages US amateurs to be aware of the emergency operations on the following frequencies: 7.045 and 3.720 MHz (IARU Region 2 nets), 14.265, 7.265 and 3.977 MHz (SATERN nets), and 14.300 MHz (Intercontinental Assistance and Traffic Net); the International Radio Emergency Support Coalition (IRESC) is also active on EchoLink node 278173. There was no firm estimate on how many people were killed by Tuesday's quake. Haitian President Rene Preval said the toll could be in the thousands: "Let's say that it's too early to give a number."

On Wednesday afternoon, Fred Moore, W3ZU, assisted Jean-Robert Gaillard, HH2JR, with a phone patch to his friend Ariel in Miami. "It's bad, it literally is bad," Gaillard told Ariel. "We don't know how many people are dead. We do not know what to expect. It's chaos, I'm telling you -- it's real chaos. We are really in a disaster area. It's really a war zone. Many, many buildings in the downtown area are stripped from the ground with many people buried underneath them - you name it, it's bad." Gaillard, who lives in Port-au-Prince, was using his neighbor's generator to make the contact. "It's really chaotic. I've never been in a war, but this is what a war zone would be like. Dead bodies all

shows that the response to this is going to be a long term effort," said ARRL Media and Public Relations Manager Allen Pitts, W1AGP. "The ARRL has

been in contact with communications leaders of the American Red Cross and Salvation Army, as well as other key Amateur Radio operators

throughout the region. As teams from the hundreds of responding agencies worldwide are formed for deployment, many will have Amateur Radio components. ARRL is committed to providing communications aid to our served agencies and working with the international community in this time of crisis. At this time there are no known requests from agencies for amateurs to travel to Haiti, but this can change. If it develops that there are ARES® assignments for a deployment in Haiti, these will be vetted and processed through each Section's Section Emergency Coordinators

over the place, dead bodies buried. All I can tell you is that I'm okay, my house is okay. We've had 30 aftershocks, the main one yesterday. We are expecting some more shocks, so I'm a bit nervous to be inside the house."

The 7.0 earthquake struck 10 miles west of Port-au-Prince, the island nation's capital.

"The scope of the disaster clearly



Silent Key

While he wasn't well known in the Greensboro area because of limited activity on the local repeaters, the ham community lost a member recently. William "Bill" Holland, WD4HLN, became a silent key. He was preceded in death by his wife, who was also a ham, WD4HLL.

Impedance For The Ham Operator

by Will, AI4VE and Al, K4ZKQ

The word “impedance” builds on the verb “impede” meaning to slow down, to obstruct, to hinder, etc.

Impedance (Z) is total opposition a circuit offers to the flow of alternating current. It is measured in ohms. Impedance is made up of **resistance** and **reactance**.

Resistance

We should all be familiar with the term **resistance** and its relationship to current (I) and voltage (E) in DC circuits as expressed in Ohm's Law: $I = E/R$

As resistance increases (making the denominator larger) the current becomes smaller. Resistance impedes the flow of current.

Reactance

In alternating current (AC) circuits it is more complex. In addition to resistance there is another impeding factor that varies with the frequency (f) of the AC current. This is called **reactance**. Reactance (X) is opposition to alternating current (rf) caused by storage in an electrical field created by a capacitor – capacitive reactance (X_C) or in a magnetic field created by an inductor – inductive reactance (X_L), measured in ohms. Because there are two types of reactance there are two equations for reactance: $X_C = -1/(2\pi f C)$

Capacitive reactance decreases as frequency or capacitance increases (f and C are in the denominator). Capacitive reactance is always a negative value. $X_L = 2\pi f L$

Inductive reactance increases as frequency or inductance increases. Inductive reactance is always a positive value.

So if $X < 0$ then it is said to be capacitive; if $X > 0$ it is said to be inductive; and if $X = 0$ then the impedance is purely resistive or **non-reactive**.

[Note regarding a possible test

question: A circuit with impedance described as “non-reactive” is a circuit in which X_C (a negative value) and X_L (a positive value) are equal. In other words there is no reactance so the impedance is simply our old friend resistance.]

Relevance to Antennas

There is a law of physics that says maximum power transfer occurs when the impedance of a source and a load are equal or **matched**. One case where this is very important to Hams is in antennas and feedlines. Most transceivers are designed to have a source impedance of 50 ohms. Antennas and their feed lines have various impedances. The resistance portion of that impedance is fixed by the materials and dimensions of the antenna and feedline. The reactive portion of that impedance as we have just learned, however, changes with frequency and the capacitance and inductance of the antenna/feedline. To make the antenna impedance match the transceiver impedance a tuner or transmatch is used. The transmatch simply adds capacitance or inductance to the antenna/feedline reactance to make it zero and then adjusts the remaining resistance value to be close

to 50 ohms. The transceiver then sees a pure resistance (non-reactive impedance) and power is efficiently transferred to the antenna.

Antennas that are designed to have no reactance (capacitive or inductive) at their design frequency are called **resonant** ($X=0$) and do not need a tuner or transmatch as long as their remaining resistance is close to 50 ohms. They are said to have a **non-reactive impedance** of 50 ohms. The center fed half wave dipole is such an antenna. Keep in mind that the dipole is only resonant at its design frequency. As the transceiver is tuned above or below this frequency then the reactance increases. An antenna that is shorter than a half wave length has capacitive reactance (X_C) and an antenna that is longer than a half wave length has inductive reactance (X_L). This mismatch results in power being reflected which results in increasing SWR. Half wave dipoles are generally broad banded which means that the impedance changes slowly as the frequency varies, resulting in manageable (low) SWR over most of the band of interest.

Congratulations, You Passed!!

Every month on the second Saturday, except in March, W4VEC holds a testing session for those who live in the area to be able to test for their amateur radio license or upgrade. Thanks to Glenda Nicholson, AG4NC, and a group of volunteers, each month there are new or upgraded hams in our area.

In January, we had two individuals pass the Technician exam and earn their

first “ticket.” They are a husband and wife: Richard Cox, KJ4RNM, and his wife, Melody Cox, KJ4RNL.





NC4BL Dayton Hamvention by Bus May 13th, 14th, 15th & 16th, 2010

The bus will leave from Burlington, NC (Exit 141) on May 13th at 7 AM with the following pick up locations and times:

<u>Greensboro</u>	<u>Four Season's Mall</u>	<u>7:20 AM</u>
<u>Kernersville</u>	<u>Behind Hardee's</u>	<u>7:50 AM</u>
<u>Winston-Salem</u>	<u>Lowe's Parking Lot</u>	<u>8:15 AM</u>
<u>Mt. Airy</u>	<u>I-74 /Exit 8</u>	<u>9:00 AM</u>
<u>Hillsville, VA</u>	<u>I-77/Exit 14(Citgo Station)</u>	<u>9:30 AM</u>
<u>Wytheville, VA-</u>	<u>I-81/Exit 80 (McDonald's)</u>	<u>10:00 AM</u>
<u>Bluefield, VA</u>	<u>I-77 TBA</u>	<u>10:35 AM</u>



The cost will be \$250 per person (which covers lodging for 3 nights at the University of Dayton (double occupancy) and the coach). It is advisable to order your Hamvention ticket (good for all three days) in advance for \$20 as they will cost \$25 at the door. Their address is: Hamvention Advanced Tickets, PO Box 1446, Dayton, OH, 45401.

A \$75 deposit is required with the balance due by April 15th.

(Note: I will take the first 50 people to make a firm commitment – either by sending in their deposit or contacting me personally)

Complete the form below—clip and send along with your deposit to:

Bill Lundy, NC4BL
151 Brady Johnson Lane.
Mt. Airy, NC 27030

or email: nc4bl@surry.net
Phone: (336)320-2135
Fax: (336)320-2136

Name _____ Call _____ Phone _____

Address _____ E-Mail _____

City _____ State _____ Zip _____

Enclosed is deposit of \$ _____ (\$75 required by March 15th, 2010) Balance of _____ (required by April 15th, 2010)

Note: I would like to room with:

_____ Call _____

Area Happenings

FOURTH MONDAY – at 6:30 PM, the Greensboro Amateur Radio Association have their regular monthly meeting at the Golden Corral, 4404 Landview Dr, Greensboro, NC 27407, off Wendover Ave, near Sam's Club. Please plan to gather at 6:30 PM for dinner. The meeting is scheduled to start at 7:15 PM

CLUB NETS:

SUNDAYS – weekly at 9 PM, the **GARA News and Information Net**. This net features News-Line 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.

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

TUESDAYS – at 8 PM, the **2 Meter SSB Net** meets on 144.225 Mhz. USB. Chris Thompson, K4HC is the net control station. (Not operational present time)

WEDNESDAYS – The **Guilford Amateur Society** holds their weekly net on the 145.250, W4GG repeater with an 88.5 Hz. tone. Jim Hightower, W4JLH is the net control.

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

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 7 PM.

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

THURSDAY – at 11:15 AM, 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 8 PM (approximately) Greensboro Hams get together for coffee.

Technical Forum Sundays at 7:30
145.15 repeater

GARA REPEATERS

145.150 Mhz - minus offset
100 Hz. Tone
442.8625 Mhz. + offset
Digital D-Star

The W4VEC Testing Schedule Feb. to Aug. 2010

February 13, 2010

March 20, 2010

April 10, 2010

May 8, 2010

June 12, 2010

July 10, 2010

August 14, 2010

Location: #3 Centerview Dr,
Hickory Building,
Greensboro, NC 27407

Time: 9:00am

Contact: Glenda Nicholson

Phone: (336) 674-3810

E-mail: ag4nc@bellsouth.net



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FIRST CLASS MAIL

The Official Publication of GARA